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The New York Board of Health's Investigation of the Visual Defects of School Children.—A systematic, and what promises to be a scientific examination, has been undertaken in New York City, of the ocular conditions of school children from the standpoint of refractive errors and their relation to the pupils' health and school progress. At present but one school has been selected, as, thoroughly investigated, this would yield more valuable results than an immense mass of statistics loosely gathered from too vague and undigested facts. The rating with thousands and tens of thousands as myopic, hyperopic, etc., has yielded little of value in the elucidation of the profound problems which are really hidden by the superficial examinations and the glittering generalities. Already it has been found that those pupils in whom the more serious ametropic defects have been found are older than the normal children of that grade. From this, results discouragement, depression, indifference, and almost invariably a dropping out of school, half educated. The prejudice against glasses, the expense, trouble, etc., are most ingeniously and tactfully overcome. There is, *e. g.*, much of educational service in the form of notification to parents.

The New Hampshire Standard for Gluten Flour.—*American Medicine* has long protested against the carelessness and ignorance which exists generally, and even among some physicians, as to the ingredients of gluten flours and breads, socalled, which diabetic patients are instructed or permitted to use. We have shown that most of these products are common flour, and when not so are wholly indigestible and increase the patient's illness. The New Hampshire State Board of Health has established for that State the following standard: "Gluten flour is flour from which the starch has been washed, wholly or in part. Standard gluten flour must contain at least 30% of proteid, calculated by multiplying the nitrogen content by the factor 6.25, and not over 48% starch." According to governmental analyses, most of the gluten flours on the market contain only from 10% to 15% of protein, and over 70% of carbohydrates. It is true, of course, that the avoidance of starch is neither possible nor necessary, nor wise in the diet lists of diabetics, and many physicians do not advise any special flour or bread other than a moderate amount of the whole wheat variety. But this does not lessen the advisability of checking the error and its bad results, of prescribing breads that are fraudulent, or if not so, that are impossible to digest.

The Degradation of the Drug Store.—There are in every city and village, drug stores that only can be called pharmacies by a stretching of the meaning of the word beyond the recognition of etymologists. So far as concerns business, the drug part is a ludicrous fraud made up as the articles on sale are of a homeopathic dose of genuine drugs and a huge oceanic mass of the "menstruum," of soft drinks, bric-a-brac, china, silverware, and everything conceivable and inconceivable that will sell. Looked at from the professional aspect of the physician, these stores fill their windows, advertising spaces, newspapers, and bill-boards with advertisements of every nostrum which cupidity and quackery can devise, all in sharp competition with the physicians who are supposed to patronize them. And not content with this, these concerns rival the businesses of the nostrum syndicates by manufacturing the "same kind" of concoctions themselves all "cheaper and better." Still not satisfied with killing the doctor in these ways, they prescribe for any ailment the self-treater may describe, mix the dose and give it in "fruit-syrup" soda-water, to the walking patient. From the standpoint of the temperance reformer and the citizen they also enter into competition with the saloons, and under the name of "bitters," "cough-cures," and all that, they sell the vilest of alcohol under the name of medicine. And we all submit, perhaps patronize! What a farce and a disgrace!

A Precedent as to the Legal Status of Qualification in Medical Practice.—In the decision made by Judge Davis, of Philadelphia, in the Court of Quarter Sessions on June 28, a blow has been dealt to quackery and a great advance made in establishing the legality of necessity for medical qualification as a condition precedent to licensure. The case was that of Thomas E. Eldridge, "doctor of therapeutics by grant of the Eastern College of Electro-Therapeutics and Psychologic Medicine, of Philadelphia." He was convicted of practising medicine illegally, and was fined $200, the maximum penalty being $500. This is the first conviction in the crusade against unauthorized practitioners of medicine by the Pennsylvania State Board of Medical Examiners. Eldridge exhibited certificates of registry as a physician in Michigan and Indiana, as well as the diploma quoted above, signed by William H. Walling, A.M., M.D., D.E. Although this college purports to be a Philadelphia institution, it is not mentioned in the City Directory, and it is not recognized by the Board. Although the man has been conducting what he styles an electrotherapeutic institution six or seven years in Philadelphia, he has not been registered in this State as a physician. The death of a woman whom he was treating in his institution for cancer, started his troubles by attracting the attention of the authorities. Eldridge treated her with röntgen rays principally, but also gave drugs. He charged her $10 a day, and her daughter had to borrow the money to pay him. Judge Davis charged that qualification was the point of legal issue, not the means of treatment. He also said, that anybody who offers services as a physician to treat diseases, deformities, and injuries by any means whatsoever, including electricity, clairvoyance, faith healing, etc., is practising medicine, and doing this without a license is illegal. The principle involved is thus affirmed and established, and a precedent made is a foundation for greater advance. We regret that our act does not contain a clause for imprisonment, since small fines are easily met. The profession will accord due honor to Judge Davis for his wise ruling.

Schools for Health Officers.—A profoundly influential method of increasing the power and usefulness of State and City Boards of Health is by means of institutes or schools of health officers, in which the world's knowledge of preventive medicine and hygiene is brought to a focus and practical methods illustrated. Vermont is one of the leaders in this work, and the session held in Burlington this week should find many imitators. Health officers are necessarily brought in close contact with the political bosses and administrators, and much can be learned and taught as to the fundamental difficulties of practical reform, the purification of the water-supplies, the prophylaxis of disease, the control of infections, etc. Those who have studied these problems in their sociologic and political relations know how much depends upon the cooperation willingly given or extorted from administration officers in bettering the health conditions of the community. At the Atlantic City meeting, for example, the chairman of the Section on Hygiene and Sanitary Science, in his address, said that there was too much indifference, and even ignorance, of medical men as to public hygiene. This, he urged, was due primarily to faulty training in the medical schools, and after that to the indifference of the medical practitioner toward the whole subject of hygiene. The selfish or faint-hearted doctor, it was urged, seeks to conceal from Boards of Health information which is essential not alone to public safety, but to the directly helpful relations which Boards of Health seek to establish with infected households. Even in his death certificates he is sometimes a prevaricator, or at best a careless recorder, not realizing that he is making the statistics which he may at some time consult to his own confusion. It is largely due, Dr. Swarts said, to the indifference of medical men that so very insignificant a portion of the country can at present give a reliable account of its mortality. The registration of births and deaths receives from the medical profession only an inactive support, though vital statistics are a necessary part of the data of medical science. The charges may be somewhat extreme. Another essayist at the same meeting rightly puts more blame upon the politicians. Sources of typhoid fever infection and how the disease may be eliminated were the topics of a paper before the hygienic section by Dr. A. Robin, of Wilmington, Del. Polluted water, contaminated milk, and other foods, and direct transmission from the sick were the three classes into which he divided the sources of infection. He named as barriers to the elimination of these dangers corrupt politics, lack of appreciation of the problems of the disease by city officials, lack of training of health officers, and indifference of the public, or even of physicians, during freedom from epidemics to the possibility of their occurrence or recurrence. Dr. Robin said that too often scientists connected with municipal water-supplies make criminal concealment of the blunders which they have committed in their official capacity. He instanced the installation of a faulty filtration system in the city of Wilmington in 1893, which was the cause of the constant high deathrate there since then from typhoid and other malignant maladies.

Circulation of the Blood: Rival Claims of "Discoverers."—The attempt recently made by his fellowcountrymen to do tardy justice to the memory of the ill-fated Michael Servetus cannot fail to arouse some curiosity regarding the validity of the claim now advanced by his advocates for recognition as the true discoverer of the "circulation of the blood." The printed passage on which the claim is based occurred in a volume entitled "De Christianismi Restitutione," which was privately issued from the Lyons press in the early part of the year 1503. Servetus had taken "all knowledge for his province," and with phenomenal success. He was also ambitious to function as a placid reformer in all its departments—sacred and secular. John Calvin was at that date the most active of all religious reformers. He could not tolerate the existence of a rival agitator; and when Servetus came to Geneva immediately after the printing of his book, he was seized, tried and condemned for heresy under the auspices of the "Protestant Pope." He was burned at the stake on October 27, 1553. A copy of his book was tied to his thigh and burned with him. All the others were condemned to the flames—so successfully that only two are known to have survived. Of these the copy used as "brief" by Calvin at the trial is now in the Bibliothèque Nationale at Paris. The other is in the Imperial Library at Vienna. In the course of a discussion of certain matters spiritual, Servetus introduces, incidentally, some items of physical illustration, in a passage which contains the following sentences:

> For this purpose it is first of all necessary to understand the essential mode of production of the vital spirit itself, which

is composed of the inspired air and the thinnest portion of the blood [serum?], and derives its nourishment [from the latter]. The vital spirit has its origin in the left ventricle of the heart, the lungs greatly aiding in its production. It is a highly rarefied spirit, a luminous [transparent] vapor, as it were, emanating from the purer portion of the blood and containing within itself the essence of water, air and fire. It is the result of a mingling in the lungs of the inspired air with the elaborated, thin portion of the blood, which the right ventricle of the heart transmits to the left. But this passage of the blood does not, as is vulgarly believed, take place through the median wall of the heart; but by a clever device the thin blood is driven from the right ventricle of the heart through the lungs by a long [circuitous] route; it is prepared by the lungs, is rendered [reddish] yellow, and is transferred from the arterial vein into the venous artery. It then becomes mixed with the inspired air in this same venous artery, is cleansed of soot by [the act of] expiration, and thus the entire mixture is finally drawn [into the arteries] from the left ventricle of the heart by the diastole—a suitable pabulum, so that it becomes [is converted into] spirit [air?].

That the passage and preparation of the blood are thus effected through the lungs is shown by the existence of various connections and intercommunications between the arterial vein and the venous artery in the lungs. The fact is further confirmed by the extraordinary size of the arterial vein, which otherwise would have been fashioned neither of such a kind nor of such a size, nor would it convey such a mass of the purest blood from the heart (itself) into the lungs, nor would the heart be thus [merely] subservient to the lungs; especially as in the embryo these very lungs derive their nutriment from a different source, through those little membranes or valves of the heart, which are not open until the hour of birth, as Galen teaches. Hence it is for some other purpose that the blood is poured from the heart into the lungs at the very hour of birth and in such a copious mass. Thus, then, not merely air but a mixture of air and blood is sent by the lungs to the heart, through the venous artery; hence the mixture is made in the lungs. The [characteristic reddish] yellow color is imparted to the aërated blood by the lungs, not by the heart; there is no room in the left ventricle of the heart for so great and copious a mixture, nor is the elaboration which takes place there sufficient to produce the yellow color. Indeed, the median wall [septum], being devoid of vessels and the faculty [of developing any], is not adapted to this commingling and elaboration, although it is possible that a little [blood] may transude. By the same device as that by which a transfusion of blood takes place in the liver from the portal vein to the vena cava, a similar transfusion of air takes place from the arterial vein to the venous artery. A comparison of these statements with what Galen wrote (lib. 6 and 7) about the use of the parts clearly shows their correctness, which was not perceived by Galen himself.

William Harvey's celebrated volume "De Motu Cordis" was first printed at Frankfort-on-the-Main in 1628, exactly three quarters of a century after the printing (and destruction) of that containing the views of Michael Servetus. Without at all wishing to detract from the fame of Harvey, we unhesitatingly affirm that the very concise account of the pulmonary circulation included in the above quotation is quite as complete, and incomparably more lucid, than the verbose and somewhat muddled one contained in the "De Motu Cordis." After tracing the blood into and along the arteries, he allows it to go; he was *not* writing a work on physiology.

Cæsalpinus—the "Discoverer" of the Circulation.—The Italians, as is well known, claim the discovery of the circulation for their fellowcountryman, Cesalpine. This physiologist published at Venice, in the year 1571, a volume which contains the following very remarkable passage:

The lungs, therefore, drawing the hot blood from the right ventricle of the heart through a vein resembling the arteries and returning it through an anastomosis to the venous artery, which runs to the left ventricle of the heart—cold air having meanwhile been transmitted (namely) through the channels of the windpipe, which extend along the venous artery but do not communicate [with it] by [direct] openings, as Galen thought—bring about a mixture of the two by mere contact. The findings at the dissecting table correspond very well with this [conception of the] circulation of the blood from the right ventricle of the heart through the lungs into the left ventricle. For there are two vessels ending at the right ventricle, and two also at the left; but of the two only one conveys the blood into the heart, the other conveys it out of the heart, the membranes [valves] being of such a nature. In the right ventricle the afferent (introducing) vessel is a vein and a large one, and is called the cava; but in the left ventricle the vessel that leads from the lungs is small and has but a single coat like all the other veins. But the efferent vessel in the left ventricle is a large artery, which is called the aorta; while in the right ventricle there is a small artery leading to the lungs, which similarly has two coats like all the other arteries.

(*De Quaestionibus Peripateticis*, lib. V, 125.)

And in a subsequent volume, issued by the same author, we find the following sentences:

Is the question solved by what Aristotle writes, de som. cap. 3, where he says: "For that which evaporates must be driven somewhere and then deflected, so as to change its direction like Euripus [a narrow strait between Euboea and Boeotia]: for the heat of every animal [body] is generated to be carried upward: and when it has been in higher places, it returns again and again, and is [finally] carried downward." Thus Aristotle . . . : The explanation of this passage presupposes a knowledge of the following facts: The channels of the heart are so fashioned by nature as to leave an entrance through the vena cava to the right ventricle, whence there is an open pathway to the lungs; in addition there is another ingress from the lungs into the left ventricle of the heart, from which, finally, there is an opening into the artery aorta, certain membranes [valves] being so applied to the orifices of the vessels as to prevent a return flow: for thus there is a perpetual movement from the vena cava through the heart and lungs into the artery aorta, as we have explained in "De Quaestionibus Peripateticis" (Ld., in *Quaestionibus Medicis*, lib. 1, p. 17).

Harvey—the "Discoverer" of the Circulation?—Every discerning reader of the above passages will see that Servetus and Cæsalpinus had, long before the birth of Harvey, as clear ideas of the pulmonary circulation as were ever entertained by the latter. And with regard to the *general* circulation, notwithstanding all the rubbish written about the arteries carrying air (*aër*—twentieth century *oxygen*), the fact is unquestionable that it was known to Hippocrates himself—excepting, perhaps, the continuously definite current in the veins. The valves of the latter were shown to Harvey at Padua by Fabricius ab Aquapendente. But their use was not made clear. After Harvey returned to England, in discussing these structures with an engineering friend, the latter pointed out that, being placed with their free edges toward the heart, their only possible use was to maintain a continuous current in that direction. The crux of the circulation was solved at last! And—William Harvey *discovered*—?

The Patent Medicine Abuse and the Profession.—It seems inevitable that enthusiastic reformers should be careless about truth in their laudable endeavors to bring about reform. Even so judicious a person as Mrs. Martha M. Allen, of the W. C. T. U., must illustrate the thesis. In speaking of the crusade against the alcoholic nostrums, she says in *The Union Signal* of May 12, 1904:

> The real root of the difficulty in making some W. C. T. U. members and many other people see the danger to health in patent medicines and in making editors of religious papers see the inconsistency of advertising alcoholic nostrums, is the use of brandy, whisky, and other alcoholic beverages by the medical profession in their practice. It is the same with the warning against morphin, cocain, and other seductive drugs, which are active ingredients in many of the nostrums. The warning is unheeded because these narcotics are so freely used by physicians. How shall people be convinced that alcohol, morphin, cocain, and all other seductive drugs are more deadly in the patent medicine bottle than in the physician's medicine bottle?

That a few physicians may be open to the criticism is perhaps true, but the sweeping statement is ridiculous, and tends to alienate the vast body of the profession, who are as good temperance or even total abstainer advocates as any member of the W. C. T. U. Any dispassionate person knows that few physicians prescribe alcoholic liquors as beverages; that the amount of alcohol in the ordinary and great mass of prescriptions written by physicians is infinitesimal; that the prescription is not renewable; that the alcohol is of good quality, and not the vile stuff used by the nostrum makers; that prescriptions of quarts of alcoholic mixtures are almost never ordered by physicians; and lastly, that the profession has been the most thoroughgoing enemy of the nostrum traffic. Why does a temperance reformer seem to have an instinctive hatred of the medical profession? Why does she seem to try to make enemies of those who would be and really are her best friends? Will she see the error of her ways in this matter as she has in that of the abrogation of the canteen?

The External Ear: Its Physiognomy and Surgery.—The human ear, being placed on the borderland of face and head, enjoys but doubtful claims to the dignity of a "feature." But its form tells markedly in the make-up of individual beauty. A perfectly formed auricle is a very desirable feature indeed. And we sometimes meet with one which constitutes a revolting deformity. The cropping of the ears to which obstreperous patriots were subjected, in the squealing infancy of British liberty, necessitated the wearing of voluminous wigs by such men as the puritanical Prynne and the semiinspired Defoe, whose *Robinson Crusoe* still fires the blood of every romantic schoolboy. There is an inevitable suggestiveness about long ears, of which the owner can never feel precisely proud—however liberal Nature may have been to the same, in the department of vanity. The physiognomists have all noticed the organ. Rhazes observes that "a man with large ears is stupid but long lived," and Baptista Porta gives a nearly similar impression. The elder Pliny is rather full in this as in most other items of the gossiping lore of Natural History. He tells in that:

> "Man alone hath not the power to shake his eares. Of flaggie, long, and hanging eares, came the syrnames first of the *Flacci* (families and houses in Rome). There is no one part of the bodie costeth our dames more than this, by reason of their precious stones and pendant pearls thereat. In the East countries, men also as wel as women, think it a great grace and brauery to weare earings of gold. As touching their proportion, some creatures haue bigger or lesser than others. Deere only, the fallow as well as the red, haue them slit and as it were diuided. In Rats and mice they be hairy. To conclude, no creature hath ears but those that bring forth their yong aliue; and none of them are without, saue onely Seales, Dolphins, Vipers, and such fishes as were called Cartilagineous and gristly. And these all instead of ears, haue certain holes or conduits, except the foresaid gristly fishes, & the Dolphins: and yet manifest it is, that they do heare wel enough. For delighted they be with musick; and vpon some great noise and sudden crack they are astonished, and then easily taken. But maruel it is how they should heare as they do: neither can I comprehend the reason and means thereof, no more than I am able to shew how they do smell? for no Organs and Instruments haue they thereof to be seene, & yet there is not an hound vpon the land sents better, nor hath a finer nose than they. Of all souls, the Likeowle and the Otus alone, haue feathers like eares: the rest haue only holes to heare by. And after the same manner skaled fishes and serpents. In Horses, Mules, and Asses, and all such as serue either pack or saddle, the ears are tokens of their courage more or lesse, and will shew what stomack is within them. If they be tired and weary, they hang down flaggie: be they afraid, you shall perceiue them to wag too and fro: in heat of fury they stand pricking vp: in sicknes they lie downe."

About a third of a century ago, Charles Darwin, who was then in the zenith of his fame, excited the most uncompromising antagonism in the breasts of some readers—especially marked, we have been told, in the case of a certain proportion of ladies—by indicating the occasional presence of "Woolner's tip" on the margin of the helix, as a silent witness of the descent of the bearer from an ancestral baboon. A recent commingling of surgical, cosmetic, and mercantile interest has been attached to the external ear, through a clever bit of advertising by a "medical" firm. This purported to offer $5,000 for an ear to replace the loss of one of those appendages. There was assurance of a goodly number of offers, and the newspapers stated that one was ultimately chosen, and that the requisite transplantation took place, with a total inability to identify the patient and much free advertising for a member of a "dermatologic" institute. There is a general belief that the whole, much-heralded occurrence had no other existence than in the mind of the cleverly advertised "operator."

Medical Work of Missionaries.—During the 94 years of its existence the American Board has commissioned 137 physicians; 38 of these physicians were ordained men, and 20 of them were women. At the present time 15 of our 20 missions have one or more physicians on their staff, numbering in all 40, of whom 12 are also ordained men and 12 are women. By the latest enumeration there were connected with these several missions of the Board 42 dispensaries and 29 hospitals, as follows: In Turkey, 8 dispensaries, 6 hospitals; in India and Ceylon, 16 dispensaries and 11 hospitals; in China, 10 dispensaries and 8 hospitals; in Africa, 7 dispensaries and 3 hospitals, and in Japan, 1 dispensary and a missionary physician in one hospital. By the last report there were a little over 250,000 patients treated the previous year in these various institutions. This medical work is perhaps more nearly self-supporting than any branch of the missionary enterprise. For although the poor are treated in multitudes of cases without any charge, yet in other cases those who are able make payment either in the form of a fee, or of a gift out of gratitude for the good they have received. Many of these hospitals are entirely self-supporting, and some of them, like the one in Madura City, have been furnished with good buildings by the free offerings of natives, only a few of whom have as yet professed the Christian faith. The total cost of this medical branch of the missionary service to the American Board, aside from the salaries of the American physicians who are in charge, has been not far from $12,000 a year.

AMERICAN NEWS AND NOTES

GENERAL.

Government Chemists to Test Stored Food-stuffs.—The chemists of the department of agriculture have taken up the hygienic problems connected with commercial cold storage. Data have been gathered showing the extent to which meats, eggs, and fruits are placed in storage houses and held for better prices, and it is found that in Washington it is the practice of dealers, commission men, and speculators to hold meats and poultry indefinitely for suitable prices. Some cases are known where poultry was held several years and then put on the market. There is a big business done in this line in what is known as "soupers," consisting of poor and unsalable sheep and fowls, that are held and sold to restaurants for soup stock. Dr. Wiley is in charge of the experiment, and holds the view that meat and poultry, as kept under prevailing commercial practices, are not wholesome food. The processes are in some respects defective, the care and handling are reprehensible and the goods are liable to be placed on sale, and if unsold, put back in storage, with the result that flavor and character are seriously injured. The experiment will include a trial of such meats on a class of subjects, and chemic analysis will be relied on to determine precisely the condition and suitability of the food thus treated. Dr. Wiley declares that chickens may be kept a year and be fit for food, but beyond this it is doubtful.

Miscellaneous.—Pennsylvania: Memorial tablets to Drs. S. Weir Mitchell and Horatio C. Wood have been placed in the new Hall of Medicine of the University of Pennsylvania. They are attracting attention as an unusual distinction to living men. The widow of James McManes has placed a tablet to his memory in the Laboratory of Pathologic Histology.—General orders were issued June 28 from headquarters of the National Guard of Pennsylvania announcing the promotions of Joseph K. Weaver, of Norristown, from division surgeon to surgeon-general, vice Robert G. Le Conte, Philadelphia, resigned; the reappointment of George H. Halberstadt, of Pottsville, surgeon of the Third Brigade, and the appointment of J. C. Biddle, of Ashland, assistant surgeon of the Eighth Regiment.—The new medical laboratories of the University of Pennsylvania, erected at a cost of $700,000, were dedicated on June 10. The building was formally presented to the University by J. Vaughn Merrick, and accepted by Provost Charles C. Harrison.—**Massachusetts**: The committee of the Massachusetts State Legislature, which has had under consideration a bill for the regulation and control of vivisection, has given leave to the petitioners to withdraw. This seems to be a polite expression, says the *British Medical Journal*, for rejection of the measure, which has had the same fate for several preceding years.—**New York**: New York University has purchased land adjoining the new college building on First avenue, between Twenth-fifth and Twenty-sixth streets, and will proceed at once with the erection of a six-story fire-proof building for the clinics and laboratories of the Medical College.—The Lincoln Park Sanitarium for sick babies, foot of Fullerton avenue, Lincoln Park, has been opened for the season of 1904. Last summer the sanitarium cared for 9,828 babies, 9,828 mothers, and 47,061 children. Everything at the sanitarium is absolutely free.—**Philadelphia**: Dr. B. H. Warren, State Dairy and Food Commissioner, has caused warrants to be served on nearly a score of dealers accused of selling "doctored" meats. A number of other warrants for the same offense are being prepared and will be issued soon.—**Western**: The Agnes Memorial Sanatorium at Denver, Colo., was opened on July 2.—**Canada**: The thirty-seventh annual meeting of the Canadian Medical Association will be held at Vancouver, B. C., on August 23, 24, 25, and 26, 1904. The railway fares from Montreal are $68, and from Toronto $62.40. Dr. Simon J. Tunstall, Vancouver, is president, and Dr. George Elliott, 129 John street, Toronto, is secretary.

Examination for Army Medical Service.—The examination of applicants for commission in the Medical Corps of the Army will be materially modified after July 1, 1904, when the amended regulations governing the matter will go into effect. Immediate appointment of applicants after successful physical and professional examination—the latter embracing all subjects of a medical education—will be discontinued; thereafter applicants will be subjected to a preliminary examination and a final or qualifying examination with a course of instruction at the Army Medical School in Washington intervening. The preliminary examination will consist of a rigid inquiry into the physical qualifications of applicants and written examination in the following subjects: Mathematics (arithmetic, algebra and plane geometry); geography; history (especially of the United States); Latin grammar and reading of easy Latin prose; English grammar, orthography, composition; anatomy; physiology; chemistry and physics; materia medica and therapeutics; normal histology. The subjects in general education above mentioned are an essential part of the examination and cannot under any circumstances be waived. The preliminary examination will be conducted concurrently throughout the United States by boards of medical officers at most convenient points; the questions submitted to all applicants will be identical thus assuring a thoroughly competitive feature, and all papers will be criticised and graded by an army medical board in Washington. Applicants who attain a general average of 80% and upward in this examination will be employed as contract surgeons and ordered to the Army Medical School for instruction as candidates for admission to the medical corps of the army; if, however, a greater number of applicants attain the required average than can be accommodated at the school the requisite number will be selected according to relative standing in the examination. The course of instruction at the Army Medical School will consist of lectures and practical work in subjects peculiarly appropriate to the duties which a medical officer is called upon to perform. While at this school the students will be held under military discipline, and character, habits and general deportment closely observed. The final or qualifying examination will be held at the close of the school term and will comprise the subjects taught in the school together with the following professional subjects not included in the preliminary examination: Surgery; practice of medicine; diseases of women and children; obstetrics; hygiene; bacteriology and pathology; general aptitude will be marked from observation during the school term. A general average of 80% in this examination will be required as qualifying for appointment, and candidates attaining the highest percentages will be selected for commission to the extent of the existing vacancies in the Medical Department. Candidates who attain the requisite general average who fail to receive commissions will be given certificates of graduation at the school and will be preferred for appointment as medical officers of volunteers or for employment as contract surgeons; they will also be given opportunity to take the qualifying examination with the next succeeding class. It is not thought that, for the present at least, the number successfully passing the preliminary examination will be greater than can be accommodated at the Army Medical School, nor that the number qualifying for appointment will exceed the number of vacancies. If, however, the class of candidates qualifying should be larger than reasonably thought, the young physicians who fail to receive commissions will not have wasted their time, as the course of instruction at the school, while in a large measure specialized to army needs, is such as will better fit them for other professional pursuits, and furthermore they will have received a fair compensation while under instruction. Admission to the preliminary examination can be had only upon invitation from the surgeon-general of the army, issued after formal application to the Secretary of War for permission to appear for examination. No applicant whose age exceeds 30 years will be permitted to take the examination, and the authorities at the War Department desire it distinctly understood that this limit of age will be rigidly adhered to. Hospital training and practical experience are essential requisites, and an applicant will be expected to present evidence of one year's hospital experience or its equivalent (two years) in practice. The first preliminary examination under the amended regulations above referred to will be held about August 1, 1904; those desiring to enter the same should at once communicate with the Surgeon-General of the Army, Washington, D. C., who will be pleased to furnish all possible information in regard thereto.

PHILADELPHIA, PENNSYLVANIA, ETC.

Physicians Make Another Vaccination Tour.—Now that the public schools of the city have closed for the summer recess, the medical inspectors who have been examining school children will be started on a house-to-house vaccination campaign. The inspectors will also pay particular attention to the health of small children, especially in the slum districts, and wherever it is found that a child needs medical care, the parents will be told to employ a physician. Should the family be too poor, the district physician will be sent to the house.

Pennsylvania's State Board of Health and the Fourth of July Celebration.—The State Board's communication which has been mailed to various mayors and chief burgesses in the State of Pennsylvania reads as follows: Your attention is hereby respectfully called to the following laws of the State of Pennsylvania for the protection of life and limb, all of which are now in force. It becomes your duty, as the Chief Executive of your municipality, having taken a solemn oath to preserve order and maintain the peace, to issue a proclamation forbidding the sale or use of any such weapons or explosives within the limits of your jurisdiction as set forth in these laws. On the occasion of our national celebration each year more persons are maimed or killed than are sacrificed in many of the great battles in Manchuria. The recent heartrending calamity in New York harbor, which sent a thrill of horror through the civilized world, was more than paralleled by the sacrifice offered up last Fourth of July on the altar of a spurious and lawless patriotism. Sudden death in flame and smoke is terrible, but death in the lingering tortures of lockjaw and tetanus convulsions is far more terrible.

Vaccination and the State Board of Health.—A leaflet is being issued by the State Board of Health, which sets forth certain facts with reference to vaccination, its necessity and efficacy. The Board of Health declares: 1. That true vaccination, repeated until it no longer "takes," always prevents smallpox. Nothing else does. 2. That true vaccination—that is, vaccination properly done on a clean arm with pure lymph, and kept perfectly clean and unbroken afterward—never did and never will make a serious sore. 3. That such a vaccination leaves a characteristic scar, unlike that from any other cause, which is recognizable during life, and is the only conclusive evidence of a successful vaccination. 4. That a slight disturbance of the general system at the time that the vaccination is at its height, is an indication that the entire system has been affected by the introduction of the virus, and is, therefore, to be welcomed as an indication of protection rather than dreaded. 5. That no untoward results ever follow such vaccination, but that, on the other hand, thousands of lives are annually sacrificed through the neglect to vaccinate, a neglect begotten of lack of knowledge. The State Board recalls that the Commissioner of Health of Chicago states that not one of the 727 cases of smallpox discovered in Chicago within the last four years was found vaccinated as defined in the vaccination creed.

Philadelphia and the Fourth of July.—The director of the Department of Public Safety has issued the following orders to the police regarding the celebration of the Fourth in this city: "The explosion of fireworks of any kind in the public squares or parks of the city must be stopped at once. You will notify the officers detailed in the squares and on beats adjoining, that this order must be obeyed. The placing of caps, cartridges, torpedoes, or any other explosives on the rails of car tracks must also be stopped. Your attention is particularly called to the following act of Assembly of June 11, 1885: Any person or persons who shall knowingly and wilfully make, manufacture and sell, or cause to be made, manufactured and sold, any toy cannon, gun, pistol, revolver, or other such deadly weapon, or who shall knowingly and wilfully expose to sale any such weapons made elsewhere and brought within the State shall be guilty of a misdemeanor, and, upon conviction, shall pay a fine not exceeding $500, or suffer imprisonment for a term not exceeding one year, or both, or either, at the discretion of the Court: Provided, This act shall not interfere with the manufacture and sale of legitimate firearms. And the act of 1881, which makes it a misdemeanor 'to sell a cannon, revolver, pistol, or such other deadly weapon to any minor under the age of 16 years.'"

SOUTHERN STATES.

Warnings Concerning Yellow Fever.—Governor Lanham, of Texas, and State Health Officer Taber have issued official warnings to the people of Texas on epidemic diseases. Dr. Taber, in his communication to Governor Lanham, says among other things: "On account of the very mild winter just passed and the prevalence of yellow fever in Mexico at present, I very much fear that should a case be introduced into the State with the present very bad sanitary condition of a large number of our cities and towns and the presence of the yellow fever mosquito, which also exists in large numbers throughout the State, we will have the most extensive epidemic of yellow fever ever known. I therefore respectfully request Your Excellency to issue a communication calling upon the county judges, mayors and health officers of Texas to inaugurate sanitary campaigns in every community in the State without delay, especially for the destruction of the mosquitos."

WESTERN STATES.

Washington State Medical Society.—The fifteenth annual meeting of the Washington State Medical Society will be held in Seattle, July 12, 13, and 14. Dr. Alfred Stengel, of Philadelphia, will be the guest of the Association, and will deliver two addresses.

FOREIGN NEWS AND NOTES

GENERAL.

Cancer not Hereditary.—The second volume of the reports from the Cancer Research Laboratories (forming part of the "Archives of the Middlesex Hospital") contains an important paper on "Heredity in Cancer," the material for which has been derived from the hospital's registers, dating from 1746. The conclusion drawn from the large number of cases covered is opposed to the generally accepted view that cancer is hereditary. Although no claim can yet be made in regard to the cure of cancer, a great deal has resulted from the continued systematic research.

"Sightseer's" headache is one of the numerous ills of modern civilization. According to recent observations of Simeon Snell, described in the London Hospital, there is reason to attribute it, in part at least, to strain on the muscles that turn the eyeballs upward. A lady who found no inconvenience in visiting the theater when she sat in the dress circle, always suffered from severe headache when she sat in the orchestra, where she had to look up. The same effect is produced in picture galleries, especially in looking at pictures hung above the line. Cyclists who lean over the handle-bars and turn their eyes up to look ahead have the same trouble, and so do compositors and people in many other occupations requiring continued use of the elevator muscles. The eyeballs move from side to side with less strain and discomfort than up and down.

OBITUARIES.

James Henry Dunn, of Minneapolis, Minn., at the Southern Hospital, St. Louis, June 16, aged 51; a graduate of the University of New York in 1878, he later located in Shakopee, Minn. From 1883 to 1885 he studied in Heidelberg and Vienna, returning to the United States he located in Minneapolis, where he was one time professor of skin and venereal diseases in the Minnesota Hospital Medical College; later professor of genitourinary diseases in the College of Medicine and Surgery of the University of Minnesota, and since that time professor of clinical surgery in the University of Minnesota. He was surgeon to several prominent hospitals in Minneapolis; he was a member of the American Medical Association, the Western Surgical and Gynecological Association; a fellow of the American Surgical Association, before which he read a paper on the day before his death.

T. F. Breck, at his home in Springfield, Mass., June 26, aged 60; graduate of Harvard Medical School, in 1866. He studied abroad in the hospitals of Vienna and Paris. An army surgeon in the Federal service during the Civil war. He had been a regular practitioner in Springfield for thirty-five years. He belonged to the Massachusetts Medical Society, Massachusetts Medicolegal Society, Association of Railway Surgeons, the Hampden District Medical Society, etc.

Michael J. Hughes, of Wilmington, Del., at Bedford Springs, Va., where he had gone for his health, June 19; graduate of Jefferson Medical College, in 1883. He had been port physician in Wilmington for a number of years, and was a member of Wilmington's Board of Health.

Benjamin B. Gumpert, at his home in Philadelphia, June 23, aged 89; graduate of Hahnemann Medical College, Philadelphia. He continued in the practice of his profession until three years ago, when partial paralysis compelled him to retire.

John H. Dorn, at his home in New York, June 19, aged 62; graduate of Albany Medical College, in 1865. In 1875 he was appointed police surgeon, from which position he retired in 1896. He retired from practice some eight years ago.

John F. Bird, at his home in Philadelphia, June 23, aged 89; graduate of the University of Pennsylvania, in 1843. He continued the practice of medicine until some three years ago, when he retired from active work.

H. F. Simrall, suddenly, from heart failure, at his home in Yokena, near Vicksburg, Miss., June 22, aged 68; graduate of the University of Louisville, in 1882.

Julius J. Stricker, of Portage, Pa., in the Cambria Memorial Hospital, Johnstown, June 23, aged 54. He graduated from Jefferson Medical College, in 1878.

Orrington H. Wilkins, at the Soldiers' Home, Chelsea, Mass., where he had been an inmate since 1892, on June 20, aged 63.

Dennis J. Treacy, at his home in Philadelphia, June 20, aged 60; graduate of Jefferson Medical College, in 1867.

Deaths of Eminent Foreign Medical Men.—MATVAEI IVANOVITCH TALYSIN, once professor of physics at the University of Kieff and previously thereto professor in the Alexandroffsk Lycée, in his ninety-fifth year. He had been forty years retired.—DR. DIETZ, the wellknown Stuttgart alienist.—DR. LARGUIER DES BANCELS, professor of forensic medicine in Lausanne.—DR. VINCENT, inspecting medical officer of the French colonial troops.—THOMAS SANDERS, F.R.C.S. Eng., at his residence, East street, South Molton, Devon, on June 7, in his sixty-second year, had practised in South Molton for about thirty-six years and was coroner for the South Molton district of the county of Devon. He received his medical education at University College Hospital, London, and took the qualifications of M.R.C.S. Eng. and L.S.A. in 1864 and 1866 respectively. In 1876 he was admitted F.R.C.S. Eng.—LOUIS LEOPOLD JENNER, at St. Thomas' Hospital, London, June 2, from enteric fever. He received his medical degree in 1894 and the following year was appointed house physician to St. Thomas' Hospital; he was later appointed superintendent of the clinical laboratory and demonstrator of morbid histology in St. Thomas' Hospital, which post he held for three years. It was during this period that he paid special attention to the histology and pathology of the blood and his name is associated with the wellknown method of staining. Previous to his final illness he was engaged in research work in connection with enteric fever in the Lister Institute.—RICHARD J. DEARDEN, of Manchester, England, June 11, aged 49. The immediate cause of death was extensive cellulitis of the arm, axilla and trunk following the performance of a necropsy. He was a wellknown surgeon and stood high in the esteem of his fellow practitioners.—ROBERT IVES, of Portswood, Southampton, recently. He received his medical degree in 1857 from Edinburgh, and three years later located in Portswood, where he remained his entire life. His father, grandfather and great-grandfather were medical men, and he leaves a son, who is likewise a physician and a grandson, who is a student of medicine.

THE PUBLIC SERVICE

Changes in the Medical Corps of the U. S. Army for the week ended June 25, 1904:

DADE, WALLER H., contract surgeon, now at Imus, Cavite, will proceed to Silang, Cavite, for duty, relieving Contract Surgeon David D. Hogan, who will proceed to Imus, Cavite, for duty.

WILLIAMS, ADRIAN D., contract surgeon, will proceed from the United States General Hospital, Fort Bayard, to his home, Brooklyn, N. Y., in time to arrive at that place not later than July 2, for annulment of contract.

WADHAMS, First Lieutenat **SANFORD H.**, assistant surgeon, is relieved from duty in the department of the Visayas, and will report to the chief surgeon of the Philippines Division for assignment to duty as sanitary inspector, relieving First Lieutenant Robert Smart, assistant surgeon, and in addition to those duties will take charge of hospital corps detachment on interisland transports.

TITUS, FRANK H., contract surgeon, is relieved from further duty at the depot of recruits and casuals, Angel Island, Cal., and will proceed to Ord Barracks, Cal.

APPEL, Major **AARON H.**, surgeon, having been examined by the Army Retiring Board at the War Department, before which he was ordered to appear, will return to the place of receipt by him of those orders.

APPEL, Major **AARON H.**, surgeon, is granted leave for ten days on account of sickness.

RUTHERFORD, First Lieutenant **HENRY H.**, assistant surgeon, is relieved from duty at the Army and Navy General Hospital, Hot Springs, Ark., to take effect June 30, and will then return to his proper station, Fort Mackenzie.

DAVIDSON, First Lieutenant **WILSON T.**, assistant surgeon, having reported his arrival at San Francisco, Cal., will report for assignment to duty at the United States General Hospital, Presidio, Cal., to relieve First Lieutenant Edmund D. Shortlidge, assistant surgeon, who will proceed to Fort Miley for duty.

BROWN, CLARK L., sergeant first class, is relieved from further duty with the medical department exhibit at the Louisiana Purchase Exposition, St. Louis, Mo., and will be sent to the General Hospital, Fort Bayard for duty.

CRAMPTON, Lieutenant-Colonel **LOUIS W.**, deputy surgeon-general, is granted leave for twenty days, on surgeon's certificate.

RAYMOND, Major **THOMAS U.**, surgeon, in addition to his other duties, will take charge of the medical supply depot, St. Louis, Mo., during the absence of Lieutenant-Colonel Louis W. Crampton, deputy surgeon-general, on sick leave.

REYNOLDS, Captain **FREDERICK P.**, assistant surgeon, is granted leave for two months, to take effect upon his relief from duty at the United States Army General Hospital, Washington Barracks.

BROOKS, First Lieutenant **WILLIAM H.**, assistant surgeon, is relieved from duty at the United States Army General Hospital, Washington Barracks, and will proceed to Fort Washington for duty, relieving First Lieutenant Charles R. Reynolds, assistant surgeon, who will proceed to the United States General Hospital, Washington Barracks for duty.

MATTHEWS, First Lieutenant **GEORGE W.**, assistant surgeon, is granted leave for six months on surgeon's certificate.

KELLOGG, W. V., contract surgeon, leave granted May 16 on surgeon's certificate is extended two months on surgeon's certificate.

KELLOGG, W. V., contract surgeon, will, upon the expiration of his present sick leave, proceed to his home for annulment of contract.

STONEY, RANDALL C., contract surgeon, is relieved from duty at Fort Hamilton, to take effect July 2, and will then proceed to his home for annulment of contract.

SHIMER, Captain **IRA A.**, assistant surgeon, is granted leave for one month, from about July 1.

Changes in the Medical Corps of the U. S. Navy for the week ended June 25, 1904:

BALCH, A. W., assistant surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.—June 20.

KITE, I. W., surgeon, when discharged from treatment at the Naval Hospital, Pensacola, Fla., ordered home and granted sick leave for two months—June 22.

BIDDLE, C., surgeon, ordered to the Wisconsin for duty as fleet surgeon—June 22.

DYKES, J. R., assistant surgeon, ordered to the Rainbow—June 22.

VERNER, W. W., assistant surgeon, ordered to the Wisconsin—June 22.

OMAN, C. M., assistant surgeon, detached from the Naval Station, Cavite, and ordered to the Frolic—June 22.

DEBRULER, J. P., and **DEAN, F. W. S.**, assistant surgeons, ordered to the Naval Station, Olongopo, P. I.—June 22.

GEIGER, A. J., assistant surgeon, ordered to the Naval Hospital, Yokohama, Japan—June 22.

RENNIE, W. H., HOEN, W. S., and **GRIEVE, C. C.**, assistant surgeons, ordered to the Naval Station, Cavite, P. I.—June 22.

MORSE, E. T., pharmacist, ordered to the Naval Station, Cavite, P. I.—June 22.

MARCOUR, R. O., assistant surgeon, detached from the Hancock and ordered home and granted leave for three months; resignation to be accepted September 27, 1904—June 22.

ANGWIN, W. A., assistant surgeon, ordered to the Naval Hospital, Mare Island, Cal.—June 22.

Changes in the Public Health and Marine-Hospital Service for the fourteen days ended June 23, 1904:

RICHARDSON, T. F., passed assistant surgeon, to proceed to Alice, Texas, for special temporary duty—June 9, 1904. To proceed to certain points in Texas for special temporary duty—June 16, 1904.

WILLIAMS, L. L., assistant surgeon-general, granted leave of absence for one month from July 18—June 21, 1904.

VAUGHAN G. T., assistant surgeon-general, granted leave of absence for six days from June 13—June 13, 1904.

GASSAWAY, J. M., surgeon, detailed as sanitary officer at the Louisiana Purchase Exposition—June 17, 1904.

IRWIN, FAIRFAX, surgeon, granted leave of absence, on account of sickness, for seven days—June 16, 1904.

WHITE, J. H., surgeon, granted leave of absence for fourteen days from July 3—June 16, 1904.

WERTENBAKER, C. P., surgeon, seven days' leave of absence from June 14, 1904, under paragraph 189 of the regulations.

BROWN, B. W., passed assistant surgeon, granted leave of absence for two months from July 1—June 20, 1904.

EAGER, J. M., passed assistant surgeon, to proceed to Messina, Italy, for special temporary duty—June 21, 1904.

NYDEGGER, J. A., passed assistant surgeon, Department letter of June 6, 1904, granting Passed Assistant Surgeon Nydegger extension of leave of absence, on account of sickness, for five days from June 5, revoked—June 15, 1904. Granted leave of absence for five days from June 5—June 17, 1904.

CUMMING, H. S., passed assistant surgeon, granted leave of absence for twenty-one days from July 1—June 20, 1904.

HOLT, J. M., assistant surgeon, granted leave of absence for one month from June 25—June 15, 1904. Granted leave of absence for seven days from June 17, 1904, under paragraph 191 of the regulations.

TROTTER, F. E., assistant surgeon, to proceed to San Francisco Quarantine and assume temporary charge during the absence, on leave, of the medical officer in command—June 20, 1904.

SCHERESCHEWSKY, J. W., assistant surgeon, granted leave of absence for one month from June 20—June 10, 1904.

AMESSE, J. W., assistant surgeon, detailed to represent Service at meeting of Washington State Medical Association, at Seattle, Washington, July 12-14—June 22, 1904.

BERRY, T. D., assistant surgeon, relieved at Louisville, Ky., and directed to proceed to Laredo, Texas, for duty—June 14, 1904.

BAHRENBURG, L. P. H., assistant surgeon, to proceed to Evansville, Ind., and assume temporary charge during the absence, on leave, of the medical officer in command—June 17, 1904. Granted leave of absence for seven days from June 14, 1904, under paragraph 191 of the regulations.

BOGGESS, J. S., assistant surgeon, proceed to Washington, D. C., for special temporary duty—June 14, 1904.

PETTYJOHN, J., assistant surgeon, relieved at immigration depot, New York, and directed to proceed to Fort Stanton, N. H., and report to medical officer in command for duty and assignment to quarters—June 11, 1904.

SPRATT, R. D., assistant surgeon, directed to proceed to Louisville, Ky., and report to medical officer in command for temporary duty and assignment to quarters—June 15, 1904.

PORTER, J. Y., sanitary inspector, to proceed to Cumberland Sound Quarantine, Fla., as inspector—June 10, 1904.

GOLDSBOROUGH, B. W., acting assistant surgeon, leave of absence for four days from June 7, 1904, granted Acting Assistant Surgeon Goldsborough by Bureau letter of June 10, revoked—June 15, 1904.

MACKALL, B. McV., acting assistant surgeon, granted leave of absence for five days from June 16, 1904, under paragraph 210 of the regulations.

SAFFORD, M. V., acting assistant surgeon, granted leave of absence for three days from June 9, 1904, under paragraph 210 of the regulations.

SCHUG, F. J., acting assistant surgeon, granted leave of absence for thirty days from July 1—June 20, 1904.

STUART, A. F., acting assistant surgeon, granted leave of absence for thirty days from July 1—June 22, 1904.

WETMORE, W. O., acting assistant surgeon, granted leave of absence for four days from June 14, 1904, under paragraph 210 of the regulations.

LAGRANGE, J. V., pharmacist, granted leave of absence for seven days from June 14, 1904, under paragraph 210 of the regulations.

WALERIUS, M., pharmacist, granted leave of absence for thirty days from July 15—June 23, 1904.

HOLT, E. M., pharmacist, granted leave of absence for eleven days from July 5—June 16, 1904.

Boards Convened.

Board convened to meet at Washington, D. C., June 13, 1904, for the physical examination of an officer of the Revenue Cutter Service and an applicant for appointment. Detail for the Board: Assistant Surgeon-General L. L. Williams, chairman; Assistant Surgeon-General W. J. Pettus, recorder.

Board convened to meet at Stapleton, June 18, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon A. C. Smith, chairman; Passed Assistant Surgeon J. B. Greene, recorder.

Board convened to meet at Washington, D. C., June 30, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Board convened to meet at Port Townsend, Washington, July 2, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Passed Assistant Surgeon M. H. Foster, recorder.

Appointment.

Dr. Edward Erskine appointed acting assistant surgeon, for duty at Rogers City, Michigan, effective June 16, 1904—June 10, 1904.

Resignation.

Pharmacist C. H. Bierman resigned, to take effect June 16, 1904.

Casualty.

Acting Assistant Surgeon H. McD. Martin died at Fredericksburg, Virginia, June 23, 1904.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J., June 7 to 10, 1904.

[Specially reported for *American Medicine*.]

(*Continued from p. 977.*)

Section on Practice of Medicine.

THIRD SESSION.

A Study of 186 Cases of Mitral and Tricuspid Stenosis.—J. DALAND and E. L. MCDANIEL (Philadelphia) made a report upon a heart showing mitral and tricuspid stenosis, and gave an analytic and statistical study of the etiology, symptomatology, diagnosis and pathology of 186 similar cases that have appeared in literature from 1809 to 1904. The cases were studied for the purpose of eliciting a symptom-complex that will be of diagnostic aid. All the patients were white and 79 were females. The greatest number in any one decade occurred between 20 and 30, the second largest between 30 and 40. The symptoms in their order of frequency, ascending, were difficulty in breathing, dropsy, cough, pain, asthenia, hemoptysis, vertigo, embolism, vomiting, fever. The maximum weight of the heart was 36 ounces, the minimum 8 ounces. Angina pectoris was present in one case.

Pleural Effusion in Heart Disease.—J. D. STEELE (Philadelphia) spoke of the wellknown fact that pleural effusions may occur before external dropsy in cases of heart disease, and also of the predilection of such hydrothorax for the right side of the chest. He then reported in detail 27 cases of cardiac hydrothorax that had been treated in the Presbyterian Hospital. In one the effusion was equal on the two sides, but in 75% of the cases the right side contained more fluid than did the left. It was difficult to determine in these cases if the hydrothorax preceded the edema. In support of his view that pressure of the dilated right heart upon the vena azygos major is responsible for the excess of fluid upon the right side of the chest, Steele described the anatomic arrangement of that vessel as it passes around the root of the lung and its liability to compression. The right side of the heart was much dilated in nine-tenths of the cases reported. It is also true that left-sided enlargement of the heart appears to bear a certain relation to left-sided hydrothorax. The usual finding in these cases of hydrothorax is, that they are very obstinate, and persistently reaccumulate after tapping. In this point, however, the series reported did not conform to the rule, as the effusions were not particularly obstinate. It is important to recognize that such effusions occur in heart disease before external accumulation of fluid in the matter of the diagnosis of both conditions.

Prolonged Delirium in Pericarditis and Endocarditis, with Report of a Case.—E. M. GREEN (Easton, Pa.) reported a case of this condition occurring in a man of 46 who had an attack of pericarditis following rheumatism. The case was also complicated with slight endocarditis and pleurisy with effusion. Delirium is recognized as a frequent symptom in pericarditis especially when accompanied by effusion but most authorities agree in saying that conspicuous cerebral symptoms are usually associated with hyperpyrexia. In this case the temperature reached a maximum of 100.4° in the evening and was usually but slightly above 99° in the morning. Delirium was present without intermission for five weeks. Citrate of lithium and potassium, with other necessary drugs, were administered, the skin and bowels kept active and recovery followed though very slowly. After several months the patient while on a western trip was able to exercise without difficulty at an elevation of 10,000 feet and took journeys at still higher altitudes without discomfort. A recent examination gives no evidence of present heart lesion. Similar cases have not been found in literature.

Limitations of Digitalis in Mitral and Aortic Insufficiency.—FRANK JONES (Memphis) opposed emphatically the views of those authorities who recommend the use of digitalis when muscular dilation and mitral regurgitation follow aortic insufficiency. He finds no justification for the use of digitalis in aortic regurgitation no matter what the condition of the heart muscle. This opinion he has reached after a careful study of cases in dispensary and hospital practice. In mitral regurgitation, digitalis is the general in command; the consequent passive hyperemia of various organs is relieved by the use of that drug. In aortic regurgitation the left ventricle maintains compensation for a long time and venous stasis and dropsy are late symptoms; in the majority of cases when they do appear the fault is at the mitral valve and both auricle and ventricle are in such condition that digitalis is useless and even harmful. There is leakage at both the aortic and mitral openings and if digitalis exerts any effect it drives an increased quantity of blood backward as well as forward. If the mitral valve should be closed to any extent by the drug it throws too much strain on the weakened ventricle. Again, arteriosclerosis of the coronary arteries is often associated with aortic regurgitation with consequent poor blood supply to the heart. Digitalis increases the work of the ventricle while it cries for blood. There is only one valvular lesion in which digitalis is indicated; that is mitral insufficiency and then only when interruption of compensation has occurred.

[*To be continued.*]

Section on Surgery and Anatomy.

FOURTH SESSION (CONTINUED.)

Factors in the Mortality of Appendicitis.—JOHN B. DEAVER (Philadelphia) stated that patients have in the past been advised to undergo every possible kind of treatment for appendicitis. They have been packed in ice, covered with hot poultices, purged and given opium, advised to stand or go on all fours for the cure of appendicitis. In every abdominal disease the probability of appendicitis should be kept in mind. Laboratory methods should not be used to the exclusion of a practical clinical examination in the diagnosis. Early operation is conservative, not radical. Every case of appendicitis seen early should be operated upon, regardless of the mildness of the attack. Deaver has tried Ochsner's plan of rest and starvation in treating a number of patients without any satisfactory results. He does not operate in hopeless cases of peritonitis of over 72 hours' standing. He believes that elevation of the foot of the bed spreads infection and should not be used, but he generally employs Fowler's position, with the head of the bed elevated.

Discussion.—LAPLACE (Philadelphia). In every fatal case there was a time in the course of the disease when the patient might have been saved by operation. LaPlace strongly advocates operations in every case as soon as the diagnosis is made. In cases of peritonitis he employs continuous irrigation of the abdominal cavity with sterile water, as he believes that salt solution is an irritant to inflamed surfaces. SUMMERS (Omaha) believes that it is usually possible to differentiate between diaphragmatic pleurisy and appendicitis by the absence of breath sounds low down on the affected side. He does not think it wise to use operation as soon as a diagnosis is made in every case, for all of us have been taught the dangers of operating on a green abscess. JACOBI (New York City) has repeatedly seen cases better prepared for operation at the end of a week than when first seen. He has often seen patients who have had one attack without later recurring attacks, and believes that we should lay down no hard and fast rules in these cases. The diagnosis is the matter of greatest interest in appendicitis, and sometimes it is not possible for either the physician or surgeon to make diagnosis. OCHSNER (Chicago) has agreed with Deaver for years on all points but one. He agrees that the appendix should be removed at once when the inflammation is limited to the appendix; that it should be removed in cases seen in the interval between attacks; that all circumscribed abscesses should be opened; only in cases of beginning abscess does he differ. He has treated 1,000 cases during the past thirty-three months, 540 in the interval with three deaths. In 255 nonperforated cases of acute appendicitis 200 were operated upon and 55 were put on the starvation treatment, with the result of a mortality of 1%. Thirty-four cases of perforated gangrenous appendicitis were starved and 21 were operated upon immediately because the inflammation seemed to be confined to the appendix. His entire mortality in 1,000 cases is 2.2% and this because of several hopeless cases, 7 of which were moribund when first seen. MURPHY (Chicago) called attention to the important fact not mentioned in the discussion that the type of infection has much to do with the result. Certain patients with very slight injuries die of infection, no matter what is done, and the same is true in infections of the appendix. During the past 2 years he has seen 16 cases of perforative peritonitis, has operated in all, and all but 1 recovered. In these cases not too much should be undertaken when the abdomen is open. Murphy believes that the patients get better results without irrigating the abdomen as suggested by LaPlace. PRICE (Philadelphia) advocates immediate operation in all cases, entirely agreeing with Deaver. MORRIS (New York City) finds three objections to removal of the appendix when the abdomen is open for another purpose: The operation is considerably prolonged; with the greater interference the patient's resistance is lessened; in not all cases is the operation done by safe men. M. PRICE (Philadelphia) mentioned several cases in which he had opened the abdomen when the patient had very slight symptoms and had found gangrenous appendicitis.

[*To be continued.*]

Section on Diseases of Children.

FIFTH SESSION.

The session opened with the election of officers of the section, and the following were unanimously chosen: Chairman, John Lovett Morse, Boston; Vice-chairman, W. Edgar Darnall, Atlantic City, N. J.; secretary, J. Ross Snyder, Birmingham, Ala.; Delegate, W. C. Hollopeter, Philadelphia.

Some Physical Signs in Infants and Children not Sufficiently Emphasized.—SAMUEL M. HAMILL (Philadelphia) spoke of the observations made by Theo. LeBoutillier (Philadelphia) and himself on the normal and functional conditions existing in infants and children. In regard to the lungs, the following observations were made: 1. Area of impaired resonance under the left clavicle. The phenomenon was thought at first to be due to enlargement of the lymphatic glands, but careful examinations revealed its presence in all cases under the inner third of the clavicle. 2. The area of transmission of bronchial type of breathing as heard over the root of the lung. 3. The influence of position on the percussion note in infants. In the study of the heart the following were considered: 1. Position of apex beat. 2. Outlines of heart. 3. Venous hum. 4. Functional murmur. He described the variations in the apex beat and outlines of the heart in infants and children of different ages, and gave an interesting description of the methods employed in his investigations.

Discussion.—J. L. MORSE (Boston) referred to the position and boundaries of the heart in a child, especially of the limits of the right border. He thought the venous hum heard in children when head was thrown back, and eyes looking directly upward was not of diagnostic importance.

The Management of Hernia in Infancy and Childhood, with Results of Operative Treatment.—WILLIAM B. COLEY (New York City) stated that a third of all hernia cases occur before the fifteenth year. He explained carefully what is meant by the term congenital hernia, and said that nearly all cases of hernia occurring in children from 3 to 6 years of age is congenital. When some congenital defect is present any increase of intraabdominal pressure may induce a rupture. Operation should be performed in all cases of strangulated or irreducible hernia, and in cases that reduce with great difficulty. If rupture has tendency to increase in size when truss is being worn, operate. Radical measures are also required when there is a large amount of fluid in the sac. He discussed in detail the indications for and results of the truss treatment, stating that 75% of hernias are corrected by the truss. He explained the various methods of mechanical treatment employed. The measures used for the relief of umbilical hernia, both mechanical and operative, were described. He told how and when to operate in the different forms of hernia, and how to meet the numerous complications. He used a modified Bassini operation, without transplanting the cord, claiming it gives him the best results. He claims the truss treatment is unsatisfactory in treating cases of hernia associated with an undescended testicle, as it retards the descent and development of that organ, and rather favors the development of malignant disease. Strangulation is rare in children, the most cases being under 2 years of age. The cause of the strangulation in children is traceable to the tense fascia of the external ring and not to the neck of the sac, as is often ascribed.

Discussion.—ENGLISH discussed the various mechanical measures employed in treating umbilical hernia. He has found the use of a silver quarter wrapped with gauze to give good results. ROSA ENGLEMAN (Chicago) spoke of the difficulty of preventing excoriations of the skin in using the adhesive strips. COLEY employs the oxid of zinc plaster, frequently changed, and a flat pad slightly larger than the opening. He advises against operating in children under 1 year.

Chorea.—W. C. HOLLOPETER (Philadelphia) brought out the principal points in the etiology of the disease. He spoke of the value of prophylaxis, such as care of the teeth, general hygienic measures, press of school work eliminated, avoidance of irregular and rapid eating, etc. These conditions if not overcome lower the resistance of the child and pave the way for chorea. He believes poor hygiene and excitement at home have more to do with chorea than the environments of the school. Chorea is thought by some writers to be of microbic origin, while by others the disease is considered to be of cerebral origin, because of its peculiar manifestations. He discussed rheumatism and its relation to chorea. In treating the condition he advocated the use of prolonged warm bathing which greatly shortens the attack. Begin with a temperature of 90° to 98° F. and gradually cool it down to suit the comfort of the patient, never allowing it low enough to produce a secondary shock. Keep the child in the bath one or two hours.

Discussion.—C. F. WAHRER (Fort Madison, Ia.) brought up the difficulty of making a differential diagnosis in atypical cases of chorea and spoke of its frequent confusion with habit spasm. HOLLOPETER (Philadelphia) said he had discontinued the use of drugs unless the patient were anemic when he employed some preparation of arsenic. He said that water supports the muscles of the child and it is much easier to interest the child in the water with boats and other toys.

Diseases of Children Occasioned by Affections of the Nose; the Necessity for Recognition and Treatment.—LOUIS J. LAUTENBACH (Philadelphia) pointed out the functions of the mouth and nose and showed how they were the means of ingress for infection resulting in diseased conditions of the nose and occlusion of the passage way. The mischief thus occasioned is common and very often seriously impairs the health of the child and decreases its mentality. The various affections of the nose exert a harmful influence on the eyes, brain, throat, etc., and lessen its capabilities in every way. Any obstruction to the nose favors mouth-breathing in which case the air is not cleansed, moistened nor warmed as it normally should be, thus leading to dry throat, hacking cough, deformities of the chest, and impaired special senses. The tissues of children are much more susceptible to changes than those of the adult. The effect on the lungs, of these nasal disorders, may be due either to direct extension or to improper or diminished aeration. Deformities of the teeth also result from early nasal disuse. The treatment should consist of early prophylaxis in which all obstructions are removed and bad existing conditions corrected. Cod-liver oil is valuable. Frequent sponge bathing, friction and proper clothing with care in selection of food. The nose of a child should never be douched. If its parents require it always perform it with the child in an upright position.

A Study of a Case Conjoining Myxedema and Diabetes Mellitus.—A. A. STRASSER (Arlington, N. J.) gave in detail the report of a case in which diabetes mellitus and infantile myxedema were both present. He explained the course and treatment and the effect of thyroid extract on the patient. He said that diabetes mellitus may follow myxedema.

Section on Ophthalmology.

SECOND SESSION (CONTINUED).

The chairman, RANDOLPH, then introduced A. MAITLAND RAMSAY, of Glasgow, Scotland, who by special invitation, read a paper entitled **The Importance of General Therapeutics in the Management of Ocular Affections.** Ramsay, in this paper, first briefly referred to the tendency to specialize, due to natural progress and limitations in all fields of study, but believed that the true specialist was one having broad and comprehensive views of general medicine, and surgical dexterity especially applicable to his individual field. To his mind, the specialist should aim to keep in touch with the advances in pathology. He urged the avoidance of early specialism, as by so doing there was a loss of proper perspective and necessarily distorted judgment. There was undoubtedly a risk of such a specialist ignoring general principles. In his opinion, local treatment should have only its proper recognition. As an example of the influence of general conditions, he mentioned the necessity of general treatment in cases of corneal ulcers occurring in unhealthy individuals. He referred to Pasteur's work, and also to Welch's Huxley lecture for 1903. He stated to the effect that the healthy body was capable of producing substances antagonistic to microorganisms, and that the unhealthy body aided in the formation of substances which increased the ill-effects of the microorganisms. The general treatment should, therefore, be a part of every preparatory treatment, supplemented by local antiseptic measures. He advised looking after the general health and improving the nutrition in broken-down individuals as a means of preventing suppuration after cataract operations. He also thought no operation for imperfections in the muscle balance of low degree should be performed until the general health was restored, as they were frequently intensified by general conditions. He mentioned the fact that a disease can often cure itself, but referred to the term "constitution" as a cloak for ignorance. He cited Ehrlich's chain theory as the most intelligent expression of the forces of health and disease. As examples of the influence of general conditions, the ocular complications of measles and the occurrence of myopia in agriculturalists were mentioned. The importance of prophylaxis by increasing the resistance of the vital forces by antitoxins, fresh air, pure water, sanitary drainage, etc., was also forcibly brought out. He believed that serum treatment would come further to the front, and that it may yet serve to prevent sympathetic ophthalmia. He emphasized the correction of ametropia in children, not alone but together with care of the general health, measures to strengthen all the muscles, outdoor life, exercise, etc. Ramsay also dwelt on the supreme importance of recognizing fatigue, and of supplying the necessary remedy, rest. He said that often slight degrees of ametropia would be of no moment if the general condition was improved, and stated his belief in a close connection between ophthalmology and general medicine and surgery. The eye, he said, was not only in, but of the body, and required a physician's skill in its treatment. He insisted on the early treatment of eyestrain. A knowledge of the natural history of disease was necessary for its removal, in his opinion. Disease should not be considered as an entity, but rather as a perversion of natural processes. With such ideas in mind, the prevention and relief of disease was rendered easy. The necessity of proper food was also emphasized. The elements of absorption, metabolism, assimilation, elimination, etc., should be remembered as influencing nutrition, and consequently, the resistance to disease. RAMSAY cited phlyctenular disease as an example of the reflection of general nutritional disturbances through the eye. He believed that many of these cases had inherited a lowered resistance, and this, together with the unsatisfactory environments, gave rise to the socalled scrofulous condition; although it was often impossible to demonstrate tubercle bacilli, the vulnerability of these individuals was undoubted. He also made mention of the tendency to recurrence in phlyctenular disease, unless the general condition is considered in the treatment. The alternation of disease of the eye, ear, skin, and mucous membranes in this class of cases was likewise remarked, as was also the possible engrafting of tuberculosis. The real treatment should be constitutional, and should include attention to the diet, nightly warm baths, wearing of woolen nightgown, diaphoresis, etc. The administration of tartar emetic in slightly nauseating doses preferably with purgatives, especially rhubarb, was advised and if the tongue was brown, gray powder should be employed. He insisted upon the avoidance of dietetic indiscretions and repeated the fact that the return of disease is not uncommon if the proper internal treatment is not continued sufficiently long. He recommended sending such a child to the country, preferably where a high, dry, bracing air could be obtained. Open air was very essential. The seashore should be avoided. Restorative methods are only of value after proper assimilation of food is brought about. He thinks phosphorus, cod-liver oil, iron, etc., should not be prescribed until the stomach is in good condition. Some constitutional factor should always be sought for first and appropriately treated. He did not consider the individual remedies favorably when they interfered with the stomach and considered that the combinations should be carefully varied to suit the individual peculiarities. Ramsay did not look with favor on the indiscriminate use of remedies advocated by the large drug companies and thought that the physician is only in control of the disease when he directs his own prescriptions and dosage. He referred again to the great importance of rest and especially to the beneficial results following sleep after cataract operations and to insure this he routinely administers the triple bromids before the operation, recognizing the great disadvantage of restlessness. Pain after operation he believed to be a great disadvantage by the restlessness it induced. In many instances it was of great advantage in indicating the character of the complication present and he mentioned the blepharospasm induced by the pain following exposure to light in certain conditions. The rest produced by atropin often served to relieve pain. The essayist stated that more knowledge of therapeutics was not necessary but rather a better application of the knowledge already extant was needed. He believed that retrospection was of great value in guiding us in the future. He also observed that the clinical experience and teaching of the founders of ophthalmology were in many respects equal to those of the present period. On motion of BULLER a rising vote of thanks was tendered Ramsay on conclusion of his paper. E. J. BROWN (Chicago) then showed several illustrations from Ramsay's book on the screen by means of the Hoy Opaque Projector, without removing the sheets from the book. Ramsay then responded to the vote of thanks.

[*To be continued.*]

Section on Pathology and Physiology.

FOURTH SESSION.

Malignant Endotracheal Tumor, Simulating Aneurysm.—JUDSON DALAND and JOSEPH MACFARLAND (Philadelphia). The most prominent symptoms were cough, expectoration, progressive mechanical dyspnea and paralysis of the right vocal cord. During life it was impossible to make an exact diagnosis and the case was considered one of aneurysm or of tumor pressing on the trachea. Death from suffocation occurred six months after the onset of the symptoms. Histologically the tumor was somewhat mixed, the greater portion consisting of squamous epithelium apparently derived from the esophagus. MacFarland also demonstrated lantern slides from a case of general xanthelasma.

The Influence of Posture on the Pulse-rate and Blood-pressure.—O. Z. STEPHENS (Chicago). This paper was read by W. S. HALL (Chicago). Methods: Blood-pressure tested by the Riva-Rocci sphygmomanometer applied to the arm just above the elbow, the pressure in the pneumatic arm girdle being made great enough to shut off the pulse and measured in millimeters of mercury. The postures assumed were: Standing, sitting, supine, right and left lateral and head down (angle 45°). Median values determined by the Hall-Quetelet method of evaluation of anthropometric data. Results: 1. The blood-pressure was found to decrease progressively in the following positions in the order named, beginning with the highest: Head down, lateral, supine, sitting, standing. 2. The pulse-rate was found to increase progressively in the following positions in the order named, beginning with lowest: Head down, lateral, supine, sitting, standing. 3. The pulse-rate is decreased by those influences which increase blood-pressure; but pulse-rate can decrease with increased blood-pressure only when there is an increase in heart strength and in the resistance. 4. The heart strength and resistance increase progressively in the following positions in the order named: Supine, lateral, sitting, standing.

The paper, **Experiments Illustrating Physiologic Optics**, by W. S. HALL (Chicago), was a presentation of several new and simple instruments for demonstrating the physiology of vision, and especially adapted for classroom work in these subjects.

A Case of Early Acute Pancreatitis without Hemorrhage.—H. H. GERMAIN and HENRY A. CHRISTIAN (Boston). Clinical history of the case was given, also clinical diagnosis, report of autopsy and microscopic study, with particular reference to the lesions of the pancreas.

The Pathologic Histology of Adipose Tissue.—HENRY A. CHRISTIAN (Boston). This paper was a study of subcutaneous, omental, and perinephric fat, and of lipomas; intranuclear fat; intracytoplasmic fat; cell types (*a*) large cell with single large fat droplet, (*b*) large cell with several smaller fat droplets, (*c*) smaller cells with many fine fat droplets; staining reactions of the fat; possible significance of these variations.

The meetings of the session closed with a paper by C. W. DUVAL (Boston), who has been working upon a grant from the American Medical Association, on **another form of Bacillus dysenteriæ**. The paper was a description of the cultural and agglutinative characteristics of a bacillus isolated from a case of dysentery. The organism is peculiar in that it bears the same relation to the typhoid and the dysentery organisms that the paratyphoids do to the typhoid and the colon. The observation is of importance in that it shows the close relationship of the different pathologic forms encountered in the intestines, and the gradual transitions from one form to another; also the care and careful technic necessary in the study of the entire group.

Section on Laryngology and Otology.

FOURTH SESSION.

The Present Status of the Treatment of Deafness Due to Chronic Catarrhal Otitis Media.—PHILIP D. KERRISON (New York). The subject was considered under the following headings: 1. Chronic tubal catarrh without marked tympanic changes other than those due to retraction of the membrana tympani. 2. Chronic hypertrophic otitis media. 3. Hyperplastic otitis media; dry catarrh of the middle-ear; otosclerosis, with remarks as to the differential diagnosis of each. In this connection certain functional reactions must be taken into account. Indications and methods for treatment in which were included the therapeutic measures at our disposal with a consideration of their relative values. The electrolytic and other methods of overcoming tubal constrictions were dealt with, closing with a summary of the present status of the operative treatment for the improvement of hearing.

The Hot Water Douche in the Treatment of Chronic Deafness.—G. P. HEAD (Chicago). From the recognized effects of heat in dissipating chronic inflammatory deposits and the peculiar accessibility of the middle-ear to hot applications, the author was led to this method in the treatment of chronic catarrhal deafness. The class of cases in which the treatment is applicable was given and a comparison made between the treatment by hot air and hot douche, showing the difficulties attending the use of the former. The method of using the hot water and the proper temperature were described with the effects during and after treatment, closing with the report of cases. This paper and that of Kerrison were discussed together.

Discussion.—PYNCHON (Chicago) approves of the hot water douche as a means of treating the ear, if all nasal obstruction has first been carefully relieved. SMITH (Philadelphia) does not approve of catheter and bougie in the eustachian tube now so much as formerly. He favors the palliative and milder methods in such chronic cases before the radical procedures are employed. In a series of 150 cases of ossiculectomy reported some years ago, he stated that the noises were temporarily relieved, but in a great many instances gradually returned. He has found some improvement from hot air treatment in certain cases, but has not used the hot water irrigation sufficiently to be able to draw any conclusions. RANDALL (Philadelphia) stated that he has not used the hot water irrigation, but will try it. In addition to freeing the nasal passages, he believes that the patient must be taught to use the nose, an opinion expressed long ago by Harrison Allen. DENCH (New York) spoke in complimentary terms of the papers presented by Kerrison and Head, and of the valuable suggestions which they contained. He stated that while everybody agrees that nasal obstruction, when it exists, must be corrected, yet frequently the most obstinate cases we may encounter are those in which the breathing is already free. He further stated that he does not get benefit from external massage, but approves of treatment by the eustachian tube. He expressed surprise that no one in his discussion had mentioned the use of the massacon, which has recently been introduced and used as an electric vibrator. Hot water seems better in hypertrophic than in hyperplastic cases.

The Treatment of Otitic Septicemia.—B. ALEXANDER RANDALL (Philadelphia) made the following points: Toxemia or septicemia may occur without apparent purulency, still less a sinus thrombosis. The symptoms may be vague, general and fugitive, without localization. When they localize, it is too often as leptomeninigitis—generally fatal. Capital operation rarely succeeds after the indications are clear, and is rarely permitted sooner. Mercurials, salines and sweats are greatly helped by enteroclysis or hypodermoclysis. Lumbar puncture may be curative as well as diagnostic, if repeated at need even several times a day. Quinin, antistreptococcic serum and other antiseptics may be tried, but in many cases where most treatment would be refused, high saline enemas are unobjectionable, and may prove life saving.

[*To be continued.*]

Section on Materia Medica.

THIRD SESSION (CONTINUED).

The Systemic Value of Radical Change in Diet.—RUSSELL H. CHITTENDEN (New Haven, Conn.) says the part played by the liver cells in the transformation of the metabolic end-products into urea is made manifest when the portal vein is anastomosed with some other vein going to the heart. The amount of proteids ingested influences the proteid katabolism. From the experiment he has performed he is convinced that unnecessary amounts of proteids are ordinarily ingested, and that with a diminished ingestion of proteids, after the economy has adapted itself, the body-weight is maintained and the physical strength increased. Only such amounts of proteids are necessary as will maintain the physical and mental vigor, anything above that amount will only add to the work of the excretory organ, to which organ it is detrimental. Chittenden thinks the amount could be decreased a third, and in some cases half of that usually ingested. The amount of purins produced diminishes with the amount of proteids ingested. He says the methods by which uric acid is produced are still unknown. It would be impossible to define the amount of proteid for all individuals. Each individual is a law unto himself, and he must govern the amount according to that law.

The Prevention of Gout and the Management of its Manifestations.—WOODS HUTCHINSON (Portland, Ore.). Owing to his absence, the paper was read by H. C. WOOD (Philadelphia). He states specifically that uric acid is not the cause of gout. The morbid process, whatever that is, causes a precipitation of the biurate of sodium in the tissue, which is a symptom that we call gout. Uric acid is not toxic and is not an imperfect combustion of the urea series. Hutchinson defines gout as being a mild form of intoxication with the deposit of biurate of sodium in the tissue, and states that it is a symptom of some lesion. It might be due to refractive errors, points of suppuration, autointoxication. That, he says, is why lithia does good in cases of gout; this substance prevents fermentation in the alimentary canal, so that toxins are not formed. In the same way, intestinal antiseptics and mild laxatives are useful. Food, neither the amount nor the character, is capable of producing gout. He has seen gout in women who suffered from chronic constipation and who lived upon bread and water. In regard to treatment, only such foods are to be avoided as will give rise to intestinal fermentation. He is a great advocate of the use of large amounts of water.

Discussion.—STERN (New York City) says the possibility of antienzymes was too nice to be true. He believes the natural solvent power of the blood-serum for uric acid is interfered when uricemia results. He concurs in Chittenden's views that we overfeed. TURCK (Chicago) believes that only when decomposition takes place autodigestion occurs. He has found that the products of the colon bacillus if added to mixtures which before this addition would not digest, a mucous membrane underwent dissolution. The toxin of diphtheria will not produce the same effect. REED (Philadelphia) asked whether Chittenden had tried his experiment upon diseased cases, such as gastritis. CHITTENDEN, in reply, stated that he had not tried it upon gastritis, but he related a case of indigestion which was followed by improvement after the experiment. COHEN (Philadelphia) believes the alloxuric bodies are the result of perverted katabolism and that in many people this is an inherited condition. WILEY (Washington) calls attention to the fact that meat is not necessary to endurance, and that if lead is a cause of gout we must look forward to an increase of this condition, owing to the amount of canned foods that is being used. He asks whether it may not be the products associated with the fermented alcohol that cause the gout. LOW (Philadelphia) does not believe there is overmastication, but rather insufficient. He believes overeating is extensively practised. Turck states that if unmasticated foods are introduced into the stomach for long periods of time there results a chronic dilation of that organ consecutive to fatigue. FUTCHER, in closing the discussion, reasserts that the intoxication causing gout is due to uric acid. He mentions the view put forth as to which is primary, the necrosis of tissue or the deposit of uric acid. The precipitation of the uric acid, in his opinion, does not mean that the blood-serum is saturated with uric acid. He is inclined to believe that other substances accompanying fermented alcohol may give rise to the gout.

FOURTH SESSION.

Hydrastis, Some of its Therapeutic Uses.—W. BLAIR STEWART (Atlantic City) says it acts upon the mucous membranes, especially diseased ones, stimulating them. It is slightly astringent, a feeble antiseptic, and stimulates the flow of bile. Hydrastinin is most liable to produce abortion. He finds hydrastis very useful in diseases of the mucous membranes, especially chronic catarrh due to the use of alcohol. It should be given in small doses, beginning with two drops, and then gradually increase. Mucous vomiting and the appetite for alcohol are reduced by giving the hydrastis one hour before meals and at bed-time. Stewart uses the fluid extract to a large extent, although the glycerite is best for local use, especially epistaxis. The hydrochlorate of hydrastis will control menorrhagia very well in quarter grain doses.

Discussion.—WHITE (Providence, R. I.) confirms the views expressed by Stewart. WALL (Chicago) says berberin contracts the relaxed connective tissue, and that it is especially useful in an atonic condition of the stomach. LOW (Philadelphia) thinks it is better to give the drug hydrastis than to use either of its alkaloids. He says the good results reported from the use of either one of the alkaloids is due to the fact that it is a frequent occurrence to find a mixture of both alkaloids instead of a pure drug. STERN (New York) announced that in chronic interstitial nephritis this drug becomes accumulative and then produces toxic symptoms. If the administration of this drug is followed by toxic symptoms he makes the diagnosis of chronic interstitial nephritis. STEWART, in closing the discussion, says there is no doubt that hydrastis is a contractor of relaxed connective tissue, and the smaller bloodvessels. He finds it does good in all forms of urethritis. If one attempts to make this drug palpable, its properties become lost; the best way of administering the drug is in capsules.

[*To be continued.*]

Section on Hygiene and Sanitary Science.

THIRD SESSION (CONTINUED).

In the discussion on J. S. Fulton's paper **Is Pneumonia Increasing** WILBUR said that the ratios are usually more deceiving than the population deathrates, though in this instance perhaps the rates might not have yielded more instructive results. It is to be regretted that American statistics are not comparable for different times or different places. It would be very unprofitable to compare the mortality of Michigan with that of Massachusetts or Connecticut, and it is just as irrational to draw conclusions from such comparisons as are often made between the crude statistics of different cities. Fulton is mistaken in believing that the United States census mortality for 1900 was compiled in accordance with the Manual of the International Classification. The International Classification was used, but the unknown causes, senile debility, etc., were not tabulated in accordance with the plan of the Manual. The 1900 census statistics are not indeed the statistics for 1900, but cover the time from June, 1899, to June, 1900. The mortality tables for 1900 will be published however, and are tabulated according to the Manual. There is great need of agreement on methods of compilation. The variations in the pneumonia statistics are in part at least explained by the varying practice of registrars with regard to pneumonia when returned as associated with some other disease. Some of the terminal pneumonias for instance ought to be referred to the account of the disease with which they are associated. In other cases the pneumonia account is properly charged with the death. It is sometimes difficult to decide. So with the pneumonias returned as following or complicating definite acute diseases, we do not know what is the practice of the various registrars in compiling these returns. The statistics may become very misleading for lack of consistent and uniform practice in compilation. The history of unknown causes in Michigan illustrates this point as Fulton has shown. The remarkable irregularity in the 80's is due to alterations in the tabulation of infantile deaths. The cause of the great rise of unknown causes in 1897 was probably of the same nature; it was a matter of registration, not of variation in the certificates returned. BAKER (Michigan) regretted that Fulton had not used rates instead of ratios. In Michigan they are very careful about interpreting the statistics, and have come to believe that on the whole one is more apt to be deceived by the ratios than by the population rates. He thought that mortality returns should be studied in duplicate and in triplicate, if necessary, so that the relations of the one, two or even three causes, often named on death certificates, might be ascertained. If, in addition to his study of the ratios, Fulton would make a similar study of the population rates the combined results might be very instructive. While the paper was being read one could not follow the figures and the charts carefully enough to form conclusions. The paper leaves one in doubt whether pneumonia has increased, and this is not a satisfactory state of mind. FULTON, closing the discussion, said that the ratios served the present purpose quite as well, probably better, than the rates would have done. The argument is merely destructive, but it is necessary. The pneumonia sensation has been altogether too prominent of late. If the study leaves the matter in doubt, that is at least better than delusion. The ratios bring the errors into view, though without determining their amount. The rates would have done no better. The population rates are indeed subject to nearly all the fallacies encountered in the mortality ratios, and to some others beside. The study of the ratios shows that some registrars have been conspicuously inapt at the analysis of mortality tables. A study of the subject by population deathrates can hardly be begun in this country. If city registrars know too little about their dead, they know less about their living populations. If pneumonia has increased anywhere it has increased below the age of five years. What city in this country can state a deathrate for its population under five years? Not one. The cities do count their dead by ages. But we only have once in 10 years the United States Census figures for the age distribution of living population. For intervening years the Census percentages would probably not hold; they might be especially misleading for the populations under five, and for great cities like New York and Chicago, small errors may produce great illusions. For him the question is almost settled when he is convinced that the period of life under five, forms the only ground of debate. A tremendous majority of the pneumonia deaths at this age have etiologic relations utterly different from those of the disease which the clinician has in mind when he talks about pneumonia.

[*To be continued.*]

AMERICAN ACADEMY OF MEDICINE.

Twenty-ninth Annual Session, Atlantic City, N. J., June 4 and 6, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 1014.*]

Science vs. Shekels.—CHARLES MCINTIRE (Easton, Pa.) said science would have a sorry time without shekels, but when the choice must be made between the two, there is a possibility of mischief. The contest between science and shekels is one of the greatest stumbling blocks between the physician and the pharmacist. The habit of using ready-to-wear medicines makes it necessary for the druggist to increase the money outlay in keeping up his stock, and competition among manufacturers is constantly increasing the number of preparations. The actual difference between a preparation made by one firm and that made by another may be nil, but both preparations must be kept in stock and no pharmacist has a right to fill a prescription except as denominated, yet in many instances these restrictions are needlessly severe. Not only in the half concealed preparations do the manufacturers claim superiority, but they claim improved methods of manufacture. The physician should see that he gets the purest and best drugs that the market supplies, leaving to the druggist the choice of the product. This would divide the druggists into two classes, the one furnishing reliable remedies and the other would be left alone.

Discussion.—WILLIAM R. WHITE (Providence, R. I.) said the incomprehensible thing is that the physicians and surgeon dentists have so long kept apart. There is opportunity for cooperation and help not only between members of the two professions, but also from a humanitarian standpoint to the public. He was much impressed by the two cases that Kirk quoted, instances in which the primary trouble evidently was located in and around the teeth. Those cases unfortunately fell into the hands of men of our own profession, physicians or surgeons, and evidently from the doctor's description they were not appreciated. Fortunately before it was too late, these cases came under the diagnostic ability of scientific dentists, the conditions relieved, proper treatment applied and lives saved, but not all cases that would come under that class result as have these, sometimes they go on to more serious, even fatal result.

EUGENE S. TALBOT (Chicago) said so far as interstitial gingivitis is concerned, dentists must be better diagnosticians than the physician, the alveolar process being the most sensitive part of the human body, and is the index to more grave systemic conditions. Changes in the stomach which bring about this disease, intestinal fermentation, high or low specific gravity urine, indicanuria, excessive acidity of the urine, gases in the bowel, acidity of the stomach are trivial matters to the general practitioner except when serious complications arise. Long before gout, rheumatism, and any of the lesions of the arteriosclerosis manifest themselves, this interstitial gingivitis is well established, the teeth have loosened and dropped out. The general practitioner and specialist should watch the gums and alveolar processes for the systemic effects in prescribing mercury; also the gums and alveolar process in the man or woman working in metals or drugs. Medical colleges should have chairs in stomatology, with a course of 12 to 20 lectures given to oral diseases and hygiene.

L. DUNCAN BULKLEY (New York) said there is no doubt that the presence of pus germs in the oral cavity and of interstitial gingivitis must profoundly affect the health of the individual. There have been several cases of chancre of the gums reported by infection from dental instruments and any number of dentists have contracted syphilis on the fingers, not recognizing the lesions of mucous patches. Various faults, such as bad growth, decaying teeth, rickets in children, etc., must be studied in all their aspects, the blood count, the secretions of the mouth, the reaction of such secretions. If dentists would send some of these cases of interstitial gingivitis and rickets to the physician, improvement would often follow internal treatment by alkalies combined with phosphates in proper quantities.

H. O. MARCY (Massachusetts) said it was his privilege recently to examine several hundred skulls of a prehistoric type from South America, and found whole rows of adult skulls with perfectly sound teeth. Here is a question—Why have they sound teeth and we have not? Illustrative cases have been brought up this afternoon in which dentists have rectified the errors of physicians. Some time ago he learned of a dentist who made a well-nigh fatal mistake removing a bad wisdom tooth and injecting forcibly a solution of hydrogen dioxid. Instantly the pain shot around the lower jaw as the injection shot around the sinus. The patient lost all the lower teeth with a necrosis of a portion of the exterior of the jaw, carrying the infection by the injection in such a way as to disseminate the process. Two other cases recently came under observation. One patient was a man past 70, who had worn an artificial plate for 20 years or more. A tooth had grown in the lower jaw, supposed to be the site of malignant disease. Dissection through the bony plate showed a fully developed tooth, developing longitudinally, ovoid in shape. These cases point to cooperation and consolidation of interests.

S. A. KNOPF (New York) said that in his hospital practice he treats a great many tuberculous poor, and he can do them no good unless the hospital board allows him to order new teeth. Digestion invariably is faulty because they have no teeth to masticate their food. Some forms of mixed infection in pulmonary tuberculosis can be traced to decayed teeth. He held that every poor family in the United States should be provided with a family physician and family dentist. In relation to the discussion on a Bureau for Foods and Medicines he had prepared a paper to be read at another section, which shows a number of preparations which the public is consuming in doses of a teaspoonful to a tablespoonful three times per day, increasing according to need. This shows the percentage of alcohol, ranging from 14% to 44%. These preparations are recommended by lawyers, jurists, and other professional men who have not the slightest idea as to their contents. It would be well to extend education along these lines.

LEARTUS CONNOR (Michigan) said the dentist and the other excellent observers in the dental profession tell us that adenoids in the throat or tonsils that are diseased have the faculty of modifying the arches, in the child they disturb the position of the teeth, and if continued until maturity, these defects always remain. We have every reason to believe this represents practically the case. Dentists who appreciate this insist that these two great sources of infection are causes of grave trouble, such as endocarditis and that acute and chronic rheumatic conditions are largely due to infection in this part of the body. We have always known that infection of these had to do with infection of the ear.

[*To be continued.*]

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL SOCIETY.

Tenth Annual Meeting, Held in Chicago, Ill., May 30, 31, and June 1, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 1015.*]

Symposium on Malignant Growths of the Upper Air Passages.

F. C. COBB (Boston) discussed the nose and accessory sinuses; MAX A. GOLDSTEIN (St. Louis, Mo.), the mouth and pharynx, while D. BRADEN KYLE (Philadelphia) briefly discussed the pathology of malignant growths of the upper air passages.

Adenocarcinoma Occupying All of the Sinuses, Nose and Orbits.—W. H. DUDLEY (Easton, Pa.) read a paper on this subject, and presented a pathologic specimen. The patient was 63 years old, with a history of the previous removal of polypi from nose and nasopharynx, and presented himself with disease of left maxillary antrum, and exophthalmos. Antrum and orbit were cleaned out, but growth soon returned, and continued to involve one sinus after another, until the whole anterior portion of the head had become one mass of adenocarcinomatous tissue. Microscopic sections of polypi removed early were simple adenoma, but all sections examined after the operation to relieve the exophthalmos were adenocarcinoma. The case was under observation over two years, and during this time the röntgen ray was used for several months, which resulted in relieving the pain (which was never very severe), and reduced somewhat the size of the tumor, which, however, grew rapidly as soon as this treatment was discontinued. An examination of the bisected specimen showed practically none of the osseous framework of this part of the head, except the sphenoid and frontal bones, and a portion of these was also absorbed. Several photographs were presented, showing the appearance of the case at different stages of the disease.

Malignant Disease of the Upper Air Passages.—CHEVALIER JACKSON (Pittsburg). The factors in the etiology of carcinoma were age, sex, heredity, syphilis, irritation, and precancerous benign neoplasms. The sites in the order of frequency were the glottic boundaries, the epiglottis, posterior surface of the cricoid cartilage, interarytenoid fold, aryepiglottic ligament, ventricular bands, the ventricle, and the infraglottic region. The symptoms were dysphonia, hoarseness, aphonia, cough, expectoration of frothy secretion, dyspnea, hemorrhage, orthopnea, pain, laryngeal, and referred to the ears, dysphagia, odynphagia, fetor, and cachexia. The laryngoscopic appearances might show paralysis of a cord, a more or less diffuse redness, or a protrusion appearing snow white, dirty gray, pinkish, or reddish, in form, papillomatous, warty, with sharply pointed elevations, with intervening rounded granulations, or an ulcer. It might be single or multiple, and was often covered with pus or frothy saliva. The diagnosis would rest upon the age, fetor, cachexia, adenopathy, pain, duration, paralysis of a cord, palpitation of the thyroid cartilage, and the microscopic report. Syphilis, perichondritis, lupus, tuberculosis, chronic laryngitis, blood clots, and hemorrhagic spots, pachydermia, eversion of the ventricle, and benign growths were excluded. The prognosis as to termination was unfavorable, but not hopeless. In early operated intrinsic malignant disease it was good. In disease extrinsic by origin or extension, and when the lymphatics were infected, it was unfavorable. Prognosis as to duration, from two to ten years might be promised, if not seen too late. As to recurrence, the prognosis was the same as mentioned of termination. The prognosis as to voice in early thyrotomized intrinsic cases was fairly good; in late cases requiring laryngectomy, some kind of sound answering to speech might be promised. Treatment might be palliative or radical. Palliative measures included tracheotomy, esophagostomy (or gastroenterostomy), cleansing sprays, and gargles. Serum therapy, Finsen's light rays, röntgen rays, and radioactive substances were not yet proved of benefit. Partial endolaryngeal removal of the malignant mass was absolutely unjustifiable, even for the dyspnea, unless consent to a tracheotomy could not be obtained.

Radical Treatment.—Unless total removal of infection was a reasonable possibility, no operation was justifiable except tracheotomy, esophagotomy or whatever else might be planned to prevent or postpone inanition or asphyxia. Radical endolaryngeal extirpation was impossible. Radical measures included transhyoid and infrahyoid pharyngotomy, thyrotomy, partial laryngectomy, and total laryngectomy. Pharyngotomy, transhyoid, and subhyoid were adapted only to disease limited to the epiglottis. Thyrotomy was the operation of election under the following conditions: 1. An intrinsic growth. 2. A limited extent of disease. 3. Malignancy. 4. Suspected malignancy (exploratory thyrotomy). 5. No involvement of the thyroid cartilages. 6. No glandular involvement. Partial laryngectomy was advisable when at thyrotomy removable malignant extension was found. Total laryngectomy with, if necessary, removal of all infected glands and tissues, was indicated when the patient desired a chance of cure, with, in any event, increased comfort for a variable period, when the disease was extrinsic by origin or extension, or, though intrinsic, so extensive that sufficient surrounding healthy tissue could not be otherwise removed. Total laryngectomy with modern technic, prosthetic appliance, and the possibilities of buccal voice, was not the formidable prospect for the patient that it formerly was. Preliminary stitching of the trachea to a buttonhole in the skin, the avoidance of opiates, the combined Trendelenburg-Rose position, "talking anesthesia" with chloroform, allowing the patient to "come out" before the stitches were put in, careful postoperative watching, very frequent cleansing of the canula, and keeping the patient prone after operation, all these would reduce the danger of postoperative pneumonia to almost nothing. Rectal alimentation was a delusion and a snare. Feeding should be by esophageal tube for a few days. The use of a brilliant head lamp facilitated thorough extirpation. The curet had no place in the extirpation of laryngeal malignant disease. It rubbed in the infection, as a rake buried seed in the soil. A clean cut with knife and scissors through healthy tissues beyond the invaded area was the best method.

Orbital Infection from the Ethmoid Cells, with Spontaneous Opening at the Inner Angle of the Orbit.—CARL E. MUNGER (New York) said, in studying the literature of orbital abscesses involving the ethmoid region, it was apparent to him that the number of cases recently reported was much less since the rhinologist had been developed, and our knowledge of intranasal diseases had increased and intranasal surgery had become more nearly perfected. This was undoubtedly due to the earlier diagnosis made possible by more extended information as to ethmoid diseases, and the greater promptness with which the ethmoid region was attacked surgically. Cases of orbital infection from the ethmoid cells occurred, as was evidenced by the report of such cases. Most of the examples of this occurrence were chronic in character, coming on early after a long duration of ethmoid trouble, but with notable exceptions, *i. e.*, as in a case reported by W. N. Hubbard, in which the orbital abscess came on shortly after a case of tonsillitis, probably of influenzic origin in a patient with no previous history of ethmoid involvement; and a case reported by Milligan, where an ethmoiditis followed a severe attack of cold in the head, and this in a short time followed by the appearance of an orbital swelling in the region of the inner canthus. The case reported by the essayist was not unlike those previously reported.

Diseases of the Salivary Ducts and Glands, and Their Treatment.—ROBERT C. MYLES (New York) pointed out the diseases commonly associated with these organs, and reported five instructive cases. The points of interest that were taught by the histories of these cases were: (1) That it was necessary to make a thorough test of every known method, in order to obtain a correct diagnosis in suspicious cases; (2) that the removal of these calculi could best be accomplished by surgical procedures, preferably through the floor of the mouth; and (3) that it was always well, when possible, to probe and dilate the duct, and thus establish and maintain the normal flow of the salivary secretion.

Uses of Rubber in the Treatment of Nasal and Antral Diseases.—PRICE BROWN (Toronto, Ontario) said there were many cases of nasal disease in which, although the passages might be sufficiently open to permit of nasal respiration, yet owing to accumulation of secretion while sleeping, the mouth dropped open, and oral respiration was the result. In consequence of this, the dry air entering the pharynx absorbed the moisture exuded by the superficial glands for the lubrication of the mucous membrane, and chronic pharyngitis and laryngitis were the result. For the last 12 years the author had endeavored to remove this cause of oral respiration by the use of rubber mouthpieces, made of pure sheet rubber, about an eighth or a twelfth inch thick. A piece was cut to fit the cavity of the mouth between the teeth and lips. The latter were closed over it, hiding it from view, and when worn, oral respiration became impossible, the patient being forced to breathe through the nostrils. One great advantage of all these rubber appliances was that they could be easily made by the surgeon.

EDWARD B. DENCH (New York) reported a case of acute suppurative otitis media, which was complicated by a double pneumonia and septic thrombosis of the jugular bulb. The author resorted to excision of the internal jugular, which was followed by general systemic infection and death.

[*To be continued.*]

AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Seventh Annual Meeting, Atlantic City, New Jersey, June 6 and 7, 1904.

[Specially reported for *American Medicine*.]

[*Continued from page 1016.*]

Incidence of Gastric Ulcer in the United States.—CAMPBELL HOWARD (Baltimore, Md.) gave separate statistics of clinical and autopsy findings from 16 hospitals in 9 cities, considering them first according to hospital and second according to cities. He stated that the most important clinical symptom was pain; the clinical history of hemorrhage is always questionable, as many times even an experienced physician is unable to be positive whether hemorrhage exists or not without a test therefor, so that in considering the history, the character of the patient, the medicine used, etc., should be noted. The records of the clinical condition covering the cities of Boston, Montreal, New York, Cleveland, Baltimore, Philadelphia, Chicago and Denver embraced 161,599 medical admissions, out of which 930 cases were diagnosed as gastric ulcer, or .37%. In the Charity Hospital, Berlin, the records between 1888 and 1898 showed 1.33%; London showed .78%, and Edinburgh showed 2.02%. The autopsy statistics covered the cities of San Francisco, Boston, New York, Philadelphia, Montreal, Cleveland and Baltimore, showing that out of 10,841 autopsies there had been 144 cases, or 1.32%; while the autopsy records of London showed 4.6%, and of all Europe, 8.54%. He called attention to the fact that the condition was more frequent in the northern than in the southern section of the United States and that it was also somewhat more prevalent in Europe than in America; also to the fact that there was more discrepancy between the clinical and the autopsy figures in America than in Europe.

Gastric Ulcer in Children.—E. G. CUTLER (Boston, Mass.) stated that in the City Hospital in that city the records show but a single case; while in the Children's Hospital there is no record of any, both these institutions being over 40 years old. In the Massachusetts Hospital, which has received cases for 75 years, but 3 cases have been diagnosed. A search of the literature revealed 24 cases, in which the ulcer is described as being conical, the edges smooth, and not sharply defined; seldom any necrotic shreds, and the walls showed no pathologic change. Microscopically there was a little interstitial cellular inflammatory tissue; in most of the chronic cases there was a calloused formation of the floor and walls; aside from a small area of infiltration, the mucous membrane was essentially normal. There were 23 cases, 13 acute and 10 chronic, on which autopsy had been performed. He then gave in detail the location of each of these ulcers, and the symptoms in each. Five cases developed immediately after birth and in 6 the ulcers were apparently recurrent. The acute cases were located as follows: Near the cardia, 4; near the pylorus, 6; midway, 3; the chronic cases, near the cardia, 2; near the pylorus, 2; and midway, 5; in one case the location not being given. There was pyloric stenosis in one instance and perforation in several instances.

Experiments in Producing Artificial Gastric Ulcer.—FENTON B. TURCK (Chicago, Ill.), after quoting from the opinions of Starr and others in regard to the formation of gastric ulcers, outlined a number of experiments which he had made based upon the presence of substances in the normal serum, which prevent the digestion of the organs. The experiments consisted in taking the membranes from the stomachs of dogs and rabbits and digesting them in the presence of normal serum, which takes at least 60 hours, and in some instances 10 days; the addition of peptones does not seem to materially change the action, except that it prolongs it some. When heated to 80° it digests in 24 hours, and when heated to 60° it does not digest in 60 hours. Adding the colon bacillus, both from water and from ulcer patients, it is digested in 24 hours. He referred to the experiments of Ewald, Einhorn, Riegel, and others, and exhibited numerous charts, showing the effects upon the stomachs of dogs from mechanical lesions, chemic irritants, infection, injection of extracts and emulsions, exposure of the stomach, injection of the colon bacillus, both from water and from patients suffering from ulcer and injection of the peptones. He also exhibited a number of specimens from these experiments.

Discussion.—J. C. HEMMETER (Baltimore, Md.) referred to the experiments of Edwin Faust with septin, a substance which he derives from any putrefactive substance, preferably brewers' yeast. When one-twentieth of a grain of this substance is injected into the jugular vein of an animal the animal dies in three and a half to four hours, a gastric or peptic ulcer having developed in the interim. It is very debatable, whether the stomach digests itself or not, some claiming that it did digest itself, but that the columnar epithelium is repaired so rapidly that it cannot be detected. The character of the food, he believed, had considerable to do with the production of ulcers, quoting from Riegel, who states that the inhabitants along the Baltic Sea, who subsist on salt fish and other highly seasoned food, are very much predisposed to the condition, while among the Japanese, who live principally on rice, it is almost unknown. The undermining of the edges, he stated, was a mechanical process, due to the pushing and grinding of the food through the organ, and therefore, in an old ulcer we cannot expect to find the typical punched-out appearance. A. L. BENEDICT (Buffalo, N. Y.) reported a case of gastric hemorrhage occurring in a child, which had been in the habit of swallowing pieces of cigarets whenever it was possible to obtain them, and the attending physician thought the color of the vomit to be due to this cause, but examination revealed the fact that it contained blood. W. G. MACCALLUM (Baltimore, Md.) called attention to the fact that, while it was true that gastric ulcer was very rare among the Japanese, yet there were certain regions in Europe in which it was very prevalent where the diet was exceedingly poor in meat. He did not believe the question of hyperchlorhydria to be as important as was thought by many. M. MANGES (New York) felt that the condition was one in which the medical man and the surgeon should work conjointly, and believed that the discrepancy in autopsy, and clinical findings in the statistics shown by Howard were partly accounted for, at least, by the fact that only medical and not surgical cases were included therein.

[*To be continued.*]

AMERICAN SURGICAL ASSOCIATION.

Twenty-fifth Annual Meeting, Held in St. Louis, June 14, 15, 16, and 17, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 1016.*]

A Clinical Review of 46 Operative Cases of Duodenal Ulcer.—This was the title of a joint paper by CHRISTOPHER GRAHAM and WM. J. MAYO (Rochester Minn.). The authors stated that a careful history was of prime importance. The leading symptoms in the 46 cases reported were: 1. Pain, which might be due to peritonitis, distention from gas formation, pyloric spasm, and the irritation of acid gastric contents on open ulcer. The pain might come on in colics or last for some hours. 2. Vomiting, principally of sour, bitter liquids, or if obstruction supervened, of food after varying intervals. 3. Gastric insufficiency from interference with drainage. There was usually hyperacidity of gastric contents, constipation, and a great desire for food, although the patient reduced the diet and ate often a small quantity, but might fail to get the relief sometimes obtained in gastric ulcer proper. In latent cases, evidences of blood in the fecal movements might be the only sign. Differential diagnosis from pyloric ulcer in some cases might be impossible. A considerable number of cases closely resembled gallstone disease, and differentiation often could not be made. Such an error in diagnosis did not militate against the clinician, as both conditions were purely surgical and the differentiation in many cases must be made on the operating table. During the past 18 months 27% of their operative gastric and duodenal ulcers involved the duodenum in combination—53.33%. There were 33 males, and 13 females; in 43 out of 46 cases the ulcer was easily detected upon abdominal exploration as a thick, white, scar-like area. Liability of duodenal ulcer to perforate was greater than gastric, but more often safely protected by adhesions. Relatively sterile contents was also favorable. In all cases the ulcer was situated in the first two and one-half inches below the pylorus, and entirely above the entrance of the common duct of liver and pancreas, with its alkaline secretion, showing the effect of the gastric juices on the duodenal wall. In all doubtful cases of differentiation between duodenal ulcer, pyloric ulcer, and gallstones, the authors recommended making an incision through the right rectus muscle one inch to the right of the median line. Gastroenterostomy best met the indications, in that it diverted the gastric contents. In acute perforation, suture was recommended, with suprapubic drainage, with after-treatment, and exaggerated Fowler's position, sitting posture. The 46 cases were divided into five groups. 1. Acute perforation of chronic ulcer, four cases, two deaths. 2. Acute hemorrhage in chronic ulcer, one case, one death. 3. Duodenal ulcer with gastric complications, 25 cases, one death. 4. Duodenal ulcer, with gallbladder and liver complications, usually due to adhesions from chronic peritonitis, nine cases, one reoperation, no deaths. 5. Eight cases, chronic pain and distress with debility, no deaths. Total, 47 operations, 46 cases. Five operations for acute conditions, with three deaths; 42 operations for chronic conditions, with one death.

Discussion.—E. WYLLYS ANDREWS (Chicago) has seen in the last year or two several cases in which a marked hyperplasia, patches of exudate, with thickening of the wall of the duodenum, ulceration of the first inch and a half of the duodenum, connected with a similar condition of the pylorus, had produced such a degree of massive thickening that clinically at the time of operation it was indistinguishable from carcinoma. In one such case the operation, which was a McGraw elastic ligature gastroenterostomy, left him in a dissatisfied state of mind, as he feared he should have done a more radical extirpation, and yet in this particular case it was his fortune to do a second operation for obstruction a year after the first operation, and he found, very much to his surprise, absolute disappearance of the thickened massive wall which had formed in the first place and simulated carcinoma. This was what Mayo himself called attention to, namely, when the obstruction was relieved, when the flow was permitted from some other point, the inflammation, or ulceration, at any rate, the hyperplasia, disappeared at the point of irritation, and secondary to this again, when obstruction had been relieved by drainage below, the drainage below ceased to act, and again the opening became closed, so that the surgeon had to do sometimes a second gastroenterostomy. JOHN B. MURPHY (Chicago) said the practical lesson the paper taught was the frequency of occurrence of duodenal ulcer; that it was not recognized, and that it was not differentiated from gastric ulcer or gallbladder disease, whether it was of infective or of stone origin. ALEXANDER HUGH FERGUSON (Chicago) asked Mayo if he had outlined for himself the class of cases in which he would do a posterior gastroenterostomy; also the class of cases in which he would do gastrojejunostomy, or Finney's operation. The speaker mentioned one case in which he did a pylorectomy, removing the end of the pylorus and a portion of the duodenum, with an excellent result. Mayo, in closing the discussion and in replying to the remarks of Ferguson, said that he did not know that they had ever tried to excise any of these ulcers excepting in connection with Finney's operation. They were irregular and thick; they led to large vessels close to the common duct, and it was difficult to get a good stump. He thought the best thing to do was to make a gastroenterostomy, which would afford at least temporary relief, but the gastroenterostomy opening was very likely to contract, so that food would after a time continue to pass down over the duodenal ulcerated surface, and sometimes these patients would return for a second operation.

GEORGE BEN JOHNSTON (Richmond, Va.) detailed seven cases of complete removal of the shaft of the tibia, with restoration of the bone.

Discussion.—DEFOREST WILLARD said it was greatly to be regretted that not only the family physician, but many surgeons, treated such cases as Johnston had reported, for rheumatism, when there was really no sign of that disease, and they were from the beginning cases of acute suppurative osteomyelitis. Then came the septic symptoms. The physician treated them for typhoid fever and other conditions, until they drifted into the hands of surgeons, with bones absolutely destroyed, the majority of them crippled for life, with deformity of the legs. These cases from their incipiency were virulent in type, and the only time for treatment was 48 hours after the onset, and the quicker the surgeon got inside the bone, the better. If cases of appendicitis demanded early operation, surely it was doubly important that cases of acute osteomyelitis should be diagnosed and operated early. A. J. OCHSNER stated that in a large proportion of cases in which the shaft of the bone was entirely loose, when the periosteum was incised, if the bone was left in place, there would be a regeneration of a considerable portion of the apparently dead bone. If one took such cases as had been described, made an incision which extended from one end of the bone to the other, split the entire periosteum, made it necessary for the flow of lymph to be away from the tissues, left bone there as a bone graft, he had found in a considerable number of cases that there would be a regeneration of a large portion of this bone. JOHN COLLINS WARREN (Boston) said the subject was one that should be thoroughly discussed, and a message given to the profession to realize the importance of this septic process, so that cases of acute osteomyelitis might be sent to surgeons early and treated properly. As to treatment, the great point was to prevent the spread of sepsis. This might be accomplished by trephining the bone, by proper disinfection, by a comparatively moderate operation, or it might be necessary in certain cases to do quite a radical operation. P. S. CONNOR (Cincinnati, Ohio) said that in some of these cases the disease originated superficially. The cases were uniformly mistaken for erysipelas. The redness of the overlying skin was taken as an indication of the existence of the disease. Then, we had a condition simulating typhoid fever after the disease had existed for a considerable length of time, or rheumatism for a while, then typhoid fever, when the condition did not subside. Early boring of the lower end of the tibia would put a stop to the trouble. A moderate incision would not infrequently end the trouble if boring did not. S. H. WEEKS (Portland, Maine) said that while many of these cases began as a periostitis, requiring a simple incision down upon the bone, there were many others which commenced as an acute osteomyelitis in the medullary canal, and he believed under such circumstances, when an incision was made down to the bone, there should be an opening made into the medullary canal, and that canal drained.

[*To be continued.*]

ORIGINAL ARTICLES

THE MORE REMOTE CONSEQUENCES OF INFECTIOUS BILE.

BY

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In discussing the surgery of the biliary tract I am mindful of the great amount of literature which has been written upon the subject during recent years, and must acknowledge that this paper will offer nothing new in the way of diagnosis or treatment. The views of every individual surgeon, diverse as they must be from others, in some points, are often of value in pointing out better ways of approaching a correct diagnosis or of performing a successful operation. This is particularly true of gallstone surgery, because infection of the biliary tract leads to so many varied lesions, with either easily recognized or obscure symptoms.

The patient may never have had jaundice, may have but little pain and at no time suffer from the agonizing and classic picture of acute duct obstruction, and yet may have a mass of adhesions in the gallbladder region, a stone in either of the ducts and even a fistulous communication with some adjacent portion of the gastrointestinal canal. The gallbladder is often found packed with calculi or distended with pus (empyema) and the evidence so slight as to require all the judgment and experience of a skilled observer to detect the lesion.

Chronic gallstone disease is often extremely difficult to diagnose, the dragging effect of adhesions upon the gastrointestinal tract, hindering the peristaltic movements of the same, obstructing the free action of the pylorus with consequent duodenal catarrh or dilation or ptosis of the stomach, may cause symptoms entirely referable to the gastrointestinal canal.

A small, shrunken, distorted gallbladder, impossible to palpate, may be filled with stones and pus, with no jaundice, no colic, and yet cause a decline in health and strength without apparent cause.

When we review the previous life of an individual supposedly suffering from some infection of the biliary tract, no cause stands out so prominently as a previous attack of enteric fever. The typhoid bacillus is a most fertile factor in the production of acute or chronic biliary tract disease or in the causation of gallstones.

The literature affords full confirmation of this statement. The names of Welch and Blackstein,[1] Cushing,[2] and Flexner are well known in this connection.

The following case is interesting:

CASE I.—Mrs. W., aged 36, suffered from an attack of typhoid fever when 16; several years after this attack she began to suffer from indigestion with eructations of gas, and a feeling of distress in the epigastrium. This condition was followed by attacks of colicky pain in the epigastrium, radiating to the right shoulder and through to the back. The attacks of colic were followed by vomiting, which would give relief. There was never any jaundice.

In June, 1903, the attacks of colic became very severe, always with vomiting, accompanied by marked jaundice. Four months ago the patient noticed a swelling over the region of the gallbladder with extreme tenderness at this point upon palpation.

One week before admission to the German Hospital, patient had suffered an attack of pain, which was only relieved by a hypodermic of morphin. The following day jaundice occurred. Urine was intensely colored; there was tenderness in the epigastrium and over the region of the gallbladder, with pain radiating to the right shoulder; nausea, anorexia, and loss of weight.

When admitted on January 21, jaundice had disappeared, there was no anemia, and no mass could be felt in the gallbladder region, though there was considerable tenderness on palpation. The area of liver dulness was somewhat lower than normal. Blood count showed slight anemia; leukocytes, 4,500.

At operation the gallbladder was found contracted and distended with calculi about 7 mm. to 10 mm. in diameter. The common duct contained three large gallstones about 12 mm. in diameter; the hepatic duct was clear. The opening in the common duct was drained by a tube passing up to the liver and the gallbladder was drained. The patient made an uneventful recovery.

In this case it is reasonable to suppose that the typhoid bacillus infected the gallbladder, and was followed by a catarrhal condition of the gallbladder and ducts, the formation of stones, and finally their expulsion into the common duct.

While to the omnipresent colon bacillus the first place must be credited in the role of gallstone producer, the influence of its relative, the typhoid organism, must always be kept in mind. The entrance of bacteria into the biliary tract is possible by three ways: Either they ascend the bile ducts from the duodenum, are deposited by the general circulation, or reach the ducts and gallbladder by means of the portal vein.

The first is, of course, the more probable, and presumably should follow some disturbance in the biliary outflow or a preliminary infection or catarrh of the walls of the duodenum.

I have been unable to determine accurately this previous attack in many of my cases, because all patients have been subject at some time during their previous life to more or less numerous attacks of abdominal colic, usually ascribed to an error in diet, and forgotten or made little of. Many patients, however, will give the history of one or more attacks of catarrhal jaundice, bilious fever, etc., which have subsided rapidly under treatment, and for many years a period of perfect health has been enjoyed. During these years the slow precipitation of cholesterin and bilirubinate of calcium upon a clump of bacteria, a ball of mucus, or a shred of epithelium may accumulate into a gallstone. Such calculi frequently remain quiescent, and are only ascertained at a chance postmortem when death has occurred from some other disease. Kehr states that not more than 1 in 20 of those having gallstones suffer any inconvenience from their presence. But tissue which has once been the subject of inflammation, however mild, and in which there is the additional trauma of the presence of gallstones, will furnish a fertile soil for the culture of bacteria. In other cases, the calculi, small and numerous, suddenly give rise to intense symptoms and become propelled through the cystic and common ducts by some force arising from an inflammatory reaction in the walls of the biliary tract from an infection. The distention of the gallbladder by the outpouring of mucus and serum, the dragging upon delicate nerve-endings by the stretching of the swollen muscular walls, are sufficient to produce the attack of biliary colic with pain referred to the right shoulder, so familiar to us all.

The passage of the stone along the common duct is of great moment to the patient, not alone from the intense and agonizing colic which it engenders, but also from the possible occurrence of complications. Ulceration, perforation, or stricture of the ducts may become immediate sequels, and biliary cirrhosis or pancreatitis the more remote result.

In other cases there is no passage of stones into the cystic duct, and in the mild infections the inflammatory symptoms may subside into a period of latency, the bile once more flow in and out of the gallbladder, and the stones resting quietly, give no symptoms. Frequently during attacks of cholecystitis the inflammatory process extends through the coats of the gallbladder and gives rise to adhesions to the liver, colon, stomach, duodenum, or omentum, which cause vague pains and gastrointestinal disturbances after the attack has passed.

Recurring attacks of inflammation in the gallbladder will gradually thicken its walls and lead to shrinkage of the organ, with perhaps strictures or contortions. The mucosa shows signs of chronic degeneration, with roundcelled infiltration giving place to connective-tissue proliferation and hypertrophy of the muscular coat.

I have scarcely considered the complications of infection of the biliary tract, but have referred to three, of great importance and upon which I wish to dwell more particularly: Pancreatitis, biliary cirrhosis, and adhesions of the gallbladder to various of the surrounding viscera.

The relation of gallbladder disease to inflammation of the pancreas has been so well studied here in Baltimore by Opie that what few remarks I wish to make may doubtless have a familiar sound to all of you. Opie[3] collected 41 cases of acute pancreatitis associated with cholelithiasis. From one well-studied case which came to autopsy, and from numerous experiments upon animals, he was able to demonstrate definitely "the possibility of reproducing in animals by means of bile, the hemorrhagic lesion which occurs in human patients and the evidence that the bile diverted into the pancreatic duct by a biliary calculus is capable of producing the lesion of acute hemorrhagic pancreatitis."

Opie has also collected from the recent literature 13 cases of acute pancreatitis in which gallstones were present in 10. To these I might add my own reported cases, four in number,[4] one of which was associated with biliary calculi.

This makes 17 cases, in 11 (65%) the pancreatic disease being accompanied by calculi in the biliary tract. A considerable number of cases do occur, however, in which gallstones are absent, and should be carefully studied in the endeavor to throw some light upon this interesting disease. Pawlow and his pupils have called attention to the fact that most of the trypsin (the proteid digestant) exists as trypsinogen until it comes in contact with the intestinal secretion, when the full proteolytic power is exerted.

Starling,[5] therefore, suggests that "it seems possible that the accidental entry of the *succus entericus* into the gland through an abnormally dilated duct might account for the production of certain cases of pancreatitis."

In addition, the influence of other agents as causative factors in obstructing the pancreatic ducts must be considered, and particularly the influence of microorganisms. Bacteria may not only infect the retained secretion but may also by direct continuity ascend from an existing gastrointestinal catarrh.

That gallstones do not always induce acute pancreatitis is also explained from the anatomic standpoint, when we consider that in two-thirds of subjects an accessory pancreatic duct exists, and that in about 10% the common bile duct and the duct of Wirsung open by separate orifices into the duodenum. In addition, the gallstones may remain in the gallbladder, become impacted in the common duct at a point where no pressure is exerted upon the pancreas, or escape into the bowel without becoming checked in the ampulla.

Chronic pancreatitis is also frequently due to some obstruction of the duct of the pancreas by gallstones. This is particularly apparent when the biliary calculus is large and so situated that the duct of Wirsung is occluded without the entrance of the bile into the pancreas. When obstruction occurs the secretion is gradually dammed back upon the gland, infection is favored and the pancreas becomes damaged. The gland, especially at the head, enlarges, and to the palpating hand is hard, frequently nodular. The surface is granular and compact with the replacement of the loose interlobular tissue of the normal gland by that of a dense and scar-like hardness. In more advanced cases, areas of fat are observed to have encroached upon the parenchyma, and finally nothing may remain of the pancreas but a mass of fat held together by strands of fibrous tissue.

The diagnosis of pancreatitis is often exceedingly difficult, and the chronic form is very frequently confused with carcinoma involving the head of the organ. In one of my cases with intense jaundice, the condition was believed to be carcinoma, even at the operating table, though at necropsy a marked condition of interlobular pancreatitis was found; no malignancy. Mikulicz had an exactly similar experience. The complexity of the symptomatology in chronic pancreatitis depends upon the associated lesions in the stomach, intestine and liver, where such conditions as gastrointestinal and biliary tract inflammation, arteriosclerosis, alcohol, etc., have been the causal factors in the production of the chronic pancreatitis.

In general, it may be stated that when an individual, from whom the history of a previous gallstone colic may or may not be elicited, is suddenly seized with severe epigastric pain, nausea, vomiting, rapid pulse, dyspnea and cyanosis, followed by a rapid loss of strength, the diagnosis is acute pancreatitis. The early symptoms strongly resemble those of intestinal obstruction, and the exhaustion and collapse are frequently so severe as to induce death within 48 hours. The pain is colicky in character and there are either intervals of relief or else continued pain with exacerbations of severe colicky attacks. This is explainable from the obstruction of the ampulla, as inflammation without obstruction does not tend to excite pain of a colicky character. Bilateral and nearly board-like rigidity of the overlying abdominal walls is present from the onset.

Tympany develops in the epigastrium from paresis of the stomach and intestines, but not to the extent of obscuring liver dulness, unless suppuration and peritonitis occur. Tenderness to pressure is an early symptom. If the patient survives, jaundice may develop, if not already present from the previous gallstone disease; pain in the epigastrium continues and fever is observed.

If secondary infection occurs the epigastrium is distended and tympanitic, and palpation may detect distinct tenderness over the pancreas or a sense of resistance. The actual abscess can rarely be felt in the early stages, though it may appear as a tumor mass above the umbilicus.

Chronic pancreatitis, due to gallstones, is often difficult to recognize. This can be easily understood from the etiology of the disease. Long before the disease of the pancreas can give rise to symptoms, the gastrointestinal disorders, the gallstones, arteriosclerosis, etc., will have shown some manifestations of their presence, and the later symptoms, in nearly the same locality, will be supposed to be a continuation of the primary lesion. Furthermore, it is probable that disturbances in the functions of the stomach, intestines, and liver must take place when the causes mentioned induce a lesion of the pancreas, so that the symptomatology observed is very complex. There may be a history of colicky pain in the gallbladder region, associated with jaundice, and often with fever intermittent in type, or pain referred to the left costovertebral angle, where there may also be tenderness. The epigastrium is tender, often distended, and during the attack the recti muscles become rigid, and a point of tenderness may be detected over the head of the pancreas, one inch above and one inch to the right of the umbilicus. In a few cases the stools may appear greasy and lighter in color, and may contain muscle fibers.

Glycosuria, especially in an alcoholic subject, with a cirrhotic liver is a valuable sign of the interacinar form of pancreatitis.

As the disease advances, gastrointestinal disorders become constant, with emaciation, loss of strength, jaundice, and recurring attacks of epigastric pain, often extending around the left side or through to the back as just referred to.

In thin subjects a tumor may be made out, and if malignant disease can be excluded, the diagnosis becomes clear; but such a differentiation is extremely difficult, the indurated pancreas frequently producing a permanent jaundice, with enlarged gallbladder. In advanced stages with destruction of the parenchyma of the gland and involvement of the islands of Langerhans, glycosuria is more common, and the patient finally dies of exhaustion, or perhaps some terminal infection.

In cases associated with syphilis, arteriosclerosis or tuberculosis, the onset is much slower, more general, and more indefinite. Sensations of pressure in the epigastrium, gastrointestinal disorders, epigastric tenderness may be complained of and emaciation observed.

Some patients undoubtedly recover after having lost much weight, and with a history of gallstone colic, jaundice, and anemia. The duct of the pancreas having become patulous, the secretion is no longer retained, and sufficient healthy parenchyma remains to perform the pancreatic functions.

In all cases careful attention must be paid to the minute points in the previous history of the patient. The stools should always be searched for fat and muscle fibers, the urine for sugar, phenol (salol test), and the fat-splitting ferment. If gastric complications are suspected, the test-meal is invaluable and the blood count will show the qualitative changes in the red and white cells. The clinician, by careful palpation and percussion, can ascertain the point of greatest tenderness and resistance with the possible finding of a tumor mass. A röntgen ray examination may show a mass in the region of the head of the pancreas not moving with respiration. Such a finding is valuable, as the shadow cast by the pancreas is not readily movable with the motion of the diaphragm. It is only by grouping both the clinical and the laboratory findings that the disease of the pancreas may be accurately and satisfactorily studied.

Biliary cirrhosis in cases of obstructive cholelithiasis results from the irritant effects of retained accumulating bile, which, from the backward pressure, passes out of the bile ducts, and causes atrophy of the lobules. As long ago as 1873 Legg[6] tied the common bile duct in animals and produced jaundice, a well-marked emaciation, and finally death. At autopsy he found enlargement of the liver and an increase of the interlobular connective tissue.

Charcot and Gombault, in 1876, published their monograph on diseases of the pancreas, and reported four cases of cirrhosis of the liver following obstruction of the bile ducts, the obstruction having been caused by calculi in the gallbladder, calculi in the ampulla, carcinoma of the pancreas, and a cholangitis of the larger bile ducts.

The literature contains many references to cases of obstructive biliary cirrhosis, most of which have been the result of a congenital deficiency of the bile ducts, but many instances are directly traceable to gallstones. The calculi may cause the obstruction by pressure upon the hepatic, by a stone in the cystic duct, by direct occlusion of the common duct by a stone, by the contracting influence of a stricture following ulceration of the common duct, or by an enlarged head of the pancreas.

The resulting liver cirrhosis has been compared to that in the pancreas as the result of long continued obstruction to its ducts, and to the chronic interstitial nephritis which accompanies obstruction to the outflow of urine by a calculus.

The occurrence of a biliary cirrhosis from obstruction and retained bile, *per se*, has been denied by many writers, who believe that there must always occur an inflammation of the bile ducts, a cholangitis, subsequent to the stasis.

While many experiments upon animals have demonstrated the possibility of a cirrhosis of the liver solely dependent upon the damming back of the bile, and not to any inflammation of the walls of the smaller bile channels, the latter is probably invariably present in man.

This leads us to consider the influence of infection upon the inflammatory origin of the cirrhosis, and which from the purely clinical standpoint seems to be one of great importance. In the great majority of common duct obstruction cases for which I have operated, a bacteriologic investigation of the bile has revealed the presence of some microorganisms, the colon bacillus, the typhoid bacillus, the staphylococcus, or the streptococcus. It has, therefore, been apparent, in my experience, that with the knowledge that complete bile stasis rarely occurs in common duct obstruction, infection must exert a positive influence in the production of the cirrhosis. I can therefore agree with Ford[7] in his conclusions "that the damming back of bile caused by the obliteration of the ducts, does not always lead to the cirrhosis, *per se*, but may lead to it as well by causing a certain amount of inflammation of the bile channels," by adding, because of the infectious nature of the retained bile.

In urging the possibility of biliary cirrhosis resulting from neglected gallstone cases I am not unmindful of the criticism that jaundice is conspicuous by its absence in the majority of gallstone cases and that most of the instances reported of biliary cirrhosis have followed a long continued obstruction of the ducts with persistent jaundice. But as Weber[8] aptly expresses it, "to say that because bile passes into the duodenum, chronic obstruction in the common bile duct cannot be a cause of the hepatic cirrhosis, is like saying that because a man with urethral stricture or enlarged prostate has been able to pass urine, obstruction in the urethra cannot have been the cause of his dilated ureters and chronic interstitial nephritis."

Following the obstruction, the biliary ducts become greatly distended with bile, and the entire liver generally enlarged and tense. It is greenish in color, with more rounded edges, and presenting a peculiar streaked appearance. In a patient I have recently operated upon, the anterior border of the liver was obliterated to such a degree as to equal the posterior border. "The surface of the organ may present a granular or slightly puckered appearance from the contraction of the connective tissue, but little or none of the coarse hobnail irregularity often seen in ordinary cirrhosis." (Weber[9].) Microscopically such a liver reveals dilated bile channels and bloodvessels and some pathologists have observed a reduplication of the bile ducts supposed to have arisen from chronically inflamed liver cells which have degenerated and become connected with the former bile passages. Others claim that they are simply elongations and enlargements of the previously existing channels. About these channels is an increase of fibrous tissue and the cells of the lobules are frequently atrophic.

The spleen is usually enlarged, probably from hyperplasia of the splenic pulp due to infection by the blood, or a condition of autointoxication caused by the diseased liver.

The symptoms of biliary cirrhosis vary greatly. There may be a failing in the general health, emaciation and loss of weight with anorexia, often vomiting. Jaundice is always present, though sometimes slight in degree.

In the more severe cases the obstruction to the duct is followed by the rapid onset of autointoxication or cholemia, emaciation is rapid, jaundice is deep and accompanied by bile-stained urine and clay-colored stools. The liver is enlarged and hard on palpation. There is itching with petechias, headache, vomiting and then delirium and death. If the case is protracted, ascites, and edema of the lower extremities may be observed.

Adhesion of the gallbladder or ducts to surrounding viscera will follow nearly all severe inflammations of the gallbladder from a pericholecystitis and embarrass the functions of the contiguous organs involved by the adhesions. In the suppurative form of cholecystitis such adhesions are apt to be more extensive from the extension of the infection to the surrounding viscera and peritoneum. The anatomic relations of the gallbladder to the hepatic flexure of the colon, to the duodenum, to the pylorus, pancreas and great omentum are so intimate that these structures are rendered very liable to involvement in this adhesive peritonitis.

Intestinal obstruction has frequently been diagnosed in a case of suppurative cholecystitis with a local peritonitis involving and paralyzing the large bowel. After the subsidence of the acute symptoms severe pain may persist from the peristaltic action of an adherent duodenum or great omentum, or dilation of the stomach may ensue from the obstruction, by constricting bands, involving the pylorus or duodenum.

The influence of adhesions is well illustrated in the following case recently observed, especially when we recall the oft-quoted statement that jaundice preceded by colic is nearly always due to stone.

CASE II.—Mrs. C., aged 36, a laundress. Gave family history of father having died from cirrhosis of the liver, her mother of carcinoma of the breast.

The patient's right breast was removed two years ago for carcinoma and shortly afterward a complete vaginal hysterectomy performed, but she is totally ignorant of the cause for the latter operation. She has had six children, four of whom are living.

Her menstrual flow ceased after the hysterectomy, but at her periods she suffered intense pelvic cramp-like pain up to a year ago when the pain changed in location to the upper abdomen and was referred to the right shoulder and back. Recently the pain became more intense, was always accompanied by a chill, fever and vomiting followed by slight jaundice lasting for three days. The bowels are usually constipated and the stools always dark.

A physical examination revealed slight jaundice of the skin and mucous membranes, slight rigidity of the abdominal walls and a localized area of tenderness over the gallbladder region. There was no anemia, the leukocytes numbered 7,000 and the stools were negative in an examination for free fat. Her temperature varied from 98° to 99°. The pulse from 75 to 95.

At operation, February 23, 1904, numerous adhesions were encountered between the gallbladder and neighboring viscera (stomach and duodenum) and the omentum. The gallbladder was not enlarged, contained no stones and was filled with thick dark bile, which upon subsequent culture, upon bouillon only, proved to be sterile. The ducts were clear, but the liver was somewhat enlarged and presented that peculiar streaked greenish appearance which I have learned to regard as an indication of biliary cirrhosis. Cholecystostomy was followed by an uninterrupted recovery.

The absence of a known primary attack of cholecystitis, the pain, fever and vomiting followed by jaundice and the operative findings of adhesions only, were extremely interesting. The diagnosis was regarded as a certain one of cholelithiasis, probably in the common duct, pancreatitis having been excluded by the absence of anemia, wasting and epigastric pain.

CASE III.—In another patient symptoms of "stomach trouble" were experienced three years prior to the time I first saw her. There was pain at night in the epigastrium and over the gallbladder, a feeling of distress after eating, and constipation. During the past year these attacks recurred every two or three weeks with increasing severity in the pain. One week ago the pain became distinctly cramp-like over the region of the gallbladder. There were vomiting, jaundice, biliuria, and a feeling of distress in the epigastrium after eating. The pain did not radiate to the right shoulder. Blood count showed a slight anemia, and 11,330 leukocytes.

At operation the gallbladder was found to be surrounded by adhesions attaching it to the omentum, duodenum, and pylorus. It was filled with thick, dark, ropy-like bile, but no stones. Bile revealed *B. coli communis* in pure culture.

Cholecystostomy was followed by uninterrupted recovery.

Carcinoma of the biliary passages, when primary, is frequently a result of gallstone irritation, especially with an hereditary predisposition to malignant disease. The malignant growth occurs most commonly in the gallbladder, infiltrating the walls and spreading to the neighboring hepatic tissue.

In the bile ducts the growth may be primary, or as a result of extension from the gallbladder, the walls of the duct becoming infiltrated and occluded.

The diagnosis is difficult to make in the early stages, because, with the probable history of previous gallstone attacks, the resulting pericholecystitis with adherent and tangled omentum will give a resistance to palpation just as the beginning tumor will. There are digestive disturbances with gradual loss of weight or strength; jaundice is absent, unless the portal lymphatics become enlarged and cause pressure, or the infiltration of the duct walls occludes the lumen. It then increases slowly, becoming intense and permanent. Fever and rigors are rarely present. Later in the disease the wellmarked cachexia develops, and there is ascites from disturbance of the portal circulation. The appearance of a hard nodular tumor tender to palpation, moving with respiration and increasing rapidly, decides the diagnosis. It is well to remember that in cases of chronic obstruction of the common duct by a stone, of long standing, a cachexia may be present, very closely resembling that of malignant disease.

When the gallbladder is infiltrated by a growth from neighboring organs, the condition is beyond surgical help, and needs no description.

The indications for the methods of treatment in disease of the biliary tract can be discussed briefly, so firm is my belief in the efficacy of surgical interference only. I have seen so many disasters overtake all endeavors at temporizing with cholagogues and local applications that I am not only in accord with Robson's statement, "as soon as gallstones give serious trouble, their removal by operation is the most radical method of treatment, since it is only from the complications, which in many cases of cholelithiasis arise sooner or later, that any danger after operation may be apprehended;" but will go a step further in advising operation when gallstones are believed to be present.

In certain patients, usually women, obese and dyspneic, with a fat and flabby abdomen, past the middle period of life, with usually a tendency to varicose veins and a weak heart, operation is attended with considerable danger. Such patients also may have small amounts of sugar from pancreatic involvement, and I would hesitate to operate in the absence of an absolute indication that such operation was necessary to save life. These patients are better kept at absolute rest without food for 24 to 48 hours, with gentle catharsis and diuresis and the use of heat or cold to the gallbladder region for the relief of pain. After recovery from the attack, the tendency to lithiasis must be combated by sending them to Carlsbad or by directing like treatment at home, and inflammatory conditions in the duodenum prevented by a careful avoidance of heavy and indigestible food. In acute gallstone obstruction of the common duct in the absence of infection of the liver, and especially in the presence of serious organic disease of other organs, operation should not be entertained.

The technic of operation, of course, depends in great measure upon the lesion present. There has, however, been some discussion among surgeons recently as to the choice of operation in gallbladder lesions when the wall of the organ is considerably diseased. Whether it is better to remove the gallbladder (cholecystectomy) or to open it and depend on drainage for a cure (cholecystostomy) has been the question at issue. If ulceration, stricture, or adhesions threaten the future patency of the common duct, removal of the gallbladder renders a subsequent cholecystenterostomy of course impossible, and the operator is forced to make an external fistula or anastomose the duct to the bowel. In the absence of the gallbladder, the fistula requires extensive gauze packing, and choledochoduodenostomy is difficult, if not in most instances impossible to perform safely.

It should also be borne in mind, that when prolonged drainage of infected bile is desired, it is better to retain the gallbladder, as the other alternative, direct tubage of the common duct, is more hazardous. In my own practice I never perform cholecystectomy when I intend draining the liver ducts, unless the gallbladder is greatly thickened, distended, shrunken, filled with stones, perhaps pus, and entirely functionless. I never perform cholecystectomy in a comparatively normal gallbladder, and frequently in those which are extensively diseased a partial cholecystectomy with drainage has been followed by healing. When acute pancreatitis is complicated by the presence of gallstones, the pancreas is freely incised and drainage of the lesser sac provided for if necessary. The removal of the calculi must then be undertaken. When the stone occupies the common duct, especially in its course beneath the head of the pancreas, the greatest ingenuity and operative skill are often required to prevent a fatal catastrophe from a subsequent peritonitis by leaking, infected bile. A choledochotomy may be performed if the stone cannot be dislodged or the duodenum opened and the papilla split up, depending upon the exigencies of the case.

In chronic pancreatitis the biliary calculi must also be removed and temporary or permanent drainage of the bile provided for. The method of making the fistula has caused considerable discussion, most surgeons preferring the external opening, or cholecystostomy. The great advantage of the latter fistula is the ability to keep the drainage constantly under observation. It has been urged that the closure of such a fistula is often difficult, but I find from my experience, that the nonclosure is always due to the continued existence of an obstruction, either persistent enlargement of the pancreas, a stone, or a stricture, or from faulty technic in establishing the fistula. If the fistula closes after performing cholecystenterostomy or cholecystgastrostomy, which I strongly condemn, the liver may become damaged by the infected bile, jaundice supervene, and a dangerous reoperation become necessary.

When the stone is located as being in the ampulla, and cannot be carried back into the common duct, it is best to open the duodenum and slit up the papilla. If the calculus is somewhat to the proximal side of the ampulla of Vater, and cannot be reached by slitting the latter, nor carried up into the duct, a choledochotomy must be performed, after dividing the peritoneum to the outer side of the duodenum and lifting the latter upward. The wound in the duct may be closed by suture, but it is my practice to drain all of these cases. With a higher position of the stone, the duct is usually dilated, and the calculus can be pushed up to the cystic duct, and by a choledochotomy removed, and, if not able to carry the stone into the proximal portion of the common duct, the duct may be opened at the site of the stone. In all cases in which an infectious cholangitis is present in addition to the pancreatitis, the liver should be drained by means of a rubber tube introduced into the gallbladder, common, or the hepatic duct. It is my practice to drain all cases when I have occasion to open the common duct.

Pancreatitis without stone is frequently, completely relieved by a simple cholecystostomy which, by diverting a large amount of bile from the ampulla of Vater, allows better opportunities for the drainage of the pancreatic secretion.

Chronic pancreatitis with glycosuria and without obstruction of the biliary apparatus may be relieved, to a great extent, by a cholecystostomy, but theoretically an operation offers no hope of cure, as the diseased "islands" are not dependent upon any lesion ascending through the ducts.

Adhesions require careful dissection to effect their safe breaking up. They may be divided between hemostatic forceps, any bleeding points being, of course, secured. When adhesions are extensive and attached to the stomach, particularly the pylorus, and there is resulting traction on the pylorus and dilation of the stomach, it may be more propitious not to make an attempt to deal with the adhesions, but at once to do a posterior gastroenterostomy. If the pyloric orifice is also the site of an infiltration and thereby contracted, in a certain percentage of cases, pyloroplasty is performed in connection with posterior gastroenterostomy.

In dealing with fistulas between the biliary tract and the various organs, fixed and fast rules cannot be laid down, as the surgeon must use his judgment, taking advantage of his experience in dealing with like cases in the past. In some cases I separate the connection between the organs and close the openings separately, while in others I allow them to remain intact, especially when it is possible to deal with the actual lesion without forcing a separation to gain access to the site of lesion.

In performing cholecystectomy one should remember that the gallbladder and the cystic duct hold the same relation to the common duct as do the cecum and the anterior longitudinal muscular band to the appendix. Traction upon the former makes evident the common duct in the right free border of the gastrohepatic omentum, as does traction upon the cecum and the anterior longitudinal muscular band make evident the base of the appendix.

When the gallbladder can be dissected free from the liver, commencing the dissection at the fundus and carrying it toward the cystic duct, and when the integrity of the gallbladder will permit of traction, the outline of the cystic duct, the common duct, and the cystic artery is very beautifully demonstrated and made easy to deal with. When feasible, we should allow that portion of the serous coat of the gallbladder adherent to the under surface of the liver to remain intact, in this wise preventing oozing from the torn liver substance, which may be difficult to control with sutures. The cystic duct and the cystic artery are carefully tied so that there will be no leakage from the former or hemorrhage from the latter. It is better to tie the cystic duct with catgut.

Cholecystostomy is performed by aspirating the gallbladder, incising, and removing any stones or concretions. A rubber drainage-tube is introduced for a distance of about 1.5 cm., and fastened by a catgut suture to the edges of the gallbladder wound. The latter are then invaginated inward and a pursestring Lembert suture introduced, holding the rubber tube firmly in position. Gauze drainage is introduced to the subhepatic space beneath the gallbladder, and to the site of the opening in the gallbladder, guarding the intestinal side with rubber tissue.

It would be interesting to discuss the postoperative treatment of the conditions referred to in this paper were it not for the amount of time it would consume.

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[4] Cases 1 and 2, Deaver, Amer. Jour. Med. Sc., February, 1903. Case 3, Deaver and Müller, International Clinics, Vol. ii, thirteenth series. Case 4, Deaver and Müller, *American Medicine*, March 19, 1904.
[5] Starling: Trans. Path. Soc. of London, 1903, p. 253.
[6] Legg: St. Bartholomew's Hospital Reports, 1873, Vol. ix.
[7] Ford: Am. Jour. Med. Sc., January, 1901, p. 79
[8] Weber: Trans. London Path. Society, 1903, p. 121.
[9] Weber: Trans. London Path. Soc., 1903, p. 103.

EDEMA.

A Consideration of the Physiologic and Pathologic Factors Concerned in its Formation.[1]

BY

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(D. W. Harrington Lectureship, First.)

FIRST LECTURE.

Introduction.—With the term edema I mean to cover all the pathologic conditions consisting in an abnormal accumulation in any part of the body, of an albuminous liquid, resembling in its essential features the lymph normally present in the tissue spaces and in the serous cavities of the animal body. Clinically, many of these conditions are designated by separate names, often characteristic of the special localization of the edema. Thus, to mention only a few instances, the accumulation of fluid within the peritoneal cavity is termed ascites or dropsy, the accumulations within or around the brain go by the names of internal or external hydrocephalus; the presence, in abnormal quantity, of a serous fluid within the tunica vaginalis is known by the term hydrocele, and the serous infiltration of the subconjunctival tissue is called chemosis. Such a specialization of terms is clinically the more justifiable since, for practical purposes, the locality harboring the hydrops or the edematous tissue is often of prime importance. The very small amount of fluid present in edema of the larynx, and the relatively small quantity of transudate present in the air cells of the lungs in pulmonary edema, are of much greater immediate concern to the practitioner than a quart or two of serous fluid in a pleuritic effusion, or the very large quantities of fluid frequently found in ascites. In a discussion, however, of the fundamental factors concerned in the formation of the pathologic conditions, it is profitable to consider all the varieties of dropsies as a pathologic unit, to which we choose to apply the universally accepted term of edema.

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[1] Lectures delivered at the University of Buffalo, Buffalo, N. Y., on November 30, December 1, 2 and 3, 1903.

Judging from the writings of our day, it seems to be a generally accepted view that edema is simply a pathologic increase of the lymph normally present in the tissue spaces or the serous cavities of the body. The amount of lymph in the tissues, where it seems to vary but little in the normal body, is under the control of a stable equilibrium between formation and absorption of this fluid. Any change in the same direction, an equal increase as well as an equal diminution of both processes, can have no influence upon the normal quantity of the lymph. Changes, however, which affect the processes of the lymph equilibrium in favor of formation, lead to an abnormal surplus of lymph within the tissues, *i. e.*, they lead to edema. The pathologic disturbance may consist either in an abnormal increase in the process of the formation of lymph, while the rate of absorption remains normal; or, the change may affect absorption alone, which is diminished while the rate of formation of lymph remains normal. Or, both mechanisms may be affected simultaneously but in opposite directions; *i. e.*, the formation of lymph is increased while its absorption is diminished. It would then be the task of the pathology of edema to establish in each special form of hydrops which of the factors concerned in the normal lymph production is especially affected.

Pathology would have the further task to investigate the nature of the causes of the disturbances of the normal physiologic processes. For an intelligible discussion of these problems of the pathology of edema, a full knowledge of the physiology of lymph production is necessary. Here, however, we meet a great number of experimental studies and a variety of theories, the mastering of which is not an easy task, and which one would not expect, judging from the apparent innocence of the problem and the smooth and concise statements of the textbooks. Furthermore, the present discussions on the physiology of lymph and pathology of edema reach out also into other domains, especially those of modern physiologic chemistry and of natural philosophy; and hence terms are employed the exact meaning of which is not always to be presupposed.

The essential subject of these lectures will then be a discussion of the present status of the physiology of lymph and the pathology of edema. This has to be preceded by some indispensable remarks on the meaning of certain terms of physical chemistry, which are now frequently employed in the discussion of our subject. The whole subject, however, I wish to introduce by remarks on the vitalistic and the mechanical theories of the phenomena of life. The struggle between the several theories on lymph and edema is a more or less conscious struggle between vitalism and mechanism. This struggle is gradually pervading all domains of biology. In medicine we are confronted with the term vital processes at every step, and surely more often than is necessary. I wish to avail myself of this opportunity to go on record as to my own views on that subject, for which I ask your attention, as well as your indulgence.

Vitalism and Mechanism.—Until some 60 years ago the prevalent view was that nearly all life phenomena were guided essentially by an all-pervading vital force. Even after the discovery by Wöhler in 1828 of the possibility of producing synthetically such an organic substance as urea, a universal mind like that of Johannes Müller was still clinging to the belief in the all-powerful vital force as the creator and harmonizer of the various mechanisms of the living body. The belief in the omnipresence of an all-creating vital force furnished little stimulus for laborious studies of the innumerable mechanisms of life. In the forties of the last century, however, there came a change. With the improvement of the methods of investigation, with the rapid progress in organic chemistry, with the establishment of the law of conservation of energy in physics, with the successful application of physical and chemic laws to some of the intricate problems of life, the belief developed that a great many of the mysteries of life would resolve themselves into physics and chemistry; and this belief gradually grew in some quarters into a theory, that all life phenomena are nothing else but complex phenomena of the inorganic world. As just in those days it was recognized in physics that all forms of energies can be converted into motion, and that mechanical energy is the essential principle in the inorganic world, the new theory, which made no distinction between animate and inanimate phenomena, became known as the mechanical theory of life. Right or wrong, this theory was of incalculable benefit to the progress of the biologic sciences. The conviction that every department of life is susceptible to an analysis by the methods employed in natural science stimulated then, and still stimulates now thousands of patient investigators in their indefatigable attempts to unravel an infinitely small fraction of the mysteries of life. Vitalism has a paralyzing effect. The mechanical conception of life phenomena as a working hypothesis is a marvelous stimulus. But it did not remain a working hypothesis. Men of letters with a transcendental bent of mind turned it soon into a philosophic system and have extended it to regions which can never become the domain of natural science. Some of the extravagances proclaimed in the name of the mechanical theory brought undeserved discredit upon it. I need only to remind you of the statement that ideas are secreted by the nerve cells just as urine is secreted by the kidney epithelium. Assertions of this kind initiated a reaction against the entire theory. The theory of natural selection by Darwin, which, during its rise lent its glory to our theory, since in the minds of the literary public the two were naturally linked together, subsequently also brought some discredit to it during its slow descent in the favor of that public. Furthermore, the incessant activity in the investigation of biologic problems which was stimulated by the mechanical theory, soon brought out the unmistakable fact that, so far, comparatively only a small fraction of life phenomena are accessible to interpretation by the physics and chemistry of our day and the enthusiastic originators of the mechanical theory have inadvertently proclaimed that the physics and chemistry of their day would explain all life phenomena. What a failure! say now the growing number of Vitalists, or Neovitalists, as they choose to call themselves. Since the middle of the eighties of the last century, a reaction set in against the mechanical theory. In all branches of biology an increasing number of writers of first standing are coming out, veiled or openly against the mechanical theory of life. We meet them in physiologic chemistry, in general biology, and we meet them in the writings on medicine, the science as well as the practice of medicine. We meet them in the writings on the very subjects I am going to discuss before you, on the subjects of the production of lymph and formation of edema. And withal the vitalism of our day is not such a modest or conservative creation as the prefix "neo" would lead us to believe. For instance, because only certain substances are absorbed within the intestines, a selection that cannot be explained by the laws of diffusion and osmosis, as we know them today, it is assumed by some writers that the epithelium of the intestinal mucosa has a selective power. But instead of considering this assumption merely as a temporary resting place, the conclusion is drawn by Neumeister, a distinguished physiologic chemist, that the epithelium possesses as much sensation, as much judicial power to know what is good for the body, as the nerve cells of the cortex. In what essential respect does this statement differ from the one by Carl Vogt, which was quoted before, and which gave such a shock to his contemporaries, namely, that there is not much difference between the nerve cells which secrete ideas and the kidney epithelium which excretes urine?

The point is that Vogt, as well as Neumeister, though both excellent scientists, have not made their assertions as naturalists, but as philosophers who are dealing with transcendental problems. The discussion, which is going on between the vitalists and mechanists, and which has not only a theoretic but also a very important practical bearing upon many problems in biology and medicine, suffers in my opinion from a confusion of conceptions with regard to the questions to be answered. Permit me to discuss here the problems of vitalism and mechanism from my own point of view.

The phenomena of life are apparently different from those of the inorganic world. We wish to recognize as much of them as our human faculties will permit, and wish to study them by methods of investigation which proved to be reliable in the investigations of the phenomena of the inorganic world. Then there are some preliminary questions to be answered.

Transcendental Vitalism and Mechanism.—The first question is: Suppose a time when all the laws of the inorganic world and also all structures and laws of the animate world, as far as they are accessible to the human faculties, will be completely known—will it then be found that the phenomena of life can be completely solved, or will it be found that life has still an element which is inconceivable, is inaccessible to the grasp of human faculties? This is the concise question between mechanism and vitalism. What should be our position in regard to this question? This I say is wholly a transcendental question and not one for physiology and biology to deal with. Since from the point of view of the natural or rather biologic sciences we wish to investigate only that which is accessible to human faculties, and by methods approved in the natural sciences, we can obviously have no scientific opinions on a subject which is admittedly above the human faculties. An answer in the mechanistic sense is not a whit more scientific than an answer in favor of vitalism.

This position, however, should not be interpreted as denying the right to entertain such a question. It is certainly a perfectly legitimate problem in pure philosophy. Neither do I mean to deny the naturalist the right to discuss philosophic problems. But in such a case the discussion in both domains ought to be carried on strictly separately, otherwise, as experience teaches us, a harmful confusion will be unavoidable.

To repeat again, we consider the problem formulated in the preceding question as a transcendental one, and we shall, therefore, designate the theories contained in the answers to it as transcendental vitalism or transcendental mechanism.

Natural Vitalism and Mechanism.—The second question is: Suppose a time when all laws of the inorganic world, as well as the structures and laws of the animate world, shall be perfectly known to us. Would it then be found that the animate world is governed exactly by the same laws as the inanimate one, *i. e.*, by the laws of physics and chemistry, as they will then be known, or will it be found that the vital phenomena, in addition to the chemicophysical forces are pervaded by separate energies, separate forces which are specific for living matter? It must be admitted that this question is a perfectly legitimate one and within the bounds of natural science. It is perfectly conceivable that one group of natural phenomena might possess energies which other groups do not possess, and that vital phenomena might differ indeed from the phenomena of the inorganic world by a plus of specific energies. In contradistinction to the transcendental theories of life we might designate the theories contained in the answers to the second question as natural mechanism and natural vitalism. In other words, then, the theory of natural mechanism assumes that all the conceivable laws of life will prove to be nothing but physics and chemistry, and the theory of natural vitalism assumes that the vital phenomena are directed by specific energies beside those which are found in the physical world. A little consideration will show that the natural and transcendental theories are perfectly independent of one another. For instance, the transcendental vitalist can easily accept the theory of natural mechanism and the defender of the theory of natural vitalism may accept the theory of transcendental mechanism. I shall, however, certainly not dwell here on the particulars of this point.

What shall be our position in regard to the problem involved in the second question? It seems to me that the state of our present knowledge does not yet permit us to decide the question one way or another with any degree of probability, and that for a great many years to come, any decision of this problem will have to be considered as an arbitrary hypothesis without any scientific claim. The argument in favor of vitalism brought forward recently by Bunge, Neumeister, Kassowitz, and many others, consists in the statement that the further the investigation in biology progresses the more facts are brought to light which cannot be explained by physics and chemistry. But, what does this signify? Our present knowledge of physics and chemistry surely is a most minute fraction of that which we shall know of the laws of the inorganic world in thousands of years to come. Considering the length of human history we have to admit that even the science of physics is only in its very infancy. Why, it is only recently that they tortured the father of physics for stating that the earth is turning around the sun, because it hurt their feelings to acknowledge that the abode of man is not the center of the universe. And it hurts the feelings of man to be told that the mysteries of life are only unrecognized chemistry—hence the passionate crusade in some circles against mechanism in biology. In our very day undreamt-of discoveries are made in physics and in chemistry. Think of the rays discovered by Röntgen which penetrate heart and kidneys. Think of the marvelous results of stereochemistry, of the laws of osmosis, of the ionisation of solutions, etc., all discoveries of our time. Why should we already now positively deny the possibility that chemistry and physics might not finally elucidate a great many, and perhaps all the facts in biology? Furthermore, the attempts properly and systematically to apply physics and chemistry to the interpretation of biologic phenomena are hardly older than half a century. Those among the crusaders who themselves lent a hand to such studies should know with what immense difficulties the physiologist has to struggle. He has to create his own physics and chemistry; he has to master a difficult and *difficile technique*, and then the difficulties in obtaining and handling living material. The physicist and the chemist had always the aid of gold-seeking people. There is no gold for physiology but plenty of obstruction on its onward way, placed by the sentimentalist, the ignorant and the wicked. In spite of all the obstacles, physiology has already succeeded, in a great measure, in applying physics and chemistry to a good many biologic phenomena, and the outlook for the future is brighter than ever. Think of the astonishing discovery in our country by Jacques Loeb of artificial parthenogenesis by simple changes in the osmotic pressure in the surrounding medium of the ovum, a fact which surely was never dreamt of before!

No, the crusaders against mechanism are wrong in their pessimistic views. There is nothing in the present stage of our knowledge discouraging to the hopes of those who believe in the ultimate solution of the problems of vital phenomena by the physics and chemistry of a far off future. But it is also true that the success attained at present is, in comparison to what has yet to be attained, too minute, too insignificant to justify a prediction with any degree of probability!

Transcendental mechanism and vitalism have no place within the domain of natural science. Natural mechanism and vitalism are insufficiently supported by accumulated evidence to be considered as well-established scientific theories.

Vitalism as a Working Hypothesis.—But there is still another question. There are already numerous well-established biologic facts which cannot be explained for the present by physics and chemistry, and we have no means of knowing whether they will ever be explained that way—what are we to do with these facts? Here is the answer: Vitalism as a storage place is indispensable. We should continue to call these facts vital phenomena until we discover a way to explain them by laws governing the inanimate bodies. But I shall go still further. I believe that vitalism as a working hypothesis is a great advantage to the progress of biology. The belief that only those biologic facts which can be reduced to physics and chemistry can be considered as scientifically understood, combined with the misleading and harmful notion to elevate physiology to an exact science, confined the activity of this biologic division to some favored domains—to its own detriment. The sterility of some parts of physiology is due partly to this inappropriate exclusiveness. The important discoveries of the relation of the internal secretion of the thyroid to myxedema, and of the pancreas to diabetes, were made without any reference to physics and chemistry, and were discovered by medical men and not by physiologists. The important fact of the marvelous effect of the extract of the suprarenal capsule upon the circulation was discovered by physiologists without any reference to physics and chemistry. Physiology ought to search for the physics and chemistry of the vital processes as much as possible, but it ought to do more. It ought to unearth vital phenomena, study their characters by methods peculiar to themselves and establish their laws aside from any relation to physics and chemistry of the inorganic world. That this can be successfully done is shown by the marvelous results obtained in the discoveries and the precise studies of toxins, antitoxins, hemolysins, cytolysins, and their like without much regard for physics and chemistry. Especially the medical men have reason to ask for such physiologic studies. The experiments which nature is continually making upon human beings, and which physicians are called upon to interpret and to mend, are not confined to domains which can be interpreted by physics and chemistry of our days. And it is to such a far-seeing, liberal, broad physiology that the science and practice of medicine is looking for a delivery from the firm grasp of the one-sided teachings of pathologic anatomy.

When in the discussion of lymph production and formation of edema we shall have occasion to mention vital secretion, vital absorption, etc., it shall have no reference to transcendental vitalism or to mechanical vitalism as a full-fledged theory; vitalism will mean only a working hypothesis or a storage house for biologic facts which cannot be explained by our present knowledge of physics and chemistry.

We are now going to give a brief definition of the exact meaning of some of the physical terms which are used in the discussions on lymph and edema.

Diffusion.—When two miscible crystalloid solutions of different concentration are placed on either side of a perfectly permeable membrane, it will be found, after a while, that both solutions attain the same concentration. If, for instance, the solution on one side were glucose of a 30% concentration, while the solution on the other side of the membrane contained only 10% glucose, both solutions, after a while, will attain the same concentration, which will then be 20%. Or, if there were on one side a solution, say of 30% of sugar or sodium chlorid, while on the other side of the permeable membrane there were pure water, the exchange of water and sugar, or water and salt, would continue to take place until there would be on both sides a similar solution of sugar or salt of 15% concentration. In either case water is passing through the membrane into the more, and sugar and salt into the less concentrated solution. This interpenetration of pure solvent and dissolved substance is generally termed diffusion. It was formerly also designated by the terms of diosmosis, endosmosis, and exosmosis. Their use should be avoided, as it might lead to a confusion with the process of osmosis. Scientifically, the term diffusion is now restricted to the passage of the crystalloid substance through the permeable membrane into the solvent, and does not include the passage of the solvent into the concentrated crystalloid solution. Instead of the term diffusion, some designate the passage of the crystalloid into the surrounding solvent by the term *dialysis.* With this latter term, however, we combine the idea of the presence of a colloid substance in the crystalloid solution, as dialysis is usually employed to free an albuminous solution from its crystalloid constituents.

Filtration.—By filtration is meant the passage of a solution through a membrane by the aid of some pressure. While in the process of diffusion the permeability of the membrane is restricted to crystalloid substances (as the colloid substances are generally indiffusible, hence the dialysis) by the aid of some pressure, colloid solutions also can be made to pass through a permeable membrane. The filtration of crystalloids, as well as colloids generally increases with the pressure. There is, however, a distinct difference between crystalloid and colloid solutions with regard to the filtrate. In crystalloid solutions the concentration of the filtrate grows in direct proportion to the pressure, *i. e.*, the greater the pressure with which the solution is filtered, the more concentrated the filtrate becomes. In albuminous solution the concentration of the filtrate grows in inverse proportion to the pressure, *i. e.*, the greater the pressure with which the filtration is carried on, the less concentrated the filtrate is. The bearing of this fact upon the composition of lymph and edema fluid is obvious. (However, most of the studies upon filtration were carried on by filtering solutions against air. There are very few reliable data of filtration of a solution against another solution, which would correspond to the actual conditions in the animal body.)

Osmosis.—When a certain quantity of a crystalloid solution is separated from a similar quantity of a pure solvent, water for instance, by a semipermeable membrane, water will enter through the membrane into the solution, and will continue to enter until the column of fluid of the solution reaches a certain height. If this solution were connected with a mercury manometer and so enclosed as to leave no room for an increase of fluid, the attempt of the water, if I may express myself that way, to enter into the solution, increases the pressure there, which could be read on the manometer. This pressure is termed *osmotic pressure.* It differs with the crystalloid substance. But it was found that the pressure does not depend upon the chemic nature of a substance, but upon the size of its molecule, *i. e.*, substances of a different molecular weight have a different, and of the same weight, have the same osmotic pressure. Van't Hoff's law of osmosis may be read that the same number of molecules in the same volume, and, of course, under the same temperature, will always exert the same pressure, no matter what the substance. It is obvious that in solutions of the same percentage, substances with large molecules, like many of the organic compounds, will have in the same volume a smaller number of molecules than substances with small molecules, and consequently will exert a smaller pressure. Now solutions of any substance could be made to possess the same osmotic pressure as any solution of another substance, simply by changing the concentration, either increasing it, if the molecule of the substance is of large size, or decreasing it, if it is of small size. Solutions which possess the same osmotic pressure are isotonic or isosmotic solutions. A solution which has a higher osmotic pressure than that of a certain standard solution is called a hypertonic, and that with a lower osmotic pressure a hypotonic solution. The idea of tonicity, or a tension within the solution is connected with Van't Hoff's theory of osmosis. The above-mentioned law of Van't Hoff may also be read: Equal volumes of different substances, when under the same temperature and possessing the same osmotic pressure, contain the same number of molecules. It will be immediately seen that it reads exactly like the law of Avogadro for gases, which is as follows: Under the same pressure and temperature equal volumes of different gases contain the same number of molecules. The underlying idea for both laws is that the molecules of gases as well as of substances in solution are in continual motion, and thus exert a pressure upon the walls of vessels in which they are contained. It is this pressure which is termed osmotic pressure. Previous to the discovery of Van't Hoff, osmosis was defined by De Vries as a water-attracting force. This definition is still in vogue with some writers. Why water should enter into the vessel containing the solution against the pressure within the vessel is still nearly a mystery. If such a fact would have been observed in biology, it would have been taken as a proof for the activity of the vital force.[1]

Theory of Electrolytic Dissociation.—The exceptions to Van't Hoff's law of osmosis, which were met in many salt solutions, led Arrhenius to the discovery of the theory of electrolytic dissociation, which briefly is as follows: The electric conductivity of certain crystalloid compounds is due to a decomposition of the compound in solution into anions and kations. Anions are negatively electric ions which move over and collect around the positive electrode, the anode. Kations are positive electric ions which collect around the negative electrode, the kathode. For instance, in a solution of sodium chlorid, which is a good electric conductor, an electrolyte, as it is termed, the kation, sodium, is separated from the anion, chlorin. According to Arrhenius, the dissociated ions have the same value, with regard to osmotic pressure, as molecules; they increase the pressure. In very dilute solutions practically all the molecules are dissociated. The osmotic pressure of such a solution is therefore, twice as much as would have been expected if the osmotic pressure would have been due only to the number of dissociated molecules. The less dilute a solution is, the smaller is the number of dissociated molecules. The osmotic pressure of such a solution is equal to the number of free ions plus the number of undissociated molecules. Some solutions, for instance, glucose and urea, do not conduct electricity; they are nonelectrolytes, their molecules do not dissociate.

A semipermeable membrane is one which permits the penetration of a solvent, but not that of a dissolved substance. A membrane of that kind is formed, for instance, when copper sulfate comes in contact with potassium ferrocyanid. This is usually done by pouring copper sulfate into a porous porcelain jar which stands in a solution of potassium ferrocyanid. The solutions meet in the pores of the wall and form the membrane. Many membranes, especially those of the animal body, are rarely really semipermeable. Most of them probably permit also some degree of diffusion and they may be impermeable for one substance and more or less permeable for another.

In the application of the laws of osmosis to the animal body, time, as a factor, has not yet been sufficiently taken into consideration. Lazarus-Barlow has called attention to the facts that the values of osmotic pressure hitherto considered were only those taken at the end of a process, which he terms *final osmotic pressure;* that the process requires time, which is different for different substances, and that the relations of osmotic pressures at the beginning of the process, *initial osmotic pressure*, differ greatly from those of the final osmotic pressures; and that finally the processes going on in the living animal body have more to do with the initial osmotic processes than with the final ones.

PNEUMOPERICARDIUM.

BY

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The presence of air in the pericardium is a surprisingly infrequent occurrence. I have been able to find records of but 38 satisfactorily reported cases, including the one which I shall presently relate. The physical signs of this condition are more striking and characteristic than those of almost any other abnormal physical state of the body, and are so suggestive as to point directly to the correct conclusion, so that an error in diagnosis is not likely to occur. It seems, therefore, fair to assume that the paucity of printed records is a measure of the actual infrequency of the lesion.

For instance, Schrotter says, "The infrequency of the presence of air or gas in the pericardial space may be gathered from the fact that I have never had an opportunity of observing such a case in the course of my 35 years' diligent study of the enormous clinical material offered by the City Hospital (Vienna), while our predecessor and teacher, Skoda, had the same experience."

The condition seems to have excited far more interest in the early days of physical diagnosis than it does at present, and we find accurate descriptions of it in a number of textbooks of that time; for instance, Stokes, in 1855, relates a case which came under his notice, and describes clearly and vividly the extraordinary physical signs that are commonly present, and which are characteristic of it.

Many of the earlier authors, also, noted and mentioned the very unusual anatomical appearances of the pericardium, which are hardly less extraordinary than are the physical signs (Meigs, Begbie, Morel-Lavallee.)

The case I have to relate is as follows:

K. N., aged 25, was born in Ireland. Her father died of rheumatism. There is no history of rheumatism in her childhood, or, indeed, of any other serious illness. There was no chorea. She has always been well until six months ago, when she suffered from a mild attack of acute articular rheumatism. At this time there was noted a soft systolic murmur at the apex of the heart in the pulmonary area.

There has been slight shortness of breath on exertion for the past few years. The appetite is good and the bowels regular.

Present Illness.—Six days ago, while eating her dinner, she swallowed a small sliver of bone attached to a piece of meat from a mutton chop. She was perfectly conscious of this at the time, and she herself dates all of her symptoms from this occurrence. At the time she felt pain under the sternum, and was sure that the bone had lodged in the esophagus. There was then pain in both sides of the thorax, made worse by deep inspiration. Then nausea and vomiting came on, especially after the eating of solid food. There was slight diarrhea, the bowels moving from three to four times a day. There was also severe pain in the epigastrium, shortness of breath, cough, and slight expectoration. Her chief complaint was abdominal pain and nausea. The symptoms had grown steadily worse since the onset of the attack, and she had been confined to her bed from the outset.

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[1] I am not a physicist, but for the peace of my own mind, I have construed the following hypothesis. By the energetic activity of the molecules of the dissolved substance, and their beating against the wall of the vessel, they attempt to enlarge the volume of the vessel enclosing the solution; the pressure within the vessel upon the less active molecules of the water is hereby decreased. The solvent of the solution, the water, for instance, is therefore, under lower pressure than the pure solvent outside of the vessel. Hence the entrance of the latter into the solution.

December 24: When first seen the temperature was 102.6°; pulse, 120; respirations, 32.

The patient is fairly nourished, color sallow, somewhat cachectic, cheeks moderate hectic flush, expression anxious, surface of the body hot and dry. Sensorium is clear, but on account of pain and dyspnea and discomfort, she has some difficulty in giving a satisfactory account of herself.

Pulse soft, full, dicrotic, compressible, and irregular; respirations rapid and somewhat labored.

Physical Examination.—The chest is symmetrical. The entire precordium is shaken by the beat of the heart; there is a visible pulsation in the great vessels of the neck and the pulse in the suprasternal notch is well marked, both to sight and touch. The superficial lymph-nodes are not enlarged.

Heart: The apex impulse is diffuse, forcible, with its maximum intensity in the fourth space four and a half inches to the left of the middle line. There is tolerably marked tenderness to firm pressure over the lower one and a half inches of the sternum, and there is moderate edema of the skin over this area. The percussion note over the right side of the chest in front is normal; the cardiohepatic angle also is normal. Over the precordium to the left of the sternum there is pulmonary resonance, although the pitch is slightly higher than on the right side, and the quality is somewhat tympanitic. There is no area of absolute cardiac dulness. The left border of the heart cannot be located by percussion.

When the patient takes a full breath and holds it, there is heard by the listening ear held twelve inches from the chest wall a peculiar clicking sound synchronous with the cardiac systole; this click has a musical quality with the quality of a succussion sound or splash. It disappears with extreme expiration. Upon applying the ear or stethoscope to the precordium the heart sounds themselves are dull and muffled, but there are heard certain remarkable and unusual phenomena. The first sound is accompanied by a loud metallic tinkle of splashing, gurgling quality, suggesting the sound made by an old-fashioned overshot waterwheel—the *bruit de la roue hydraulique*. It is as if a very marked succussion were brought out by each systolic contraction of the heart, together with many metallic tinkles. This sound is heard loudest in the third, fourth, and fifth left spaces, and in the third and fourth right spaces. It is audible over the entire precordium.

It is heard loudest during inspiration, rather less during expiration. Its intensity varies from time to time without apparent reason.

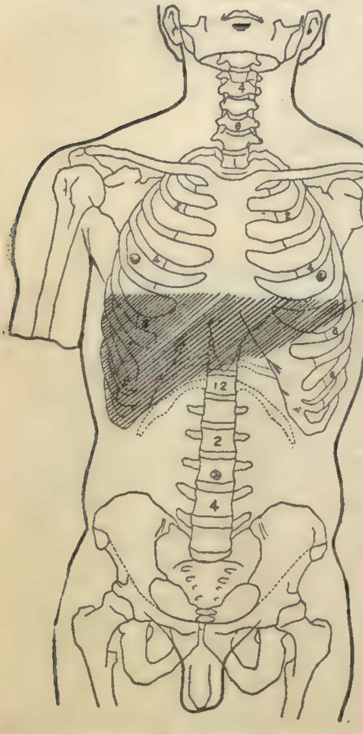

Fig. 1.—Percussion dulness, lying on back.

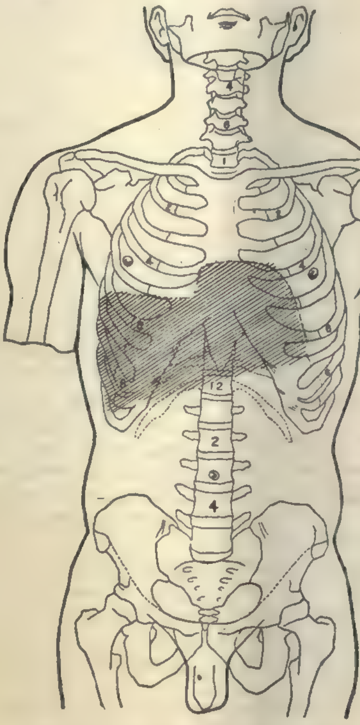

Fig. 2.—Percussion dulness, sitting up.

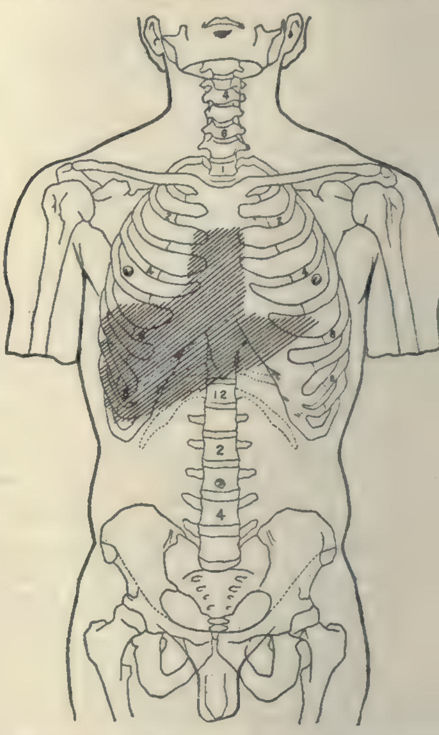

Fig. 3.—Percussion dulness, lying on right side

The foregoing signs are obtained while the patient lies upon her back. When lying on the right side there is heard in the precordium between the middle line and the left nipple a typical to-and-fro pericardial friction sound, superficial, sharp, and clear. In this position the splashing succussion sound and the metallic tinkle are not heard.

When the patient lies upon the face or rests upon the elbows and knees the signs are the same as when lying upon the right side.

Lungs: There are numerous subcrepitant rales and coarse friction sounds heard in the left axillary region from the apex to the lower border of the lung. There are also a few subcrepitant rales in the lower right axilla.

The abdomen is moderately distended and tympanitic. There is no muscular rigidity.

December 26: The general condition is worse and the pulse is more feeble. There is no cyanosis, no marked dyspnea. The peculiar physical signs over the heart are the same.

A careful study of the heart dulness in different positions results as follows:

When the patient is lying upon the back there is pulmonary resonance with slightly tympanitic quality over the entire precordium as far down as the fifth costosternal junction, the line of dulness running about horizontally at this point. In this position the splashing succussion sounds and metallic tinkles are very marked.

When the patient sits up the percussion note from the third left space to the fifth rib becomes distinctly more dull, and the succussion sounds are heard clearly only at and above this line of dulness—much less below this point.

When lying on the right side there is an area of dulness extending laterally from the right border of the sternum to a point half an inch to the left of the left border of the sternum, and longitudinally from the second interspace downward until it merges into liver dulness below.

Here also the metallic tinkle and succussion are heard at and above this line of dulness.

The accompanying three diagrams show the shifting dulness in different positions of the body. When the patient rests upon the elbows and knees so that the chest is horizontal and the sternum looks downward, a to-and-fro friction murmur can be heard all over the precordium, and the succussion and metallic tinkle entirely disappear.

The leukocytes are 23,000 per cmm.; the temperature pursues an irregular course ranging from 102.5° to 105.8° as indicated upon the accompanying chart. The pulse is growing more rapid and feeble.

In explanation of the foregoing remarkable phenomena, no other condition could be assumed than the presence of fluid and gas in the pericardium. An aspirating needle was then inserted in the sixth left space two and a half inches from the middle line, and half a dram of thin yellow pus was withdrawn.

It was then decided to drain the pericardium, and immediately after the exploratory puncture, the operation was performed by Dr. Joseph A. Blake.

Operation, Anesthesia.—Quadrilateral incision was made over the precordium, exposing the fifth and sixth ribs, which were cut through about two inches from the sternum. The flap was then drawn forcibly back, fracturing the sternocostal attachments, thus exposing the pericardium. This was opened and there was a gush of extremely offensive gas. The parietal and visceral pericardiums were found to be thickened, corrugated, and coated with fibrin.

The pericardium contained a small amount, not more than two ounces, of thin yellowish pus which was found only upon lifting up the heart.

The beats of the heart were forcible. No foreign body was found in the pericardium.

No.	Reporter.	Cause.	Physical signs.	Result.	Autopsy.
1	Bricheteau	Blow upon sternum	Precordial tympany, splashing sounds, *bruit de moulin*—heard at distance	Died	Yes
2	Trotter	Ulcer of esophagus perforating into pericardium	Not recognized during life	Died	Yes
3	Chambers	Ulceration of esophagus communicating with pericardium	Not recognized during life	Died	Yes
4	Feine	Traumatic	Precordial tympany, shifting with position—faint metallic sound with heart-beat		
5	Stokes	Acute pericarditis	Cracked-pot resonance, gurgling sounds synchronous with heart-beats	Recovered	
6	McDowel	Tuberculosis of lungs, ulcerating into pericardium	Clear percussion note, metallic tinkling, splashing synchronous with heart	Died	Yes
7	Buist	Wound of esophagus from swallowing false toothplate	Case not recognized during life	Died	Yes
8	Flint	Knife wound stab	Splashing sound	Recovered	
9	Tuettel	Cancer esophagus ulcerated into pericardium	Metallic murmur, splashing, heard at a distance from bed	Died	Yes
10	Begbie	Cancer of esophagus perforating into pericardium	Precordial tympany, splashing, churning sounds heard at distance	Died	Yes
11	Graves	Abscess of liver perforating into pericardium	Metallic click synchronous with heart sounds	Died	Yes
12	Morel-Lavallee	Fall, multiple severe injuries	Loud splashing metallic sounds	Died	Yes
13	Morel-Lavallee	Fall—fracture—clavicle, rupture pericardium	Loud splashing metallic sounds heard at a distance		Yes
14	Morel-Lavallee	Kicked by horse, fracture fourth, fifth, sixth, seventh ribs	Loud splashing churning sounds heard at a distance	Recovered	
15	Bodenheimer	Bullet wound below left nipple, suicide	Tympany, metallic tinkle with heart sounds	Died	Yes
16	Saexinger	Perforation of ulcer of stomach into pericardium	Precordial tympany, metallic splashing murmur at distance	Died	Yes
17	Grüttner	Stab wound over heart	No signs noticed	Died	Yes
18	Friedreich	Difficult labor, pleurisy, empyema, no perforation	Precordial tympany, metallic heart sounds heard at distance	Died	Yes
19	Steiger	Fall, fracture of arm, shoulder and ribs	Precordial tympany, splashing, metallic heart sounds heard at distance	Recovered	
20	Dolbeau	Stab wound	Precordial tympany, amphoric bruit with metallic sounds	Died	Yes
21	Walshe	Wound of esophagus from swallowing sword	Precordium tympanitic, no gurgling or succussion—sounds not very loud	Died	Yes
22	Eisenlohr	Pyopneumothorax perforating into pericardium	Tympany over precordium, metallic and musical Loud splashing murmur heard at distance	Died	Yes
23	Fetzer	Bullet wound of shoulder, suppuration, arthritis, no perforation of pericardium	Precordial tympany, musical heart sounds heard at distance	Died	Yes
24	Meigs	Small ulcer of esophagus perforating into pericardium	Precordial tympany, splashing, churning sound heard at distance, metallic tinkle	Died	Yes
25	Mueller	Purulent pericarditis perforating into bronchus with discharge	Ringing metallic heart sounds with percussion	Recovered	
26	Mueller	Crush of thorax with fracture of clavicles and ribs and tear of lungs	Tympany over precordium. Metallic resounding murmur with heart sounds	Recovered	
27	Mueller	Stab wound of chest	Tympany over heart. Loud metallic ringing, murmur and succussion synchronous with heart	Recovered	
28	Aran	Paracentesis of pericardium	Tympany, succussion, *bruit de moulin*	Recovered	
29	Guttman	Ulcer of stomach perforating into pericardium	Precordial tympany and loud metallic heart sounds heard at distance	Died	Yes
30	Audry	Stab wound of pericardium	Precordial tympany, splashing sounds metallic tinkle	Recovered	
31	Leonpacher	Fall upon back	Precordial tympany, musical heart sounds heard three feet from bed	Recovered	
32	Combemale	Perforation of tuberculous cavity of lung into pericardium	No signs noted	Died	Yes
33	Nichols	Appendicitis, empyema, pyopneumopericardium, no perforation, supposed *Bacillus aerogenes*	Metallic tinkling and splashing sounds heard at distance	Died	Yes
34	Laub	Sore throat and facial erysipelas	Precordial tympany above, dulness below shifting with position, low metallic splashing heard at distance	Recovered	
35	Pelcz	Tuberculous abscess between esophagus and pericardium and communicating with both	Not discovered till autopsy	Died	Yes
36	Sievers	Gangrene of left lung perforating into left pleura and then into pericardium	Loud splashing and metallic sounds	Died	Yes
37	Huber	Ulceration of necrotic lymph-node into esophagus and pericardium	Precordial tympany, metallic dripping sounds	Died	Yes
38	James	Perforating wound of esophagus by sliver of bone	Shifting dulness and tympany, splashing, churning sounds and musical tinkle heard at distance	Died	Yes

The sac was irrigated with hot normal salt solution, the flap was returned to its position, about half an inch having been resected from the sixth costal cartilage, two flap drainage-tubes were introduced into the cavity and a dressing applied.

The patient made a good recovery from the anesthetic, and for the next five hours was conscious, fairly comfortable, and appeared to be no worse than before the operation.

In a few hours, however, the pulse became more rapid, the temperature rose to 107° and the patient died 22 hours after the operation, 3½ days after coming under observation, 9½ days after swallowing the bone.

Autopsy.—Two hours after death. The left pleural cavity contained about 500 cc. of cloudy thin yellow pus which was foul-smelling.

The pericardium shows marked thickening of both layers, the epicardium being covered with a thin layer of foul smelling greenish sticky pus. There is no free pus in the cavity.

Posteriorly just below the root of the great vessels is an oval opening, its long diameter being 1 cm., which opens obliquely into the middle of the esophagus.

The parietal and visceral pericardiums both present a very peculiar appearance. They are leathery in appearance, corrugated, and deeply fissured, and are of a dirty greenish-brown color. The appearance is peculiar and resembles most closely a piece of olive-green crushed levant morocco.

The heart is normal in size, and there is no disease of its walls or valves.

The lungs are congested and edematous.

The spleen is about twice its normal size and congested.

The liver shows slight venous congestion.

On opening the esophagus it is found to present two oval openings about 2 cm. long, directly opposite one another, perforating one into the pericardium, the other closely adherent to the left pleura.

Anatomical Diagnosis.—Purulent pericarditis with perforations of the esophagus and pleura, congestion and edema of the lungs, congestion of the liver, left pyothorax.

The most striking features of the foregoing case are the peculiar succussion sound with metallic tinkle synchronous with the cardiac rhythm, and tinkling resembling the *bruit de la roue hydraulique* of the older French authors, and which could be heard at a distance from the chest.

The change of the percussion area of the heart with change of position, tympany lying always uppermost, dulness below; and the succussion and tinkle always at and above the line of dulness.

Finally the remarkable appearance presented by the pericardium after death, an appearance which coincides closely with the description of the lesion as given by several different authors who wrote almost half a century ago, and which I have never met under any other circumstances.

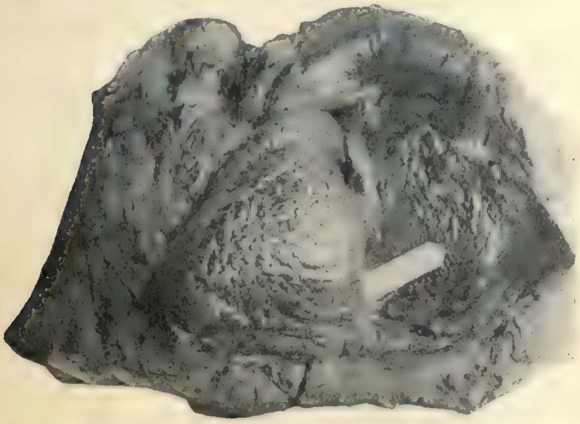

Fig. 4.—Heart and pericardium from front—white marker placed in perforation.

The symptoms of the patient were so striking and peculiar that no other diagnosis than pyopneumothorax was possible from the outset, and this impression was confirmed by the puncture of the pericardium, subsequently by operation, and finally by autopsy.

The figures represent the anterior and posterior views of the heart and pericardium with aorta and esophagus attached.

I have found satisfactory records of 37 doubted cases of this condition in addition to the one which I have just detailed. The etiology is varied.

In all but five cases there was an accidental communication between the pericardium and some other viscus, this being the origin of the pneumopericardium. In these five cases, however, (Laub, Friedreich, Hawkins, Fetzer, Nichols) no perforation was found to account for the presence of the gas. In one case (Laub) the condition followed a sore throat and facial erysipelas, the physical signs were characteristic, and the case went on to recovery so that the origin of the gas was never discovered. In the remaining four, the diagnosis was confirmed by autopsy, and no perforation could be demonstrated, thus indicating the possibility of the development of pneumopericardium from an inflammatory process. The possibility of pneumothorax originating from an infection by a gas producing bacillus, and without perforation has been proved in a number of cases (Emerson); these cases are few in number compared with the total number of cases of pneumothorax. It is a very striking fact that in pneumopericardium a very much larger proportion of cases appears to have originated in this way, namely four out of 35 cases.

In the case reported by Nichols the pericardial lesion followed emphysema which had complicated appendicitis. It was supposed that *Bacillus aerogenes capsulatus* was the etiologic factor, but no cultures were made.

Of the remaining cases, seven, entrance of air into the pericardium was through the esophagus; in three of them (Chambers, Tuettel, Begbie) an ulcerating carcinoma of the esophagus opened into the pericardium. In one, it is stated that an ulcer of the esophagus was the origin; while in three (Walshe, Buist, James) there was traumatic perforation of the esophagus. In the case of Walshe, a juggler produced the lesion in the course of sword swallowing. In the case of Buist, the patient swallowed a false toothplate of gold, which remained impacted in the esophagus for 14 days, then ulcerated into the pericardium, producing a pyopneumopericardium, which was discovered only at autopsy.

In eight cases (Aran, Flint, Bodenheimer, Grüttner, Müller, Audry, Feine, Dolbeau) the cause was a penetrating wound of the pericardium from without. In the case of Aran, it followed paracentesis of the pericardium.

In four cases (Müller, McDowel, Pelcz, Combemale) there was softening of a neighboring tuberculous focus either in the lung or in a lymph-node, with the formation of a fistulous communication between the pericardium, and either the lung or the esophagus.

In seven cases (Müller, Leonpacher, Steiger, Morel-Lavallee, Bricheteau) the condition followed an injury which produced fracture of ribs or sternum with wounding of the lung and presumably tearing of the pericardium without external wound.

In two cases (Graves, Nichols) an acute inflammation in the abdomen was the starting point. In the case of Graves, an abscess of the left lobe of the liver perforated into the pericardium. In the case of Nichols, there was first appendicitis, then pleurisy with effusion, pneumonia and empyema of the right side, followed by pyopneumopericardium. At the autopsy, gas and pus were found in the pericardium, but no perforation was discovered, and the condition was supposed to be due to the presence of a gas-forming bacillus.

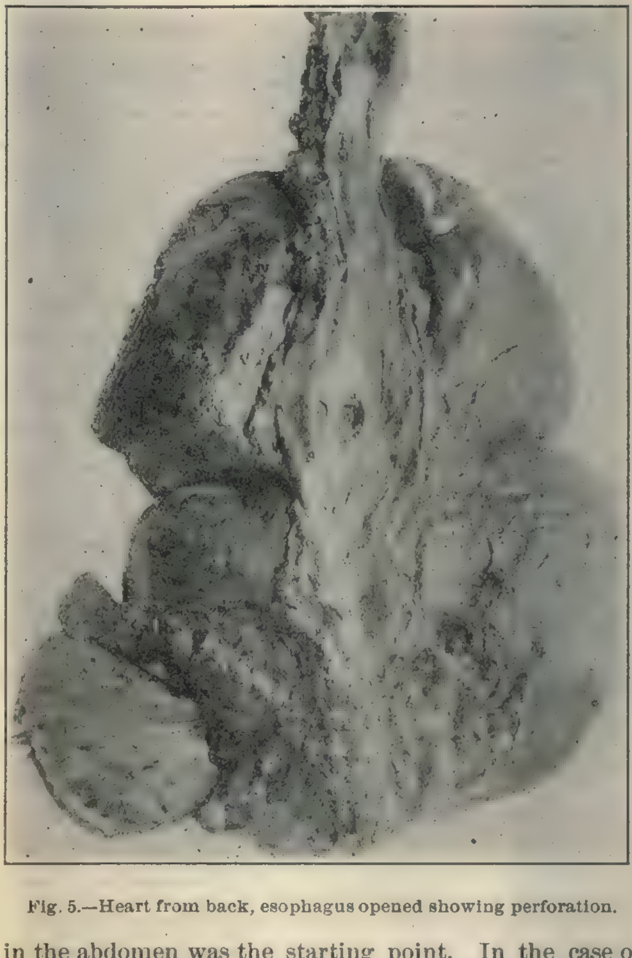

Fig. 5.—Heart from back, esophagus opened showing perforation.

In two cases (Saexinger, Gütman) a gastric ulcer perforated into the pericardium.

In one case reported by Müller there was first empyema on the left side, then purulent pericarditis, which later perforated into the left lung with the free passage of pus through the bronchi, and development of pyopneumopericardium. This patient recovered.

In one case (Eisenlohr) there was first pneumothorax, then a perforation into the pericardium.

In the case of Sievers, pneumonia was followed by gangrene of the apex of the left lung, which subsequently perforated into the left pleura and then into the pericardium.

In the case of Meigs, some disease of the lung of unknown nature, produced perforation into the esophagus, and later from this a perforation into the pericardium.

In the case reported by Stokes there was first acute pericarditis, which went on to hydropneumopericardium, and then to complete cure, the origin of the gas not being discovered.

The physical signs of the condition were strikingly uniform in most of the cases.

In one case there was cracked-pot resonance; in 21 the normal pericardial dulness was replaced by tympany. In only three (Laub, Feine, James) was there special mention made of the shifting relation between the pericardial tympany and the adjacent dulness with change in position, and in these the tympanitic area always occupied the uppermost portion of the precordium, dulness being present below.

The most characteristic sign is a splashing, gurgling sound synchronous with the heart-beats, and variously described by different observers. By the French it was called *bruit de moulin*, or *bruit de la roue hydraulique*, from its resemblance to the noise made by a waterwheel. It has been likened also to the sound made by an old-fashioned churn (Meigs). Its character is unmistakable, and it can hardly be confounded with any other sound heard in physical examination.

A possible source of confusion might arise from hydropneumothorax, succussion being produced by the action of the heart, and the sounds being transmitted to the precordium. In pneumopericardium, however, the sounds are far louder, are heard most distinctly over the heart itself, while the study of the relation of the signs over the precordium to those over the rest of the chest on either side, together with the study of the changing area of precordial dulness with change of position ought to prevent error.

Stokes, after describing the physical signs, says: "In the whole of my experience I have never met so extraordinary a combination of sounds, and I could form no conclusion but that the pericardium contained air in addition to an effusion of serum and coagulable lymph."

This splashing, churning sound was described in 19 of the cases. In 24, there was loud metallic tinkling, synchronous with the heart sounds. In 16 cases these noises could be heard at a distance from the patient, and in many instances patients themselves were conscious of the unusual tumult going on in the chest.

In only 6 cases was the presence of pneumopericardium first recognized at autopsy.

It speaks strongly for the uniqueness of the acoustic phenomenon that the nature of the trouble should have so often been readily recognized by observers who were meeting it for the first time.

Of the 38 cases, 26 resulted fatally, 11 patients recovered. Among those that recovered, 4 cases were caused by stab wounds, 4 by some injury, such as a fall, blow, or crush, which produced pneumopericardium without an external perforation, but presumably through a tear of the pericardium itself.

The large percentage of recoveries speaks for the resistance to injury which this membrane is capable of exhibiting.

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TUBERCULOSIS AS IT AFFECTS THE SKIN.[1]

BY

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It is not the purpose of this paper to describe at any length the various forms of cutaneous tuberculosis, but to call attention to the growing importance and increasing length of the list of the affections of the skin due directly or indirectly to the tubercle bacillus, and to point out briefly their salient features.

In the last edition, published 20 years ago, of what was then considered one of the best textbooks of dermatology in the English language, the subject of tuberculosis of the skin is dismissed in a section of 25 lines; but a single form of disease is described, and the section begins with the statement: "The existence of tuberculous ulceration of the skin has long been disputed." In the last edition of a wellknown English treatise on "Diseases of the Skin," which appeared in the past year, more than 60 pages are devoted to the same subject. Indeed, within the brief period of two decades our knowledge of tuberculous disease of the skin has not only undergone a complete revolution, but it has been in large part created.

The most frequent form of disease of the skin, due to the presence of the tubercle bacillus, is that which has long been known under the, now somewhat meaningless, name of lupus vulgaris. This affection, while common enough in Continental Europe, is happily somewhat rare in America. According to Kaposi, no less than 66% of all diseases of the skin observed in Austria belongs to this malady, while the statistics compiled by the American Dermatological Association, comprising considerably over 200,000 cases, show that lupus is found in less than ½ of 1% of the diseases of the skin met in the United States and Canada. The clinical features of this form of tuberculosis are usually so well marked as to make its recognition comparatively easy. The brownish-red nodules, either discrete or in patches, ulcerating and crusted; the early beginning, oftentimes in childhood, nearly always before puberty; its slow, steady, usually painless progress from year to year, and the consequent disfigurement, sometimes truly hideous, are features which render the diagnosis one of no great difficulty, in typical cases at least. While it is possible to demonstrate the presence of *Bacillus tuberculosis* in lupus tissue, it should not be forgotten that it is usually necessary to examine many sections before this demonstration succeeds, owing to the scanty numbers of the organism.

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[1] Read in part before the West Philadelphia Branch of the Philadelphia County Medical Society, March 12, 1904.

Inoculation of the tissue into rabbits or guineapigs is usually a much more satisfactory and certain way of demonstrating its tuberculous nature. The ravages of the disease are not limited to the skin, but the nasal, buccal, laryngeal, and vaginal mucous membranes are not infrequently attacked. It sometimes arises from direct inoculation with tuberculous material, such as sputum, but this mode of origin is rather the exception than the rule. As a probable example of lupus arising from direct inoculation, I may mention the case of a creeping infant seen a few years ago, who presented patches of lupus upon the palmar surface of one thumb and on the inner side of both knees, parts which were frequently in contact with the floor soiled by the expectoration of the father, who had suffered from pulmonary tuberculosis for many months.

Under the title, "Tuberculosis Verrucosa Cutis," Riehl and Paltauf, in 1886, first described a form of cutaneous tuberculosis of the skin which, while closely related to lupus vulgaris in some of its features, yet presents sufficient clinical differences to entitle it to separate consideration. It occurs as elevated, bluish-red plaques, usually single, having a more or less warty surface, situated in most cases upon the hands. From the sulci between the papillæ which cover the surface of the plaques a small quantity of pus may usually be expressed. It is seen most frequently in the persons of cooks, grooms, butchers and others whose occupation brings them much in contact with animals or animal products. Fabry has recently called attention to the frequency of its occurrence in miners, the explanation being found in the numerous abrasions upon the hands of such laborers through which inoculation may readily take place. This variety of cutaneous tuberculosis is, in all probability, due in most instances to direct inoculation. I have,[1] in another place, reported two cases which arose in this manner. The first of these was probably of bovine origin, the tuberculous lesion following an injury of the hand received in repairing a railway car used for the transportation of cattle; the second, which occurred upon the thumb of a man who had suffered from laryngeal tuberculosis for some time, resulted from the patient's habit of biting his thumb in fits of abstraction. In infrequent cases tuberculosis of internal organs may follow the external lesion and cause the patient's death, as happened in the first case referred to herein.

Identical with the verrucose tuberculosis is the so-called anatomic wart, verruca necrogenica, which occurs upon the hands of anatomists, pathologists, and others who are brought into contact with the bodies of those dead of tuberculosis.

One of the earliest recognized forms of tuberculous affections of the skin is the tuberculous ulcer, known also as miliary tuberculosis of the skin. The clinical features of this lesion were first accurately described by Jarisch, and its pathology established by Chiari. It occurs as round, or when several lesions coalesce, serpiginous ulcers about the margins of which are frequently small, solid, red papules, miliary tubercles, which after a time soften and break down, thus extending the ulcer. It is usually easy to demonstrate the tubercle bacillus in considerable numbers in the secretion from these lesions or in scrapings obtained from the bottom of the ulcers. This form of tuberculosis is usually found about the orifices of the body, the mouth, the nose, the anus, and the vagina, but it may occur, as Kaposi has pointed out, upon other parts, such as the cheeks, the ears and forearms. It is, in the great majority of cases, secondary to pulmonary or intestinal tuberculosis, running an acute course, although there are exceptions to both these rules. While usually secondary to tuberculosis of other organs, it may occur as a primary lesion, and be followed by visceral tuberculosis. Colcott Fox, Haushalter, and others, have reported cases following measles, the eruption appearing at first as reddish-brown papules which in time ulcerated and crusted over. The occurrence of such a sequel has been explained by supposing that the exanthem served to set free bacilli already present in some hidden focus, such as a lymph gland.

An extremely interesting form of primary tuberculous ulcer is that which occurs upon the prepuce and glans penis of infants after ritual circumcision, as the result of direct inoculation from the mouth of a tuberculous operator. Lehmann has reported no less than 10 cases of such ulcer originating from a single tuberculous rabbi.

The close relationship existing between scrofula and tuberculosis has long been recognized, but it is only in recent years that it has been definitely shown that the former is but a manifestation of the latter. Scrofula gives rise to a number of lesions of the skin, usually ulcerative in character, to which the name scrofuloderms has been given. In most of these lesions, if not in all, the presence of the tubercle bacillus may be demonstrated, either by the microscope, or by experimental inoculation in animals, and their microscopic structure resembles more or less closely that of other tuberculous affections.

The commonest form of scrofuloderm is the chronic ulcer which occurs so frequently in connection with tuberculous adenitis, especially in the region of the neck. This is so common an affection that no description of it is necessary—all are familiar with it. Ulcers of the skin may result from scrofulous gummata which begin as deepseated, ill-defined, nut-sized nodules in the subcutaneous tissue. As these enlarge and approach the surface, the skin becomes red, then livid, and softening and ulceration take place with the formation of ragged ulcers with thin, undermined, livid edges, which usually pursue an extremely chronic course.

Many years ago Bazin described a scrofulous affection, under the name erythema induratum, situated most frequently upon the calf of the leg, occurring as a rule in young women, characterized by one or more deepseated, red nodules which after a time ulcerate, giving rise to deep ulcers with livid, overhanging edges. When there is a number of such nodules, firm red plaques are formed which are followed by very extensive ulceration.

Lichen scrofulosorum is a papular eruption usually seen in children and young adults, who as a rule present other evidences of tuberculosis in the shape of adenitis, caries of bones, or scrofulous ulcers. The eruption is usually arranged in rounded groups, or in circles situated most abundantly upon the sides of the trunk. At first bright red in color, it grows paler as it grows older, some of the papules becoming the color of normal skin. The disease is a chronic one, lasting for months, and at times for years, new lesions appearing as the old ones disappear. Special interest is attached to this malady because, according to recent investigators, it may be produced by the injection of tuberculous toxins. Other observers, among whom are Sack and Jacobi, have found tubercle bacilli in the lesions, or have been able to produce tuberculosis in animals by inoculation performed with excised lesions.

Some years ago Duhring described, under the name of small pustular scrofuloderm, an eruption consisting of small pustules, situated for the most part upon the face and extremities, resembling the pustular syphiloderm. These pustules, which were surrounded by a violaceous halo, after crusting over, healed, leaving small cicatrices like those of variola. This affection is probably identical with one more recently described by French and other authors under a great variety of names, such as folliculitis, acne varioliformis of the extremities, etc., to which more extended reference will presently be made.

In the affections thus far considered, the presence of *Bacillus tuberculosis* has been demonstrated with more or less certainty, either by the microscope or by experimental inoculations performed with the morbid tissues. In another class of eruptions observed in individuals who, either in themselves or in the members of their immediate families, present a more or less clear history of tuberculosis, all efforts to find this organism have failed, although the tissue changes are such as are present in tuberculous disease. For this class of diseases Darier has proposed the term *tuberculides*. It has been assumed that these eruptions are due, not to the presence of the tubercle bacillus, but to the toxins produced by this organism in some focus more or less remote from the seat of the eruption. Hallopeau proposes to call all tuberculous eruptions, tuberculides, dividing them into two classes: (*a*) Those in which bacilli are present, bacillary tuberculides; (*b*) and those arising from tuberculous toxins, *toxituberculides*.

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[1] Journal of the American Medical Association, April 16, 1898.

Under the name folliclis, and a host of other names, a peculiar eruption has been described in recent years, consisting of small, firm, at first bright-red, later livid nodules situated usually upon the extremities. These nodules in the course of a few weeks or a month become pustular; a small crateriform ulcer forms on the summit, covered with a blackish or brown crust, which in time falls off, leaving a small pock-like scar. The disease is a chronic one, lasting months and even years. A peculiar and striking feature frequently observed in those the subjects of this eruption is the marked lividity of the skin of the extremities, particularly the hands, due to the extreme sluggishness of the peripheral circulation. Pressure upon the skin produces a white area which resumes its usual dusky hue with extreme slowness. Boeck has pointed out the interesting fact that this eruption is associated with lupus erythematosus in a considerable proportion of cases; in fact, this author looks upon it as a form of this latter disease, calling it disseminated erythematous lupus. The subjects of this affection usually, but not invariably, exhibit more or less certain evidences of tuberculosis in some form or other. All attempts to find the tubercle bacillus in the lesions of this disease have thus far failed; but giant and epithelioid cells are usually present.

As illustrative of this malady and its association with other tuberculous affections, I may briefly refer to the case of a girl of 17, whom I saw a number of years ago. She had suffered for a considerable period from a tuberculous disease of the hip-joint, and came under my care for a wellmarked erythema induratum situated upon the left calf. In addition to the ulcerative lesions of the leg she presented from time to time an eruption of firm, shot-sized, bluish-red nodules seated upon the backs and sides of the fingers, the legs, the tops of the feet and toes. These in the course of a week or two became pustular and crusted over, leaving when healed, pit-like scars. Search for bacilli resulted negatively.

In recent years there has been an increasing tendency among authors to place lupus erythematosus among the tuberculous affections of the skin. There does not seem to me to be sufficient grounds for such an attempt. All efforts to find the tubercle bacillus in this disease have failed completely; its structure bears no resemblance to that of tuberculous tissue; and its association with other wellknown forms of tuberculosis is, in my experience, decidedly the exception.

In a large proportion of the cases of that grave, but fortunately rare, malady, pityriasis rubra, of the type first described by Hebra, tuberculosis of the lungs or other viscus is present. Jadassohn found positive indications of tuberculosis in 8 out of 18 cases, while doubtful evidences of this malady were present in several more. In a case reported by Elliott, there were enlarged glands, and the patient eventually died from tuberculosis. Jadassohn concludes from a careful analysis of all the reported cases that, while we cannot at present explain the relationship between these two affections, it undoubtedly exists. In this connection a case recently reported by Bruusgaard is of great interest: A woman of 66 developed an inflammation of the skin, at first limited to the calves, but which in the course of months became universal. The inflammation was accompanied by marked redness, infiltration and exfoliation. There was marked swelling of all the palpable lymph glands. The hair and nails were affected early, and were gradually lost. The inflammation increased in severity, showing a tendency to acute exacerbations accompanied by increased exfoliation. After some time the patient died of bronchopneumonia. At the autopsy the lymph glands were found greatly swollen, containing broken-down foci in which numerous tubercle bacilli were demonstrable. The liver and spleen also contained miliary tubercles and there was a tuberculous ulcer in the ileum. Sections of skin taken from various parts of the body showed typical tubercles containing bacilli.

In conclusion, a few words as to treatment. The constitutional treatment of tuberculosis of the skin differs in no respect from that of tuberculosis of other tissues. The patient should have an abundance of fresh air, and to insure this he should pass a large part of his time outdoors. He should have a superabundance of highly nutritious, easily digested food; eggs and milk should form a large part of his diet. If it does not interfere with his digestion, he should take cod-liver oil; and the pure oil is far superior to any mixture, both as to palatability and therapeutic effect.

In lupus vulgaris, two local remedies are of especial value, viz., concentrated light employed after the method of Finsen, and the röntgen ray. Although it is but a short time since the introduction of these agents, the evidence of their great usefulness is already overwhelming. The Finsen light is preferable when the area of disease is moderate in extent, but the length of time required for the exposures almost prohibits its use in very extensive cases. The röntgen ray acts much more rapidly than light, and a much larger surface may be treated at each sitting; it is, therefore, preferable in cases in which large areas are involved. When there is but a single patch of disease, of moderate extent, favorably situated, complete excision with the subsequent transplantation of a flap of sound skin is the most speedy method of treatment.

In verrucose tuberculosis, curetment followed by cauterization with caustic potash, or the application of a strong pyrogallol plaster, is usually followed by very satisfactory results. If the patient objects to the scraping and cauterization, the röntgen ray may be successfully employed.

Lichen scrofulosorum responds promptly to treatment with cod-liver oil given internally and applied locally. Crocker finds that inunctions with vaselin are quite as effective as the cod-liver oil, and much less disagreeable.

Scrofulous ulcers should be made and kept as nearly aseptic as possible, and some stimulating ointment, preferably some one of the mercurial ointments, applied twice or three times a day. The application of dry powder of iodoform, europhen, aristol, or other iodin compound is frequently of decided value.

Blindness and Deafmutism.—The number of the blind has been continualy decreasing in Prussia since 1871. According to the *Statistical Correspondence*, quoted in the *Vossische Zeitung*, there were 92.09 blind persons in each 100,000 of the population in 1871, 82.49 in 1880, and 61.04 in 1900. With respect to sex, the proportions of blind persons were 65.13 males and 58.56 females in each 100,000. While in 1871 the number of blind females (11,759) exceeded that of the males (10,931), the proportions were reversed in 1900, when 10,302 blind females and 11,504 blind males were registered. The report also gives particulars relative to deaf mutes, of whom there were 24,027 in 1871, and 31.278 in 1900. Although their absolute number has increased, the proportion of the deaf mutes to the general population has somewhat decreased, being 97.51 in each 100,000 in the year 1871, and 90.73 in the year 1900. More than 50% (16,856) of the deaf mutes were able to work, upward of 6,000 being employed in agriculture, and upward of 5,000 in various trades. It was rather remarkable that the decrease occurred only in the male sex, the females showing even a slight increase.

A CASE OF RUPTURED INTESTINE WITH ARTIFICIAL ANUS, FECAL FISTULA AND OPENING THROUGH THE SCROTUM.[1]

BY

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The early diagnosis of rupture of the intestine, in order to facilitate a prompt operation, is becoming daily more recognized, so that the report of the following case may prove of more than ordinary interest.

Dr. Gage,[2] of Worcester, Mass., has presented a record of 85 cases of rupture of the intestine occurring since 1887. The most common cause of the rupture seems to be a kick from a horse or man; this occurred in 37 cases. In 19 it was caused by a fall, and in 6 by a piece of wood thrown from a circular saw. The duodenum was injured in 10 instances, the jejunum in 20, the ileum in 42, and the large intestine in but 6. The large intestine seems less liable to injury on account of its more protected position and stronger and thicker coats.

Up to within a few years, rupture of the intestine has been practically a fatal accident, but with the more improved methods of diagnosis and operation the results have become more favorable. In the 85 cases reported by Dr. Gage, 45 of the patients were not operated upon, and died; 40 were operated upon, with 17 recoveries, 42.5%. Of the 17 successful operations, in 3 the patients were under 20; in 7 between 20 and 30; in 3 between 40 and 50; in 2 between 50 and 60, while in 2 the age was not given.

The history of my patient is as follows:

F. J., aged 29, single, native of United States, laborer by occupation.

Family History.—Negative.

Past History.—The patient has always been healthy and well since childhood. He uses neither tobacco nor alcohol.

Present Illness.—December 6, 1901, while working in the car-shops at West Albany, he was struck in the abdomen by the end of a joist, 6 inches in diameter. He was lifting the joist in conjunction with another man, off of a wagon about 2 feet high, when he slipped on a piece of ice and fell, the joist falling with him and striking him, as stated, over the abdomen. He immediately arose and walked about a little, but was seized with severe pain in the region of the umbilicus; he became cyanotic, but did not vomit. The ambulance was called and he was brought to the Albany Hospital in a condition of shock. The pulse was feeble and rapid; temperature subnormal; surface of body and extremities cold; breathing slow and shallow. He complained of intense pain in the abdomen and back. He was conscious but in a very serious condition. The anterior abdominal wall was rigid and board-like and remarkably tender upon pressure. No vomiting occurred.

Physical Examination.—Patient is a slight, well-nourished and fairly-developed man. Skin and mucous membranes are pale and cold. Chest is practically negative; abdomen as stated before.

At the suggestion of Dr. Macdonald he was given a little chloroform, and his abdomen thoroughly palpated and percussed. Even under the anesthetic it was very tender, and his muscles gave a decided board-like feel upon palpation, especially in the right iliac region.

The diagnosis lay between rupture of the intestine, large or small, or of the right kidney. As the patient was catheterized, and no bloody urine obtained, the chances were in favor of the diagnosis of rupture of the intestine. The patient was immediately placed upon the operating table and prepared for operation. A median incision 10 cm. long was made in the anterior abdominal wall. Upon opening the abdomen the patient, who was not taking the anesthetic very well, struggled slightly and forced some of the small intestine out upon the abdomen. Two small perforations were immediately seen in the ileum near its junction with the cecum. These perforations were at once closed by means of Lembert sutures. Search for further perforations was made, but none found. The intestines and abdominal cavity were cleaned as thoroughly as possible with normal salt solution, and the intestines returned to the peritoneal cavity as quickly as practicable, particularly on account of the feeble condition of the patient. The wound was closed with silkwormgut sutures; a glass drainage-tube was placed in the pelvis and packed with iodoform gauze. Duration of operation was 45 minutes. Upon leaving the table the patient's pulse was 114, and respirations 14. A 2 mg. ($\frac{1}{30}$ gr.) dose of strychnin and a stimulating enema containing whisky, 30 cc. (1 oz.), normal salt solution 150 cc. (5 oz.) alternating every two hours was ordered. The tube was ordered packed every two hours. Patient did well for the first 24 hours, when he began to complain of considerable pain in the abdomen, and also began to vomit a light greenish-looking fluid. A high glycerin and salts enema was also given at this time, but with very little result. At the end of the first 48 hours the drainage had so lessened that the glass tube was removed. The patient, however, was distending more and more, and it was impossible to secure a movement of the bowels. It was clearly evident that general peritonitis had set in, and upon consultation with Dr. A. VanderVeer, it was decided, at the end now of 60 hours, to open the wound, bring up the first coil of intestine found, attach it to the edge of the incision, make an opening into it, and see if the distention could be relieved. This was accordingly done; the temperature at this time was 101°, and the pulse 132, and of very poor quality. For the first 24 hours thereafter there was hardly any result, the distention remaining the same and the vomiting growing more fecal in character. There was, however, some improvement in the pulse, the rate being 104, and of better quality. For the next three days small amounts of feces and flatus were expelled from the artificial anus, but the patient grew more delirious. On December 13, one week after the accident, large amounts of fecal matter began to be expelled through the artificial opening, and the patient's mental condition slowly cleared up. He also now, and for the first time, took and retained some liquid nourishment.

All went well, the patient slowly improving until December 23, 1901, when a large swelling appeared in the scrotum, on the right side, resembling a hernia. This was treated by means of the icecap until December 27, when its true character became apparent, showing it to be an abscess. It was immediately opened, and a pint of pus and fecal matter evacuated. Under proper treatment the tissues healed kindly.

The artificial anus was closed January 7, 1902, just a month after the original injury, by means of a flap-splitting operation. For a time this operation did not seem to be a success, the feces still coming through the wound, but the movements from the rectum gradually increased, and by February 1, 1902, the fecal fistula had entirely healed. The bowels, which became very constipated, were treated by internal doses of olive oil and the use of glycerin suppositories.

The patient was discharged from the hospital February 18, 1902, 74 days after the accident, entirely well. He has remained so ever since, but has not been able to do any heavy work, owing to a feeling of weakness of the abdominal wall, although no ventral hernia presents.

In connection with this case I would call attention to the making of an artificial anus. In my opinion, this procedure saved the patient's life, as he undoubtedly had a general peritonitis; and as it was impossible to move the bowels per rectum, the artificial anus allowed the gas and feces to escape, thus relieving the distention and the pressure against the diaphragm.

In looking over the literature of this subject I have been unable to find a case of this description in which a fistula opened through the scrotum. Either one of two things happened: First, there was a third rupture of the small intestine which escaped notice at the time of the operation—a possibility which might easily have happened, as the precarious condition of the patient precluded any extensive search of the intestines after the first two ruptures had been discovered. This rupture lying low down in the pelvis on the right side, might have formed a fecal abscess, which gradually worked its way down through the inguinal canal into the scrotum, and so was evacuated; or else, second, the artificial anus did not hold quite tight, and a small amount of feces escaping from the intestines, formed a sinus, breaking through into the scrotum, resulting in the abscess mentioned.

At the present day, when aseptic technic has been brought to such a high state of perfection, the opening of the abdomen is a comparatively simple affair. How much better it is when we get a patient with the history of having been struck in the abdomen by some blunt instrument with considerable force, to make an immediate exploratory incision and see at first hand what really has happened. If nothing serious has occurred, the patient is only put to the inconvenience of being laid up for a couple of weeks, while, on the other hand, if a rupture of intestines or hemorrhage of the mesentery has taken place, no time has been lost and the patient has been given a much better chance of recovery.

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[1] Read at the meeting of the Medical Society of the County of Albany, April 13, 1903.

[2] Annals of Surgery, March, 1902.

It is in this class of cases that the minutes count. Authorities seem to agree that if in rupture of the intestine operation is delayed over 24 hours, the case is practically hopeless. This waiting for the patient to rally from the shock of the accident is all right, but in a good many cases, by the use of saline infusions, stimulation, etc., the patients can be operated upon and saved, whereas if we waited until they rallied, they would either never have done so or else would have died from the effects of the operation.

Recently some writers have called attention to the fact that when rupture of the intestine has taken place, peristaltic movement is at once arrested and does not begin again; whereas, on the other hand, when the abdomen only is contused, the peristaltic movement of the bowel is either not arrested at all or else only for a short time, beginning again in a few hours. In the case reported, this symptom was not looked for, although it is fair to assume that it was absent. My recollection of the case is that when the abdomen was opened peristaltic movement of the intestine had entirely ceased.

MEASUREMENTS OF BLOOD-PRESSURE IN FEVERS BEFORE, DURING AND AFTER THE ADMINISTRATION OF STRYCHNIN.[1]

BY

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1. The cases included in this study were all febrile. Among them were 31 cases of typhoid fever, 4 of pneumonia, and 15 others with a variety of diagnoses.

2. In 32 cases the strychnin was given by mouth, and in 18 subcutaneously. The total daily dose was usually 8 mg. ($\frac{1}{8}$ gr.), sometimes .1 cg. ($\frac{1}{6}$ gr.). Except in a few instances the diet and position of the patient remained the same throughout the experiment.

3. The records were continued for days and occasionally for weeks before and after the drug was given, in order that the regular range of variation in the blood-pressure might be ascertained.

4. The measurements were taken with Stanton's modification of the Riva-Rocci instrument. The maximum pressure was recorded as the height of the mercury column at the moment of the disappearance of the radial pulse, and the minimum as the trough of the wave of greatest oscillation of the column.

5. The measurements were taken at various intervals of time succeeding the administration of the strychnin—from a few minutes to several hours. The observations extended over about 8 months and include over 5,000 measurements.

6. The total result is negative. I have been unable to convince myself that strychnin exerts any influence upon the blood-pressure in febrile cases when given in manner and dose as mentioned.

7. In the 24 hours following the administration of the drug there was a rise of 5 mm. or more of pressure in 16 cases, a fall in 17 cases, and no change in 24. The average pressure in the 50 cases that received a daily dose of strychnin was no greater than in 18 control cases without any drug.

8. To me one of the most striking features of the investigation was the fact that while strychnin and whisky seemed to be entirely without influence upon the blood-pressures, the sight of the dinner tray or the prospect of getting up produced a most obvious, though transient, rise in the pressure. The only permanent gains in pressure occurred when the patient reached a crisis (as in pneumonia) or when convalescence enabled him to get up and walk.

9. As in the alcohol research of last year, I do not wish to be construed as saying that the drug under investigation is of no value. To prove so general a negative my work is altogether insufficient. My conclusion is that in the dosage used strychnin does not raise or in any way effect the maximum or minimum blood-pressure so far as can be determined by the instrument employed.

I am indebted to Messrs. R. H. Brooks and David Robinson, of the Harvard Medical School, for assistance in carrying out the investigation.

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[1] Read before the Association of American Physicians, at Washington, May 10, 1904.

SPECIAL ARTICLES

SCHOOL HYGIENE AND THE TEACHING OF HYGIENE IN THE PUBLIC SCHOOLS.[1]

BY

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of Philadelphia.

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The term school hygiene comprises a number of subdivisions, any one of which might serve as a topic of discussion in such an assemblage as the one which I now have the honor and pleasure of addressing, but I shall probably serve you best if I review some conditions more or less commonly prevalent, indicate wherein they may be improved by proper methods of physical education and culture, and make some suggestions as to the teaching of hygiene in our public schools.

The state of health of the pupils in our schools must concern not alone parents and physicians, but all intelligent citizens who have at heart the welfare of those who are to come after them to make the future social fabric of our republic. The country will always need plenty of men and women, healthy and strong both in body and mind, and the need will doubtless be even greater in the days to come than it is now. Therefore, we must take thought of the citizens in the bud.

All realize, and will readily admit that in childhood and early youth the body is in a plastic state, and yields readily to influences and conditions, both internal and external. Habits of all kinds are being formed, whether for good or evil, nor can these be changed in the years to come without great effort and long continued stress. All the factors of heredity and environment are now most efficient in producing their logical results, although the latter may not be evident until many days later. Couple to this basal knowledge the appreciation that the various conditions of school life are to have their peculiar influences constantly at work for a long time—from eight to ten years for the average child—and you will easily understand that it is not difficult to discover among such children a number of abnormalities of health which might be classified together under the general head of school pathology.

Unquestionably it is the business of the family physician to be on the watch for and to remedy these abnormalities when they occur, but does that relieve from responsibility those who have a paramount duty and a more intimate care of the children—the parents and teachers alike? Should they not be trained to discern and be ready to detect such troubles in the very incipiency and before permanent and irreparable harm has been done? Or better, should they not work together for conditions that will obviate and prevent even the beginning of trouble?

There is no doubt as to your answers to these questions, and yet how many parents or teachers do any of you individually know who are today giving any particular thought or attention to these matters, or who are really qualified by their previous training and experience to perceive the foreshadowings of coming evil?

As one who has had some little experience in the general practice of medicine, I may say that I believe that certain symptoms will be noted more frequently than others by the family physician whose young patients are attending school, and that among these symptoms will be more or less persistent headaches, disturbances of digestion and assimilation, with resultant blood changes, derangements of the nervous mechanism or functions, aggravation of abnormal eye conditions and more or less noticeable alterations in carriage and posture with accompanying deformities of the bony skeleton.

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[1] Read before the Philadelphia Physical Education Society, April 16, 1904.

The headache may be a symptom of overwork, or more likely, of worry over rank or place in class, or it may indicate improper nutrition, imperfect ventilation of schoolrooms, bad habits of posture—these interfering with the cerebral circulation—or eyestrain due to the same postural habits or to imperfect lighting, improper arrangement of seats and blackboards, glazed walls and ceilings, etc.

The disturbances of digestion and assimilation, as manifested by anemia, muddy complexion, frequently recurring "bilious" headaches, etc., may necessitate an investigation of the child's habits of eating at home as well as at school, and the amount and kind of physical exercise he takes immediately after his meals.

Many children during almost the entire school year rise too late, "bolt" a hasty and scanty breakfast, with little or no mastication of the food, and hasten off to school, sometimes literally "on the run," driven either through fear of being tardy or of missing some of the play before school is convened. How can we expect a normal digestion and assimilation of the food when it is taken in this improper manner and when the exercise immediately following the eating of it calls to the muscles the blood and nervous energy that at that time should be devoted to the digestive functions? The value of the morning meal, which should do much to fortify the body for the work of the day, is thus often almost entirely nullified, even if it does not do more harm than good.

Nor are the conditions at noontime compensatory for this loss, especially if there be two sessions daily of the school. The pupil either hurries through a cold luncheon that is frequently made up of unwholesome or indigestible articles, again "bolting" it, that he may lose none of the strenuous physical "fun" of the noon hour; or he hastens home to a meal he has too little time to eat properly, and then back to school, the muscular exercise again tending to interfere with the digestion of the food. And, as for this noonday lunch at home, we all know that in many houses too little care and attention is given to it, since the adults, who rely upon the evening meal as the principal one of the day, are frequently absent and "almost anything is good enough for the children."

When evening comes the child is not in a condition to derive the proper benefit from his dinner or supper, whichever it may be in fact or name, for, improperly nourished thus far in the day and tired out by his mental and physical work, he has not the kinetic energy to digest properly the third and, for him, perforce, the most important meal, and so he is deprived of a certain part of the nutrition that is so important to him at this time. And so it goes on day after day, till possibly lasting harm is done or some grave symptoms call attention to the fact that he is being illy nourished and robbed of the just right of his youth.

Of course, I am aware that this rather pessimistic picture is not applicable to all or, perhaps, to a large proportion of public school children, but may we not surmise that for many the development of the harmful dietetic habits and the chronic dyspepsias, so characteristic of Americans, has its beginning in the school years and not in the later days of strenuous activity?

Nervous disturbances and eye troubles may require the assisting advice and technical skill of specialists, not only for their relief, but also for the determination of the exact cause of each. However, in no case should nerve or eye symptoms be overlooked or ignored. Sometimes young patients are brought to physicians with such disturbances in an advanced stage of progress, their premonitory symptoms, though well marked, having been observed by neither parents nor teachers.

When we remember that the sense of seeing is the most delicate as well as the most important of our perceptive functions, and that the nervous mechanism of our bodies is the most highly organized and the most readily disarranged, we can understand that much of the child's future happiness and welfare in life depend upon the integrity of his nervous constitution and health and the maintenance of eyesight as nearly normal as possible. In fact, it is almost if not quite criminal to neglect anything that will affect either of these functions of the body, and yet how often do we find overwork, worry over grades or rank, or the confinement and other factors of school life developing and fostering incipient chorea, hysteria, neurasthenia, etc.; and poor lighting, improper arrangement of seats and desks, or carelessness as to habits of posture rapidly converting a minor myopia or astigmatism into a grave one that will not only interfere greatly with the individual's usefulness and happiness in after life, but will also possibly be the cause of very disturbing reflex irritations of the nervous economy.

For both the prevention and cure of the grave spinal and other deformities, as well as undesirable habits of carriage and posture, we must rely upon the understanding and practical application of the principles of physical education. This is a phase of the subject in discussing which I gladly yield to you, for I am free to confess that I am not as familiar with the practical details nor with the various methods and systems of physical education as possibly I should be. However, I am strongly of the belief that by its aid we may not only prevent many deteriorations in the health and constitutions of school children, but may very much improve and benefit them, both mentally and physically.

Of course, every arrangement of the schoolrooms should conduce to the physical comfort of the scholars and to proper habits of carriage and posture, and to gain these ends attention must be given to such details as the apparatus and mechanism of ventilation, location and size of windows, arrangement of seats and desks, etc. Taking all this for granted, we must then consider the scholars themselves, individually and collectively. Are they overworked or under nervous worry and strain? What influence is their home life having upon their health, bodily growth, and development? Is there a proper balance between their mental and physical work? Is the tax upon their muscular system too great, and are their physical exercises, whether in spontaneous play or in set drills, properly adjusted to their present capacities and needs? All these and many more such questions must be asked and answered correctly before we shall be doing our full duty to the pupils in our schools.

Suppose we take up the question of spinal curvature for a moment. I am aware that there are many opinions as to the factors concerned in its causation. In the *Journal of the American Medical Association* for April 2, there is a very interesting article on this subject. According to the author, Dr. Compton Riely, of Baltimore:

> Guerin claimed that scoliosis (or lateral curvature of the spine) was produced by the active muscular contractions on the convex sides. Malgaigne taught that lax ligaments and weakened muscles on the convex side form the predisposing causes. Bernard Roth thinks that the chief factors are weakness of the spinal muscles and long continued standing or sitting in the relaxed or stooping positions. He has observed an inherited weakness of the muscles and ligaments, associated probably with excessive softening of the bone. L. A. Sayre believed that rotary lateral curvature depends entirely on spinal muscular contraction. If for any reason one set of muscles overcomes those on the opposite side, the spine yields and a curve is produced with its concavity toward the side on which the stronger set of muscles is situated. Schreiber believes that in early stages of scoliosis there are changes in the muscles, the muscular changes being due to long continued stretching and disuse. Eulenberg holds that slight continuous muscular action is necessary for the maintenance of the upright position of the body; that this action must be equal on either side of the spine; that the most frequent cause of deviations of the spine is a disturbance of the power of the spinal muscles; that by frequently repeated passive torsion, necessary in assuming faulty positions, gradually the trunk muscles are weakened. Lorenz sums up his opinion by the statement that anatomically and clinically there is no foundation for a theory of disturbed muscular antagonism, but that there is an element of general muscular weakness present in cases of lateral curvature, pure and simple, as has been hitherto assumed.

The writer of the article, Dr. Riely, holds the view "that the distorted pelvis is the starting point in all cases (except those following paralysis, empyema, and those accompanying Pott's disease); that this is immediately followed by unequal action of the muscles of the abdomen, so that those on the side in which we find the anterior superior spine the lower are put on the stretch, and hence act more forcibly in pulling the ribs downward, forward, and in straightening their angles—the ribs in turn, through their long leverage on the spine, producing a dorsal concavity in it, and a rotation forward toward the same side."

Dr. Allis, of this city, sattes I believe, that spinal curvature is caused by improper habits of posture, long continued at school or in certain occupations, and that the fixation of the pelvis on the school seat or other support is an important factor in securing the twist. And it was only last week that I heard Dr. Pyle, a noted oculist of this city, instance cases in which both spinal curvature and wry-neck had been caused by the posture adopted by the patient to adapt himself to a marked astigmatism of the eye.

Here are many opinions as to the causation of this common trouble, and I do not propose to decide which is most nearly correct nor what are the best methods to be selected in attempting to remedy the deformity. Probably each observer has something of truth and reason in his argument. However, you will notice the importance given by all to the muscular element and its influence in developing the trouble, and it will occur to all of you that prevention is to be secured by carefully guarding the development, health, and tone of each and all of the muscular groups that can possibly be concerned in such predisposition and causation of spinal deformity. As Bernard Roth says, "anything which weakens the muscular system tends to produce lateral curvature," and we should also keep ever in mind the dictum of another authority, that "spinal curvature is not only a product of low vitality, but does harm by permanently fixing vitality at a low standard."

We realize that no seat can be devised in which a child will maintain a correct or "normal" position for any considerable length of time, as this is practically an impossibility, and especially for young children. "Movement is a child's way of resting; rest is a kind of work, to be taught by degrees." Nor will any seat or desk remove original weakness as the one important predisposing condition of spinal deformities, and children cannot be made strong by supports. The true aim should be to furnish a seat in which the scholar will naturally assume the correct position after having temporarily taken any other, and a desk that will not help to cause both deformity and defective eyesight, the latter by making him hold his book too near to his eyes, and also to bend his head so that his cerebral circulation is impeded and ocular congestion favored.

But far more than attention to seats and desks, do we need that teachers should be trained to realize the importance of inculcating correct habits of posture in their charges, to be constantly on the lookout for incipient physical troubles, and to give daily such instruction and drills as will not only tend to overcome the result of frequent excursions from the normal position and the inclination to faulty habits, but also the weakness of muscular and other tissues, whether this weakness be inherent in the child or due to the depressing influences of his school life.

I do not believe that pupils should be robbed of their recess or playtime in order that they may have the necessary calisthenic exercises, though some self-styled authorities may begrudge them the time for the latter from the regular school hours, thinking it more important that these be used for purely mental work; but I feel that there should be a well-considered, energetic, and carefully executed physical drill as a part of every day's school business, and that, in addition, the teacher should call the pupils to "attention" several times in the day and have them go through a few "setting up" movements that will tend to bring all parts of the body into normal relative position and tension. Such a routine will show most excellent results in a very short time, as each pupil would have a better carriage of the body and improved muscular tone and general condition, and there would also be a more ready and more frequent recurrence to the correct sitting or standing positions after any departure from either. I leave it to you to decide how much additional training and education in this respect the average teacher of our public schools must still have to make him or her competent to carry out such a plan in a satisfactory manner.

Having told you now, in a measure, what I think of that part of school work and life in which you are especially interested, will you permit me to devote the few remaining moments of my time to that which I think is also of importance—the proper teaching of hygiene in the public schools?

You all know something of this teaching as it is given in the schools of this State at the present time, viz., that it is a combination of some fundamentals of anatomy, physiology and hygiene. Whether it will be of any future value to the pupils depends largely upon how much (or how little) the respective teachers know of the subjects and how much they are interested in them. I am not here to criticise any one, but have any of you considered how far this teaching, even when given in the best and most thorough manner, falls short of what every scholar in at least the higher grades of our public schools should have as a rightful part of his education?

I am sure that there is no need of argument to convince you that the most valuable capital that any young person can have at the time when he ceases to attend the public schools and faces his future work in life is not only present health, but some assurance of its continuance for years to come. The battle of life today is so strenuous and the attainment of success demands so much energy and vigor that it is certainly most important that a young man or woman should leave school with a sound physical constitution and know how to care for and preserve it in the future. Is there any particular or special instruction in any subject or branch of the educational curriculum of the public schools—or, for that matter, of the colleges or universities beyond—that can compensate for the loss of this good health, which should be every one's inalienable right as he or she passes from adolescence to young manhood or young womanhood? But these are not the only ones concerned. The boys and girls that leave our schools for the last time this spring, whether as graduates from high or manual training schools, or as part of that greater number who for one reason or another do not complete the stated course, are the future parents and the future citizens of our social economy. Many will marry sooner or later; many will continue to live among us and soon will have a share in the control of our body politic. We shall have a share in the evils that their ignorance of sanitary affairs and principles may bring upon the community in which we live.

To express this in any other way, there is absolutely no reason today why any person who completes the public school course should not know as much of the fundamental principles of hygiene and sanitation as any physician or any other person who is looked upon as an authority in this art and science. Moreover, it is our business and for our own personal and selfish welfare, as well as for theirs, that they should know these fundamental principles and also something of the practical application of sanitary measures.

If the curriculum is now too crowded to permit of the introduction of this teaching, then we should cut out enough of the less useful subjects to make ample room for it, even though we may seem to run a risk of losing something of mental development and socalled culture.

If you ask what this teaching should include, I would reply, "All that pertains to the sanitary betterment of the individual, the household and home, the city and State." It would include not only a smattering of anatomy, physiology and personal hygiene, as at present, but more thorough instruction in these, and also broad teaching as to the causation and prevention of disease, the importance of pure air and practical methods of ventilation and house-warming, the selection, inspection and purification of water-supplies, the care, selection and dietetic value of foods, the dangers that may arise from impurities or changes in these, the hygienic importance of physical exercise, clothing, bathing, etc., the appreciation of the importance and knowledge of the details of disinfection, the removal and proper disposal of garbage, sewage and other household and city wastes, the extinction of epidemics, the means of acquiring immunity, the influences for good and evil of microorganisms of all kinds, etc.

Of course, such an education cannot be given properly in a few months nor in a haphazard way. Time must be afforded for the assimilation of a subject of so much scope, and to this end the work should be graded and should be a part of both the grammar school and the high school or manual training courses.

I am aware that it will require much labor to secure the introduction of such teaching in the scheme of school work, and that the effort to bring about the reform will meet much opposition, but it is entirely feasible and practicable, and what is more we must come to it sooner or later. Public opinion will eventually compel it. The first thing to do is to awaken educational authorities to its importance. The next will be to provide competent teachers for the work, and this will be most difficult, for there are few of them prepared for it at this time. Investigate the curriculum of any of the normal schools of this State and see how much attention or weight is given to the training of prospective teachers in this important subject. And please remember that this can be made just as valuable from an educational or pedagogic standpoint as any other part of the work in either public or normal schools, and can be a valuable and effective means of developing the powers of attention, observation, analysis and reasoning as well as any other course of study.

Will it pay? I wish I had time to tell you something of what modern sanitation is doing, as demonstrated by the United States Census Reports and other sources of statistical information.

The deathrate is being markedly lowered in all civilized countries by the practical application of sanitary discoveries and principles. There have been some brilliant discoveries in preventive medicine in the last decade, such as those of the antitoxins of diphtheria and tetanus, the influence of mosquitos in disseminating malaria and yellow fever, in the methods of treating tuberculosis, etc., but much of our advance has been simply by the practical application of fundamental principles long known by the medical profession and which I hold should be known by every person who leaves our higher schools. Notwithstanding the rapid increase of their respective populations, there were in Albany 600, in Buffalo 1,000, in Cincinnati 1,200, and in New York almost 4,800 fewer deaths in 1900 than in 1890. The lowering of the deathrate in Chicago represents a constructive saving of over 70,000 lives in the last 10 years, and the difference in the deathrates of 1890 and 1900 in the New England States, New York, New Jersey, Michigan, and about 150 cities in other States, represents an annual saving of about 52,000 lives. In the territory just mentioned there has also been in 10 years a reduction in the deaths from pulmonary tuberculosis of almost 24%, of those from typhoid fever, 27%, from diphtheria, almost 50%, and from malaria, 54%.

The prevalence of articles pertaining to sanitary matters in the popular journals and magazines show that the public is eager for such information. They are also ready to apply this information when the importance of it is sufficiently impressed upon them.

But the mass of the people are still very careless and ignorant in this respect. Who is responsible for the recent Butler epidemic that brought serious illness to almost 1,500 and death to over 100 of its citizens and that will have cost the people of the State over $200,000? Who is to blame for the 175 or 200 unnecessary deaths from typhoid fever that occur in this city every year, or for the 3,500 unnecessary deaths from various preventable diseases that occurred in 34 cities of this State in 1900?

Will education or ignorance do most to continue such useless destruction of life?

Probably 30% of the population of this country is under the age of 14, and 50% under 24. This means that, beginning our work now, we have a means of soon reaching almost a third of our population, and that at the end of 10 years only a half, and at the end of 20 years, not much more than 30% of our people would be uninstructed in all important sanitary matters. Would such a population tolerate the conditions of today?

Do you know that all the recent Legislature appropriated for the work of our State Board of Health was barely $6,000 per year, or less than a tenth of one cent per capita? The State of Massachusetts, with only half the population, received $70,000 for the same work, and little Vermont with only 350,000 population gets $10,000 per year.

Suppose that for the next five or six years we might have not only an ample appropriation to our State Board of Health for carrying out its important duties, but also to our Department of Public Instruction for the inauguration of the work that I have outlined to you? What would the results be ten years from now? Would you feel that your own health and lives were safer and your chances of a longer life greater than they are at present?

I hope that some of these questions that I have asked will help you to realize the opportunities that are insistently demanding our attention and consideration at this very time.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

June 25, 1904. [Vol. XLII, No. 26.]

1. The Adaptation of Pure Science to Medicine. Chairman's Address before the Section on Practice of Medicine. Alexander Lambert.
2. Surgical Lesions of the Axillary Plexus. John A. Wyeth.
3. The Matas Treatment of Aneurysm. J. F. Binnie.
4. The Carnegie Institution. J. S. Billings.
5. The Rockefeller Institute for Medical Research. L. Emmett Holt.
6. The Memorial Institute for Infectious Diseases. Frank Billings.
7. Research at the Harvard Medical School. Harold C. Ernst.
8. The William Pepper Laboratory of Clinical Medicine. Alfred Stengel.
9. What Can the Services Do for the Medical Profession? Victor C. Vaughan.
10. What Can the Medical Profession Do for the Army? W. C. Borden.
11. What Can the Medical Profession Do for the Navy? Charles F. Stokes.
12. What the Medical Profession Can Do for the Public Health and Marine-Hospital Service. Walter Wyman.
13. What the Medical Profession Can Do for the Bureau of Animal Industry. D. E. Salmon.
14. Research Work in the Hygienic Laboratory of the Public Health and Marine-Hospital Service. H. D. Geddings.

1.—See *American Medicine*, Vol. VII, No. 24, p. 921.

2, 3.—See *American Medicine*, Vol. VII, No. 24, p. 923.

Boston Medical and Surgical Journal.

June 23, 1904. [Vol. CL, No. 25.]

1. Some Fermentations in Medical Education. Harold C Ernst.
2. Preventive Medicine: Its Achievements, Scope and Possibilities. Hermann M. Biggs.
3. A Contribution to the Pathology of Hysteria Based upon an Experimental Study of a Case of Hemianesthesia, with Clonic Convulsive Attacks Simulating Jacksonian Epilepsy. Boris Sidis and Morton Prince, assisted by H. Linenthal.

2.—See *American Medicine*, Vol. VII, No. 24, p. 946.

3.—Hysteria, Its Pathology, Etc.—Sidis, Prince, and Linenthal report a case at length, discuss the pathology of hysteria, recite their experimental studies of the case reported, and state that the case is of interest in that: 1. It confirms the work of previous observers in regard to the nature of hysteric anesthesia—that is to say, the anesthesia is not due to inhibition of sensory centers or any kind of suppression of their activity; in fact, is not true anesthesia at all, but is due to a dissociation of consciousness, probably corresponding to a functional dissociation of systems of cortical neurons. 2. It shows the purely functional character of the epileptiform attacks and their origin in dissociated psychic states. 3. It emphasizes the importance of understanding the pathology of the attacks in order to effect a cure. [A.B.C.]

Medical Record.

June 25, 1904. [Vol. 65, No. 26.]

1. Foreign Bodies in the Eye and Their Removal with the Electromagnet. Wilbur B. Marple.
2. When and How Shall We Operate for Prostatic Hypertrophy? Willy Meyer.
3. A Case of Hyperpyrexia, with Recovery. H. Walton Wood.
4. Case of Nail in the Deep Urethra. G. Frank Lydston.
5. Chemic and Physiologic Action of the Potassium Chlorate and Iron Mixture. W. E. Dreyfus.
6. A Case of Turpentine Poisoning. E. D. Newman.
7. The Simultaneous Occurrence of Typhoid and Malarial Fevers in the Same Patient. V. E. Watkins.

1.—Foreign Bodies in the Eye, and the Electromagnet.—W. B. Marple finds that an eye in which a piece of iron or steel is buried invariably deteriorates and ultimately becomes blind if the foreign body is not removed, unless it becomes completely encapsulated. In many cases this degeneration is preceded by hemeralopia. If the foreign body is in the anterior segment of the eye, the Haab magnet is almost universally used, at least to get the particle into the anterior chamber. In the majority of these cases there is no prolapse of the iris, and its occurrence makes it probable the foreign body has not penetrated the globe. This symptom is not reliable, however, in case the foreign body has made a large or irregular wound. If it has penetrated posteriorly, localization with the siderescope or röntgen ray should precede attempted extraction, especially if the lens is transparent. When localized it can be removed anteriorly by the magnet or by opening directly into the sclera near where the particle has been located. If pain is not elicited by the magnet it shows there is no foreign body, or that it is enveloped in fibrino-purulent exudation, or blood clot, or firmly encapsulated, or that it has passed through the globe and lodged partially or wholly in the orbital tissues. [H.M.]

2.—When and How Operate for Prostatic Hypertrophy.—Willy Meyer in an interesting article concludes as follows: 1. In view of the present advanced status of prostatic surgery, the catheter should no longer be advised as a routine measure in the surgical treatment of the disease. 2. Operative intervention should be urged as soon as the time for the regular use of the catheter has come. 3. Prostatectomy, being the most radical as well as the most surgical procedure, commands the first place in the treatment of the hypertrophied prostate gland, especially since the technic has been perfected to such a point as to render the operation a comparatively safe one, the mortality having been shown to be less than 5%. 4. The perineal route seems preferable to the suprapubic, for the reason that it enables the surgeon to do the operation more under the guidance of his eyes. 5. The choice of route in the average case will probably hinge on the question of preservation of sexual power, provided this point is of importance to the patient. 6. The patient's age, does not furnish a contraindication to operation; it is his general condition merely, that has to be taken into consideration. 7. Where the effects of general anesthesia are feared, spinal anesthesia is indicated. 8. If the operation with the knife be refused or contraindicated, Bottini's operation should be advised, since it, too, yields excellent results. [A.B.C.]

3.—Hyperpyrexia with Recovery.—H. W. Wood reports a case in a male without stigmata of hysteria, and with no history of a neurotic diathesis, in which the temperature rose to 107° F., 10 hours after a chill, soon reaching 112° notwithstanding sponge baths. The pulse was 140, thready, but regular; the respirations were 90, shallow, and panting, with momentary cessations at regular intervals. After an ice-water bath with ice to the precordium, carotids, and axillas, lasting 35 minutes, the room temperature being reduced to 15°, the patient's temperature was found to be 103.2°. He became delirious at 105°, passing into a comatose condition. By the sixth day the temperature was subnormal. The only drug treatment was a small dose of coaltar antipyretic at the outset, and cascara three times daily during the course. The diet at first was eggs and milk. He suffered no sequels, except a catarrhal otitis media occurring after he had resumed his duties. [H.M.]

4.—Removal of Nail from Deep Urethra.—G. Frank Lydston reports the case. A man of 30 had introduced a tenpenny nail, head first, into the urethra. It slipped beyond his grasp, and some hours later he came for relief. A rectal examination plainly revealed the nail in the deep urethra, the head probably being just at the internal meatus and the point imbedded in the urethral wall. Immediate operation was performed. Cocain was used as a local anesthetic, external perineal urethrotomy was performed, the nail removed, the wound closed by catgut sutures, and the patient, without going to bed, made a rapid recovery. [A.B.C.]

6.—Turpentine Poisoning.—E. D. Newman reports a case in a varnisher beginning with nausea and thickness of speech, followed by frequent micturition, frequent eructations, slight constipation, labored breathing, increased bronchial secretion, impairment of taste, with reddening at the gum margins and some white deposit. The urine had the odor of violets with no evidence of decomposition for 120 hours. The points of interest are the susceptibility of the patient, the acute onset, the profound poisoning, the poisoning by inhalation, the extreme rarity of the case. [H.M.]

7.—Typhoid and Malaria Simultaneously.—V. E. Watkins states that this is as rare as to be almost a medical curiosity. He observed two cases in 1898, both being soldiers from Cuba. The diagnosis was confirmed by finding the estivo-autumnal organism in the blood and by a positive Widal reaction. A correct diagnosis from the symptoms is wellnigh impossible. [H.M.]

New York Medical Journal.

June 18, 1904. [Vol. LXXIX, No. 25.]

1. The Doctor's Duty to the State. JOHN B. ROBERTS.
2. The Treatment of Empyema of the Thorax. HELIODOR SCHILLER.
3. The Fever of the Puerperium (Puerperal Infection). JAMES HAWLEY BURTENSHAW.
4. Report of a Case of Splenomyelogenous Leukemia. C. M. ROSS.
5. Labor Complicated by a Fibroid and Ruptured Uterus. EDWARD T. HARGRAVE
6. Appendicular Abscess, with Fish Bone in the Appendix: Operation, Recovery. W. P. MCINTOSH.

2.—Empyema of the Thorax.—Heliodor Schiller reviews the methods of treatment, and says that the resection of a rib is, and should be, the normal method in cases of thoracic empyema, and should only be replaced by Bülau's drainage or the simple incision in empyemas on both sides, in cases of acute empyema, in chronic empyemas discovered very late, and which had already produced severe cachexia, and in cases where there is a strict indication to operate, but where there are no conveniences for operating. The time to operate is immediately after the diagnosis of empyema is made. The place for the incision is the ninth rib, between the scapular and posterior axillary lines. Schiller says there is absolutely no necessity of removing the pus slowly and thus prolonging the operation, as has been advised. He advises the emptying of the pus very cautiously, only in cases of a very large empyema in which the heart is displaced, in order not to be surprised by a collapse induced by the rapid transposition of the heart. The toilet of the pleura should be made, be it only in order not to overlook a multilocular empyema. Then two large drainage-tubes, short inside and out, are securely fastened. No rinsing of the cavity, no packing of iodoform gauze should be used. All that is necessary is to secure a good drainage. The drainage-tubes should be covered with a great deal of absorbent gauze and cotton, over this is placed a large piece of oiled silk or protective, in order to procure a hermetical dressing. As soon as possible the patient is allowed to get up and go into the open air. The drainage-tubes are gradually diminished in size, but are allowed to remain as long as there is any secretion, and until vesicular breathing is observed over the affected part of the lung. [C.A.O.]

4.—Splenomyelogenous Leukemia.—C. M. Ross reports a fatal case in a man of 34. The diagnostic points being: (1) The absence of any etiologic factor; (2) the absence of any constitutional symptom until the enormous spleen produced such pressure effects as edema of the feet, gastric disturbance, and constipation, and dyspnea; (3) the typical picture shown by the blood, the white blood cells, consisting largely of myelocytes, numbering almost a fourth the number of reds, with the comparatively small diminution in red blood cells and hemoglobin, and the absence of any malarial organisms. [C.A.O.]

5.—Fibroids and Uterine Rupture.—E. T. Hargrave reports a case of labor complicated by a fibroid and ruptured uterus. The patient, a negress, aged 39, had been in labor for two days, the waters having ruptured 12 hours before a physician was called. The patient was found in collapse, and it was necessary to do podalic version. A large tear was found in the right side of the fundus and a fibroid could be felt, which was thought at first might be the head of a second child. The patient was removed to a hospital at once, but she died in a short time. The author learned later that the granny in attendance had been giving the patient ergot at frequent intervals for 36 hours. [C.A.O.]

Medical News.

June 25, 1904. [Vol. 84, No. 26.]

1. Iodin and Mercury to Combat Local Infections. AUG. STABLER.
2. A Brief Report of Four Years of Genitourinary Work in the Second Surgical Divisions of Mount Sinai Hospital. (Concluded.) HOWARD LILIENTHAL.
3. The Tracheal Traction Test as an Aid in the Recognition of the Asthmatic Lung. ALBERT ABRAMS.
4. Acute Thyroidism Following Curetage. BROOKS H. WELLS.
5. A New Slide Box: also a Method of Recording Embedded Tissue. WILLIAM RUSH DUNTON, JR.

1.—Iodin and Mercury to Combat Local Infections.—A. Stabler asserts that if calomel in moderate doses frequently repeated be given internally, and a solution of iodin be applied locally, mercuric iodin is formed, which not only combats strongly any local infection at the seat of iodin application, but the mercuric iodid is absorbed by the tissues and influences the general system favorably. This consideration led him ten years ago to formulate and put in practice a general method of treating local infections, which has given gratifying results in a variety of cases. The solution of iodin which he applies to mucous membranes is as follows: A menstruum is made of equal parts of glycerin and water. To this he adds tincture iodin one dram to the ounce with a little belladonna and carbolic acid as local sedatives. This is a stock solution, which can be made up in a few minutes. It is applied through a simple hand atomizer to throat and nose, if these are the parts requiring local treatment, or it may be applied to uterus, vagina, urethra or skin in any way the physician desires. In using the atomizer, direct the patient to hold the tube between the teeth with lips closed in the same position as in smoking a pipe and to breathe through the nose. The bulb is worked vigorously and the fine spray will be seen issuing from the nostrils, showing that the whole interior of nose and throat is bathed with the spray. Stabler uses the treatment, in conjunction with antitoxin, in the treatment of diphtheria. [A.B.C.]

2.—Review of Four Years of Genitourinary Work.—The present paper is the continuation of that begun by H. Lilienthal a week ago. Here he deals largely with the surgical treatment of hypertrophy of the prostate. He prefers and practises enucleation by the suprapubic route, the technic being explained in detail. Previous to opening the bladder he inflates it by means of an atomizer bulb attached to the catheter. The cavity left by enucleating the prostate is packed with iodoform gauze for 36 to 48 hours, the dressings being changed as frequently as saturated, after which time tubular siphon drainage is instituted. Old and feeble patients, in danger of hypostatic congestion of the lungs, are got out of bed by the third day. A special advantage of the suprapubic route is that it permits thorough and complete exploration of the bladder, and the removal of all stones, even though they be encysted. [A.B.C.]

3.—Tracheal Traction Test.—A. Abrams states that when the head is thrown forcibly backward the normal resonance obtained by percussion over the manubrium and lungs contiguous thereto becomes converted into a dull or flat sound. This he calls the tracheal traction test. This is positive in health and in all cardiopulmonary affections, but is negative in idiopathic asthma. It affords valuable aid in the diagnosis of the latter, differentiating it from symptomatic asthma and other spasmodic pulmonary affections which suggest an asthmatic genesis. This maneuver evokes contraction of the bronchial muscle by stimulation of the pneumogastric nerves. In asthma the tone of the bronchial muscle is so reduced that it no longer responds to vagus stimulation brought about when the neck is forcibly extended on the sternum. [H.M.]

4.—Acute Thyroidism following Curetage.—B. H. Wells reports a case of acute toxemia with socalled thyroid symptoms following curetage, occuring in a woman aged 53 years. To exclude the possibility of beginning cancer of the fundus uteri as a cause for the postclimacteric bleeding, curetment of the uterus was performed, and the scrapings showed only a moderate grade of endometritis. Twenty-four hours after the operation the pulse had risen to 178, temperature to 99.5° F.; there was profuse sweating, watery diarrhea and vomiting. The thyroid was perceptibly enlarged and presented an apparent thrill, and there was marked throbbing of the heart and large arteries. The auscultatory symptoms of bronchitis gradually became more marked. On the tenth day the temperature reached 104.8°, and pulse was 148. From the fifteenth to the twenty-fourth day death was expected at any time. On the twenty-first the diarrhea ceased to be troublesome, and on the twenty-fourth she was able to take a little solid food by mouth, and from that time she slowly improved. As to treatment, the diarrhea was finally controlled by tannigen taken by mouth; the insomnia was relieved by opium and trional by enema at night. Beef-juice and white of egg were the foods best retained and digested by the stomach. The heart action and general condition were not benefited by any drug, colonic flushing, strychnin, digitalis, belladonna, suprarenalin, alcohol, all seeming to do more harm than good. [W.K.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Hypoleukocytosis in Typhoid Fever and Other Diseases.—In the earliest possible examination of the blood in 105 cases of typhoid fever, L. Kast and C. Gütig[1] found that 97 cases, or 92.4%, showed a hypoleukocytosis—that is, a leukocyte count under 7,000. Six cases had a count between 7,000 and 9,000, and only two were above 9,000. Nontyphoid complications did not seem to diminish the value of this test in the diagnosis of typhoid fever. Hemorrhage is followed by an increase in the leukocytes. A leukocyte count above 12,000 in the beginning of an illness, is strong evidence against typhoid fever. Slight hypoleukocytosis has also been found in inanition, measles, severe secondary anemias, and some essential anemias. It has also been found during the chill in malaria. Hyperleukocytosis was found between the chills in malaria, also in advanced tuberculosis, tuberculous meningitis, and most cases of miliary tuberculosis. In severe pneumonia and septic conditions, leukopenia may occur, but it usually alternates with a hyperleukocytosis. There are three varieties of leukopenia: (*a*) Apparent leukopenia, due to vasomotor influences or negative chemotaxis; (*b*) actual leukopenia, caused by hemorrhage or destruction of leukocytes; and (*c*) absolute hypoleukocytosis, in which there is not sufficient formation of leukocytes to compensate for a normal or increased consumption. The leukopenia of typhoid fever belongs to this last class. [R.K.]

Etiology and Serum Therapy of Whoopingcough.—M. Manicatide[2] examined the sputums of 82 whoopingcough patients bacteriologically. Fresh sputum was mixed with a pepton solution, and shaken up violently a number of times; a small quantity of it was inoculated on agar plates, and kept in the thermostat at 100° F. In the greater number of cases a bacillus which he never found in the cases of healthy individuals, was found with other ordinary organisms; he speaks of it as *Bacillus Z*, and considers it the true cause of whoopingcough. Attempts to produce whoopingcough experimentally in animals with this organism failed in every instance. Attempts to produce infection with whoopingcough sputum failed also; the cause of these negative results in animals is probably to be found in the fact that animals do not have whoopingcough ordinarily. To prove the specificity of the organism indirectly three sheep and two horses were immunized with it, and their serum injected into children ill with whoopingcough. Of 89 patients so treated, 8 were cured after the first injection, 28 after a number of injections, the remainder improved very much. All the cases not over 15 days old were cured in from two to 12 days. As the bacillus is also agglutinated with the serum of whopingcough patients, the author is certain that his bacillus is the cause of the disease. It does not correspond with the organisms described either by Czaplewski, by Jochmann, or Krause. It occurs in the form of a small rod similar to the influenza bacillus, does not stain after Gram, grows well upon gelatin, and is not motile. [E.L.]

The Character of Widal Reaction in an Epidemic of

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[1] Deut. Archiv f. klin. Med., Bd. lxxx, p. 165.
[2] Zeitschrift für Hygiene und Infectionskrankheiten, 1904, xlv, No. 3.

Typhoid Fever.—L. W. Ladd[1] has made observations on the Widal test in 454 cases of typhoid fever occurring in Cleveland, O., and concludes that the reaction was distinctly delayed and was less often positive than formerly. In the last epidemic the number of anomalous cases was also greater than in previous periods. [D.B.]

Tardy Liver Abscess after Tropical Dysentery.—Pel[2] reports a case of abscess of the liver, in which the symptoms first manifested themselves 20 years after the attack of dysentery. While in Holland, 5 years after the patient's return from India, he had an attack of latent dysentery; during the following 15 years he was free from intestinal disturbances. Pel believes the patient suffered with hepatitis in India, and that the attack in Holland was a recurrence of the hepatitis. In the pus he found leukocytes, but no bacteria; cultures made from the pus remained sterile. Since there is no other evident cause of the abscess other than the dysentery, and since abscesses of the liver with obscure etiology are rarely seen in Europe, and since other cases of latent liver abscesses have already been reported, Pel believes he was dealing with a tropical abscess. [J.F.]

Pathologic Anatomy of Pneumonia due to Friedländer's Bacillus.—I. Kokawa[3] gives the results of study in seven cases of pneumonia due to Friedländer's bacillus. The process may affect a whole lobe, or may occur in foci of disease. The cut surface of the diseased lung has a granular appearance; the exudation from it is rich in mucus. Histologically may be distinguished swelling, proliferation, and desquamation of the epithelium, with partial necrosis and disintegration of the cells. There also occurs an exudation of red blood corpuscles, as well as serum and leukocytes. The different stages of hepatization are more or less similar to those seen in *Diplococcus pneumoniæ*, except that there is less hemorrhage in the state of hepatization, and less fibrin formation in the gray hepatization, than is found in the latter disease. Very characteristic is the behavior of the bacilli. In the very first stage of the illness they form the principal contents of the alveoli, together with the mucus and epithelial cells. Most of these cells, and later many of the leukocytes, take up the bacilli, become greatly swollen, and exhibit numerous vacuoles. These vacuoles arise probably from the mucous capsules of the bacilli. The bronchi become the seat of a catarrhal process, and fibrinocellular deposits form on the pleura, just as in *Diplococcus pneumoniæ*. [B.K.]

The Relation of Argyll-Robertson Pupil to Syphilis.—J. Mitchell Clarke[4] states that a previous syphilitic affection is not sufficient, without some further change, to lead to the presence of the Argyll-Robertson phenomenon, and in 37 cases of cerebral and spinal syphilis in which the mischief was confined to visceral lesions of that disease, such as gummas, gummatous meningitis, syphilitic endarteritis, etc., the sign was not typically present. In similar cases where it may be present, and in others with the history of past syphilis in which it occurs as an isolated sign of disease, it is evidence of a further degenerative process at work within the nervous system. This degenerative process is to be regarded, in the large majority of instances, as a parasyphilitic one, though in some this proof is wanting, and in others it is obscure. This degeneration may remain stationary at an early stage without further development for long periods. If these observations are correct, the Argyll-Robertson phenomenon is an even more important sign of disease than it has been previously considered. For purposes of comparison he notes that in 40 cases of tabes, which he has lately seen, he found reflex pupil rigidity in 31 or 77%. The number of cases with undoubted history of syphilis was 25, or 65%, and among these the sign was present in 88%. Six of these patients showed pupil rigidity in both eyes, and 1 unilateral, who all positively denied syphilis. This, however, is not conclusive that the phenomenon was not of syphilitic origin. [A.B.C.]

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[1] Maryland Medical Journal, June, 1904.
[2] Cleveland Med. Jour., May, 1904.
[3] Berliner klin. Wochschrf., 1904, No. 14.
[4] Deut. Archiv f. klin. Med., Bd. lxxx, p. 89.
[5] British Medical Journal, December 26, 1903.

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[1] Berliner klin. Wochschrf., 1904, No. 11.
[2] Rev. de Méd., xxiii, No. 11, November, 1903.
[3] American Journal of the Medical Sciences, June, 1904.
[4] Il Policlinico (Rome), No. 22, 1904.

Medical News.

June 25, 1904. [Vol. 84, No. 26.]

1. Iodin and Mercury to Combat Local Infections. AUG. STABLER.
2. A Brief Report of Four Years of Genitourinary Work in the Second Surgical Divisions of Mount Sinai Hospital. (Concluded.) HOWARD LILIENTHAL.
3. The Tracheal Traction Test as an Aid in the Recognition of the Asthmatic Lung. ALBERT ABRAMS.
4. Acute Thyroidism Following Curetage. BROOKS H. WELLS.
5. A New Slide Box; also a Method of Recording Embedded Tissue. WILLIAM RUSH DUNTON, JR.

1.—Iodin and Mercury to Combat Local Infections.—A. Stabler asserts that if calomel in moderate doses frequently repeated be given internally, and a solution of iodin be applied locally, mercuric iodin is formed, which not only combats strongly any local infection at the seat of iodin application, but the mercuric iodid is absorbed by the tissues and influences the general system favorably. This consideration led him ten years ago to formulate and put in practice a general method of treating local infections, which has given gratifying results in a variety of cases. The solution of iodin which he applies to mucous membranes is as follows: A menstruum is made of equal parts of glycerin and water. To this he adds tincture iodin one dram to the ounce with a little belladonna and carbolic acid as local sedatives. This is a stock solution, which can be made up in a few minutes. It is applied through a simple hand atomizer to throat and nose, if these are the parts requiring local treatment, or it may be applied to uterus, vagina, urethra or skin in any way the physician desires. In using the atomizer, direct the patient to hold the tube between the teeth with lips closed in the same position as in smoking a pipe and to breathe through the nose. The bulb is worked vigorously and the fine spray will be seen issuing from the nostrils, showing that the whole interior of nose and throat is bathed with the spray. Stabler uses the treatment, in conjunction with antitoxin, in the treatment of diphtheria. [A.B.C.]

2.—Review of Four Years of Genitourinary Work.—The present paper is the continuation of that begun by H. Lilienthal a week ago. Here he deals largely with the surgical treatment of hypertrophy of the prostate. He prefers and practises enucleation by the suprapubic route, the technic being explained in detail. Previous to opening the bladder he inflates it by means of an atomizer bulb attached to the catheter. The cavity left by enucleating the prostate is packed with iodoform gauze for 36 to 48 hours, the dressings being changed as frequently as saturated, after which time tubular siphon drainage is instituted. Old and feeble patients, in danger of hypostatic congestion of the lungs, are got out of bed by the third day. A special advantage of the suprapubic route is that it permits thorough and complete exploration of the bladder, and the removal of all stones, even though they be encysted. [A.B.C.]

3.—Tracheal Traction Test.—A. Abrams states that when the head is thrown forcibly backward the normal resonance obtained by percussion over the manubrium and lungs contiguous thereto becomes converted into a dull or flat sound. This he calls the tracheal traction test. This is positive in health and in all cardiopulmonary affections, but is negative in idiopathic asthma. It affords valuable aid in the diagnosis of the latter, differentiating it from symptomatic asthma and other spasmodic pulmonary affections which suggest an asthmatic genesis. This maneuver evokes contraction of the bronchial muscle by stimulation of the pneumogastric nerves. In asthma the tone of the bronchial muscle is so reduced that it no longer responds to vagus stimulation brought about when the neck is forcibly extended on the sternum. [H.M.]

4.—Acute Thyroidism following Curetage.—B. H. Wells reports a case of acute toxemia with socalled thyroid symptoms following curetage, occuring in a woman aged 53 years. To exclude the possibility of beginning cancer of the fundus uteri as a cause for the postclimacteric bleeding, curetment of the uterus was performed, and the scrapings showed only a moderate grade of endometritis. Twenty-four hours after the operation the pulse had risen to 178, temperature to 99.5° F.; there was profuse sweating, watery diarrhea and vomiting. The thyroid was perceptibly enlarged and presented an apparent thrill, and there was marked throbbing of the heart and large arteries. The auscultatory symptoms of bronchitis gradually became more marked. On the tenth day the temperature reached 104.8°, and pulse was 148. From the fifteenth to the twenty-fourth day death was expected at any time. On the twenty-first the diarrhea ceased to be troublesome, and on the twenty-fourth she was able to take a little solid food by mouth, and from that time she slowly improved. As to treatment, the diarrhea was finally controlled by tannigen taken by mouth; the insomnia was relieved by opium and trional by enema at night. Beef-juice and white of egg were the foods best retained and digested by the stomach. The heart action and general condition were not benefited by any drug, colonic flushing, strychnin, digitalis, belladonna, suprarenalin, alcohol, all seeming to do more harm than good. [W.K.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Hypoleukocytosis in Typhoid Fever and Other Diseases.—In the earliest possible examination of the blood in 105 cases of typhoid fever, L. Kast and C. Gütig[1] found that 97 cases, or 92.4%, showed a hypoleukocytosis—that is, a leukocyte count under 7,000. Six cases had a count between 7,000 and 9,000, and only two were above 9,000. Nontyphoid complications did not seem to diminish the value of this test in the diagnosis of typhoid fever. Hemorrhage is followed by an increase in the leukocytes. A leukocyte count above 12,000 in the beginning of an illness, is strong evidence against typhoid fever. Slight hypoleukocytosis has also been found in inanition, measles, severe secondary anemias, and some essential anemias. It has also been found during the chill in malaria. Hyperleukocytosis was found between the chills in malaria, also in advanced tuberculosis, tuberculous meningitis, and most cases of miliary tuberculosis. In severe pneumonia and septic conditions, leukopenia may occur, but it usually alternates with a hyperleukocytosis. There are three varieties of leukopenia: (*a*) Apparent leukopenia, due to vasomotor influences or negative chemotaxis; (*b*) actual leukopenia, caused by hemorrhage or destruction of leukocytes; and (*c*) absolute hypoleukocytosis, in which there is not sufficient formation of leukocytes to compensate for a normal or increased consumption. The leukopenia of typhoid fever belongs to this last class. [B.K.]

Etiology and Serum Therapy of Whoopingcough.—M. Manicatide[2] examined the sputums of 82 whoopingcough patients bacteriologically. Fresh sputum was mixed with a pepton solution, and shaken up violently a number of times; a small quantity of it was inoculated on agar plates, and kept in the thermostat at 100° F. In the greater number of cases a bacillus which he never found in the cases of healthy individuals, was found with other ordinary organisms; he speaks of it as *Bacillus Z*, and considers it the true cause of whoopingcough. Attempts to produce whoopingcough experimentally in animals with this organism failed in every instance. Attempts to produce infection with whoopingcough sputum failed also; the cause of these negative results in animals is probably to be found in the fact that animals do not have whoopingcough ordinarily. To prove the specificity of the organism indirectly three sheep and two horses were immunized with it, and their serum injected into children ill with whoopingcough. Of 89 patients so treated, 8 were cured after the first injection, 28 after a number of injections, the remainder improved very much. All the cases not over 15 days old were cured in from two to 12 days. As the bacillus is also agglutinated with the serum of whopingcough patients, the author is certain that his bacillus is the cause of the disease. It does not correspond with the organisms described either by Czaplewski, by Jochmann, or Krause. It occurs in the form of a small rod similar to the influenza bacillus, does not stain after Gram, grows well upon gelatin, and is not motile. [E.L.]

The Character of Widal Reaction in an Epidemic of

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[1] Deut. Archiv f. klin. Med., Bd. lxxx, p. 105.

[2] Zeitschrift für Hygiene und Infectionskrankheiten, 1904, xlv, No. 3.

Typhoid Fever.—L. W. Ladd[1] has made observations on the Widal test in 454 cases of typhoid fever occurring in Cleveland, O., and concludes that the reaction was distinctly delayed and was less often positive than formerly. In the last epidemic the number of anomalous cases was also greater than in previous periods. [D.R.]

Tardy Liver Abscess after Tropical Dysentery.—Pel[2] reports a case of abscess of the liver, in which the symptoms first manifested themselves 20 years after the attack of dysentery. While in Holland, 5 years after the patient's return from India, he had an attack of latent dysentery; during the following 15 years he was free from intestinal disturbances. Pel believes the patient suffered with hepatitis in India, and that the attack in Holland was a recurrence of the hepatitis. In the pus he found leukocytes, but no bacteria; cultures made from the pus remained sterile. Since there is no other evident cause of the abscess other than the dysentery, and since abscesses of the liver with obscure etiology are rarely seen in Europe, and since other cases of latent liver abscesses have already been reported, Pel believes he was dealing with a tropical abscess. [J.F.]

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Pernicious Malarial Infection.[4]—This may take the form of many functional and organic morbid processes. Cases are noted with symptoms of neuropathologic disorder, malarial monoplegia, malarial meningitis, and cerebral symptoms, *e. g.*, vomiting, vertigo, etc. There is also noted an instance in which the vestibular branch of the eighth cranial nerve suffered pernicious malarial disorganization. In treating all such, the most efficient remedy is quinin, given hypodermically, and in doses of .5 gm. to 1 gm. (7 gr. to 15 gr.) every 6 hours. The sporulation occurs at such intervals as to render frequent dosage necessary, while the involvement of the lymph-vascular system primarily, will indicate the mode of administration most likely to conquer the attack. Hydrochlorate of quinin has been recommended. [T.H.E.]

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[1] Maryland Medical Journal, June, 1904.
[2] Cleveland Med. Jour., May, 1904.
[3] Berliner klin. Wochschrf., 1904, No. 14.
[4] Deut. Archiv f. klin. Med., Bd. lxxx, p. 39.
[5] British Medical Journal, December 26, 1903.

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The Necessary Requirements of Infants' Milk.—Engel[1] maintains that if equal parts of milk and 68% or 69% alcohol be mixed, coagulation occurs if there be present any change in the milk, such as lactic acid. He has satisfied himself that if the milk be heated to 70° C. all the bacteria likely to be met in the milk are killed, spores excepted. In making modified milk he uses the following formula: One-half liter of good cow's milk, ½ liter water, 15 gm. of butter, 36 gm. of sugar of milk; this is mixed and pasteurized, and then a half of an egg is added. The ingredients now correspond very closely with the proportion of the ingredients of human milk. [J.F.]

Artificial Anemia by Means of Suprarenin.—B. Mueller[2] reports a series of experimental studies concerning the action of suprarenin on organic tissues and its use during surgical operations for the purpose of checking hemorrhage. The following conclusions he considers as proved by his experiments: Suprarenin has a marked vasoconstrictor action. It produces immediate, momentary anemia, in all the tissues, when used in a solution 1 to 1,000 or 1 to 2,000; to produce anemia of parenchymatous organs (liver and kidney) a solution of 1 to 1,000 to 1 to 2,000 is employed; if the skin, fatty or muscular tissue are to be made anemic the best solution is one of 1 to 5,000 or 1 to 10,000; anemia is complete within two minutes. Of a solution of 1 to 1,000 as much as 10 cc. may be injected into an adult man without fear of symptoms of poisoning. If used in the concentrations mentioned, its influence on the living cell is not dangerous. Suprarenin is sterilizable through boiling; solutions in greater dilution than 1 to 2,000 decompose readily when permitted to stand or exposed to air. A rose-colored solution is as active as one colorless. If darker in color or cloudy, the solutions are decomposed and should not be used. In fact the only diluted solutions to be used are such as are freshly prepared. A solution of 1 to 10,000 to 1 to 20,000 possesses a markedly stimulating action on cardiac activity, especially if injected directly into the cardiac muscle, and 1 cc. of it may be injected into the myocardium without danger. On account of its anemia producing action suprarenin is to be employed in operations, during which as small a blood loss as possible is desirable; therefore in operations performed on weak or bloodless individuals or such as have lost much blood or are suffering with cardiac afflictions. It is especially valuable in operations upon the liver and kidney, as it prevents parenchymatous hemorrhage. The best method of using it is by direct injection into tissues. It produces a complete closure of all capillaries, small arteries, and veins in all tissues. In larger vessels it produces a diminution of the lumen. The action is to be recognized by yellow discoloration of the tissues. Its action lasts as long as several hours. A secondary hemorrhage after the tissues have been made anemic with suprarenin has never been observed, and is not to be feared. It is easily soluble in water, and its dose can be determined exactly. It is best dissolved in normal salt solution, and is not expensive. The injections are painless, but they may be associated with local anesthesia. A syringe with a capacity of 5 cc., and with a very long, thin needle is the best instrument for injection purpose; to produce anemia of the liver, a blunt needle with lateral opening is to be employed. His experiments were performed on dogs, and he reports a long list of minor and major operations performed with little or no loss of blood. [E.L.]

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[1] Berliner klin. Wochschrf., 1904, No. 11.
[2] Münchener medicinische Wochenschrift, 1904, li, Nos. 5 and 6, pp. 199 and 262.

After-effects of Head Injuries.—In his third Hunterian lecture, T. Crisp English[1] discusses the subject mainly from the standpoint of mental impairment. The history of the operative treatment of traumatic epilepsy is one of disappointment and inability to cure in most instances. Earlier operative statistics were misleading, since many of the reported cures were conditions of a temporary relief with later recurrence. Insufficient surgery at the time of the injury is responsible for the great majority of the cases of traumatic epilepsy. These cases are diminishing in number with the proper recognition and efficient treatment at the time the injury is received. Concerning traumatic insanity, he says: (1) While some degree of mental impairment is common in head injuries, the degree is seldom sufficient to be included under the term insanity; (2) insanity may result from injury of any part of the head; (3) traumatism leads to insanity in two ways, (a) direct insanity due to the actual injury of the brain or its immediate membranes, and (b) indirect insanity—this form of insanity occurring as result of lowered resistance of the brain due to injury, especially in patients with a predisposition to the disease; (4) every variety of mental change may be preceded by traumatism, although some symptoms are commoner than others; (5) it has, at present, not been determined whether injury to the prefontal region is more likely to be followed by mental disturbance than injury to other parts of the brain; (6) only a small percentage of the cases of traumatic insanity are open to relief by operation for a localizing indication in an accessible region must be present. [A.B.C.]

Cardiac Insomnia.—Feilchenfeld[2] says this form is typified in that the patient falls into a deep sleep so soon as he goes to bed, and then after an hour or two of sleep, suddenly awakes with sensation of oppression in the chest, palpitation, and restlessness. He believes it due to heart weakness and not to valvular lesion. This condition is frequently seen in chlorotics, in which cases he has seen good results from the administration of simple heart tonics. Feilchenfeld notes that these patients fall asleep quicker when lying on the left side, but the sleep is not of long duration. When lying on the left side he finds the apex beat displaced to the left and diffused; the pulse is small and frequent and there is dyspnea. Feilchenfeld believes these symptoms are due to a transitory dilation of the heart. He finds that small doses of digitalis with morphia do good in these cases. [J.F.]

Liver Dulness.—S. V. Pearson[3] has found in 140 cases of gastric ulcer without perforation 33% with diminution of liver dulness. If the patient is a slight-built, long-chested female, whose viscera are not large, then the liver dulness may not normally reach the costal margin in and external to the nipple line. It is well to state the actual width of the dulness in the midclavicular, the anterior axillary, and posterior axillary lines. Decrease varies from almost complete absence in a few cases to smaller degrees. These cases do not include any diminished by emphysema. It is rare for loss of dulness to extend behind the midaxilla apart from perforation, but the writer reports two cases. It is not associated with ordinary distention of the abdomen, pain or tenderness. It may, perhaps in some cases be due to distended intestine getting in front of the liver or pressing it up. In few of these cases was there dilation of the stomach. It occurs not only in ulcer, but is common in gastritis, dysmenorrhea, and influenza with abdominal symptoms. It has been observed in colic of various kinds and in acute rheumatism. The majority of cases are in young women, the decrease commonly occurring at the monthly period whether associated with pain or not. Wellmarked dulness usually lasts for several days, though sometimes varying considerably within several hours. [H.M.]

"Subcontinuous Typhoid."—This misleading term is applied by Baccelli[4] to a fever of typhoid appearance, and related to typhoid attacks, but actually due to an irregular malarial infection. The difficult diagnosis is rendered more so by an occasional Widal reaction. However, the concurrent discovery of the parasite of Laveran will indicate the true tiology. Clinically, the course of typhoid is distinct in eriods of seven days. "Subcontinuous" typhoid is never so listinguished; it lacks the tendency to cephalalgia and meteorsm of the former. In the latter there is frequently an icteric inge to the conjunctiva, and in some instances, a general cterus. Asthenia and sudorism prevail; there may suddenly, ven with the initial onset of fever, develop delirium; stupor nd typhoid facies are absent, as are also the catarrhal sympoms and muscle contractions. The therapeutic test is quinin. he symptoms of this typhoid variant rapidly disappear under his treatment. [In regions not familiar with malarial infecions, such forms as "subcontinuous" typhoid may escape letection; but it is also possible that where paludism is genral, a greater etiologic significance than exactly proper may be ccorded it. At present, most opinions of the value of the diazo nd the Widal reactions are unsettled. A bacteriologic finding vill secure the diagnosis, perhaps as well as can be hoped.] T.H.E.]

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[1] The Lancet, March 5, 1904.
[2] Berliner klin. Wochschrf., 1904, No. 11.
[3] Medical Chronicle, March, 1904.
[4] Il Policlinico (Rome) No. 20, 1904.

Atropin in Hemoptysis.—W. O. Waltke[1] has used atropin n two cases of hemoptysis, after morphin, ergot, hydrastis and ther customary remedies had failed. The drug was given eneath the skin in doses of $\frac{1}{300}$ gr. to $\frac{1}{200}$ gr. (0.0002 gr. to .0003 gr.). Every day one injection was given for three days, lthough the very first one brought the bleeding to a standstill. here are several theories of the action of atropin in these ases. The author's two patients, according to his firm convicion, owe their lives to the drug, as everything else had failed nd their exhaustion was extreme. [L.J.]

Ankylostomiasis.—J. W. Thomas,[2] of Seattle, reports the ase. The patient was a man of 28, who, while serving as a oldier in the Philippine Islands, had attacks of gastritis, folowed by diarrhea; these became so severe that he was sent to he regimental hospital at Manila, in August, 1899. He was ept in quarters under the care of the regimental surgeon, and vas after a time transferred to San Francisco. After landing t the latter place he improved for a time, but when warm veather came he suffered with headache, shortness of breath, onstipation, or diarrhea and insomnia; at one time the bloodessels of the arms and legs were enlarged. The attacks were lways made worse in warm weather. The pyhsical signs, vhen he came under the author's observation, were lemon yelow color, flabby muscles, pulse 90, which under the least exerise rose to 100 or above; general diffuse cardiac murmur; emoglobin, 20%; erythrocytes, 1,470,000; leukocytes, 7,400; rine normal. He was taken to the hospital, and upon examnation of the feces numerous ovums of *ankylostoma duodenale* vere found. After a fast of 12 hours he was given thymol, and nale fern followed 4 hours later by magnesium sulfate. This vas repeated 2 days later, and the feces showed numerous ovums f the intestinal parasite; 4 days later the same condition was pparent after purgation. After some 3 weeks' treatment no vums were found in the feces; iron was given internally, and eneral tonic treatment instituted. The patient gained rapidly n weight, the blood showed hemoglobin, 50%; erythrocytes, ,100,000, and the patient was discharged from the hospital. A umber of subsequent examinations of the feces have shown ntire absence of the parasite and its ovums. [A.B.C.]

Septic Complications in Typhoid.—Foruaca[3] reports two ases, marked by a positive Widal, an irregular fever of six veeks and enlarged spleen which showed staphylococcic inasion of the blood; the secondary infection persisted after the isappearance of all B. of Eberth. The serum test seemed to be veakened by the extent of mixed infection. Sergent and emaire report two cases of cerebrospinal meningitis the result f *Staphylococcus citreus*. The diplococcus of Weichselbaum hould be looked for in cerebrospinal fluid under suspicion in ke instances. In a former case of typhoid, similar complication 1899) is recalled. It is possible that typhoid infection of disant regions may occur directly. [T.H.E.]

Pathogenesis of Epilepsy.—In Creite's[4] case, a woman of 1, who had been having genuine epileptic convulsions since hildhood and who died apparently in status epilepticus, the autopsy revealed numerous angiomas of various sizes in different parts of the brain. The largest of them showed ossification and calcification of the connective tissue surrounding the cavernous spaces. The greater number were found in the cerebral cortex. [E.L.]

Premonitory Sign of Endocarditis.—Teissier[1] has noted an impulse due to weakening of the auricle in early mitral disease. The sphygmograph records an impulse over the second left intercostal space, about 5 cm. (2 in.) from the sternal midline. The radial pulse exhibits slight retardation; on precordial auscultation, however, nothing determinate is noticeable. With advancing disease the classic signs develop and confirm the diagnosis. [T.H.E.]

Hot Baths in Cerebrospinal Meningitis.—Since its introduction by Aufrecht in 1894 the method of treating epidemic meningitis with hot baths has been often and favorably reported upon. W. M. Rojansky[2] employed the method in a series of cases, and is well satisfied with his results. The earlier the treatment is begun the better the effect, and the lower the mortality. Out of 10 patients treated from the first four days only one died—certainly a low percentage. Out of 41 patients treated with hot baths after the fourth day, 16 died, making a percentage of 39. The immediate effect of the hot bath is very striking, the unconscious patient rapidly regaining his senses. Sometimes this is accomplished after the second or third bath. Delirium and excitement are allayed, or disappear entirely. The excruciating headaches yield noticeably to the hot bath, while the same is true in a less marked degree of the spinal pains. Insomnia is also favorably influenced. Other symptoms, like fever, vomiting, muscular rigidity, have not been affected by hot baths in any notable manner. [L.J.]

Two Cases of Pontine Disease.—H. Steinert's[3] first case was a girl of 18, who, a few days after the extraction of a tooth on account of suppurative periostitis, had diminished sensibility and weakness of the right side of the body. Two weeks later this side was paralyzed; she had a septic temperature, leukocytosis (29,200), rigidity of the back of the neck, chemosis, conjunctivitis, congested papillas, and left papillitis. An intracranial inflammation was diagnosed and on account of the complete bilateral facial palsy, rightsided hemiparesis, increased reflexes, which were greater on the right side than the left, the Babinski sign, the hemihypesthesia below the domain of the fifth nerve, the rightsided hyperhydrosis, and the disturbance of the muscular apparatus of the eye (some of the conjugate movements could be performed, others not), the lesion was placed near the median part of the pons. Other signs present were transient paralysis of the left side of the palate, and drying up of the tear secretion. The patient recovered and some of the symptoms disappeared; a remaining defect in the pons was proved by typical symptoms of a pons lesion remaining after recovery. The second patient showed a similar symptom-complex; in her case the symptoms developed suddenly, being due to a hemorrhage into the pons, spreading through both sides, but being greater on the left than right side. The motor paralysis improved considerably, the sensory paralysis did not. Her gait later was more ataxic than hemiplegic and there was a constant tendency to fall backward. The paralyzed muscles were markedly atrophic. Babinski's and Strümpell's phenomena were present on both sides. [E.L.]

Large Doses of Arsenic in Chorea.—Comby was the first to recommend very large doses of arsenic in the treatment of Sydenham's chorea. This author employed arsenious acid in preference to Fowler's solution and pushed the dosage up to 0.04 ($\frac{2}{3}$ gr.!) daily. Improbable as it may seem, these enormous quantities were well borne and appeared to act beneficially. Others followed the example, with encouraging results. M. O. Shaikeritch,[4] on the other hand, after a conscientious trial of the method in a series of cases, brings out a verdict against it. There is no valid indication for such doses of arsenic, he thinks, even though they are usually quite well borne. They are not any more efficient than small doses and may do harm. [L.J.]

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[1] Medizinskoe Obosrenie, lxi, No. 2.
[2] Northwest Medicine, May, 1904.
[3] Il Policlinico (Rome) No. 21, 1904.
[4] Münchener medicinische Wochenschrift, 1903, 1, No. 41.

[1] Il Policlinico (Rome), No. 20, 1904.
[2] Medizinskoe Obosrenie, lxi, No. 1.
[3] Münchener medicinische Wochenschrift, 1903, 1, No. 36.
[4] Russki Vratch, September 20, 1903.

Saline Hypodermoclysis in the Treatment of Pneumonia.—F. P. Henry[1] has not used this as a routine measure, but is inclined to think this a mistake, for beside its positive benefits hypodermoclysis has the negative merit of being perfectly harmless. Theoretically it is indicated in every case. It dilutes toxins and favors their elimination; it preserves the alkalinity of the blood, and does so by supplying a defective substance—sodium chlorid; and finally it tends to prevent heart clot, a frequent cause of death in pneumonia. Statistics in a disease in which so much depends on the age, previous habits and condition of the patient, and the "genius epidemicus," may be misleading. The writer has found hypodermoclysis efficient in continuous employment since 1889, and believes ultimately it will be generally employed. He uses 50 gr. of sodium chlorid to 1 pint of distilled and sterilized water. The daily amount injected varies from 8 oz. to 16 oz. and is repeated *pro re nata.* A large syringe with hollow needle attachment or the aspirator for tapping the chest may be employed. At present he divides the agents employed in treatment into fundamental and accessory, including among the former those that influence the toxemia, placing first hypodermoclysis, and second hypodermic injections of quinin and the carbonates of guaiacol and creosote. Among accessory agents are the local applications, alcohol, ammonia, morphin, digitalis, strychnin, nitroglycerin, camphorated oil, etc. [H.M.]

Origin of Tuberculosis.—Spengler[2] states that in all the cases he has examined localized tuberculosis of adults and children in whom the disease was not suspected, it was clear to him that the origin was in the bronchial glands, and that the mesenteric and intestinal glands were not affected. In children who died of tuberculous meningitis, tuberculosis of the bronchial glands was never absent. Spengler maintains that the *Bacillus tuberculosis* cannot thrive long in moisture. In order to exist in the living animal this bacillus must make for itself a dry bed. Therefore, Spengler does not believe v. Bering's views in regard to the latency of this bacillus are tenable. [L.F.]

GENERAL SURGERY

Martin B. Tinker

A. B. Craig C. A. Orr

REVIEW OF LITERATURE

Acute Osteomyelitis of the Superior Extremity of the Femur.—J. Guyot[3] reviews at length this condition and gives clinical and operative notes of 54 cases. Of these, 32 died and 22 recovered, a mortality of 60%, showing the seriousness of the affection. Guyot, in insisting on an early diagnosis, states that when the diagnosis of osteomyelitis has been made there may be some difficulty in determining if it is the upper part of the femur or in one of the pelvic bones, or even in an inferior portion of the femur with extension to the diaphysis; the important point is that when the diagnosis of osteomyelitis has not been made it was due to the fact that only a superficial examination was conducted. The bacteriologic diagnosis is important, but is not of much clinical or therapeutic value; there are no distinctive signs of any type of infection and this can be determined only from the pus obtained at operation. The treatment is operative; it remains only to decide on the procedure to be employed in the individual case. For osteomyelitis of the great trochanter, incision, trephining, and drainage is sufficient. When the femoral head and the joint are involved, the question of resection arises; Guyot believes that this operation, with its high mortality and shortening of the leg, is rarely necessary in cases that are operated early. If there is great destruction of the femoral neck or head, resection must be done. [A.G.E.]

Method for Reducing Luxations of the Humerus.—Eleanore Boulton[4] describes manipulations that have been successful in 24 cases. For subspinous dislocation, the surgeon stands behind the patient, who may sit or stand. The hand of the operator corresponding to the side upon which the lesion exists is partially closed, the thumb extended, and the wrist pronated. The ball of the thumb is placed below, against, and parallel to the lower margin of the scapula on the axillary border, just external to the inferior angle. Firm pressure is exerted and the wrist is slowly and steadily supinated, pressure upward and inward being exerted at the same time. This manipulation pushes the angle of the scapula upward and toward the median line, depressing the lower lip of the glenoid cavity, and usually results in prompt reduction of the dislocation. If reduction does not occur in the subspinous variety, pressure with the other thumb upon the head of the humerus should be added. In subcoracoid or subglenoid dislocations, the manipulation is similar, but differs in the points of pressure. The advantages of the method are little risk of injury, no handling of a fractured limb, minimum amount of pain to the patient, and docility of the patient, as he does not expect reduction with the surgeon standing behind him and not manipulating his arm. [A.G.E.]

Experimental Production of Spina Bifida.—F. Lucksch[1] believes that the persistence of the neurenteric canal in the embryo is responsible for the development of spina bifida. His experiments consisted in trying to produce the persistence of this canal by artificial means. Hens' eggs were experimented upon, small fragments of cover-glass being laid upon the posterior part of the germinal layer at a very early stage in its development. The pressure thus exerted was sufficient to prevent the closure of the medullary tube in that situation, and an artificial myeloschisis was thus produced. The author believes that the conclusion may be drawn, that spina bifida in man also may result from abnormal pressure, the sources of this pressure undoubtedly being some change in the amnion. These amniotic changes are the result of malformation or of inflammation. [B.K.]

Acute Dilation of the Stomach Complicating Operation.—Hunter Robb[2] details an unusual instance of this condition occurring during an abdominal operation following dilation and curetment of the uterus. When the peritoneum was incised, a bulging mass was seen filling the upper angle of the wound; as soon as the hand was introduced, the mass at once extended as a tense sac to the symphysis pubis and was recognized as the acutely dilated stomach. A rubber tube was at once introduced through the esophagus, air escaped and the stomach collapsed and returned to its normal position. The following morning there was pain and slight distention in the epigastrium; air escaped through the tube which was again passed and the patient made a good recovery. Ether was the anesthetic employed. [A.G.E.]

The Silver Bolt for Fastening Ununited Fractures.—S. H. Watts[3] reports satisfactory results from the use of a silver bolt in a case of ununited fracture of the femur. The fragments were mortised and the bolt introduced in an anteroposterior direction. The projecting portion of the lower fragment lay anterior to, and thus rested upon the projecting portion of the upper fragment. This arrangement Watts considers of some importance, as it removes from the bolt a large part of the weight of the leg and counteracts the tendency of the upper fragment to become flexed. The bolt employed was $1\frac{5}{8}$ inches long and $\frac{3}{32}$ of an inch in diameter. Three months after the operation there was a few degrees of lateral motion but none in an anteroposterior direction. Five weeks later the fracture was perfectly solid, and retentive apparatus was discarded. The method has at least three disadvantages: It is a foreign body, the limb is shortened, and the bone is weakened. In spite of these it would seem to be the best in certain fractures of the femur, humerus, and oblique of the tibia. [A.G.E.]

Thrombosis of Abdominal Aorta.—Cimoroni[4] reports the case. The patient had suffered from chronic endocarditis following rheumatism; there was mitral stenosis and insufficiency, and there occurred, suddenly, sharp, lancinating pains in the right leg, followed by loss of pulse in the femoral artery and all its branches. The limb became anesthetic, pallid, and cold. The next day a similar condition appeared in the left limb. There was no incontinence of urine or feces, but the feet were threatened with gangrene. It seemed probable that an embolus had lodged at, or near the aortic bifurcation. In two days paraplegia was complete. After this it gradually disappeared, until at the end of a month, the femoral pulse was restored, mobility of the parts possible, and sensation and temperature were normal. The patient lived three months. At necropsy the serofibrinous plug in the aorta confirms the diagnosis. Collateral circulation was freely established through the renal, suprarenal, lumbar, superior, and deep epigastric arteries, while the iliacs were found well supplied, through reversal of current. The paraplegia must be taken as an example of peripheral causation. [T.H.E.]

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[1] Medical Chronicle, February, 1904.
[2] Berliner klin. Wochenschrift, 1904, No. 11.
[3] Revue de Chirurgie, February-April, 1904.
[4] American Journal of the Medical Sciences, June, 1904.

[1] Zeit. f. Heilkunde, Bd. xxv, Heft 4, p. 105.
[2] Cleveland Medical Journal, June, 1904.
[3] Johns Hopkins Hospital Bulletin, April, 1904.
[4] Il Policlinico (Rome), No. 26, 1904.

Fractures of the Skull.—Louis B. Lawling[1] discusses particularly the implication of nerves in fractures of the base. Köhler records 22 cases of involvement of the seventh nerve in 48 fractures of the base; Bidwell records 15 such cases in 106 fractures of the base; and Rawling himself records 24 instances of facial paralysis, partial or complete, in 60 cases of fracture of the base, 12 in 32 instances in which the patients recovered, and 12 in 28 fatal cases. He devotes particular attention to compression and concussion, stating that the special symptoms of compression are probably referable to increased pressure on the vital centers in the region of the bulb. This is suggested by the following facts: (1) The same compression symptoms result whenever the compression force primarily acts; (2) a fracture involving the posterior fossa gives rise to compression symptoms earlier than a fracture in more distal regions; (3) experimental or increased pressure in the posterior fossa produces compression symptoms earlier than when the pressure is applied to a more remote situation; (4) a far smaller foreign body kills in the bulbar region than in the cerebral chamber; and (5) the pressure effects are in no way due to excitation at the part of the brain chiefly pressed upon. In division of the mesencephalon the pressure was just as active in calling forth the changes in circulation and respiration (Horsley). Hill is of opinion that the main symptoms are produced by anemia of the bulb, and that mechanical pressure is not the main factor. The three stages—concussion, compression, and collapse—may follow one another, the second and the last resulting probably from early stimulation and later paralysis of the nuclear in the floor of the fourth ventricle. Death virtually results from paralysis of the respiratory center, the heart usually beating for some seconds after attempts at respiration have ceased. The treatment is discussed at length. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

Wilmer Krusen Frank C. Hammond

REVIEW OF LITERATURE

Early Rupture of Tubal Pregnancy.—W. Duncan[2] reports a case of tubal pregnancy rupturing on the nineteenth day after conception and ten days after curetment. The patient consulted him for menorrhagia and the curetment was made two days after the cessation of a menstrual flow, which lasted a week. A very hypertrophied endometrium was removed, but there was no suspicion of its being a decidual lining. The patient's recovery was uninterrupted until the tenth day, when she suddenly collapsed, and was found by the physician in a pulseless and semiconscious condition, with every evidence of internal hemorrhage from some unknown cause. Strychnin was administered hypodermically, and after both infusion and transfusion of saline solution, the abdomen was opened and found full of liquid blood with some clots. The right appendage was normal, but in the left there was a small round perforation of the somewhat thickened tube near the uterine end. After the operation, which lasted about 30 minutes, hot bottles were applied, strychnin injected, and an enema of brandy and beef tea administered. An uneventful recovery followed. The early date of the rupture was one interesting feature of the case, and another was the absence of any history indicating pregnancy. The specimen showed that the gestation sac was altogether away from the lumen of the tube, and had burrowed through the epithelial lining of the tube into the muscular coat, while the opening of the tube had closed up. [W.K.]

The Malignancy of Certain Apparently Benign Ovarian Cysts.—F. E. Taylor[1] mentions the frequency of malignant diseases in patients after ovarian operation and suggests that many ovarian growths are malignant when such nature is not suspected. He describes two tumors that to the naked eye were benign but which on microscopic examination proved tobe carcinoma and sarcoma. From a study of these and other cases, Taylor deduces the following points: 1. Macroscopic examination will not distinguish between benign and malignant ovarian cysts and every one should be submitted to microscopic study to determine its precise nature and give accuracy and precision to both diagnosis and prognosis. 2. Every ovarian cyst should be submitted to operation and removed with the least possible delay after its discovery. 3. Such cysts should invariably be removed entire, without being tapped or punctured, the abdominal incision being made long enough for this purpose, to avoid the risk of sowing malignant cells over the peritoneum. 4. The pedicle should be ligated and cut through as near the uterus, or as far from the diseased tissues, as possible. Nothing in the shape of conservative surgery is permissible in dealing with ovarian cysts. [A.G.E.]

Rectovaginal Fistula Originating Subcoitu.—The possibility of serious injuries from the first sexual intercourse has been doubted by many authorities, in spite of reports to the contrary. G. B. Sheftel[2] reports an original case. The woman had a narrow vagina, and the first coitus resulted in a tear through the vagina below the hymen into the rectum. A rectovaginal fistula resulted, and was closed by operation a year later. [L.J.]

TREATMENT

Solomon Solis Cohen
L. F. Appleman E. Lindauer

REVIEW OF LITERATURE

The Socalled "Gold Cure" for Inebriety.—S. Blackwell Fenn[3] gives the details of this treatment which he states is used to a large extent in the United States, but generally in secret preparations. In the Southport Hydropathic Hospital the method of cure is essentially as follows: On entering the institution no restriction is put upon the patient's movements, he is fed generously, and before beginning medical treatment is thoroughly examined with reference to organic disease. Hypodermic injections are given four times a day, consisting of a solution containing daturin sulfate .3 mg. ($\frac{1}{200}$ gr.) or atropin .1 mg. ($\frac{1}{500}$ gr.) and strychnin sulfate .6 mg. ($\frac{1}{100}$ gr.). These doses being regulated according to the patient's condition. Medicine given internally consists of a mixture containing chlorid of gold and sodium .3 mg. ($\frac{1}{20}$ gr.), ammonium chlorid 65 cg. (1 gr.), aloin 2.6 mg. ($\frac{1}{25}$ gr.), fluid extract of viburnum .6 cc. (10 m.), and tincture of cinchona .6 cc. (10 m.); should the patient suffer from diarrhea the aloin is omitted. The mixture is given internally every two hours. After the fourth day, if the patient insists upon taking alcohol, a little extract of ipecac is added to his medicine with the result that vomiting induces him to abstain from further drinking. Should the medicine produce nausea, diarrhea, or bilious symptoms, the prescription is changed accordingly. Tincture of capsicum, fluid extract of kola, and ammoniated tincture of valerian are frequently used in addition to the foregoing. Special attention is paid to insomnia and neurasthenia. Hydrotherapeutics play an important part, full sheet packs, vapor baths, sitz baths, and spinal baths being used. Wellknown authorities in different countries claim a very high percentage of cures; Fenn's experiences lead him to conclude that 60% remain cured. Some relapse and return at once, and apparently are stronger for the fall. The results are encouraging. [A.B.C.]

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[1] The Lancet, April 23, 1904.
[2] British Gynecological Journal, May, 1904.

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[1] The Practitioner, May, 1904.
[2] Medizinskoe Obosrenie, lxi, No. 2.
[3] British Medical Journal, April 30, 1904.

Potassium Iodid in Certain Subdermal Mycoses.—Beurmann and Ramond[1] report the case of a man who presented a series of tumors scattered over his body. These were sharply defined, remittent or fluctuating nodules, situated in the subcutaneous cellular tissue, the skin above being purple. The tumors contained pus which did not contain microorganisms of suppuration, but a special fungus; on culture, appearing as irregular filaments, mycelium, and small ovoid corpuscles, at times spindle-shaped. Inoculation of animals produced no results. Surgical interference was attempted, but as the tumors were deeply adherent, multiple nodules reappeared after operation. It was then decided to administer potassium iodid in doses of 2 gm. (30 gr.) daily at first. At the end of the first week the patient was better; the tumors had diminished in volume, and no new ones appeared. During the next two weeks the drug was increased to 4 gm. (1 dr.) daily. One month later the tumors had disappeared almost entirely, and those which remained were scarcely perceptible. [L.F.A.]

The Pharmacology of Selenium, Tellurium, and Arsenic.—H. J. Crompton[2] states that when locally applied to the voluntary muscle of vana temporaria, solutions of the compounds of selenium, tellurium, and arsenic have very little effect. They are not direct muscle poisons. Solutions of sodium arsenite have a distinct preliminary stimulant effect on voluntary muscle. This contrasts with the action of the selenite and tellurite of sodium, those salts having no such action. Locally applied the solutions of selenium, tellurium, and arsenic are not directly poisonous to motor nerve trunks. They have no marked direct action on motor nerve-endings in amphibian muscle. Alkaline solutions of the compounds of arsenic and selenium cause contraction of the bloodvessels. As neutralized solutions have practically no effect, this result is to be explained by the alkalinity of the liquid. When the solutions were circulated through a frog's heart the nutrition of the organ was well maintained; they cannot be termed direct poisons to cardiac muscle. Solutions of arsenite, selenite, and tellurite of sodium tend to accelerate the beat of the heart. [H.M.]

The Dietetic Treatment of Diabetes.—Robert Hutchinson[3] means by the term diabetes a permanent glycosuria, however caused. Cases can be separated into two groups, in which diet must be administered on different lines: (1) Mild cases in which some tolerance of carbohydrates still exist; (2) severe cases in which there is no tolerance of carbohydrates. In the first group, if a patient begins to excrete sugar when he is allowed four ounces of bread he should be given half that amount, and at least twice a year be subjected to a period of perfectly strict diet to give the carbohydrate assimilating functions a complete rest. If, in severe cases, a test-diet shows that the patient excretes more carbohydrate than he takes in, dieting must be instituted cautiously. The urine should be examined for oxybutyric acid and its allies by the "perchlorid of iron" test; if this be positive, the patient is always in danger of coma, which apparently may be precipitated by a sudden change in dietetic habits. The carbohydrates should be reduced very slowly and sodium bicarbonate administered at the same time. If the perchlorid reaction be negative, strict diet may be instituted suddenly or gradually, though the latter is to be preferred. Hutchinson gives in detail the constituents of a strict diet. Fat is to be given in as large quantities as possible. There is a widespread fallacy that toast may be taken instead of bread; weight for weight, it is more, rather than less harmful. There is too great a tendency to banish the potato from diabetic diet. Some form of alcoholic beverage should be taken daily. If coma is imminent, strict diet must be abandoned; skim milk is then best. [A.G.E.]

Treatment of Bronchiectasis.—D. B. King[4] describes four methods: (1) Creosote vapor baths; (2) subcutaneous injections of guaiacol; (3) intratracheal injections of guaiacol; (4) intravenous injections of formalin. Notes on 14 cases are given. King's experience leads him to say that the best results are to be had from the combination of creosote vapor baths with subcutaneous injections of guaiacol in small doses, .4 cc. to .6 cc. (6 m. to 10 m.). They should be given once daily for a few weeks, and then for a period of 2 to 3 weeks the baths should be increased to 2 or 3 daily; thereafter the initial doses should be maintained. To be of decided value the treatment must be continued, in most cases, from 3 to 6 months. In inveterate cases, larger doses of guaiacol, 1.3 cc. to 2 cc. (20 m. to 30 m.) should be tried. The intravenous formalin method is yet but little used, and while no positive opinion can be given, King bespeaks for it a fair trial. [A.G.E.] [Reported not endorsed. S.S.C.]

Treatment of Coryza.—Hirtz[1] recommends the following dusting powder in the treatment of coryza:

Quinin sulfate Bismuth salicylate	of each . . .	0.50 gm. (8 gr.)
Boric acid		1 gm. (15 gr.)
Powdered starch		10 gm. (150 gr.)

[L.F.A.]

Local Application for Fissure of the Anus.—Katzenstein[2] recommends the following in the treatment of fissure of the anus:

Extract of belladonna Cocain hydrochlorate	of each . . .	0.05 gm. (1 gr.)
Ichthyol		6 gm. (1.5 dr.)

This should be heated gently on a water-bath. A pledget of cotton should then be impregnated with it and introduced into the rectum as far as possible. At the time of insertion the patient should be directed to bear down. By this means the mucous membrane will be exposed and the tampon be pulled in by action of the mucous membrane itself. [L.F.A.]

Treatment of Cirrhosis with Extract of Liver.—M. Crequy[3] reports a case of cirrhosis of the liver in which 12 abdominal punctures were made, each time withdrawing from 8 to 10 quarts of ascitic liquid. An attack of grip aggravated the condition of the patient; he became thin and presented ulcers of the sacrum. The following treatment was ordered: 1. Continuation of a modified milk diet. 2. One gm. (15 gr.) of hepatic extract daily. 3. 0.5 gm. (7.5 gr.) of potassium nitrate daily in infusion of dog-grass (chiendent). The patient improved rapidly, the hemorrhages ceased, the edema and ascites disappeared. He was finally able to resume his occupation after having been confined to bed for 18 months. [L.F.A.]

Treatment of Inebriety by Atropin.—C. A. McBride[4] holds that the value of atropin in inebriety is not sufficiently appreciated, nor are the details usually carried out as carefully as should be. The atropin sulfate should be administered hypodermically. The drug seems to have a specific action, though of itself would probably be insufficient to eradicate the craving for alcohol and other narcotics. Along with atropin, McBride administers at the same time strychnin and the fluid extract of cinchona bark. Treatment is as follows: 1. Atropin sulfate, commencing with 0.3 mg. ($\frac{1}{200}$ gr.) three times a day, increasing gradually during the first week until the pupils are affected and the mouth becomes dry. In most cases 1 mg. ($\frac{1}{50}$ gr.) will be the maximum dose. 2. Strychnin nitrate given at the same time, subcutaneously, in doses beginning with 1 mg. ($\frac{1}{60}$ gr.) and increasing to 3 mg. ($\frac{1}{20}$ gr.) in the majority of cases. 3. Fluid extract of red cinchona bark given every three hours in ordinary doses by the mouth. Auxiliary methods of treatment are valuable, among which are: Attention to general health of the patient, warm baths, special dietary, and regulated exercise. When there is delirium, or maniacal symptoms threaten, as is common in acute cases, other remedies may be required. McBride has for 13 years used these remedies, with much success in several hundred cases. It is well known that alcohol produces extensive degeneration of the nervous elements of the brain and peripheral nerves, and it is a question to McBride how atropin can combat this condition. He believes, however, that the marked signs of mental deterioration are due to the effect of continued intoxication by alcohol retained in the body rather than to an actual destruction of nerve tissue from alcoholic poisoning. The surprising recoveries which he has seen lead him to this belief. [A.B.C.]

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[1] Journal des Praticiens, Vol. xvii, No. 50, 1903, p. 796.
[2] Medical Chronicle, February, 1904.
[3] The Practitioner, June, 1904.
[4] Edinburgh Medical Journal, June, 1904.

[1] Le Mois Therapeutique, Vol. iv, No. 11, 1903.
[2] Journal des Praticiens, Vol. xviii, No 4, 1904, p. 56.
[3] La Quinzaine Therapeutique, Vol. v, No. 3, 1904, page 77.
[4] British Medical Journal, April 30, 1904.

American Medicine

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Cheapness and Simplicity in the Treatment of berculosis.—The great difficulties encountered by profession in carrying out the open-air treatment of erculosis are already so insuperable that every detail uld be scrutinized and every item of expense lessened much as possible. It is natural that the sanatorium atment should at least at first copy the methods of the pensive hospitals and institutions in which the indoor atment of any disease was the chief. Hence has sen an altogether too expensive ideal. Of all things the world, open air is the cheapest. Do not let us ke it expensive by too great insistence upon the ventitious adjuncts of the treatment of tuberculosis. course these added necessaries are to be put in the int. Some warmth and much good food of the right ds are also needed, but expensive "plants" are not eded, and every device should be thought out to luce to the minimum the nonnecessaries. The chief quisite, and one too little considered in historic and modern times, is the personal clothing. Our houses ve been ill-ventilated and overheated because we have t clothed ourselves properly, and in cold air, not suf- iently. A professor of clothing is needed in every edical college. The sanatorium officers should give ich greater attention to this matter, and when they do the expensive plant and high cost of many items may greatly lessened. At White Haven, Dr. Flick has luced the per capita cost to a figure, less, if we are not istaken, than in any other similar institution, while the same time the therapeutic results are as good as others. The great need now seems to be to teach the blic that the treatment of tuberculosis is an inexpen- e one; that it is essentially simple and preventive. ore important than the cure of the individual patient the teaching him that he himself must become a acher of his neighbors and relatives, so that fresh infec- ons may be prevented.

Frankness in Two Kinds of Notification.—The position to and neglect of notification to Boards of ealth of cases of tuberculosis, on the part of physicians, ises from the old nontreatment and from a mistaken ognosis. The diagnosis of the disease still strikes rror into the hearts of patients and their friends, cause by the old methods there was practically no atment and the patient went steadily on to death. Thus was begotten the false idea of the incurability of the disease. With the new conception it is known that there are few diseases more curable if the proper treatment is carried out. Thus it all comes back to the possibility of carrying out the new, or open-air method of treatment. It is evident that notification is usually necessary before the disease can be properly diagnosed, and certainly before it can be properly treated. But it is also clear that before the public notification, and before treatment can be instituted, there must be frank notification of the patient and of his friends. The private or personal notification is as necessary as the public one. With the promise to carry out the treatment, the physician can almost surely promise cure in all but the more advanced cases. Utter frankness is necessary in order to make the patient and the public go earnestly and effectively about the indicated measures of protection, prevention, and therapeutics. Let us have no more shillyshallying and shirking the obvious duty. In rural communities especially, the tremendous difficulties that the physician encounters make the duty doubly imperative. But in the country this means payment of local and active health officers, and great increase of power lodged in their hands.

The Farmhouse and Tuberculosis Infection.—The chief difficulty in the eradication of tuberculosis will probably be found in extending to remote village and country districts the measures of prevention and disinfection, which are only faultily carried out even by the most powerful Boards of Health of cities. The notification of cases of tuberculosis must first be commanded by the law before even a beginning can be made. Next, the local officers of health must be paid for their work on behalf of the community. At present they are expected to work for nothing and to commit professional suicide while working to aid those in other callings to live longer and more profitably. The result is that the practical work of local health officers is either done by a few men, exceptionally unselfish, or is done poorly, or more often is not done at all. There is absolutely no machinery at present existing in most rural communities whereby a patient with tuberculosis can be treated according to the most approved methods, and none to prevent other members of the family from contracting the disease, as they often do. After the patient dies the disinfection and renovation of the house are impossible, and one after another those who live in the old, infected rooms come down with the disease. The chief use of State tuberculosis sanatoriums will probably be found not in the cure of the individual patients, but in their education as home medical missionaries to carry to their neighbors the knowledge of the simple preventive measures necessary to uproot the disease. These sanatoriums must, therefore, be conducted as schools for the patients, and not as hospitals only. But there will remain the profound need of practical powers and local methods of reaching the small villages and farmers in such a way as to cure actual patients who cannot leave home, and to prevent infection of others from these foci. The self-interest of the community demands ample payment of the local health boards; only when it does pay them can it hold the negligent officer to account.

The Decrease of Pulmonary Tuberculosis in New England.—A very gratifying condition of affairs in this regard is shown in a recent paper by Dr. S. W. Abbott.[1] Four points are considered: 1. The prevalence of pulmonary tuberculosis at the present time; the deathrate is now somewhat less than 20 per 10,000 living inhabitants. 2. The decrease during the past 50 years; this has been steady, and as much as 50% in some of the States. It appears to be more rapid now than in earlier years. 3. The comparative mortality and decrease in the sexes; the deathrate of women has decreased more rapidly than that of men and is now less than the latter, though in earlier years it was greater. 4. The mortality at different ages; the deathrate at every age has decreased, but more at older than at younger ages. A table of comparison between the changes in the disease in Massachusetts and New England is of interest. In general the lines are the same, but these differences are noted: New England has had a lower rate throughout the entire period, the difference between males and females has been less, and the deathrate of females, while also descending more rapidly than that of males, becomes actually less than the latter about 20 years earlier than the same change took place in Massachusetts. As a whole, the results are very encouraging to those specially concerned in combating tuberculosis in New England. Abbott makes the not irrelevant statement that at the present rate of decrease it does not seem at all impossible that in the next half-century the sanatoriums now peopled with tuberculous patients may be filled with those suffering from cancer, which appears to be steadily increasing.

Special Lectures for County Medical Societies.—A suggestion lately made to the Philadelphia County Medical Society by Dr. J. Madison Taylor[2] merits the consideration of all county societies, particularly those in large cities. The innovation recommended is the establishment by the society of a course of postgraduate lectures for its own members. The value of such lectures would lie partly in the greater freedom of speech permitted, publication in the transactions not being a p of the idea, and the possibility of lantern slide or blac board demonstration of the subject in hand. The ba of Dr. Taylor's suggestion is best given in his o words: "It is permissible to express the doubt wheth a half of the thousand members of this society gath much assimilable knowledge from the ordinary jour article or paper read before the society, presenting, they aim to do, some new thought, or aspect of an thought, in an original or striking fashion. They a not designed primarily to instruct. They may be, a often are, replete with admirable facts, formulations, a conclusions. Nevertheless, for purposes of instructi they lack much of simplicity, directness, and clarity presentation." That there is much of truth in the statements will, we believe, be admitted even by phy cians who are not inclined to accept in their entirety t views therein expressed. The attendance at coun societies is ofttimes woefully small; is it not partially, least, explained by the foregoing quotation? By means, let the value of the educational lecture course county societies be determined by actual trial. A f test demands the most careful supervision by those me bers who have at heart the best interests of the prof sion. We note that the directors of the Philadelph County Society have recommended that the thi Wednesday evenings of November and December of t present year be set apart for this purpose. If the r ommendation is approved the outcome will be await with interest.

Progress in Reciprocity.—In correction of t statement of the Illinois Board that Illinois is the on State which actually offers reciprocity with other State the Secretary of the American Confederation of Reci rocating Examining and Licensing Boards sends us t following facts as to the conditions in the States me tioned:

ILLINOIS.—The Illinois Board of Health now recip cates—in the case of licenses issued on examination—wi Maine, Michigan, Nebraska, New Jersey, Ohio, Virginia, a Wisconsin, and probably Iowa and Kentucky.

INDIANA now reciprocates with Michigan, Wisconsin, a Nebraska.

KENTUCKY.—The Board, acting under its general powe will probably reciprocate with other States having equival requirements.

MAINE.—We have accepted reciprocal registration in N Jersey, Illinois, Michigan, and probably Ohio.

MARYLAND.—We reciprocate with New Jersey and De ware.

MICHIGAN at the present time reciprocates with Wiscons Indiana, Maryland, Kentucky, and Nebraska, under Qualifi tions Nos. I and II, and with Illinois, Ohio, New Jersey, a Maine, under Qualification No. I, and with Iowa and Virgi under No. II.

NEBRASKA now reciprocates under Qualifications Nos. and II, with Michigan, Indiana, Wisconsin, and will in probability reciprocate with Iowa after the next meeting of t Iowa Board in May. Illinois is the only State with which are reciprocating only under the examination qualification.

NEW JERSEY.—New Jersey endorses the licenses of Il nois and other States, a list of which is not at present obta able.

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[1] American Statistical Association Publications, No. 65, March, 1904.
[2] Proceedings Philadelphia County Medical Society, May 31, 1904.

OHIO.—Ohio now reciprocates with Indiana, Illinois, Michigan, and Wisconsin, upon examination certificates only.

WISCONSIN.—Wisconsin reciprocates under Qualification No. I, with Illinois, Ohio, and Maine, and under Qualifications Nos. I and II, with Michigan, Indiana, Kentucky, Maryland, and Nebraska.

Michigan has arranged, and I presume other States in the Confederation have also arranged, reciprocity with Virginia, Georgia, and Nevada, the latter State having signified its willingness to do so. To summarize, the following States reciprocate either with one another, or are members of the American Confederation, which presumes the recognition of certificates under reciprocity Qualifications Nos. I or II, or both such qualifications: Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Nebraska, New Jersey, Ohio, Pennsylvania (Eclectic Board), Virginia, Wisconsin, Kentucky, Nevada, and Georgia.

What is now needed is the actual practice of reciprocity by the States theoretically offering it. What are the statistics and facts as to the issuing of licenses without reexamination?

Autointoxication of Intestinal Origin.—The subject of autointoxications of intestinal origin has recently received luminous treatment at the hands of Dr. Gaston Lyon.[1] As our readers are, of course, already aware, it is to the epoch-making work of Professor Bouchard that the credit is chiefly due of fixing the attention of physicians upon the importance of this process; although the subject has already been discussed by Senator and by Von Jaksch, and that the prophylactic and antidotal treatments recommended by M. Bouchard himself have been largely modified or superseded. As that writer then pointed out—there are, in the normal state, an enormous quantity of microbes in the digestive tube. It is, accordingly, possible, that in the normal state, vegetable alkaloids are fabricated in the intestine, absorbed, circulated in the blood, and eliminated by the urine. This hypothesis was soon converted into established fact by the discovery of ptomains in the feces (Bouchard); by the study of the toxicity of urine and the variations of that toxicity in proportion to that of the toxicity of the contents of the intestinal canal; and by the discovery in the urine of aromatic compounds eliminated in the state of sulfoconjugate acids (Baumann). It is now recognized that intestinal digestion is a duplex function, one section being carried out by microbic action, and the other by enzymic. Enzymes transform starch into sugar, emulsify fats, convert albumins into peptones and crystalline bodies; and the same functions are simultaneously carried out by the intestinal microbes. But the action of the latter extends still further—they are the agents of the fermentations which are produced at the expense of the carbohydrates (with production of sulfureted hydrogen and other gases, lactic acid, butyric acid, etc.), and at the expense of the albuminoid matters (ptomains, aromatic substances). In the normal state, the organism defends itself against the various poisons which are being continuously produced in the intestinal canal. One of its lines of defense is formed by the intestinal epithelium; a second is offered by the liver, which arrests and neutralizes the greater part of those which have been allowed to pass the first. The kidneys and other eliminatory organs remove aromatic compounds (the materials of which had not been arrested by the liver); the lungs eliminate ammonia, acetone, etc.; the sweat carries of sulfoconjugate acids, indol, etc. Among the organs of defense which act as strongholds of the healthy organism must also be reckoned the thymus, thyroid, and suprarenal bodies, the antitoxic action of which now appears incontestable. The presence of a small excess of the poisons does not give rise to any appreciable change, although such gradual structural changes as cirrhoses are doubtless the result of the continued action of intestinal poisons.

The Coefficient of Autointoxications.—When the physiologic defenses of the organism fail, or when the intestinal poisons are produced in such quantity as to overwhelm their powers of resistance, the phenomena of autointoxication ensue; the latter cause is probably the more frequent. One of the commonly occurring agencies is that of gastric dyspepsia. M. Bouchard specially incriminated dilation of the stomach. But whether the dyspepsia be of gastric or of intestinal origin it is a fruitful source of this mischief. It necessarily develops where there is disproportion between the digestive power and the aliments provided for digestion; the residual matter undergoes microbic decomposition and becomes a magazine of poisons. Intestinal autointoxication is current coin among certain great eaters of meat—amateurs of epicurean dishes, and more especially those of such tastes as lead sedentary lives. The second, and not less important factor, of autointoxication is the stasis of the products of digestion in the alimentary canal. This may, of course, be due to deficient motor action of the intestinal walls or to mechanical obstruction. The phenomena of the putrefaction are the more pronounced as the stasis is localized higher in the digestive tube. The symptoms produced by dilation of the cecum are sharply defined, while those of rectal stasis are far more gradual and less formidable. Chronic appendicitis is a factor in autointoxication which has been too often overlooked. The various inflammatory and other structural affections of the digestive tube are necessary causes. When the condition is established its diagnosis is easy. The face is absolutely characteristic: The jaundiced tint, the pensive aspect, and evident malnutrition, are surely connected with the furred tongue, fetid breath, continuous nausea and anorexia, which accompany this condition; and prepare us for the story of languor and lassitude, dislike to and disability for continuous exertion, migraine, vertigo, and insomnia, which so usually accompany intestinal autointoxication. There will be diarrhea (with fetid evacuations) or constipation, according to the primary cause. The actual degree of autointoxication is not so easy to estimate. This would require calculation of the amount of volatile fatty acids, ptomains, and aromatic substances eliminated. But there is no chemic means of estimating the ptomains, which are the most actively poisonous matters produced. It is known, however, that the aromatic bodies are eliminated *pari passu* with them; nearly all united with sulfuric acid, in the form of sulfoethers, or sulfoconjugate acids—some being conjugated to glycuronic acid. Accordingly, M. Combe, of Lausanne, has proposed as coefficient of autointoxication the formula:

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[1] Gazette des Hôpitaux, May 12 and 14, 1904.

$$\frac{\text{Sulfoether}}{\text{Nitrogen (total)}} \text{ or } \frac{\text{Sulfoether}}{\text{Urea}}$$

Christian Science in England.—Christian science has crossed the broad Atlantic Ocean, and the infection appears to have invaded the British Empire along the trading route which accommodated Mormonism in its incursion of a former generation. The stolid Anglo-Saxon business man of Liverpool and of Manchester, who cannot hear an allusion to the emotional temperament of his Celto-Hibernian neighbors without an expression of loud contempt, displays the vulnerable pole of (mostly) materialistic economy by throwing the lot of his physical (and mental) wellbeing into the seething cauldron of Christian science doctrine and practice. The opening of the "First Church of Christ, Scientist," in Manchester, has just been announced from the great industrial capital of Northern England, and the ceremonial program appears to have been carried out with every due regard to emotional impression and to commercial acquisition. The necessary "cloud of witnesses" brought their unanimous items of testimony regarding personal experience; which, it need hardly be added, were not spoken in a still, small voice. An English Earl, and a California lady devotee of the new cult, volunteered their evidence in the same tone as the business men of Manchester and Liverpool. The daughter of the Liverpool gentleman had been in the hands of doctors since her childhood, but not one of them had properly understood her case; specialists had yielded no better results; massage homes, nursing homes and hydropathic establishments had, in every instance, given corresponding disappointment. She approached the period of young womanhood as a physical and mental wreck—of less than five stone in weight. But—she appeared, hale and hearty, at the opening of the new church. The Manchester convert told his audience that his desire for whisky, wine and cigars had been completely obliterated. But the most comprehensive item of testimony to the protean powers of Christian science was the complex one offered by the California lady, which included the statements that this method of healing had cured her mother of an internal growth, and her father of deafness; her sister of cancer and her brother—at various times—of a malignant attack of yellow fever, and of a burn which involved the whole cutaneous surface from head to foot! What contemporary medical practitioner could produce such a series of cases?

Twenty-five of the 300 Physicans for Panama Likely to Come from Philadelphia.—It is expected that 25 of the 300 physicians the Government is preparing to send to the Isthmus of Panama will be chosen from civil life in Philadelphia. This statement was made by an officer at the League Island Navy Yard recently. He said that the bulk of the physicians would be selected from Washington, New York and this city. As there will be a fully 50,000 men engaged on the isthmus, it is believed that 300 physicians will be none too many to look after their health. The higher positions will be allotted to the Government surgeons. Young and active physicians are needed, tough, wiry, hardy fellows, who are not afraid to rough it. There will be a preference shown to those just graduated from the hospitals. Colonel Gorgas, the chief sanitary officer of the isthmus, will send out the call for the physicians.

AMERICAN NEWS AND NOTES

GENERAL.

Deathrate in Chicago and New York.—The Bulletin of Chicago's Health Department for the week ended June 11 says: Both New York and Chicago are breaking all records of low mortality this season. At the close of office hours on June 11 a total of 1,222 deaths from all causes had been reported in New York City—furnishing an annual rate of 16.6 per 1,000 of its estimated mid-year population, 3,838,024. For the same period a total of 420 was reported in Chicago—an annual rate of 11.4 per 1,000 of the 1,932,315 estimated as its mid-year population by the United States Census Bureau. The lowest previous rate for Chicago was 12.1. In this city pulmonary tuberculosis is now the principal cause of death, the 63 reported being exactly 15%, or more than a sixth of the total, while pneumonia has fallen to second place, with only 12.3%, or an eighth the total deaths. In New York the disease still holds the lead—142 deaths from pneumonia and 121 from pulmonary tuberculosis.

Comparative Table of Mortality from Tuberculosis:[1]

Cities.	Mortality per 10,000 Inhabitants.
Lima	62.1
Caracas	60.0
Madrid	40.8
Paris	38.7
Rio Janeiro	38.0
Santiago (Chile)	38.0
Vienna	35.7
Lisbon	34.3
Havana	32.7
St. Petersburg	31.5
Brussels	31.3
Christiania	28.4
Stockholm	26.5
Berlin	22.3
New York	22.3
Rome	18.8
Naples	17.6
Montevideo	16.0
Buenos Aires	14.2
Mexico City	14.0
San Salvador	13.7

NEW YORK.

Legal authorities of New York are being urged to adopt restrictive measures with regard to celebration on the Fourth of July. The fact that tetanus so frequently develops after Fourth of July accidents, particularly those wounds made by the toy pistol, has aroused the health authorities in various large cities, and New York is no exception to the rule. It is stated that there is serious talk of an organized society being formed in New York City for bringing about a reform in the method of celebrating the Fourth of July. It is urged that all explosives of whatever variety should be prohibited. This would curtail to a certain extent the amusements of children, but it would be a distinct gain so far as saving life and property is concerned.

Pasteurized Milk for the Poor of New York.—Nathan Straus is increasing the effectiveness of his excellent philanthropy of distributing at trifling cost pasteurized milk among the city's poor. He has set to work, in connection with the milk depots, a corps of physicians, who will go about giving advice to mothers as to the correct feeding of children, and particularly as regards the preparation of milk for infants. Statistics show that in 1892, when the distribution of pasteurized milk was first undertaken by Mr. Straus, there were 194,214 children under five years of age in the city; that 18,684 died, a deathrate of 96.2 to the thousand; that in the following year the rate was reduced to 89.2, and that there has been a corresponding reduction each year, until in 1903 it reached the unprecedented mark of 54.8.

PHILADELPHIA, PENNSYLVANIA, ETC.

Impure Milk in Philadelphia.—The State Dairy and Food Commission, and the Department of Public Health and Charities of Philadelphia, assert that impure milk in large quantities is being sold daily in Philadelphia, and a wholesale crusade against the traffic has been instituted by local and State officials, 34 warrants having been issued by a magistrate one day last week for dealers charged with such violations of the law. For some weeks Commissioner Warren has had a large force of agents working in this city jointly with the 10 milk inspectors of the Local Health Bureau, and several hundred samples are now being analyzed. The chemists have reported that so far the tests show that an alarmingly large percentage of the milk sold in this city is impure. Formaldehyd has been found in many cases, in others poisonous coloring matter has been discovered, while instances of milk skimmed so that it is below the legal standard are about to be filed for prosecution.

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[1] La Escuela de Med., Mexico, March 31, 1904.

War on Mosquitos in New Jersey.—The mosquito, which is beginning to make itself felt throughout New Jersey, is the subject of discussion in the annual report of State Geologist Kummel, which has just been issued. Such authorities as former State Geologist Smock and C. C. Vermoule have contributed to the recommendations as to what is the best way to exterminate the plague. They, like all who have contributed to the subject, agree that reclamation of swamp lands is the proper remedy. The most recent scientific investigations of the cause of malaria and the agency of the mosquito in spreading it, the report states, show that stagnant pools on the flat lands and in the sluggish streams in the upper Passaic valley favor the breeding of the pest. There are about 18 miles of these swampy meadows, covering about 27,000 acres. They extend from Paterson to Newark bay, and, if drained, would make valuable farm land, while, if filled in, much of it would be useful for manufacturing sites. The prevalence of malarial diseases in the country and cities on each side of these meadows simply goes to show what improvement in health and happiness would follow the reclaiming of the swamps.

WESTERN STATES.

Dairy Farms in the Vicinity of Chicago Inspected.—The Bulletin of Chicago's Health Department for the week ended June 25, states that during the week the dairy inspectors visited and inspected 88 dairy farms and reported upon their conditions. These first inspections have been made on farms within 50 miles of the city. On 83 of these farms the cow barns were properly whitewashed; in 67 the milking was done under cleanly conditions, in 21 the milkers were dirty: in 32 wet malt was being fed; in 71 the milk was properly cooled, in 11 it was aerated and in 66 it was properly strained. The water-supply was good on all farms—82 from wells and 6 from springs. Of the 88 herds, comprising 1,483 cows, 71 were in good, healthy condition, 14 were in fair condition, and 4 were in bad condition. Sale of the milk from the 4 unhealthy herds and from the wet malt fed cows has been prohibited.

Decrease in Infant Mortality in Chicago.—The Bulletin of Chicago's Health Department for the week ended June 11 says: As has been before pointed out in the Bulletins, the low deathrate in Chicago is due entirely to the remarkably few deaths of the young—those under five years of age. And this, in turn, is due to the rarity of the contagious diseases of childhood. Mothers have learned not to expose their children to measles and scarlet fever and whoopingcough. They have been taught the fallacy of the old theory that, since children must have these diseases, they "had better have them while they are little, and get through with them." They have learned that the older the child, the greater its powers of resistance against the disease and the better the chance of its recovery. They have been taught this persistently during the last ten years—by the leaflets of the department, by its midsummer medical inspectors, by the visiting nurses, and by the Bulletins.

Chicago's Milk Supply.—The Bulletin of Chicago's Health Department for the week ended June 18, says: During the week the Laboratory analyzed 603 samples of milk and cream, of which number 194 were brought in by private individuals. Of the Inspectors' samples, 8.8% were found below grade, and 8.7% of all the samples were found below grade. This is a slight decrease in the usual number of samples examined, due to the fact that the Milk Inspectors are devoting their attention especially to the sanitary conditions of dairies and depots and to securing the taking out of licenses. Since the first of the month 96 milk dealers have been fined for selling milk below grade. The Department wishes to call attention to the fact that there are only six milk inspectors to cover the entire city, in which there are some 5,000 wagons and stores selling milk. The Department would like to have the cooperation of the individual householders, who can do a great deal toward bettering the milk supply. Any one may bring a sample of milk to the Laboratory, Room 411, City Hall, any day between 9 a.m. and 2 p.m., and it will be promptly analyzed and the result mailed free of charge. By this means every one can know the quality of milk that he buys. The records of analyses are public and may be examined personally or, upon application in writing, information will be furnished as to the quality of milk supplied by any dealer.

FOREIGN NEWS AND NOTES

GENERAL.

Vital Statistics of St. Petersburg.—An examination of the hygienic statistics affecting the city of St. Petersburg discloses a striking feature. Russia's capital from its rise down to the year 1884 appears as an "expiring community," and it is only since that happy year that the mortality became less than the births, which improvement has continued up to now. For the year 1903 the births of the St. Petersburg population amounted to 45,657, as against 38,537 deaths. Since the filtering of the water-supply, typhoid fever has attacked a much smaller number of people.—[*Lancet.*]

Endemic Diseases in Japan.—Leprosy, smallpox, syphilis, and ulcers, known as "ka-sa" in Japanese, are the four endemic contagious diseases of Japan. There are about 3,500 lepers in the total population of 35,000,000, and no attempt is made to isolate them. Smallpox is placarded by the family with a special sign, although there is no ordinance to compel it. Syphilis is about as common as in Europe, but severe tertiary accidents are rarely seen. Meyners d'Estrey, in an article in the *Revue Médicale du Canada* of May 4, attributes this benignity of the disease to the salubrious climate. He has observed that tertiary lesions are much more common and serious in Java, where the climate is much hotter and more humid. This difference cannot be ascribed to more intelligent medical care, as until comparatively recently the physicians of Japan had not acquired a scientific knowledge of medicine. The practical study of anatomy has also been rendered very difficult by the laws and religious prejudices. Every two or three years the mikado would allow the autopsy of a criminal. On one of these occasions 65 physicians assembled from all parts of the empire. The operative skill of Japanese surgeons, with their hitherto meager anatomic knowledge, is wonderful, and promises great surgical dexterity for the Japanese in time.—[*Journal American Medical Association.*]

OBITUARIES.

Samuel L. Abbott, one of Boston's best known physicians, July 2, aged 86. He graduated in a literary course from Harvard University in 1838, and later in medicine from the same institution, and for fifty years was connected with the Massachusetts General Hospital, and had at the same time a large private practice. He was prominent in his profession, being a member of the Massachusetts Medical Society.

Lafayette J. Jones, from heart disease, at his home in Franklin, Ky., June 11, aged 66; a graduate of Jefferson Medical College, in 1861; surgeon of the Confederate service during the Civil war, being in charge of the Winder Hospital, Richmond, Va., and later chief surgeon of the Confederate Soldiers' Home, Pewee Valley, Ky.

Asbury McKendree Crow, at his home in Kansas City, Mo., June 23, of Bright's disease, aged 63; a graduate of Bellevue Medical College, New York, in 1865; member of the American Medical Association; three times city physician to Kansas City; and for 35 years a leading member of the medical profession.

Vincent H. Moore, at his home in Brockville, Can., June 8, aged 56; a graduate of the Medical Department of Queen's University, Kingston, Ontario, in 1876; one time president of the Canadian Medical Association; vice-president of the Association of Military Officers of Canada.

Thomas Flint, of paralysis, at his home near San Juan, Cal., June 19; a graduate of Jefferson Medical College, Philadelphia, in 1849; member of the American Medical Association, and a prominent western practitioner.

James W. Keiser, of Reading, Pa., from valvular heart disease, at the Reading Hospital, June 8, aged 43; a graduate of the University of Pennsylvania in 1882; for 14 years secretary of the Berks County Medical Society.

Sevier D. Clark, of Nocoma, Texas, at a hospital in Gainesville, Texas, June 16, after an operation for cancer of the liver; a graduate of the medical department of Vanderbilt University, Nashville, in 1886.

Cedric LeMoine Cotton, of Cowansville, Quebec, in the Montreal General Hospital, June 16, from septicemia following an operation wound, aged 47; a graduate of McGill University, Montreal, in 1878.

Gaspard Archambault, at his home in Montreal, June 14, aged 53; a graduate of the University of Victoria College, Cobourg, Ont., in 1878; formerly professor of dermatology at Laval University.

Silas N. Denham, at his home in Kansas City, Mo., June 9, from nephritis, aged 66; a graduate of St. Louis Medical College in 1860, and a surgeon in the Confederate service during the Civil war.

James Hosking, at his home in Wolverine, Mich., June 9, from fracture of the skull, by accident, aged 36; a graduate of the Medical Department of the University of Michigan, in 1891.

Washington Fithian, at his home in Paris, Ky., June 16; a graduate of the Medical College of Ohio, Cincinnati, in 1848. One of the oldest practitioners of Bourbon county, Ky.

William S. Hereford, at his home in San Francisco, June 13, aged 52; a graduate of the University of Pennsylvania, in 1877; formerly city physician of San Francisco.

Osa Ray Summers, at his home in Middletown, Ind., June 8, from pneumonia, aged 29; a graduate of the Medical College of Indiana, Indianapolis, in 1897.

Frank Freemire, at his home in Chester, Iowa, June 10, from carbolic acid poisoning; a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1882.

William Hoyle Haddock, at his home in Jacksonville, Fla., June 15, aged 31, from typhoid fever; a graduate of the College of Physicians, Baltimore, in 1896.

John Walter Hunt, at his home in Andersonville, Ind., June 18; a graduate of the Kentucky School of Medicine, Louisville, Ky., in 1879.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 1, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
California:	San Francisco	June 12-19	1	
Dist. of Columbia:	Washington	June 11-18	4	
Florida:	At large	June 18-25	7	1
Georgia:	Macon	June 18-25	1	
Illinois:	Chicago	June 18-25	1	
	Danville	June 18-25	1	
Louisiana:	New Orleans	June 18-25	5	
			3 imported.	
Maryland:	Baltimore	June 18-25	2	
Massachusetts:	Lawrence	June 18-25	1	
Michigan:	Detroit	June 18-25	3	
Missouri:	St. Louis	June 18-25	9	
Nebraska:	Omaha	June 18-25	2	
	South Omaha	June 18-25	1	
			Imported.	
New Hampshire:	Manchester	June 18-25	6	
New Jersey:	Jersey City	June 12-19	2	
			1 imported from Baltimore.	
New York:	Buffalo	June 18-25	1	
	New York	June 18-25	1	
	Niagara Falls	June 18-25	1	
Ohio:	Toledo	June 18-25	2	
			Imported.	
Pennsylvania:	Altoona	June 18-25	1	
			Imported.	
	Johnstown	June 18-25	1	
			3 cases in suburban districts.	
	Philadelphia	June 18-25	7	1
	Pittsburg	June 18-25	1	
Tennessee:	Memphis	June 18-25	8	
Washington:	Tacoma	June 13-20	1	
Wisconsin:	Milwaukee	June 18-25	6	
	SMALLPOX—FOREIGN.			
Belgium:	Brussels	June 4-11		1
China:	Hongkong	May 14-28	5	2
France:	Marseilles	May 1-31		4
	Paris	June 4-11	10	
Great Britain:	Glasgow	June 10-17	20	3
	Leeds	June 11-18	3	
	London	June 4-11	21	
	Newcastle-on-Tyne	June 4-11	8	1
	Nottingham	June 4-11	3	
	Sheffield	May 28-June 11	3	
India:	Bombay	May 24-31		16
Italy:	Palermo	June 4-11	1	
Java:	Batavia	May 7-14	8	
Mexico:	Mexico	June 5-12	5	1
Russia:	Moscow	May 28-June 4	11	4
	Odessa	June 8-16	2	
	St. Petersburg	May 28-June 14	15	3
	Warsaw	May 21-28		23
Spain:	Cadiz	May 1-31		1
Turkey:	Constantinople	June 5-12		4
	YELLOW FEVER.			
Mexico:	Tampico	June 11-18	1	
	Vera Cruz	June 26	1	
			Imported from Progreso.	
	PLAGUE—INSULAR.			
Hawaii:	Honolulu	June 21	1	
	PLAGUE—FOREIGN.			
China:	Amoy	May 31	Increasing.	
	Hongkong	May 14-28		60
Formosa:		May 14-28	596	489
India:	Bombay	May 14-31		109
	Calcutta	May 21-28		90
	Karachi	May 22-29		53
	CHOLERA.			
China:	Hongkong	May 14-28	13	12
India:	Calcutta	May 21-28		51

Changes in the Medical Corps of the U. S. Army for the week ended July 2, 1904:

GRIFFIS, FRANK C., contract surgeon, now at Borongan, Samar, P. I., will, upon the discontinuance of the military station at that place, proceed to Camp Hartshorne, Laguan, Samar, P. I., for duty.

TRUAX, JESSE P., contract surgeon, upon expiration of the leave granted him will proceed to Fort Wright for duty.

MERRICK, JOHN N., contract surgeon, Fort Missoula, will proceed to Fort Yellowstone for duty with troops in the national park during the tourist season.

PERSON, THOMAS, sergeant first class, will, upon arrival of Sergeant First Class Hartung at Fort Davis, Alaska, be sent to Seattle, Wash., reporting to the military secretary for orders.

KILBOURNE, Lieutenant-colonel HENRY S, deputy surgeon-general, is relieved from duty in the Philippines Division, and will proceed to San Francisco, Cal., on transport to sail from Manila, P. I., July 5. He will report by telegraph to the military secretary, War Department, for further orders.

HALSELL, JOHN T., contract surgeon, leave granted May 11 is extended for one month.

SHAW, Major HENRY A., surgeon, so much of paragraph 17 as relates to him is revoked.

HARRIS, Major HENRY S. T., surgeon is designated for duty as chief surgeon of the Second Provisional Division at the army maneuvers to be held at Manassas, Va., and will report by letter to Major General Henry C. Corbin, adjutant-general, commanding Atlantic Division, and in person to that officer at Manassas at such time as he shall designate. Upon the completion of the duty assigned to him pertaining to the maneuvers he will return to his proper station.

SWEAZEY, First Lieutenant VERGE E., assistant surgeon, now at the U. S. Army General Hospital, Presidio, is relieved from further duty in the Philippines Division, and will report for assignment to temporary duty at that hospital.

DAVIDSON, First Lieutenant WILSON T., assistant surgeon, so much of orders of June 18 are so amended as to relieve him from further duty in the Philippines Division.

OWEN, Major William O., surgeon, is granted leave for one month, upon surgeon's certificate, with permission to go beyond the limits of the Department of California, and to apply for an extension of one month.

GEER, First Lieutenant CHARLES C., assistant surgeon, is granted leave for one month upon surgeon's certificate, with permission to go beyond the limits of the Department of California, and to apply for an extension of one month.

BAILEY, EDWARD B., contract surgeon, is relieved from further duty with troops and will report at Fort Miley for duty, relieving Contract Surgeon Victor E. Watkins.

GRISWOLD, W. CHURCH, contract surgeon, is hereby relieved from further duty with troops and will report at the Presidio for temporary duty.

WILKINS, ARCHIBALD M., contract surgeon, is relieved from further duty with troops and will report at Fort Baker for temporary duty.

THORNTON, JAMES W., contract surgeon, is relieved from further duty with troops and will report at Fort McDowell for temporary duty.

DAYWALT, GEORGE W., contract surgeon, is granted leave for one month from July 9.

RHODES, First Lieutenant THOMAS L., assistant surgeon, is granted leave for two months.

KOYLE, FRED T., contract surgeon, will proceed from Fort Bliss to Fort Brown for duty.

CHURCH, Captain JAMES R., assistant surgeon, is granted leave for one month on surgeon's certificate, with permission to apply for an extension of two months, to take effect upon arrival of Contract Surgeon Fred T. Koyle at Fort Brown.

BORDEN, Major WILLIAM C., surgeon, is granted leave for one month and five days from about July 30.

WOODRUFF. Major CHARLES E., surgeon, leave on surgeon's certificate granted May 24 is extended two months.

CORBUSIER, HAROLD D., contract surgeon, is granted leave for one month.

SMART, Colonel CHARLES, assistant surgeon-general, is relieved from duty in the Philippines Division, and will proceed from Manila, P. I., to San Francisco, Cal., and report by telegraph to the military secretary, War Department, for further orders.

STARK, Captain ALEXANDER N., assistant surgeon, is relieved from further duty in Washington, D. C., and will report to Rear Admiral John G. Walker, U. S. Navy, chairman of the Isthmian Canal Commission, for duty with the commission.

Changes in the Medical Corps of the U. S. Navy for the week ended July 2, 1904:

HUNTINGTON, E. O., surgeon, ordered to the Naval Hospital, Portsmouth, N. H—June 24.

CARPENTER, D. N., surgeon, detached from duty with the Marine Battalion on the Isthmus of Panama, and ordered home and to await orders—June 24.

RICHARDSON, R. R., assistant surgeon, ordered to the Wabash—June 24

SMITH, C. G., passed assistant surgeon, commissioned passed assistant surgeon, with the rank of lieutenant, from April 12, 1904—June 25.

BELL, W. H., passed assistant surgeon, detached from the Naval Hospital, Portsmouth, N. H., and ordered to duty with the Marine Battalion on the Isthmus of Panama—June 25

SHIFFERT, H. O., assistant surgeon, detached from the Nashville, and ordered home and to await orders—June 27.

TAYLOR, E. C., assistant surgeon, detached from the Naval Hospital, San Juan, P. R., and ordered to the Bancroft—June 27.

McDONNOLD, P. E., assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.—June 27.

MINK, O. J., assistant surgeon, ordered to the Naval Hospital, Philadelphia, Pa.—June 27.

PORTER, F. E., assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.—June 27.

CAMPBELL, R. A., acting assistant surgeon, detached from the duty with the Naval Recruiting Party No. 1, and ordered home to wait orders—June 27.

PLUMMER, R. W., passed assistant surgeon, detached from the Bancroft and ordered to the Naval Hospital, San Juan, P. R.—June 27.

McCLANNAHAN, R. K., assistant surgeon, ordered to the General Hospital, Fort Bayard, N. M., for treatment—June 29.

SEAMAN, W., assistant surgeon, ordered to the Wabash—June 29.

McCULLOUGH, F. E., passed assistant surgeon, detached from the Wisconsin and ordered home—June 30.

Changes in the Public Health and Marine-Hospital Service for the week ended June 30, 1904:

CARRINGTON, P. M., surgeon, to proceed to certain points on the El Paso & Northeastern Railway for special temporary duty—June 23, 1904.

TRASK, J. W., assistant surgeon, relieved from duty at Fort Stanton, N. M., and directed to proceed to Chicago, Ill., and report to medical officer in command for duty and assignment to quarters—June 28, 1904.

MOORE, G. P., acting assistant surgeon, granted leave of absence for seven days from July 3, 1904, under provisions of paragraph 210 of the regulations—June 28, 1904.

STEUART, G. H., acting assistant surgeon, granted leave of absence for fourteen days from July 1—June 29, 1904.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J., June 7 to 10, 1904.

[Specially reported for *American Medicine.*]

(*Continued from p. 11.*)

Section on Practice of Medicine.

THIRD SESSION (CONTINUED).

Physical Diagnosis by Respiratory Sounds.—C. E. QUIMBY (New York) referred to a previous paper on this subject and adduced further evidence to show that common statements as to the pitch of respiratory sounds in normal and in consolidated lungs are erroneous. Physical diagnosis as applied to respiration involves the laws of acoustics and the pitch of the trachea should be the standard of reference for all respiratory sounds. By comparing the trachea, the variously sized bronchi, and the vesicles to the various tube lengths in musical instruments, Quimby endeavored to show that the tracheal note is the inferior pitch limit of respiratory sound; in the same way the vesicular note is shown to have the highest pitch. The pitch of normal respiration is that inspiration is high and expiration is low. The change in consolidation is that the inspiratory pitch is lowered until inspiration and expiration are the same; no case of consolidation can give a high pitched respiration and expiration is never higher than inspiration. Quimby is aware that these views are opposed to those commonly held and taught and that they raise the question of what good can come from an effort to revise such long established opinions. He advocates such revision for at least two reasons: 1. The truth regarding such sounds should be known. 2. Many years' experience in teaching shows that students are enabled thereby to grasp much more readily the significance of respiratory sounds.

Discussion.—JAMES TYSON (Philadelphia) agreed almost but not entirely with the statement of Jones. For the purpose of stating his differences, he briefly detailed his management of cases of aortic regurgitation with lost compensation. He puts the patient to bed, which is half the battle gained. He then often gives a small hypodermic injection of morphin, perhaps only an eighth grain. To relieve pressure from fluid, cathartics are given, and in some instances the skin of the legs or feet is punctured. Then, if relief be not obtained, digitalis is given in moderate doses, and slowly increased. Tyson believes that physicians are often in too much hurry for digitalis to act; it is better to wait three or four days for the action of moderate doses than to push the drug in the beginning. Though the mitral is insufficient in these cases, there are many chances that more blood will be sent forward than backward by the use of digitalis. R. C. CABOT (Boston) makes two classes of cases of aortic regurgitation: (1) The vast majority occurs in elderly people with degenerate arteries, and to them digitalis should not be given; (2) in young subjects with organic change of rheumatic origin, digitalis does good. The point in Jones's paper that impressed him most was the simile of the engine pulling a train with the breaks set; we must get the load off the engine. Patients die of cardiac failure when the heart is pumping strongly, because the load is too great; relieve it by the use of purgation and diuresis. Cabot takes issue with Quimby in every particular. He has verified Flint's statements in every way, and bronchial breathing is higher pitched than vesicular, whatever the theory may be. The length of column of air is not the only thing to be taken into account. In the violin, pitch can be changed by pressure without altering the string length. DELANCEY ROCHESTER (Buffalo) agreed with Jones, but uses digitalis in mitral obstruction with failing compensation. A caution to be observed is to not give drugs simply because one finds a murmur. He is opposed to the views of Quimby. S. C. JAMES (Kansas City) believes that digitalis has done more harm than good, although it is one of the greatest drugs in use today. He uses it when necessary, just as he would use a whip upon a horse—near the top of the hill rather than at the bottom. The physician should attempt to diagnose heart-lesions early, by examining that organ when he is studying the stomach and other viscera. E. F. WELLS (Chicago) said that the keynote of management of these cases is opportunity. If the patient is seen when sitting up from necessity he gives a small dose of morphin, cathartics, and punctures the legs if thought advisable; after one to three days digitalis is begun and usually with great benefit. J. SAILER (Philadelphia) gave three reasons against the validity of Steele's theory regarding the part played by the vena azygos major in the production of hydrothorax: (1) The left auricle is often distended more than the right; (2) it is not easy to understand how pressure upon the vena azygos can occur without producing other symptoms; (3) dilation of cutaneous veins is not seen. Judgment should be suspended for the present. For taking off the break, venesection is recommended; it does no harm and often does good. A. T. LIVINGSTON (Jamestown, N. Y.) finds in ergot the drug best adapted to the cases under consideration. This is because it acts largely on the diseased tissue. E. M. WEBSTER (Chicago) said that in the use of digitalis we must have regard to the cause of the aortic regurgitation. If due to syphilis, there are usually widespread lesions; other cases have disease of other valves or aortic obstruction as well as regurgitation, and the heart muscle is not involved. Digitalis is harmful in the first type, but occasionally does good in the second. J. M. ANDERS (Philadelphia) said that as inequality of pulses in advanced disease was attributed to pressure by the right auricle, we might assume that the azygos vein is also compressed. One principle to remember is that there is no better way of getting rid of effusions, particularly hydrothorax, than by saline purgatives. This should always be tried before large doses of digitalis are given. Delirium in heart disease is difficult to explain. General venous stasis leads to disturbance of the brain as of other organs. In another class of cases toxins are in the circulating blood, and there is sclerosis of the vessels. In such cases delirium is due to the arterial rather than to the heart lesion. Cases should be classified before any special treatment is begun. N. R. COLEMAN (Columbus, Ohio) finds that digitalis does good when there is an approach to the normal in the cardiovascular system; when there is degeneration of the heart it is useless and dangerous. He disagrees with the statements of Quimby. Steele, in closing, said that no theory to explain the unequal distribution of the effusion in heart disease was quite satisfactory. Long-continued congestion may lead to atrophic changes, and it is also possible that the fluid is partly an exudate. In view of the obstinacy of some cases, one should not wait for the action of purgatives, but resort to early and frequent tappings. JONES believes that if Tyson would substitute strychnia nitrate for the digitalis in his treatment he would obtain just as good results.

[*To be continued.*]

Section on Surgery and Anatomy.

FIFTH SESSION.

The Anatomy of Inguinal Hernia: Andrews' Operation for Radical Cure.—D. N. EISENDRATH (Chicago). The anatomy of inguinal hernia was demonstrated by means of a large diagrammatic model, the different muscles entering into the formation of the abdominal wall being represented by layers of different colored sweater cloth. Special stress was laid on the importance of the pouch of peritoneum which descends in front of the testicle. The most generally used of the modern operations for hernia were discussed and their advantages and disadvantages clearly pointed out. Credit was given to Andrews of Chicago for introducing the method of overlapping the various layers in the region of the inguinal canal in order to give a firmer support. Eisendrath has found this on the whole the most satisfactory of the modern methods for the radical cure of hernia. The operation has been done over 1,000 times by different men in Chicago with perfectly satisfactory results.

Three Years' Experience with the Autoplastic Suture for Hernia.—L. L. MCARTHUR (Chicago) gave briefly his method of using strips from the aponeurosis of the external oblique muscle in place of other suture material in closing the muscles in the radical cure of hernia. A strip 4 in. or 5 in. long and from $\frac{1}{8}$ in. to $\frac{3}{16}$ in. wide is cut from the edge of the aponeurosis, which is split to expose the inguinal canal. The strip begins at the muscular portion of the muscle and is cut downward to the ring, where it has a firm, bony attachment to the pubis. The parallel direction of the fibers makes it easy to get these strips. Three years' satisfactory experience with the use of this material encourages continuance in its use; 93 patients were operated upon, the youngest 6 months old, the oldest 78 years old, with good results in all cases, no recurrence having resulted in the cases which it was possible to follow. All of the modern methods were used in order to test the applicability of the autoplastic suture to different operations, but most of the operations were done by the Andrews method. If the tissue dies it is absorbed, and accomplishes the same result as if other material were used; if it lives the strip furnishes additional resistance by the interweaving of living tissue. In one case McArthur had the opportunity of examination of the resulting scar in a patient who died of appendicitis a year after the operation for hernia. In this case the suture seemed to have lived as it was interwoven in the tissues. Microscopic sections of the scar were presented to show this.

Discussion.—COLEY (New York) said that a few years ago the use of McArthur's autoplastic suture would have been more important than today, for at that time there was no certain method of sterilizing animal suture material. In his own experience Coley has found kangaroo tendon, sterilized by the cumol method perfectly satisfactory and permanent enough. With the use of rubber gloves infections can be limited to less than 1%. Coley believes that in many cases the aponeurosis will be found too thin and flimsy to use as a suture material. ANDREWS (Chicago) calls his method the imbrication method. It is applicable to many other operations than hernia. He frequently uses it in closing ordinary celiotomy wounds, and has also used it in umbilical and ventral hernia in the way suggested by Mayo. He has used this method in these cases prior to the publication of Mayo, but not by the vertical overlapping method. He believes that the interweaving of strips of fascia, as suggested by McArthur, has unlimited applicability. Stokes (United States Navy) stated that a few years ago men who became ruptured in the service were pensioned, but at the present time they are advised to have the radical operation for hernia, and are continued in the service. If the men refuse operation a pension is not granted them. The results in the navy have been entirely satisfactory. Bloodgood (Baltimore). The fact that many surgeons, without knowledge of the work of their fellows, have come to practically the same method of operating for hernia and have adopted in the main Andrews' imbrication method, must be a source of satisfaction to the originator of this method. That any of the best methods will cure hernia is shown by the experience of McArthur, who has had no recurrences following any of the methods which he has employed. Suppuration was formerly the greatest factor in recurrence. It has now been practically eliminated by the use of rubber gloves. As concerns the muscles, the suture of the internal oblique to Poupart's ligament is the most important factor. In some cases it may be necessary to transplant the rectus muscle. When the muscles and fascia are strong, the imbrication method is unnecessary, but when weak, it adds to the strength of the closure. If there is a large varicocele it is wise to excise the veins. Marcy (Boston). Since 1870 Marcy has been operating for the radical cure of hernia. In 1881 he described his methods and results at the International Congress in London. Bassini was present at this congress. Up to that time no report of operative treatment had come from him but in 1887 Bassini first published his method. The special form of operation that is used Marcy considers a matter of relatively little importance. General principles and not special methods are of chief importance. All are agreed as to the necessity, first of removal of the sac and second of restoring the obliquity of the inguinal canal, so that pressure closes it more firmly; 96% of his own cases have remained free from recurrence five years or more after operation. Marcy has considered the question of the curability of hernia a settled one for many years and he no longer takes the trouble to follow his cases. He now advises operation in all cases; there are no deaths and all the patients remain permanently cured if operated upon by proper methods. DeGarmo (New York) believes that Andrews' method is probably of advantage, but he has not adopted it because that in over 1,000 operations by the Bassini method he has had only eight failures, sufficiently satisfactory results to justify in continuing its use. Holmes (Philadelphia) emphasized the necessity of general principles, rather than special methods. He called attention to the fact that in most cases hernia occurs not because of some severe strain, but because of congenital weakness of the muscles.

[*To be continued.*]

Section on Obstetrics and Diseases of Women.

THIRD SESSION (CONTINUED).

Influence of Ovarian Implantation on Menstruation in Women.—A. Palmer Dudley (New York City) reported that in eight instances he had implanted ovarian tissue in the uterus. One patient died. The others all menstruated after the implantation, but not regularly. In none was there any marked change in the physical condition, though all the remainder of the ovarian tissue was removed; in none was there the stormy period and subsequent taking on of fat, as is usually seen after the menopause brought on early by operation. One case was reported in detail. The patient, two years before, had had one ovary removed. Now a subsequent operation revealed the remaining tube badly diseased and its ovary somewhat so. The tube was removed and the ovary was placed within a slit made in the fundus of the uterus, that is, the implanted ovary projected into the uterine cavity, was not covered by mucous membrane, and not grasped by the uterine musculature, as contraction of the latter would have extruded the implanted ovary. During the 12 months following the operation the patient menstruated three times. Some 18 months after operation hemorrhagic flow from the uterus became marked, and grew progressively worse for the next year and a half, when complete hysterectomy was done. The specimen submitted to histologic examination shows a merging of the uterine and ovarian tissues, and a Graafian follicle was found. The persistent hemorrhage could not be accounted for except perhaps in the dissipated life of the individual. Dudley doubts whether a pregnancy, even if it should occur with an ovary thus implanted, would persist to term. The main things to be hoped for in such an operation are the benefit of the internal secretion of the ovary; the avoidance of early menopause induced by operation; and the stormy, nervous period and physical changes induced by an early menopause.

Conservative Operations on the Ovaries, from a Neurotic Standpoint. — James W. Cokenower (Des Moines, Iowa) discussed at length the relation of abdominal neuroses to disease in the pelvic organs. Is disease in these organs a cause or a result of the nervous condition? In some instances the answer would be in the affirmative, and in such cases operation may be justified; in other instances the answer would be in the negative, and in such cases operative treatment not only is disappointing to patient and attendant, but it brings reproach upon surgery. A plea for more careful and painstaking examination before diagnosis, was made. The statements of neurotic patients cannot be taken too literally. Some 12 years ago the essayist began to examine carefully the right ovary in all operations for appendicitis on the female subject; seldom found a normal ovary. Partial resection was attempted on some of these, but results were bad, and now he either does nothing with the ovary, or he removes it entirely, depending on the condition.

Discussion.—Robert Morris (New York City) recounted the advantages to be expected from the implanting of ovarian tissue. Aside from the part the ovary plays in its reproductive function, its secretions have a systemic influence analogous to the thyroid gland. Numerous experiments upon animals show that homoplasty, *i. e.*, the implantation of animal tissue into another part of the anatomy of the same animal, is practical, and much is to be hoped from it; whereas heteroplasty, or the implantation of the tissues of one animal into another animal, is rarely successful. Impregnation has resulted in the rabbit in experiments similar to those carried out by Dudley in the human subject. The subject is in its infancy and much experimental work needs to be done. Goldspohn insisted upon more careful diagnoses. A great trouble with gynecologists is that they are too narrow; they should be good practitioners before they are good gynecologists. Hummiston had frequently found heart, kidney or stomach trouble to lie at the seat of these neuroses, when the patient herself attributed her trouble to the pelvic organs. In cases, however, of insanity, when the patient has small sclerosed ovaries, ovariotomy has been most encouraging. Bacon (Chicago) enumerated the good results to be hoped for in ovarian implantation. Impregnation could hardly be expected; the main desideratum is the effect of the internal secretion. Lawrence (Columbus, Ohio) contended that a radical procedure is sometimes the most conservative. Any badly diseased organ should be removed, be the patient insane or not. Marcy (Boston) said in a Canadian hospital for the insane for women, 100 patients, among the 500 inmates, were found to have some marked pelvic disease. These 100 were operated upon and 70% were cured of their insanity. Massey (Philadelphia) advocated electricity instead of the knife in pelvic disease. If abdominal neurosis exists the patient is made worse by rest in bed. Carstens (Detroit) removes diseased ovaries when the patient is near or beyond the child-bearing period; in younger women he retains them if not too badly diseased. Craig (Boston) said the normal ovary at the middle period of menstrual life is scarred, corrugated and often cystic (Graafian follicle cysts). Such a condition does not warrant their removal in any sense, though some operators appear to think so.

[*To be continued.*]

Section on Ophthalmology.

SECOND SESSION (CONTINUED).

Septic Thrombosis of the Cavernous Sinus, with a Report of Three Cases.—E. C. Ellett (Memphis, Tenn.) read this paper, mentioning the reasons why the attention of ophthalmologists should be drawn to this condition, the eye symptoms, particularly exophthalmos, often being among the very early manifestations. He referred to the extreme rarity of the affection and to its bibliography. He also gave a detailed history of three cases and emphasized the necessity of diagnosis on account of the grave prognosis. As general symptoms, septic manifestations were mentioned, and as local symptoms, exophthalmos, cyanosis of the lids and orbital region, various visual and motor disturbances due to pressure on the nerves, and ophthalmoscopic appearances such as retinal edema and venous congestion. He stated that the affection was unilateral at first, but later became bilateral. Edema of the lids was considered as an extremely important symptom. The prognosis was uniformly bad in septic cases and operative treatment, which was then thoroughly discussed, was mentioned as offering the only hope of saving life.

Discussion was opened by S. D. Risley (Philadelphia) who said he thought that the condition frequently escaped recognition. He referred to the wellknown danger that attended abscesses of the face and believed that it was not improbable that there existed a connection between them and the cavernous sinus. He then cited a fatal case of facial abscess. He also related an instance in which small abscesses in the malar bone were followed by severe headache, edema of the eyelid, exophthalmos, proptosis, and violent pain which was aggravated by both heat and cold. Leeches failed to extract blood in this case and mechanical means had to be employed. The abscess was pea-sized and when opened and the pus was examined it was found to contain streptococci. Exploration of the orbit under ether revealed no pus. The pain became worse and was relieved only by morphin, hypodermically. Coma and death occurred within 3 days, the entire duration of the case was only 5 days. He called attention to the fact that the lesion occurred in the area drained by the cavernous sinus. Prefontaine (Springfield, Mass.) related a case of mastoiditis in which swelling of the lids, exophthalmos, double cavernous thrombosis, and death occurred. Miles (Bridgeport, Conn.) gave an ccount of a case which began as small nasal abscesses of taphylococcic origin with apparent thrombosis of the sinus. n closing the discussion Ellett remarked that all cases with cute exophthalmos did not necessarily indicate sinus involvement but that the symptom might arise from orbital cellulitis nd facial erysipelas and that it was therefore somewhat miseading. S. D. Risley moved that the section's delegate, Casey A. Wood, be instructed to present the name of A. Maitland Ramsay, Glasgow, Scotland, to the House of Delegates for onorary membership in this section. The motion was carried nd the delegate so instructed.

[*To be continued.*]

Section on Laryngology and Otology.

FOURTH SESSION (CONTINUED).

Plastic Operations for the Closure of Postaural Openings Following Radical and Mastoid Operations.—E. B. DENCH (New York) described the Trautmann and he Mosetig-Moorhof operations for the closing of postaural openings, with report of cases. Report of a case of closure of imilar opening following extensive radical operation, with xploration of cerebellum by simple anterior and posterior laps and plastic operation on the auricle. In another case he eported the closure of a postaural opening following ordinary mastoid operation by retention of cicatricial lining of the mastoid cavity and the approximation of undermined anterior nd posterior flaps. Following this he described the method of enlarging the meatal opening by conchal flap, and a subsequent pplication of Thiersch grafts in cases where the meatus is narrowed by cicatricial contraction.

Discussion of the papers by Randall and Dench was opened by PIERCE (Chicago). He referred to the great difficulty encountered often in differentiating between toxemia, septicemia, and pyemia. Thus he thinks it eminently practical to be most thorough in general systemic examinations, as well as the observation of all clinical phenomena. He approved of the method described in dealing with serous meningitis, and believes mercurials to be of great value in relieving the intestinal toxemia. Serums he has found disappointing in his practice, stating that in 1902 in a series of 10 cases in which saline injections were used in the first stage of mastoid inflammation all but one came at last to operation. In regard to Dench's paper, he stated that the usual methods for closure of postaural openings were so thoroughly covered that nothing remained to be added, except that in his own experience he had encountered many cases which he thought well to be left open. SMITH (Philadelphia) expressed his gratification in hearing Randall advocate early operation to avoid septicemia rather than through delay to allow the toxemic infection to develop. He observes that some cases which show the least external symptoms may be found on operation to have advanced into extensive necrosis. With Pierce, he finds the use of antistreptococcic serum disappointing. MCAULIFFE (New York) believes that the term sometimes used—otitic septicemia without localization—really expresses our inability to diagnosticate the origin of infection, for such a point must undoubtedly exist. WRIGHT (Baltimore) states that he is sorry to find the serum condemned, since such treatment is undoubtedly of benefit as an antagonist to that particular germ for which it is intended. The method of intravenous injections of silver nitrate has been used in Baltimore with good results. Hume has reported 20 cases practically hopeless in appearance in which 18 were saved. From 100 cc. to 300 cc. of a 1 to 5,000 solution was injected in each case. HUBBARD (Toledo) mentioned a case of suspected septic sinus thrombosis, which was later found to be one of pleural pyemia, and suggests that other suspected cases may be due to septic foci in other parts of the body. RICHARDS (Fall River) thinks we occasionally operate too extensively, and that after operating once and not finding pus, we should be conservative and give nature a chance. DENCH approves of Randall's intradural irrigation in leptomeningitis, but above all, emphasizes one point, avoid otitic pyemia by treating the chronic suppuration radically. HOLINGER (Chicago) stated that he wished to go on record as being opposed to the radical views, believing that many cases operated on can be cured by more conservative methods. MYLES (New York) said is it not better to operate on ten cases and save the ten, even though nine might have recovered without operation, than by not operating on any and lose the one? In his closing remarks, RANDALL stated it was, of course, understood that in no case must any systemic phenomena be overlooked; that an ear specialist must also be a physician in its broadest and fullest meaning.

[*To be continued.*]

Section on Materia Medica.

FOURTH SESSION (CONTINUED).

Apocynum Cannabium.—H. C. WOOD, JR. (Philadelphia) says the action of this drug is in some respects like that of digitalis. After injecting apocynum the pulse becomes slowed and the blood-pressure raised; after the rise in pressure the pulse becomes rapid and the heart stops in diastole. He says there is no secondary depression of the heart. Even after section of the pneumogastrics the administration of apocynum was followed by a slowing of the pulse and a rise in the pressure. The secondary increase in the frequency of the pulse is due to paralysis of the peripheral ends of the pneumogastric nerves. The rise in blood-pressure is the result of the action of the drug upon the heart muscle and upon the action of the drug on the muscle of the arterioles. The active principle of the drug he regards as a glucosid, but so far has not succeeded in isolating it.

Discussion.—HALLBERG (Chicago) says there is upon the market a preparation known as apocin, which is a precipitate from the tincture of apocynum cannabium. REMINGTON (Philadelphia) believes many active principles are not crystaline and may be found in the residue. WOOD, in closing the discussion, says the drug is useful in dropsy and in cardiac weakness.

The Rational Application and Value of Specific Treatment for Tuberculosis.—EDWARD R. BALDWIN (New York) believes that by the administration of tuberculin, agglutinins are produced which give rise to clumping of the tubercle bacillus; its administration also produces an increase in the serum complement and the leukocytes. He says it is best to administer the treatment for a time and then pause for a time, after which the treatment is resumed. The acute and complicated cases must not be treated with tuberculin. It is only the chronic cases with some resistance that are applicable to this form of treatment, and then only after hygienic and dietetic treatment has failed. The emulsion of bacilli that have been prepared without heat he finds gives the best results. Baldwin is not favorably impressed with the serum of tuberculosis; the serum does not act like the serum of diphtheria, it is not antitoxic, and then it cannot reach the bacillus bound up, as it is in the tubercle, to exert a germicidal effect. Then, again, he says, the serum stimulates the production of bodies against itself.

Discussion.—BOWDITCH (Boston) says the hygienic treatment must by all means be tried first. He is not favorably impressed with the tuberculin treatment, and he is inclined to believe that the reaction in diagnosing is not obtained as often as is reported, since many cases are not watched after the injection as they should be, the patient reports a slight feeling of malaise and it is recorded as a reaction. FOSS (Arizona) finds if there is a mixed with streptococci, that the antistreptococcic serum is of value. He administers 20 cc. as the first dose, and then gives 10 cc. daily until the streptococci disappear from the sputum. If these tuberculous patients have amorphous urates in their urine, Foss says, they are almost invariably fatal. The injection of antistreptococcic serum is sometimes followed by cyanosis, vertigo, and vomiting, which Foss believes are nervous phenomena. OTTIS (Boston) finds tuberculin very useful as a diagnostic aid. NEWTON (New Jersey) has seen good results from the use of serum from animals immunized to mixed infections. MINER (Seattle) says he has seen a few good results with the mixed infection treatment, but many more that gave unfavorable results. BROWN (New York) says patients who receive tuberculin lose the bacilli from their sputum and are less liable to relapse than are those patients who do not get tuberculin. He has seen the best results with the emulsion of the bacilli. ELLIOT (Canada) asserted that he is much encouraged by the antistreptococcic serum. Rash and joint pains appear often after this treatment. Baldwin, in closing the discussion, says idiosyncrasy may account for the fallacy in diagnosis. He thinks tuberculin ought not to be necessary to make a diagnosis. The tuberculin used should be fresh, and must not be given if the patient has a temperature even of 99.5°.

Progress of Actinotherapy.—WILLIAM S. GOTTHEIL (New York City) says this form of treatment is indicated in all forms of tuberculosis of the skin and subcutaneous tissue; in minor cases there is no scarring. He is not prepared to say it is beneficial in cancer. All rays except the red thermic are medicinal, although some are more effective than others. He maintains that an arch less than 40 amperes cannot be used.

Pharmacodynamics from the Standpoint of Osmology, and the Outlines of a System of Osmotherapy.—HEINRICH STERN (New York City) says the difference in the osmosis of the body fluids and the blood-serum corresponds to the changes that have taken place in the parenchyma of the various organs. The substances administered do not influence the functions of organs that serve to reestablish the normal osmosis in osmotherapy.

[*To be continued.*]

Section on Hygiene and Sanitary Science.

THIRD SESSION (CONTINUED).

Suggestions Concerning the Administrative Control of Venereal Diseases.—GEORGE M. KOBER (Washington, D.C.). Army statistics show that the incidence of these diseases is heaviest in those countries where, as in the United States, public sentiment is strongly against recognizing the evil. One cannot, however, derive from army statistics a trustworthy estimate of the prevalence of these diseases among the civil population and for lack of reliable statistics we have no firm ground of approach to the problem of their control. Syphilis and gonorrhea should be reported without names and there seems to be a definite connection between gastric ulcer and anemia, 72% of their cases occurring in young women who showed pallor and doubtless in a number of them chlorotic symptoms were present. His observations consisted of 82 cases, 77 of gastric and 5 of duodenal ulcer. A count of the red blood cells was made in 44 cases with a maximum of 6,780,000; a minimum of 1,012,000, and an average of 4,071,000. The low count was in a patient supposed to be suffering from carcinoma but which subsequently proved to be an ulcer, the anemia being due to hemorrhage. The white blood corpuscles were counted in 45 cases, the highest being 40,000, the lowest 1,100, and the average 7,500. He called attention to digestion leukocytosis, which he believed to be an important factor in the differentiation between gastric ulcer and carcinoma. The hemoglobin estimate in 42 cases showed the highest to be 1.05, the lowest .12, and the average .58. The urine revealed albumin and casts in 14 cases; trace of albumin alone in 7; sugar in 1; in 51 the urine was negative so far as albumin and casts were concerned, and in 5 there were no urine records. The chlorids were frequently diminished; there seemed to be an increase of the ethereal sulfates or indican. The one in which sugar occurred was one of pure diabetes mellitus.

[*To be continued.*]

AMERICAN SURGICAL ASSOCIATION.

Twenty-fifth Annual Meeting, Held in St. Louis, June 14, 15, 16, and 17, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 14.*]

Remarks upon Certain Unavoidable Postoperative Calamities in Abdominal Surgery.—MAURICE H. RICHARDSON (Boston) read a paper with this title, which was based upon his experience more especially in abdominal surgery, and related exclusively to fatal cases. Four classes of calamities were considered: (1) Suppression of urine; (2) inexplicable deaths, with symptoms of local and general sepsis, but without any detectable bacterial source; (3) uncontrollable capillary hemorrhage; (4) pulmonary embolism. Suppression of urine could be regarded as an unavoidable accident only when it took place after the urine had been shown to be normal by the most searching study. The influence of ether alone in causing suppression after operations was not regarded as sufficient and sole cause of this calamity. It was doubtless true that failure of the kidneys properly to perform their function was due to some pathologic change in the secreting substance; if not a pathologic change, a tendency to glomerular irritation or real inflammation, but a change or tendency which could not be detected beforehand. Such suppression of urine, however, might be prevented by the avoidance of all but imperative operations whenever there was the least evidence of renal disease, especially an insufficiency in the elimination of urea. Renal suppression was not believed by the writer to be the result of etherization alone. In certain very rare instances death had taken place after abdominal operations without any pathologic cause whatever. In one illustrative case, after an aseptic, though difficult and bloody operation, the patient presented the typical clinical picture of fatal general peritonitis. The pathologist at the Massachusetts General Hospital could find no evidence whatever of bacterial infection at the autospy or in the laboratory. That there was an infection the essayist had no doubt, but by a germ which produced none of the usual physical signs of sepsis, which failed to grow on ordinary media, and which was not stained by the ordinary media. Uncontrollable capillary oozing might be regarded as unavoidable, and beyond power of prediction only when it took place after careful examination of the blood with reference to its coagulability, and other possible evidences of a tendency to bleed. Capillary hemorrhage from jaundice might be in certain instances uncontrollable. It could be regarded as uncontrollable only when operation must be performed in spite of the evidence of the tendency to hemorrhage. The coagulation tumor did not reasonably assure safety against bleeding, even if it was shown experimentally to be brief. The author's last fatal hemorrhage in jaundice took place from the capillaries of the lesser curvature of the stomach, remote from the operation area, though the blood coagulation tumor was perfectly satisfactory. In another case a fatal and uncontrollable capillary ooze followed an operation upon the common duct after a year of biliary fistula. In this case no bile had entered the intestine during the existence of the biliary fistula. The most frequent of such rare calamities was sudden death from pulmonary embolism. The cause of death could be neither predicted nor prevented. It occurred with no peritonitis. The probability of embolism being the result of a phlebitis was considered. In the author's experience, in a considerable number of deaths there were no premonitory symptoms whatsoever, while in cases of phlebitis, definite and unmistakable, no such accident occurred. Pulmonary embolism had been observed most frequently after pelvic operations upon women with large uterine or ovarian tumors, and especially in women long exsanguinated by fibroids.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

REGENERATION OF CORNEA. REPORT OF CASE OF ULCUS SERPENS.

BY

PETER A. CALLAN, M.D.,
of New York City.

P. S., aged 17, a native of the United States, was admitted to the New York Eye and Ear Infirmary October 9, 1903.

History.—He was struck in the left eye by a piece of rivet on the morning of October 6; this was removed by a fellow workman. During the following 24 hours the eye became very painful and inflamed. He was brought to my clinic on the afternoon of October 9 by Dr. C. F. Walters, and I saw him for the first time at 3.15 p.m. He complained of not seeing with the eye, and of severe pain that prevented his sleeping.

Examination.—His eyelids were not swollen, but pressure on upper ciliary region caused considerable pain. Ocular conjunctiva was injected. Cornea was clear, except at the center, where there was a circular ulcer 3 mm. to 4 mm. in diameter, involving all the layers. The ulcer was filled with a creamy-white mass, umbilicated in the center, and appeared to be a broken down corneal tissue.

Patient was admitted to the ward and put to bed. Temperature, 101° F. Examination of urine showed slight amount of albumin. Lacrimal duct was probed and a slight obstruction found, but no signs of pus.

Treatment.—Actual cautery to edges of the ulcer; constant hot water bathing, 120° F. to 130° F., day and night to the eye. A 25% solution of argyrol was applied hourly for the next 24 hours.

October 10, 1903: The ulcer steadily increased in all diameters. The eye was flushed with 1 to 5,000 solution mercuric chlorid every half hour. Slight trace of albumin. Temperature normal. Actual cautery used again on edges of the ulcer.

October 11: Almost the entire cornea is involved in the ulcerative process. Treatment continued.

October 12: A thin sloughing mass occupies the site of the former corneal layers. Anterior chamber abolished.

October 13: The thin slough has disappeared, leaving Descemet's membrane exposed.

March 4, 1904: Owing to the irritation of the conjunctiva caused by the dionin, it was discontinued. The cornea has cleared in the upper third so that the pupil is visible.

June 13: Left eye, +350, 105°, vision $\frac{8}{70}$. The cornea is quite clear in the upper third, but the lower two-thirds is more or less hazy, resembling an eye that had recovered from a severe attack of interstitial keratitis. On the infranasal quadrant there is a slight pannus.

During the patient's stay in the infirmary he was closely watched by the members of the house staff, as well as by myself. He was presented at the March meeting of the New York Ophthalmological Society, and at the Ophthalmic Section of the New York Academy of Medicine.

The case ran a very rapid and destructive course, the cornea melted away in one week. The treatment appeared to hasten rather than retard the corneal sloughing. It was extremely difficult to decide at first as to the presence of Descemet's membrane, for it looked so much like iris tissue, the two being so closely in contact. Close examination showed a few streaks of blood at the beginning of the lower third of the iris when there was a defect in the Descemet's layer.

October 14: There was no more suppuration and the eye was bandaged.

October 15: Began to use three times daily a 5% solution of dionin. Bandaging was continued.

October 16: Cicatrization began over entire intact portion of Descemet's, no more marked at any point, not even at the periphery. The bandaging and dionin kept up until patient's discharge from the infirmary, October 21.

October 31: The patient has been reporting daily. Solution of dionin increased to 10%. Bandage continued.

November 20: Anterior chamber fully restored, with slight clearing of the new corneal tissue in the upper quadrant. Solution of dionin, 10%, twice daily. No bandage.

Repair of the tissue was uniform over the Descemet's membrane, and did not begin at the periphery and extend toward the center. It was the same in all parts.

When the patient was discharged from the infirmary on the twelfth day, I regarded the eye as lost. The regeneration of the tissues I consider due to the stimulating effects of the dionin, and the unusually good curvature to the pressure bandage.

ORIGINAL ARTICLES

THE TREATMENT OF GALLSTONES FOUND AS A COINCIDENCE IN ABDOMINAL OR PELVIC OPERATIONS.*

BY

JOHN G. CLARK, M.D.,

of Philadelphia.

Professor of Gynecology in the University of Pennsylvania; Gynecologist in Chief to University Hospital.

In a recent paper read before the Chicago Gynecological Society, I have briefly taken up some of the unsettled problems in abdominal surgery, and it is one of these that I have elaborated and wish to bring before you for discussion. What shall be our surgical attitude if gallstones are found as a coincidence with some other abdominal lesion, for which the primary operation is performed? This subject is unquestionably a debatable one, and while I am following a fixed plan at present, I may see reasons, in the future, to change my viewpoint.

If we are to accept the much quoted statement that 95% of gallstones produce no symptoms, then in each 100 cases in which gallstones are removed as a coincident part of another operation, 95 may be looked upon as meddlesome surgery. Let us, however, not inadvisedly employ this statement, drawn from pathologic and dissecting-room records, as a text for cases as we see them, but let us go behind the conditions as they are presented at the time of an operation. Certainly no one would advise all individuals to have the appendix removed as a prophylactic measure against a possible attack of appendicitis, even if he knew that 1% or more of all persons would sooner or later have this disease; and yet, when the abdomen is opened for some other cause, many surgeons will hold that you run a very small risk and in the end will do much more good than harm by this additional operation. With a series of 120 of these cases in my own experience, with only one death, and that not attributable to the appendicectomy, and with the pathologic analysis of these cases before me, which show many more or less serious lesions, I feel fully justified in advocating this course.†

To reach a good working surgical rule in all debatable questions, each operator must take into consideration first, the history of the disease, and second, what he and others have accomplished in the operative treatment of these conditions.

In reviewing the recent literature on cholelithiasis I am impressed especially with one fact, and that is that our knowledge relative to the early stages of this disease is very indefinite. While many cases do not produce the classic symptoms, as usually given in medical textbooks, yet I am sure that as our knowledge concerning the etiology and clinical course of gallstones increases, many symptoms which are now attributed to gastralgia, indigestion, functional disturbances of the gastrointestinal tract, etc., will be ascribed to the presence of gallstones, with associated infection, which is so frequently found in cholelithiasis.

Concerning the etiology of gallstones, three facts have been prominently brought forward in recent investigations: 1. That the bile, as formerly believed, is not bactericidal; (2) that the microorganisms in the gallbladder are predisposing if not absolute causative factors in the formation of gallstones; (3) when gallstones are present in the gallbladder, infection in that viscus is much more likely to take place. It is a bacteriologic law that stagnation of any vital fluid around a foreign body predisposes to infection, and it would appear to be a just conclusion that even if the usually innocuous colon bacillus is present in the gallbladder, associated with stagnant bile and gallstones, even though the classic symptoms, colic and jaundice are not noted, the patient must at least suffer more or less from toxemia. This view will, I believe, sooner or later, be held by many leading physicians and surgeons. Musser,[1] who has been prominently identified with the medical side of this question, in his introductory remarks to a paper presented before the Congress of American Physicians and Surgeons says: "The era we are about to enter bodes for good. It looks as though we would go through the cycles of activity and inactivity, as in the earlier periods of appendicitis, in the treatment of gallbladder infections." This writer especially called attention to the secondary manifestations of cholelithiasis, and strongly urged the early surgical intervention to prevent these sequels and complications. He says: "Let us see to it that the primary ailments are cared for, blocking thereby the oncoming of secondary conditions. Fifty years from now the secondary phenomena will be as rare as those which are secondary to disease now removed early, as cataract, appendicitis, vesical calculus, and a score of other conditions. Students of that day will marvel at the reports of cases of the present day." He then predicts that many cases diagnosticated as tuberculosis, nephritis, and cardiac disease will be prevented because they are merely manifestations of terminal infections, the primary source of which is in the biliary apparatus. As yet no careful research work has been carried out to demonstrate this possible connection of pathologic conditions secondary to cholelithiasis.

Herter,[2] after reviewing the etiology of the disease, inclines strongly to the bacteriologic theory as to the origin of biliary calculi. He says: "It is plain from what has been said that there is at present no unequivocal evidence that gallstones arise from constitutional derangements unconnected with microorganic invasions of the gallbladder." To guard against a positive acceptance of this view, he makes the following qualifying statement: "While gallstones are commonly the result of local infections, we should carefully guard against the conclusion that they can never have a diathetic origin. It is at least highly probable that diathetic conditions are capable of so altering the composition of bile as to favor materially the production of calculi in the presence of suitable local bacterial activities."

Herter's[3] paper, which is based upon his personal research and a most judicious analysis of the literature, leaves but little question as to the bacterial origin of gallstones.

If gallstones are once deposited in the gallbladder, the favoring conditions for periodic or chronic infection are always present. In almost all cases of cholelithiasis which come to operation bacteria are discovered. Thus, Peterson, in 50 operations for gallstone, found microorganisms 44 times. In the majority of instances (36) the colon bacillus was found, and while we know, as a rule, that this is not a serious pathogenic microorganism, yet it is capable of producing pus and of elaborating very depressant toxins. All of us have seen into what a wretched constitutional state a patient may fall who has a pelvic abscess in which only the colon bacillus is found.

There is, perhaps, no organ into which organisms may find their way more readily than into the gallbladder, for there are three chief avenues of approach: (1) From bacteria circulating in the general blood stream and reaching the liver through the hepatic

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* Read before the American Gynecological Society, Boston, May 24, 1904.

† In a histologic examination of 120 appendices removed as a coincident part of some other abdominal operation, the proportion of pathologic lesions was as follows:

Normal appendices	25
Periappendicitis	39
Appendicitis, catarrhal (15 mild, 3 chronic)	18
Appendicitis, chronic (4 mild)	18
Appendicitis, obliterative	8
Appendicitis, acute	4
Hyperplasia of lymphoid elements in appendix	2
Appendicitis, mild acute	3
Fecal concretions in appendix	5
Appendicitis, interstitial	1
Carcinoma of appendix, primary	1
Pressure atrophy of appendiceal mucosa, due to kink	1
Constriction due to previous catarrhal disease	1

veins; (2) by the direct passage of bacteria into the common bile duct from the duodenum; (3) by the transportation of bacteria from the intestine through the portal circulation.

Time and again experiments have shown that not only bacteria but minute foreign granules may be deposited from the hepatic circulation in the biliary capillaries and transported directly to the gallbladder.

The point, therefore, which I would make from the brief abstract of some of Herter's statements is that in every case of cholelithiasis the gallbladder is a point of decided decreased resistance, and that bacteria are usually found either incorporated in the stones, actually free upon their surface, or in the stagnant bile. Can we, therefore, safely assume that because none of the classic symptoms of gallstones have been present in a given case, that there is no local or general deleterious impression being made upon the patient's health? If we go minutely into the analyses of our cases in which gallstones are found coincident with some more pressing surgical condition, I am certain we may do much to close up a gap in the clinical history of cholelithiasis. Herter appends a statistical note relative to the proportion of gallstones found in 2,371 autopsies made in the Presbyterian Hospital of New York. In this number there were 179 cases (7.6%), of which 99 were in women and 80 in men. As the percentage of males among the entire number of individuals subjected to autopsies was 65.5, the occurrence of cholelithiasis was, therefore, twice as often in men as in women. Only 7 cases occurred before the patient was 40 years old, in men, whereas 26 were found in women before this age. In both sexes, therefore, by far the largest proportion of gallstones are found after 40 years of age. So far as the actual history of gallstones is concerned, as evidenced by colic or obstructive jaundice, only 9 patients were noted as suffering from this disease in the autopsy protocols. It is a significant fact, however, that in 56 cases the liver was congested or nutmeg; in some of these the liver was also fatty or cirrhotic; the liver was excessively fatty in 28 and cirrhotic in 20 cases. All but 6 of the 28 cases of fatty liver occurred in women, and a large proportion of these were over 40. New growths were present in the liver in 9 cases; abscesses existed in 6 cases. If, therefore, we lay stress upon the points made by Musser relative to the secondary manifestations of cholelithiasis, we must strongly incline to the belief that some of these pathologic conditions in the liver were secondary to the gallstone disease.

Dock, of Ann Arbor, in his discussion before the Congress of American Physicians and Surgeons, speaks first of the class of cases of gallstones which are easily recognizable, and which only carelessness or ignorance would prevent the physician from sending to the surgeon. He next refers to those cases in which all of the ordinary symptoms may be absent, or those present may resemble appendicitis or renal colic. Most of them, he says, may easily be differentiated by a careful examination, but some cases will still remain obscure and will have to be cleared up by the surgeon. Some of these cases have no history of gallstone disease, and many of them do not come to autopsy at all, so that the pathologist does not have an opportunity of studying them. He says that more has been learned from the surgeon than from the pathologist in these cases, and he ventures the opinion that still more will be learned in this way. He has been particularly impressed with the cases of stomach disease which simulate gallstone disease, and with diseases of the biliary tract involving the stomach.

To determine the frequency of gallstones, Celia D. Mosher has made an analysis of the records of 1,655 autopsies in the Johns Hopkins Hospital, of which 1,038 were on males and 617 on females. Of the total number, 6.4% were found to have stones. This corresponds to the smallest prevalence reported in Europe. The majority of the cases occurred after 30 years and the maximum was reached after the age of 40. The condition is less frequent in the colored than in the white race, and males were only affected five-ninths as often as women. Examination of the records of the Bayview Asylum shows that paupers there have gallstones twice as often as the hospital patients. As to the greater prevalence in women, she thinks it may be due to tight lacing and the wearing of belts.

Dr. Kelly[4] has for some time been in the habit of examining for gallstones, and also into the condition of the appendix in all cases of laparotomy, and has found gallstones present in 8% of all his patients, and they are especially coincident with ovarian tumors.

The error which I believe is concealed in the statement, that in 95% of cases of cholelithiasis the patients have not suffered from symptoms, arises from the fact that these are all from autopsy or dissecting-room observations. Of course, the statistics derived from the latter source are worthless, except that for the bald fact, in a given number of cadavers a certain percentage of gallstones may be present. Likewise the clinical history is frequently absent, or is usually not appended to the pathologic records. I believe, therefore, when we take into consideration the possibility of a serious fallacy in the general statements, and also further, that even in cases in which operation is done for gallstone attacks, colic and jaundice are frequently absent, and that all of our most astute clinicians admit that there is a wide hiatus in the clinical histories of socalled latent cases, it falls within the province of every abdominal surgeon to look carefully into all cases in which it is feasible, to discover (1) whether gallstones are present; (2) to ascertain fully all symptoms which have been ascribed to disturbances of digestion; and (3) to determine whether we are justified in removing these foreign bodies if they are found.

I have not gone minutely into the various phases of gallstone disease in this paper, my purpose being merely to point out the deficiencies which are yet quite evident in this clinical chain.

Is the mortality attending these coincident operations so great that the operation should not be performed? Let us see what statistics show in cases which are forced to operation by acute symptoms.

In Mayo's large series of cases there were 208 operations for uncomplicated stones in the gallbladder, with a mortality of less than 1%. Kehr says that among his patients who had gallstones in the gallbladder the mortality did not exceed 1%. Mayo Robson, in the preface to the last edition of his book, says: "When the operation has been undertaken for simple diseases, such as gallstones, in the absence of cancer and jaundice, with suppurative or infective cholangitis, the mortality has only been 1.06%."

Do these statements not promptly settle the question as to the very small danger attending the simple operations? Before alluding to my own experience in a comparatively short series of coincident operations, attention should especially be drawn to the fact that the more urgent symptoms of the gynecologic condition may obscure those pointing to the gallbladder. Here especially a gynecologic myopia may be so pronounced that only the pelvic lesion is seen, therefore there should be the fullest breadth to our histories and to our abdominal examinations. In abdominal surgery, even after the incision is made, the classic statement "he who diagnosticates well, treats well," is especially in force. To draw specific attention, therefore, to the question in hand, we must not forget that when a woman consults us it is because she is a suffering individual, and if gallstones are associated with some other pelvic or abdominal lesion, we cannot by any means rule out the cholelithiasis as a factor in her case, especially if digestive disturbances, as is frequently the case, are prominent symptoms. Gallstones, therefore, are by no means so likely to be a dormant factor in these individuals as they may have been during the life of the dissecting room or autopsy subject.

If, as the operative statistics show, the mortality from simply cholecystotomy is so small, I believe operative intervention in the class of cases to which I allude is indicated, for, as I have stated, a new chapter may in this way be added to the history of the socalled dormant cases.

That the gallstones may be producing symptoms at the time of or very soon after the gynecologic operation I am convinced from my own experience. In one case, the history of which is appended to this paper, gallstones were unquestionably overlooked in two previous operations, one of which was performed by another surgeon and one by myself. In a second instance I have every reason to think that dormant gallstones, which subsequently caused the death of the patient, were present in a case of myoma uteri at the time a hysteromyomectomy was performed. The operation was difficult, and at its completion the routine cyclic examination was omitted. The patient died a year later from cholangitis, which was preceded by two classic gallstone attacks in quick succession. In a third case the second operation revealed several gallstones, and I am certain from the subsequent history of the case that gastric symptoms, which have been relieved since the second operation, arose from this source. Bearing upon this point I have quite recently obtained the following interesting history from an office patient:

The patient, a married woman, aged 35, has a child aged 12. Shortly after marriage she had a miscarriage, and since then has never been well. Two miscarriages subsequently occurred, and then a full term child was born. The labor was not instrumental; the patient, however, sustained a laceration which was repaired several years later. She has been a semi-invalid for the last 9 years, during which time she has had 4 operations: First, 9 years ago, a simple curetment. Second, 8½ years ago, a suspension of the uterus. Third, 6 years ago, appendicectomy and Edebohl's operation for suspension of the right kidney. Fourth, amputation of the cervix uteri and herniotomy for ventral hernia. The patient unquestionably belongs to the neurotic class, but her history is very significant and suggests a strong probability that the source of her troubles has not been reached by any of these operations, for her chief complaint is and has been in the right hypochondriac region. She says there is always a burning sensation at this point and at times there are acute exacerbations of pain. Black and blue spots periodically appear over the body, and for the last few years her complexion has been marred by yellow splotches and her face is becoming more sallow. When these attacks are persistent she loses flesh rapidly. The bowels are greatly constipated, alternating at times with diarrhea. Sometimes the alvine discharges are very black, and at other times she has had light colored stools. Following the attacks of soreness in the right side she has chills. At the time of the nephrorrhaphy she says her pain was the same as it is at present. She never vomits, but is frequently nauseated. From the time of her first operation she has had this persistent distress in the hypochondrium, and instead of being relieved by her various operations she has steadily grown worse. Her menstrual periods are regular, accompanied by pain in the right ovarian region; the flow persists a week to 10 days. At times she is subject to great flatulence. Pelvic examination is negative. The abdomen is flat and more or less hypersensitive to touch and this is especially marked in the hypochondriac region. The result of the nephrorrhaphy, so far as holding the kidney in position, is perfect. There is no palpable enlargement of the gallbladder, but the liver dulness is slightly greater than normal. From the history one cannot positively say that she is not one of the persistently complaining, neurotic class, nor can I resist the thought that she has had more or less chronic infection in the gall passages associated with cholelithiasis. Her physician is now prescribing treatment to meet this condition. If after three or four months her symptoms are not better, an exploratory section may be advised.

As to operative technic in these combined operations it is usually simple, being essentially that recommended by Kelly. If gallstones are discovered, the gallbladder is pushed up with one hand in the abdomen to a point against the anterior abdominal wall where it can easily be reached by a short incision. The incision may be a longitudinal one through the outer border of the right rectus muscle, or one parallel with the lowest fixed rib, depending entirely upon the location of the gallbladder. After the incision is made a gauze pack should be inserted to protect fully the peritoneal cavity from the possible escape of bile. The gallbladder is pulled well up into the wound and opened by a small incision, when the calculi may be expressed with the abdominal hand or removed with a gallstone scoop. In some cases the gallbladder has been sutured and dropped back without an abdominal drain, in some it has been partially or wholly extirpated, while in others a cholecystostomy has been performed. While various operative procedures have been employed in the several cases upon which I have operated, in general, I should say that in simple cases, the best interest of the patient will be conserved if a cholecystostomy is performed. If the gallbladder is closed and dropped back without drainage there is always the danger of its rupture with subsequent peritonitis. To quote from my Chicago paper concerning the counterindications to the examination of the gallbladder, the rule may be stated as follows:

When the operation in the pelvis has been attended with the evacuation of pus, which if generally distributed in the peritoneal cavity might give rise to a peritonitis, this exploration should be omitted. When the patient is in a critical condition at the termination of the operation it should not be made. In cases in which operation is done for a simple condition when the clinical symptoms are clear cut and point definitely to but the one condition it should again be omitted.

Concerning old pelvic inflammatory cases in which the septic area in the pelvis is completely walled off by adhesions, the examination of the gallbladder may be made immediately after the abdomen is opened, before the pelvic adhesions are broken up. In this way the danger of distributing the septic material may be avoided.

So far my experience has not been extensive, but with the histories of these cases before me, I feel that I am justified in pursuing this course. I am by no means dogmatic, however, and reiterate positively that this is a new and unsettled question.

CONCLUSIONS.

1. The usual statement that 95% of gallstones produce no symptoms is fallacious because it is drawn from autopsy and dissecting-room statistics.
2. Recent researches point very strongly to the bacteriologic origin of gallstones.
3. Bile is not bactericidal, for in the majority of cases of cholelithiasis microorganisms of a more or less pathogenic nature are discovered.
4. Under these circumstances, many more or less vague symptoms attributed to gastrointestinal or general constitutional disturbances may arise from toxins elaborated around these foreign bodies in the gallbladder.
5. All clinicians admit that there is a wide hiatus in the clinical symptoms between the early formation of gallstones and the socalled classic attacks of biliary colic with jaundice.
6. Abdominal surgeons should make a most careful record of all gastrointestinal or hepatic symptoms and other vague epigastric pains and associate these with an examination of the gallbladder, with a view to establishing a further link in the symptomatology of cholelithiasis.
7. As cholelithotomy in a large series of cases has been attended with less than 2% mortality, the coincident removal of gallstones with some other abdominal operation is not a hazardous undertaking.
8. In my series of cases, more than 50% have shown symptoms which could be unquestionably or with great assurance attributed to the presence of gallstones.
9. This coincident operation should be dictated by the most careful surgical judgment, for if the patient is in a critical condition from a prolonged operation, or the primary operation has been a septic one, this extra operation may be attended by serious results.

From a review of this synopsis of cases it will be seen that in three instances classic symptoms of gall-

SYNOPSIS OF THIRTEEN CASES OF COINCIDENT GALLSTONE OPERATIONS.

Case No.	Age. Married or single	Primary disease for which operation was performed.	Operation.	Symptoms attributable to primary disease.	Symptoms attributable to gallstones.	Result.
600	40 years. Married.	Multilocular ovarian.cyst.	Cystectomy; cholecystotomy.	Enlargement of lower abdomen to size of full-term pregnancy.	Seizure with severe epigastric colic one year before admission to hospital, which was diagnosticated by physician as gallstones; has had two such attacks since; no certain history of jaundice; no vomiting; slight diarrhea.	Convalescence uneventful.
898	36 years. Married.	Tuboovarian abscess.	Left salpingo-oophorectomy; cholecystotomy (12 gallstones removed).	Dragging pain; constant headache; extreme nervousness.	One year ago last February was seized with sharp pain in abdomen, which began below thorax, on right side, and extended through the abdomen to back; pain associated with nausea and vomiting; a few days later jaundiced; since this attack has had similar ones every two weeks; patient suffers with almost constant indigestion and severe constipation; urination painful.	After operation patient suffered with excessive nausea and pain in region of gallbladder, with chill on fourth day, followed by rise in temperature and jaundice; these had disappeared by tenth day.
917	60 years. Married.	Double multilocular ovarian cysts.	Hysterosalpingooophorectomy; cholelithotomy.	Repeated attacks of weakness and rundown feeling since menopause.	No definite history of gallstones; as the patient was more or less wretched before the cysts appeared, it seems possible that the cholelithiasis has been a factor in her ill-health.	Patient suffered with nausea and vomiting for several days after operation; was also constipated and had some pain over gallbladder wound.
950	28 years. Married.	Relaxation of pelvic floor; bilateral laceration of cervix; erosion of cervix; parovarian cyst.	Dilation and curetment; trachelorrhaphy; resection of relaxed vaginal outlet; cholecystectomy.	Since birth of first child has suffered with dragging pains in lower abdomen and small of back, with attacks of severe frontal headache.	Severe colic, centering below border of ribs in right midclavicular area; pain transmitted up to right shoulder, where it stopped; persistently nauseated, and vomiting became a very exaggerated symptom; no jaundice; patient has had these attacks every six or seven weeks for last four years; each attack longer and more severe than preceding one.	Except for undue nausea and vomiting for first five days, convalescence satisfactory.
1055	35 years. Single.	Retroflexio uteri; appendicitis; parovarian cyst.	Cystectomy; appendicectomy; cholelithotomy; suspensio uteri.	More or less constant pain in left ovarian region, with backache and headache.	No symptoms attributable to gallstones.	Convalescence uneventful.
1061	43 years. Married.	Myoma uteri.	Hysteromyomectomy; cholecystotomy.	Enlargement of and heaviness in the lower abdomen.	Nothing in the history of the patient's condition pointed to the presence of gallstones before the operation.	Convalescence uncomplicated until tenth day, when temperature became irregular, followed few days later by discharge from cervical stump; subsequently made satisfactory recovery.
1069	38 years. Married.	Retroflexio uteri; relaxation of pelvic floor.	Intraperitoneal shortening of round ligaments; cholecystectomy.	Pain directly over the symphysis pubis; appetite variable, and has been steadily losing weight; suffers considerably with frontal headache.	Severe pain in epigastric region, especially marked over the lower region of the liver and gallbladder; bowels markedly constipated.	Convalescence satisfactory.
1071	45 years. Married.	Multilocular ovarian cyst; ascites.	Cystectomy; cholelithotomy.	Enlargement of abdomen; has been repeatedly tapped; finally became so ill and emaciated that was unable to walk.	No symptoms, even of a vague character, attributable to gallstones.	Convalescence entirely satisfactory except for bronchitis.
1074	43 years. Single.	Empyema of gallbladder; myoma uteri and cholelithiasis.	Cholecystectomy; appendicectomy; hysteromyomectomy.	Pressure symptoms from pelvic tumor.	For the past two or three years has had almost constant pain in the right hypochondrium, which has become more constant and severe of late, though unattended by any other symptoms; never any trace of jaundice; pain usually more pronounced after eating and just before and after menstrual periods; accompanied by constipation and distention.	Convalescence uneventful.
1105	30 years. Married.	Suppurative appendicitis.	Appendicectomy; cholelithotomy.	Severe pain in right iliac fossa and across the lower part of abdomen; has had three such attacks in last four months.	For last five years patient has had severe attacks of pain in epigastrium, accompanied by intense vomiting; these attacks only came on after eating some indigestible article of food; only for last four months they have been especially severe over McBurney's point; no jaundice.	Convalescence uninterrupted.
1152	39 years. Married.	Retroflexio uteri.	Hysterosalpingooophorectomy; cholecystotomy.	Constant dragging sensation; of late has had attacks of vertigo: for a short time after first operation was slightly relieved, but soon suffered most agonizing pain at each menstrual period, and at other times severe abdominal pain which failed to localize definitely.	Previous to first operation there were no symptoms whatever referable to gallstones: neither were they suggested by symptoms previous to second operation, and at most only a very vague history of cholelithiasis could be elicited upon close inquiry after the second operation.	Convalescence uneventful.
1181	50 years. Married.	Myoma uteri.	Hysterosalpingooophorectomy; cholecystotomy.	For past three years has had backache, headache, severe metrorrhagia and menorrhagia; has become so weak that cannot undergo any exertion without great fatigue.	Patient gives rather indefinite history, but so far as could be elicited there were no symptoms referable to gallbladder; has been subject to indigestion for year or more, but has had no pain in epigastrium, nor has been subject to nausea or vomiting.	Convalescence moderately satisfactory.
1197	28 years. Married.	Appendicitis and cholelithiasis.	Appendicectomy; cholecystotomy; drainage of gallbladder.	Several times pain in epigastrium has extended around right side to back and fin'lly settled in region of appendix.	For the last twelve years patient has had severe indigestion, with eructation of gas, heavy feeling over pit of stomach, nausea and vomiting, has had severe attacks of pain in the epigastrium especially; no jaundice.	Extremely nauseated for four or five days after which convalescence very satisfactory.

stones were present; in four cases symptoms strongly suggesting gallstones were noted; while in six the symptoms were at most either very vague or absent altogether. In some of these negative cases, however, more or less discredit must be cast upon the histories, for details relative to the general condition were very meager or entirely overlooked in the concentration of the resident physicians' queries upon the symptoms referable to the pelvic organs.

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EDEMA.

A Consideration of the Physiologic and Pathologic Factors Concerned in its Formation.[1]

BY

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SECOND LECTURE.

As we have stated in the introductory remarks of the first lecture, the pathology of edema can be based only upon the physiology of lymph, into the discussion of which we shall now enter. We have to distinguish between the formation of lymph and its absorption. Our understanding of the problems in hand will be facilitated by considering each process separately and we shall begin with the discussion of the forces concerned in the formation of lymph.

With the term lymph the colorless fluid is designated which is present in the lymph vessels, as well as that which is present in the irregular spaces between the cells and fibers of the tissues, and in the serous cavities. Nearly in all the experimental studies the lymph was obtained from lymph vessels, although it is the free interstitial fluid which is of main interest to the investigator. This fluid comes in intimate contact with three separate elements: The tissues of the organs, the blood capillaries and the lymphatics. Whatever we may think of the function of the lymphatics and of the nature of their anatomic connections with the tissue spaces, it seems to be fairly certain that none of the fluid already within the lymphatics ever returns to the tissue spaces.

The lymph within the tissue spaces has its sole origin in the blood plasma, it leaves the circulation through the walls of the blood capillaries—that was an old, well-established conviction. By the aid of what force is the lymph transuded through the endothelial layer, which forms the capillary wall, into the adjacent tissue spaces?

Filtration Theory of Ludwig.—For a great many years the view was accepted that the transudation of lymph is accomplished by the physical aid of filtration. This theory was originated and supported by experimental evidence chiefly by Carl Ludwig and his pupils. Starting his brilliant scientific activity in the forties of the last century, just at the turning point in the methods of investigation in biologic sciences, Ludwig has probably contributed more than any one else to the introduction of mechanical principles into the science of animal physiology. His classic work on blood-pressure is one of the instances. The application of the physical laws of filtration to some of the phenomena of secretion, excretion and transudation was only an outcome of the general tendency to interpret vital phenomena by mechanical principles. Ludwig tried to introduce the factor of filtration into the interpretation of glandular secretion. His wellknown theory of urinary secretion is based upon filtration within the glomeruli; and he put forward also the theory that lymph is carried into the tissues by filtration of blood-serum through the capillary wall by means of the blood-pressure. The capillary wall consists only of the very thin endothelial layer which would permit filtration even without the presence of stomata, stigmata, or preformed pores of any other kind. The process of filtration requires that the pressure on one side of the membrane should be higher than on the other side. This condition apparently obtains in the relations between the capillaries and the surrounding tissues. Although nobody has yet established the actual degree of pressure within the lymph spaces, and there is no reliable method to establish the correct pressure within the capillaries, there can be no doubt that normally the pressure within the capillaries is distinctly higher than in the adjacent tissues. The necessary force to accomplish such filtration was there, and there was no reason for assuming that the lymph formation was not actually carried on by this process. Ludwig, however, sought to support this theory by some experimental evidence. If the formation of lymph be due to filtration of serum from the blood and is being accomplished by the increased pressure within the capillaries, the formation of lymph ought to increase with the increase of the blood-pressure within the capillaries. This is best accomplished by means of interruption of the venous flow. When the veins of an organ or any isolated part of the body are tied, while the arteries continue to carry blood into the capillaries of that part, the blood-pressure within these capillaries will obviously be greatly increased. Such an experiment was carried out by Tomsa under the direction of Ludwig on the testicles of dogs. The lymph was collected by introducing a fine canula into a larger lymph vessel of the testicle. It has been found that the tying of the pampiniform plexus brought on indeed a distinctly greater flow of lymph. The same occurred when the testicle was removed and defibrinated blood was transfused through the artery of the organ; tying of the veins caused then, an increase of the flow of lymph.

Similar experiments were carried out later, also under the direction of Ludwig, by Paschutin on the arms, and by Emminghaus on the legs of dogs. Normally there is very little flow of lymph from the extremities of this animal. By kneading and bending the limbs, however, some flow of lymph can be brought on. Then here, too, on ligation of most of the veins of the corresponding limbs the lymph flow was always increased. Furthermore, the fact that massaging the limb can keep up a certain flow in the extremities seemed to support the theory that the lymph is formed by filtration. In the latter process the filtrate will increase not only by increasing the pressure within the capillaries, but also by decreasing the pressure in the tissue spaces. This is accomplished by kneading, inasmuch as it removes the already accumulated lymph. Now, if a continual kneading keeps up a flow of lymph we might take it as an evidence that the decrease of pressure within the lymph spaces facilitates the filtration of lymph into it.

Another set of experiments was less satisfactory, however, in the hands of the pupils of Ludwig. The increase of the blood-pressure within the blood capillaries can be accomplished also by the increase in the arterial flow. This can be brought on in any part of the body by cutting the vasoconstrictors of this part. When the general blood-pressure remains unaltered, or is at least not lowered, the vasodilation of some part will cause a greater inflow of blood into this part and thus raise the intracapillary pressure within this part. Now Paschutin as well as Emminghaus cut the brachial plexus or the sciatic nerve in dogs. In addition to that, the spinal cord was cut and the caudal end stimulated, by means of which the general arterial pressure was considerably raised. Under these circumstances the arterial flow to the arm or the leg, and with it the capillary pressure in these limbs ought to have been distinctly increased. Nevertheless the lymph flow from the extremities in these cases was not essentially, at least not constantly, influenced.

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[1] Lectures delivered at the University of Buffalo, Buffalo, N. Y., on November 30, December 1, 2 and 3, 1903.

Other investigators, however, had better results with this method. Rogowicz, for instance, had seen edema of the tongue setting in on cutting the hypoglossus and stimulating the peripheral end of the lingual nerve. The hypoglossus carries the vasoconstrictors, and the lingual nerve carries the vasodilators of the tongue. The strong vasodilation, brought on by this method, caused such a flow of lymph that it led to edema of the tongue. Similar experiments were reported by Peckelharing and Mesonides, and by Dourdouffi.

Heidenhain's Theory of Lymph Secretion.—This was the status of physiology of lymph formation at the beginning of the nineties of the last century when Heidenhain entered that field. That brilliant physiologist, though brought up in an atmosphere where the mechanical theory of life reigned supreme, had apparently early in his scientific career conceived the idea that the mechanical explanations of life are insufficient. He began with the studies upon the secretion of the submaxillary gland where he sought to prove that the serous fluid in the tissues of the gland is not transuded there by some mechanical factors, but is being attracted by the specific secreting cells of the gland. Later on he brought forward extensive studies against the filtration theory of Ludwig, and in support of the secretion theory of Bowman in the mechanism of urinary secretion. In 1891 he came out against the theory of filtration of lymph, and put forward the theory that lymph is a secretion of the endothelial cells of the blood capillaries. He brought forward several series of experiments in support of his claims. In his methods of investigation he has made a new departure inasmuch as in his experiments the lymph was collected from a canula inserted into the thoracic duct.

In one series of experiments the lumen of the aorta was narrowed or entirely obstructed. In the experiments quoted the parallelism between lymph flow and blood-pressure was studied when the latter was raised. The parallelism, however, can be tested also in experiments in which the blood-pressure is lowered. If the lymph production has its sole cause in filtration, the flow should diminish in proportion to the lowering of the blood-pressure. In his experiments with the occlusion of the aorta, Heidenhain, however, found that there was no constant relation between blood-pressure and lymph flow. In some cases when the pressure sank to zero the lymph continued to flow for an hour or longer —which did not seem to speak in favor of the filtration theory.

In another series of experiments Heidenhain ligated the portal vein or obstructed the vena cava inferior above the diaphragm. In the first case the veins became congested with blood, and the blood-pressure within the capillaries of the intestines was raised considerably, and in proportion to it, there was indeed an increase of lymph flow. This was in accord with the filtration theory, and it was also in accord with this theory that the solids of the lymph in this case were diminished with the increase of the flow, since in the filtrate of albuminous solutions, as Runneberg has shown, the solids decrease with the increase of the filtrating pressure. But the results obtained in the experiments with obstruction of the inferior vena cava were not in accord with the filtration theory. In these experiments the intestinal veins were not engorged with blood, the blood-pressure was surely then not much increased, and it could not be increased since the obstruction of the inferior vena cava deprives the heart of its main sources of blood-supply. Nevertheless, the flow of lymph in these experiments was distinctly greater than when the portal vein was ligated, and what is more, the lymph in these experiments contained a good deal more solids than even the normal lymph. The lymph in these experiments remained colorless, while the lymph after ligation of the portal vein, assumed a sanguineous tinge. From all this, Heidenhain drew the conclusion that the lymph produced after obstruction of the vena cava was not filtrated, but was secreted by the endothelial cells of the capillaries. For the lymph flowing after ligation of the portal vein, Heidenhain admits that filtration is probably one of the factors in its production—hence the diminution of the solids and the admixture of blood.

In further extensive series of experiments Heidenhain discovered a great variety of substances which are capable of considerably increasing the lymph flow. He calls these substances lymphagogues, and divides them into two classes. To the first class of lymphagogues belong pepton, extracts of leeches, of muscles of crayfish, of oysters, and many other extracts from animal tissues. Intravenous injections of small doses of these extracts cause a considerable flow of lymph from the thoracic duct; the lymph is rich in proteids. Heidenhain called attention to the fact that these substances often cause the appearance of urticaria in human beings. The intravenous injections of these substances surely do not raise the blood-pressure, and when injected slowly, exert no influence whatever upon the circulation. Furthermore, the blood plasma contains less organic substances than the lymph. From all this Heidenhain draws the conclusion that these extracts do not increase the lymph flow by increasing the power of filtration, but by stimulating the endothelial cells to increased active secretion. For this interpretation he brought forward the following experimental test. We know that tying the renal artery affects the secreting power of the kidney epithelium. Heidenhain tied the aorta for an hour and longer, and, after releasing the blood flow again, he injected these substances, and found that under these circumstances they no longer exert any effect upon the lymph flow; in which fact Heidenhain finds the evidence that the nature of the effect is a stimulation to vital secretion, and that by tying the aorta the vitality was destroyed.

In the second class of lymphagogues Heidenhain counts sugars, urea, and salts. When any one of these substances is injected into the circulation a considerable increase of the flow of lymph soon follows which is poorer in proteids than the normal lymph. While the lymphagogues of the first class do not affect the urinary secretion, after the injection of the lymphagogues of the second class, simultaneously with the lymph, there is also an increase in the secretion of urine. If the injections are made slowly they do not affect the circulation. The effects of the different crystalloid substances are in inverse proportion to their molecular weight; when using the same concentration the substance with the smaller molecule had the greater effect. Tying of the aorta had no detrimental influence upon the lymph producing effect of the second class of substances.

The effect of the lymphagogues of the second class Heidenhain interprets in the following way: The crystalloid substances within the circulation are gradually secreted into the lymph spaces (and urinary tubules) by the aid of the vital forces of the capillary endothelium. Within the lymph spaces the crystalloid substances, by virtue of their high osmotic pressure, attract water from the tissues. This water is partly removed through the lymphatics, hence the increase of lymph poor in proteids, and partly absorbed through the bloodvessels and then eliminated through the kidneys, hence the increased urinary secretion. That the crystalloids, while still within the bloodvessels do not employ their osmotic pressure to attract primarily fluid from the tissue spaces into the blood, Heidenhain concludes from the fact that the first effect of an intravenous injection of the crystalloids upon the lymph is always an increase in the flow and is never preceded by a temporary retardation.

Finally, from the comparison of the amount of proteids present in the lymph from the thoracic duct with the much greater amount of proteids which are required by the organs of the body, for instance, the mammary glands for the production of milk, Heidenhain finds that the necessities of the body for proteids are far above the quantities which the lymph, as obtained from the thoracic duct, can furnish. He concludes from this that the amount of proteids which the tissue lymph is carrying over from the blood to the tissues is independent of the lymph fluid as a medium. He suggests that in each organ the tissues are taking out from the surrounding tissue fluid such substances and in such quantities as the specific activity of each requires. These specific substances are replaced in proper quantities in the tissue lymph in each organ by the vital secretion of the endothelial cells of the capillaries in the corresponding organs. The endothelial cells are stimulated in each place to their specific activity by the specific metabolic products of each organ. For the increased lymph production in venous stagnation, Heidenhain admits the physical process of filtration as a subsidiary factor.

The facts reported by Heidenhain, and especially the views he set forth, received widespread attention. His theory found many sympathizers—the generation was ready for vitalistic views. But some of the mechanists were still very much alive, and offered able resistance to the onward march of this vitalistic invasion. This was at least the spirit in which the theory of Heidenhain was received by the antagonists, as well as by its supporters. Heidenhain himself, however, protested strongly against being classed as a vitalist. When he speaks of vital activity of the cell he means, Heidenhain declares, such physical and chemic forces of the cell which will be known some day, but which are not known today.

In the lively discussion which followed, the names of two opponents of the theory stand out foremost, that of Cohnstein and of Starling. The brilliant work of the last-named investigator is especially interesting, and I shall try to give an account of it here. Starling's antagonism is the more interesting, as he was originally a pupil of Heidenhain, and published at first an article on lymph, from the Breslau laboratory, accepting unreservedly the views of Heidenhain.

Starling's Experiments.—According to Starling, the flow from the thoracic duct represents nearly exclusively the lymph from the intestines and the liver. Tying the portal vein causes a rise of pressure in the intestinal capillaries and an increase of the flow of lymph, which possesses the same amount of salts as the normal lymph, but is poorer in proteids and has often an admixture of blood. When the inferior vena cava is ligated the lymph flow is still more increased, and the lymph is nearly as rich in proteids as the blood plasma. When the lymphatics of the liver are ligated the obstruction of the vena cava has no effect upon the lymph flow. This proves that the lymph flow occurring after the obstruction of the vena cava comes from the liver. Furthermore, when the blood-pressure was taken in the aorta, the portal vein, and in the inferior vena cava, it was found that obstruction of the inferior vena cava above the diaphragm causes a considerable fall of blood-pressure in the aorta, a moderate rise in the portal vein, and a strong rise in the vena cava. In this case the pressure within the intestinal capillaries cannot be much increased, as the effect of the rise of the pressure in the portal vein upon the capillaries must be somewhat neutralized by the opposite effect of the fall in the aorta. The pressure within the capillaries of the liver, however, is increased as a consequence of the rise of the pressure within the vena cava, as well as of the rise in the portal vein. Starling has established that ligation of the aorta does not lower the pressure within the vena cava, on the contrary, the pressure there is often increased. By all these experiments Starling was able to explain some of the observations of Heidenhain which were apparently adverse to the production of lymph by filtration. That the ligation of the aorta did not reduce the flow of lymph Starling explained by the fact that lymph in this case was coming from the liver, where the intracapillary pressure was not reduced, but increased. That this is indeed so, Starling has proved by ligating the lymphatics of the liver, in which case the subsequent ligating of the aorta stops the flow of the lymph completely, which is in harmony with the theory of filtration. The enormously increased flow of lymph, after obstruction of the vena cava, was shown above to be due to the increase of the intracapillary pressure within the liver—which is again in harmony with the filtration theory.

For the variation in the amount of proteids in the lymph, Starling introduced the factor of the permeability of the capillary wall. The process of filtration is influenced not only by the difference in pressure between both sides of the membrane, but also by the size of the pores of the membrane, or by its permeability. The larger the pores are the more permeable the membrane will be, even for colloid or albuminous solutions, and the richer the filtrate will be in albuminous material. Starling comes to the conclusion that of the three different places, the liver, the intestines and the extremities, the capillary wall of the liver is most permeable, next comes the endothelial wall of the intestines, and finally, the walls of the capillaries of the extremities are the least permeable. In support of this, it is found indeed that the lymph from the extremities contains only 2% to 3% of proteids, that from the intestines contains 4% to 6%, and the proteids in the lymph from the liver is as high as 6% to 8%, which is nearly as much as that of the blood plasma. It is obvious then, that the lymph brought on by a rise in the blood-pressure within the inferior vena cava ought to be richer in proteids, since the liver with its capillary wall is the source of this increase.

The effect of the lymphagogues of the first class, Starling explains by a change in the permeability of the capillary wall. The members of this class, like pepton, extract of crayfish, etc., are mostly albumoses; they are poison, Starling says, and cause the increase of the lymph flow by altering the permeability of the endothelial walls of the capillaries, especially within the liver. This interpretation is supported by the experimental fact that ligation of the lymphatics of the liver abolishes the lymph-producing effect of these substances. Here, too, then the effect is not a stimulation of the vital activity of the endothelial cells, but a change in the physical property of the membrane.

As to the effects of Heidenhain's second class of lymphagogues, the crystalloids, Starling reminds us that already von Brasol has shown that the intravenous injection of sugar causes the entrance of an enormous quantity of water from the tissues into the circulation, as was demonstrated by the dilution of the hemoglobin. According to Starling, the high osmotic pressure of the sugar or the other crystalloids, while still within the capillaries, causes an attraction of water from the tissue spaces and from the tissues themselves. The entrance of the water into the circulation causes hydremic plethora, which is then, by the increased blood-pressure, the cause of filtration of much lymph, hence the increase of flow of lymph poor in proteids. That the effect is due to the increased blood-pressure, that is, to the plethoric and not to the hydremic part of the change within the blood, Starling demonstrated by the following experiment: A concentrated solution of dextrose, when injected into the blood, will attract water from the tissues until the percentage of the dextrose within the blood will be reduced to 5% or 6%, *i. e.*, when the osmotic pressure of the blood will be no longer hypertonic to that of the fluid of the tissues. A concentrated solution of 18 gm. of dextrose will attract approximately 300 cc. of water. Starling withdrew from a dog 300 cc. of blood and then injected the concentrated solution of 18 cc. of dextrose, which attracts tissue fluid to the circulation equal in amount to the withdrawn blood. There was then hydremia indeed, but not plethora, in the circulation. In this case there was nearly no increase of lymph flow after the injection of the dextrose.

Starling concludes from his experiments that the amount of lymph produced in any part is determined solely by two factors, the intracapillary blood-pressure and the permeability of the endothelial wall. It is the physical process of filtration again, though now amplified by the factor of permeability by the membrane.

Hamburger's Views.—Independent of Heidenhain, the vital theory of lymph secretion was put forward by H. J. Hamburger as early as 1890. In studies on plethora and hydremia, he arrived at the conclusion that the capillary wall exerts a controlling influence upon lymph formation. Later he studied the lymph flow from the cervical trunk in horses. He found that the osmotic pressure of the lymph is higher than that of the blood-serum. Furthermore, when the horse walked, while the head was kept quiet, the lymph was increased, although the blood-pressure in the corresponding carotid artery and jugular vein was lowered. From these observations Hamburger drew the conclusion that lymph is produced neither by osmosis nor by filtration, but by secretion of the endothelial cells of the capillary walls. Hamburger, too, like Heidenhain, believes that the secretion is stimulated by metabolic products; but he apparently assumes that the stimulation takes place on the inside of the capillary wall and might be produced by any metabolic products coming from any part of the body and entering any part of the circulation. There is then no specific relation between the local requirements of the organs and the local secretory activities of the capillaries.

It has been confirmed by Leathes that the lymph has, indeed, a slightly higher osmotic pressure than the blood plasma. This increase in pressure, however, is not necessarily due to a vital secretion; it can be due, as has been stated by Leathes and others, to an admixture with the lymph, while coming from the tissues, of metabolic products with a higher osmotic pressure. Furthermore, the statement of Hamburger, that the muscles of the neck could be kept inactive while the horse is made to walk, is asserted by many writers to be erroneous. It can be stated in general, that the experimental facts offered by Hamburger for the theory of vital secretion cannot be accepted as conclusive.

Experiments and Views of Lazarus-Barlow.—Among the original investigators whose work leads them to be against a physical theory of lymph formation, the name of Lazarus-Barlow deserves a prominent place. From a long series of his experiments we shall record only a few. When the leg of an animal was so constricted as to cause venous congestion, while the arterial inflow was not obstructed, no increase of lymph flow could be observed, even if the constriction lasted an hour; neither was there a decrease of specific gravity of the muscles of this leg. Here the venous stagnation caused no increase in the formation of lymph. Furthermore, by injecting crystalloids, lymphagogues of the second class, into the circulation, the arterial pressure is not increased at all, and the increased venous pressure returns to normal in a few minutes, at least before the increase of the lymph flow reaches even its maximum. This again speaks against the assumption that the increased blood-pressure is the cause of the increase in the lymph flow in injections of this kind. Regarding osmosis, Lazarus-Barlow insists that the final rate of osmosis has no place in the interpretation of processes in the animal body, and his numerous experiments with the initial rate of osmosis, as well as all his other experiments, led him to results, the vast majority of which were irreconcilable with a physical theory of lymph production. Lazarus-Barlow's own theory has certainly a vitalistic flavor. He himself calls it vital, as he says, for the lack of another name. The starvation of the tissues or the accumulation of waste products within them causes the bloodvessels "in some way" to respond by local arterial congestion and increased output of lymph. "When the tissues do not require more lymph, though arterial dilation and increased capillary pressure may be present, the bloodvessels do not supply it." In discussing edema we shall have to return to the view of this author.

V. Koranyi's Views.—The importance of the physical process of osmosis within the body cells for the formation of lymph, has been set forth by v. Koranyi, and his views were supplemented and elucidated by Roth. They are as follows: We know that within equal volumes, substances with large molecules have a small, and substances with small molecules have a high osmotic pressure. Now the body cells take up for their nutrition, proteids and carbohydrates, substances with very large molecules. The osmotic pressure of the cell is therefore very little increased by the incorporation of these materials. On the other hand, the work of the cell consists in breaking up these substances into materials of much smaller molecular weight. The result, therefore, ought to be a considerable increase of the osmotic pressure within the cells. As the cells can be considered as imperfectly semipermeable membranes, we may assume that their metabolic products are carried into the tissue fluid by the process of diffusion, increasing hereby considerably the osmotic pressure of this fluid, with the ultimate effect that water in considerable proportion is being attracted to the tissue spaces from the blood. Furthermore, the waste products within the tissue fluid are carried again by diffusion through the capillary walls into the blood, where they cause again a rise of osmotic pressure. The blood, however, is soon relieved of this surplus of osmotic pressure by eliminating the waste products through the kidneys. According to Roth, the osmotic pressure of cellular origin has a greater influence upon the transudation of fluid from the blood than the filtration by the intracapillary pressure. It should be remarked that already Starling and Leathes have assumed that the metabolic processes of the cells increase the osmotic pressure of the lymph.

The "Cellular Physiologic" Theory of Asher.—In recent years L. Asher, in conjunction with A. G. Barbera, Wm. J. Gies, and F. W. Busch, presented, under the name of the cellular physiologic theory, a number of valuable facts and interesting views regarding the formation of lymph. It was found that an intravenous injection of lymph of the same animal has some unfavorable effect upon the circulation, and the conclusion was drawn that the lymph is usually carrying toxic substances either foreign to the body or of metabolic origin, and it was further assumed that it is the task of the lymph glands to neutralize the toxicity of these products. The most essential result derived from their investigations is their statement that the lymph is a product of the work of the organs. The increased flow of lymph from the submaxillary glands during the secretion of saliva is not due, so it was proved, to increased flow of blood during the secretion, but to the act of secretion, to the work of the secreting cells. It was further found that pepton stimulates the liver to secretion of bile, hence the increase of lymph flow after an intravenous injection of pepton. The experiments made in conjunction with Dr. Busch brought weighty evidence in favor of the assertion made above. Injection of ammonium tartrate into the portal vein stimulates the liver to the formation of urea, *i. e.*, it stimulates the liver cells to their specific work, and it was discovered that the injection of this ammonium salt increases also that lymph flow from the thoracic duct. Intense intoxication by quinin abolishes, as Gies found, the lymph driving effect of Heidenhain's lymphagogues of the first class, which is taken as evidence that the effect of this class of lymphagogues is due to a "physiologic component." A variety of experiments was brought in evidence against the assumption that filtration, or increased permeability of the capillary walls, or even a secretory power of the endothelial cells, can be factors in the production of lymph. The seat of the force which controls the production of lymph, is, according to these authors, within the working cells of the organs. Asher thought of the osmotic relations between the cell and the tissue fluid as a possible cause of the lymph production, but rejected this idea and decided in favor of the hypothesis that it is a physiologic force connected with the activity of the cells which controls the production of lymph.

What Asher calls here physiologic is exactly the same that others term vital. As to the cellular part of the name, there is only one difference. Whereas, Heidenhain and Hamburger consider the endothelial cell as the seat of the vital or physiologic activity, Asher, in common with Lazarus-Barlow, places the physiologic or vital force in the cells of the organ. The theory of Heidenhain could just as well be termed cellular physiologic as that of Asher; the endothelia are also cells. Indeed, in his paper on "Absorption From the Intestines," Heidenhain terms his view cellular-physiologic. As to the essential statement of the theory, namely, that the lymph is the work of the organs, we must remember that the adduced experiments can show us only that lymph is produced while the work of the organ is going on, but they do not tell us how this is done by the organ. When we speak of a theory of lymph production, we do not mean the question as to when and where lymph is formed, but how lymph is formed, or rather, by the aid of what force is it formed. It is this latter question that the different theories answer: By filtration, diffusion, osmosis, vital secretion of the endothelial cells or vital activity of the organ cells. The statement itself is, no doubt, an important one. But, here, too, it would be instructive, to know, whether the authors believe that there is no lymph formation going on within an inactive organ. It would interest us to know this with regard to edema of paralyzed organs. It seems to me that the chief importance of the statements made by Asher and his colaborers consists in the very fitting explanation given by them of the real nature of the peculiar effect of Heidenhain's lymphagogues of the first class. Starling has shown that the concentrated lymph brought on by this group of substances comes from the liver. Asher and his colaborers have shown that these substances stimulate the liver to greater activity—hence, the increase in lymph flow.

Regarding the part of the cellular-physiologic theory, in which it is suggested that the lymph is carrying away harmful katabolic products from the tissues, Asher could hardly assume that he is the originator of this idea. Many have stated it before him. I may be permitted to quote from a paper by Adler and Meltzer, which appeared some time before the publication of the first paper by Asher and Barbera. It reads as follows: "We are, indeed, inclined to favor the theory that the lymphatics drain off from the system of interstitial spaces such substances as are, in their present state, either foreign or useless or harmful to the tissue, and deposit them in the lymphatic glands, or carry them into the blood, to be rebuilt or to be excreted."

To complete the review of the work done on the forces which are concerned in the formation of lymph, I shall append the following brief notes: Of the many new points which were brought out by Cohnstein in his struggle for the supremacy of the physical theory, I shall not omit to mention at least this one, namely, that it was chiefly due to the efforts of this writer that diffusion became recognized as a factor in the physical aid to the formation of lymph, *i. e.*, that the living membrane of the capillary wall is incompletely semipermeable and that it will permit in some degree the permeation of soluble substances through its pores by diffusion alone, aside from the aid of the intracapillary pressure.

The other note refers to the extracapillary pressure of the tissues. It was studied some twenty years ago by A. Landerer. His conclusions were, that the state of elasticity of the tissues surrounding the blood capillaries is of essential influence upon the flow of blood within the capillaries, and is also a factor in the mechanism of the formation of lymph. To the latter point I shall return when discussing edema.

TWO CASES OF RENAL TUBERCULOSIS, ILLUSTRATING THE RESULTS OF NEPHRECTOMY.[1]

BY

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CASE I.—On November 19, 1897, I was consulted by Mrs. X, aged 46, married, occupation housewife, who gave the following family history: Her mother died of pulmonary tuberculosis, contracted during the patient's intrauterine life, four years after the patient's birth; her father died of an acute "fever" after a few days' illness; she had two brothers, one of whom died of some acute "fever," and the other of pneumonia; two sisters are living, and in good health.

Personal History.—Patient was well and strong as a child; puberty occurred at 15, menses were regular, but painful and profuse. She had the usual diseases of childhood and youth, without complications or accidents; was married at the age of 21; two years after, she was delivered of a healthy male child, who died of "heart disease" at the age of 17; no miscarriages or symptoms of uterine or ovarian disease. In the spring of 1880 the patient had a slight pulmonary (?) hemorrhage, and another in the fall of the same year, and this experience continued every spring and fall for ten succeeding years, after which it ceased entirely. The cervical glands became enlarged about this time, and remain in the same condition now. In the winter of 1890, she began to have a dull deep pain in the right posterior costoiliac region, which was regarded as lumbago, and about the same time she had painful and profuse micturition, but her statement that she sometimes passed "two gallons of urine in 24 hours," must, I think, be taken *cum grano salis.* It was soon observed that the urine became cloudy, and less abundant, although the cystic irritation and imperative demands to urinate increased from day to day. A diagnosis of cystitis was now made, and she entered upon a "course of treatment," consisting of a great variety of drugs, frequent and persistent cystic irrigation, and, finally, opening or "buttonholing" the bladder through the vagina, so as to give the bladder perfect rest, and afford an opportunity for free irrigation. After a few weeks, the vesicovaginal opening was closed, and the patient was dismissed, with the symptoms practically unchanged. Now ensued a period of between one and two years, of constant suffering, progressive failure of health, loss of flesh and strength, and, most of the time, the employment of what was called "expectant treatment." This brings the history down to the time that I was first consulted, namely:

November 19, 1897.—At that time, the patient's condition was pitiable indeed. She was much emaciated, her weight having fallen from about 120 to 80 pounds. Her temperature ran from 100.5° in the morning to 103.5° in the afternoon; her chief occupation seemed to be to respond to the unintermitting calls of her bladder, which never contained more than 10 cc. to 20 cc. of urine, but never seemed empty; she had frequent rigors, followed by profuse sweating; her digestion was greatly impaired, gastric and intestinal flatulence and constipation being the ruling symptoms. The urine was scanty, strongly alkaline, offensive and thick with pus and phosphatic deposit; the specific gravity was 1,025; urea 2.3%; albumin .5 gm. per liter; no sugar; pus and epithelial cells in great numbers; a few blood globules; a copious deposit of earthy phosphates and much granular debris. Streptococci and colon bacilli were abundant, but I could find no tubercle bacilli. Cardiac sounds were weak, but otherwise normal. The patient complained of a constant pain in the back, to the right of the spinal column, varying from a very endurable dull ache to a sharp and agonizing misery, but always in the same place.

Physical examination disclosed the presence of a rounded mass in the right lumbar region, extending backward into the costoiliac space, easily grasped between the hands placed anteroposteriorly, quite movable, indistinctly nodulated, semifluctuating, and very tender. This mass was reniform in outline, but apparently 50% larger than the normal kidney.

The patient was sent at once to Wesley Hospital, and on the following day, after thoroughly irrigating the bladder, I obtained a specimen of urine from each kidney separately, by means of M. L. Harris' "segregator." The findings in the urine from the right kidney were almost an absolute duplicate of those already recorded; the urine from the left kidney contained a trace of albumin, a few leukocytes, but no blood or tube casts, while the urea was a trifle over 2%. No attempt was made to use the ureteral catheter, because the diagnosis seemed clear enough without it, and the patient's condition did not warrant any needless instrumentation.

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[1] Read before the Association of American Physicians, April, 1904.

Operation.—The patient and her husband (himself a physician) were now told that the only hope lay in an operation, which might involve nephrectomy, and would at the very best involve danger, but they promptly decided to have the operation at once. Accordingly, on the afternoon of November 15, 1897, I made an exploratory incision, from the lower rib just outside the anterior border of the erector spinæ, downward and a little forward, to the middle of the iliac crest, my intention being to expose the kidney and then act as circumstances and conditions dictated. The kidney was easily reached and rapidly exposed; it was found enlarged and much disorganized; beset by several cavities the size of English walnuts, or larger, containing thick cheesy pus, very suggestive of tuberculosis. But, as the patient was beginning to show marked indications of exhaustion, I did not deem it wise to expose her to the added risk of nephrectomy, and I therefore rapidly evacuated the pus cavities, irrigated with lysol solution, and closed the wound, expecting a fatal result in a few hours. But the patient slowly rallied, and entered upon a tedious convalescence; the immediate distressing symptoms were much relieved, the bladder became more tolerant, digestion improved, she began to gain flesh slowly, the temperature fell to normal, and in all respects her condition was much more encouraging. Meantime, microscopic examinations of the contents of the renal pus cavities showed the presence of tubercle bacilli, and established the diagnosis of tuberculosis of the right kidney. Tubercle bacilli now began to infest the purulent matter passed from the bladder, but repeated segregation failed to reveal the bacilli in the urine from the left kidney, while the urine from this kidney remained clear and transparent, although it still contained a trifle of albumin and a few leukocytes, but no casts. The operation wound did not close, but a urinary fistula resulted, which became a serious source of annoyance and danger. In view of all these unfavorable conditions relating to the right kidney, it became obvious that the risk of nephrectomy must be taken, or the patient must be allowed to wear out by inches. As the left kidney appeared to maintain its structural and functional integrity, it seemed to me that the operation was not only justified but demanded, especially as the patient and her husband fully understood its dangers and urged me to operate. Accordingly, on February 1, 1898, I removed the right kidney through the lumbar incision already described. The operation was rather tedious on account of adhesions, but I succeeded in separating the kidney from its attachments by blunt dissection, without accident. The patient was in a state of extreme exhaustion at the close of the operation, and for the next 12 hours the result hung in doubt. After that she began to gain, at first slowly and then more rapidly, finally making a good recovery. She was under my care, off and on, until June 11, 1898, when she was discharged, with her health vastly improved and still improving.

I saw her last, July 28, 1903. At that time her temperature was normal; weight 113 pounds (against 80 pounds in November 1897); she appeared ruddy and healthy, and said she "never felt better in her life." Urine was normal in quantity; slightly cloudy with mucus; acid; sp. gr. 1,020; urea 2.75%; no albumin nor casts; there was some bladder or vaginal epithelium and a few leukocytes; there were no tubercle bacilli, but a few colon bacilli. The left kidney was easily felt, but was not tender nor nodulated. It had evidently undergone physiologic hypertrophy, and is doing the work of two kidneys. It therefore seems entirely correct to class this case as one of perfect recovery.

Case II.—June 15, 1903, Miss Y., aged 39, single, occupation nurse, consulted me, and gave the following family history:

Family History.—Father living, at the age of 73, and healthy, with the exception of "rheumatic pains" during spring and fall; mother died at the age of 63, of "organic disease of the heart;" three brothers are living and in good health; five sisters, all living, are in fairly good health; no history of tuberculous disease on the part of any member of the family.

Personal History.—The patient had always been well and strong until recent years. She had lived an active country life, until she began nursing a few years ago; had had no severe illnesses or bodily injuries; in fact, her history was that of a healthy and strong woman until rather more than three years ago, when she was much exhausted by constant nursing, and had some "soreness" of the joints and "weakness" as a result. About three years ago, also, she began to have frequent and urgent calls to urinate, and attacks of pain which she referred to her right kidney. In April last—or three months before she consulted me—she had hematuria and sharp pain in the right costoiliac space, following sudden and forced stooping or bending the body forward as far as she could, and then righting herself by violent muscular effort.

At my first examination, June 15, 1903, she appeared sallow and weary; her temperature was 100.5°, pulse varying from 80 to 90; she weighed 150 pounds, having lost 10 pounds during the preceding two months; her digestion was poor, bowels irregular, and she was much annoyed by intestinal flatulence. She complained of pain and tenderness, which she located in her right kidney, both pain and tenderness being aggravated by exercise or muscular effort of any kind. She was greatly distressed by frequent and urgent calls to urinate, both day and night, and stated that the urine was both scanty and offensive.

Physical examination at this time showed heart and lungs normal, stomach and bowels healthy; liver slightly enlarged; menstrual function undisturbed. In the right costoiliac space I found a tumor somewhat larger than a normal kidney (which it resembled in form), movable, tender, but without palpable nodulations or irregularities. Paroxysms of pain extended down the course of the ureter into the bladder, and were accompanied by urgent calls to urinate. The urine was pale, offensive and turbid with pus; acid; specific gravity 1,010; urea 1%; albumin 0.5 gm. per liter; no sugar; pus cells in great abundance; numerous bladder and renal epithelia; a few blood globules but no tube casts. The daily output was not stated. Urinary segregation demonstrated an apparently healthy left kidney, while the flow from the right kidney contained all the pathologic factors enumerated before. I must frankly admit that no bacteriologic examinations were made at this time as the presence of pus germs might be safely assumed, and the presence of tubercle bacilli was not suspected.

A "working diagnosis" of suppurative pyelonephritis, with probable renal calculus was made, and the patient was informed that operative interference would be required. But as she preferred to try "medicine" for awhile, she remained under my care as an office patient for a couple of months, taking diuretics, antiseptics and tonics, alternately and combined, without any benefit, or any appreciable harm.

September 24, 1903, she entered St. Luke's Hospital, Chicago, and the following day I made a cystoscopic examination of the bladder, which showed a wellmarked cystitis, but nothing else; the urine could be plainly seen trickling from each ureteral orifice, that from the right kidney being turbid and slightly bloody, that from the left kidney being clear and normal in color. Urine obtained from each kidney by means of the segregator gave substantially the same results. Specimens of the urine examined in the hospital laboratory gave practically the results recorded before.

Obviously the case could only be reached by surgery, and so on September 26 I operated, expecting to find a suppurating kidney, and most probably a calculus. To my great surprise, I found a kidney considerably enlarged and presenting several fluctuating nodulations, each one larger than an English walnut and filled with rather thin pus, in which floated bits of cheesy matter, very suggestive of tuberculosis. Upon exploring the kidney in my vain search for a calculus, I found that the entire organ was beset with similar cavities filled with similar contents. I therefore proceeded to remove the kidney entire, fortunately without accident or complication. The patient recovered in an uneventful way, and was discharged October 20, with normal temperature and otherwise in good condition.

Microscopic examination of smears from the pus cavities in the kidney showed numerous tubercle bacilli, and giant cells were found in sections from the surrounding tissue.

Examination of the patient's urine, April 22, 1904, gave the following results: Color, amber; reaction, acid; specific gravity, 1,012; albumin, very slight trace; no sugar; few leukocytes and epithelia; very few small hyaline casts which gave no amyloid reaction; no tubercle bacilli; few colon bacilli. The patient wrote that "her temperature is normal," and that she had "gained 30 pounds since last October."

The history, symptoms and results seem to indicate that this was a case of primary tuberculosis of the kidney, cured by the prompt removal of the diseased organ. Of course the ultimate result is a question for future consideration.

My experience in the examination and treatment of renal growths has led me to adopt certain conclusions, which I am disposed to regard as axiomatic.

1. There is no royal road to the certain diagnosis of the nature or pathology of renal enlargements. It is impossible to differentiate with absolute certainty a simple renal hypertrophy from a tumor, especially when, as it occasionally happens, the hypertrophy is more or less asymmetric, or when a neoplasm differs but little in shape or density from the kidney which it has invaded. But when we come to the problem of deciding as to the nature or pathology of a renal growth, the difficulty is very much increased, and in fact, the question is one which it is impossible to answer, except by negatives, prior to an operation. But it is a matter for congratulation that the time has come when renal tumors are no longer mistaken for ovarian tumors, as was formerly so often the case.

2. It seems to be a comparatively rare thing to discover tubercle bacilli in the urine; it certainly is in my own experience, although I have diligently and carefully sought for them very many times, and most of my confreres here in Chicago tell me that they have had the same experience. Several new methods, or rather improvements in technic, have been proposed recently, but I have not yet been able to give them satisfactory

trials. One difficulty is that of being able to discriminate with absolute certainty between smegma bacilli and tubercle bacilli, but thorough alcoholic decolorization of carbol fuchsin stains, after previous decolorization with nitric acid, would seem to solve that difficulty. Of course, the trained bacteriologist, working in a hospital laboratory, would have no difficulty, but the confusing resemblance between tubercle and smegma bacilli might lead a comparatively inexperienced practitioner far astray in his diagnosis. J. Bergen Ogden, in his admirable "Clinical Examination of the Urine," gives very clear and concise directions for the examination of urine for tubercle bacilli, the gist of which is that the suspected pus should be twice washed in distilled water, then stained in the usual manner with carbol fuchsin, then decolorized with nitric acid, and afterward decolorized for at least 10 minutes with 70% alcohol. The specimen is now ready for staining with methylene-blue and mounting for examination. Improved methods will without any doubt enable us to detect with certainty and facility, tubercle bacilli in the urine, but up to this time it must be said that their detection in urinary deposits is uncertain and unreliable as a means of positive diagnosis.

3. Primary tuberculosis of the kidney, while not common, is not so rare that it can be left out of our calculations in any case of renal tumor. The fact that tuberculous disease has not appeared in any other part of the body is of little account as an argument against the possibility of tuberculosis of the kidney, in spite of the common belief to the contrary. It must be remembered, also, that other deposits of tubercle, too small or too obscure for detection, may be present, so that it is hardly safe to assume that any case of renal tuberculosis is positively primary, without the most searching examination of all accessible portions of the body. Furthermore, this rule holds good in the case of children, as well as adults, hence no case can be considered exempt therefrom.

4. The great majority of kidney operations must be regarded as exploratory and diagnostic. No operator, however experienced, can be sure what he is going to find when he exposes a diseased kidney. Those who have had the greatest experience in renal surgery can look back upon their surprises and disappointments, as evidenced by cases in which the exposed kidney told a very different story from what the preoperative diagnosis indicated. Of course, this is not peculiar to renal operations, but of late the idea has arisen that, owing to improved means of diagnosis, a marked degree of certainty has been reached with respect to the diagnosis of surgical diseases of the kidney. But in spite of all our refined methods, backed up with the highest degree of skill and the largest experience, the diagnosis of the surgical lesions of the kidney, and especially renal neoplasms, is still to no small extent a matter of conjecture, as every candid physician or surgeon must admit.

For many years past, I have preferred to operate in my own cases of renal disease. A physician cannot divest himself of his responsibility for, or his interest in a case, by simply turning it over to a surgeon; neither can he expect the surgeon to act simply as an assistant, for the purpose of carrying out the physician's wishes. Moreover, the postoperative treatment, both medical and surgical, in a case of surgical kidney, is frequently of quite as much importance as the operation itself. For these and other reasons, I have preferred to retain complete control of my cases of surgical kidney, and also to do my own operating; and I feel quite justified in recommending a similar course to other physicians who are giving special attention to renal diseases. The operation presents no difficulties which ought to appear formidable to any physician of experience; the incisions are simple, the landmarks plain, and the organ is easily reached and delivered. The physician who has studied the patient and the symptoms relating to the diseased organ for weeks or perhaps months prior to the operation, ought to be the best judge of the measures most appropriate for the case in hand, after the kidney is exposed; but if he is only an "innocent bystander," he can have very little to say about it. Again, the aftertreatment is important from a purely medical standpoint, and on this account the physician ought to keep his cases under his own control; at least I have found it most advantageous to my own patients. To avoid any possible misapprehension of my meaning, I add that I have invariably received the most liberal, courteous and friendly treatment from the surgeons with whom I have been associated in my practice.

In concluding this paper, I cannot forbear congratulating the profession and the laity on the tremendous advance in our knowledge of the pathology and treatment of renal diseases—especially those of a surgical nature—since my advent to the profession in 1862, when the kidney was "beyond the reach of the surgeon," and our medical professors dismissed "Bright's disease" with only one positive assurance, namely, that the patient was sure to die.

A CASE OF CHRONIC PANCREATITIS, DIAGNOSIS, OPERATION, RECOVERY.

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The diagnosis of chronic pancreatitis is usually so difficult that most cases of this disease which have been reported in literature were determined after operation or at autopsy. The difficulty arising in the diagnosis of this condition is due to the fact that the disease frequently accompanies other diseases of the digestive tract, the symptoms of which are so prominent as to mask those produced by the pancreatic lesion. Clinically, Opie[1] recognizes two forms of chronic pancreatitis, an interlobular and an interacinar type. The interlobular form is most frequently produced by obstruction of the pancreatic duct. The symptoms in this form are gastrointestinal, due to the absence of pancreatic secretion.

In the interacinar form the most distinctive symptoms are those of diabetes mellitus, due, as Opie has shown, to an involvement of the islands of Langerhans.

In addition to diabetes and glycosuria, other symptoms leading one to suspect disease of the pancreas are, according to Oser,[2] steatorrhea or fatty stools; defective proteid digestion (azotorrhea); extreme emaciation; salivation or gushing of large quantities of saliva into the mouth; profuse diarrhea; occasionally bloody stools; a tumor found in this region corresponding to the pancreas; jaundice which is transient in some cases and permanent in others; pain in the epigastrium which may be very slight or very intense and which is often paroxysmal resembling gallstone colic; an area in the epigastrium which may be very slight or very intense and which is sensitive to pressure; often persistent and intense nausea and vomiting; the vomited matter may be mixed with blood, or pure blood may be vomited; various forms of gastrointestinal disturbances due to pressure on neighboring organs. Most of these symptoms may, however, be absent or masked by gastrointestinal symptoms so that a diagnosis of pancreatic disease is often impossible.

Authors differ as to the mode of treatment of chronic pancreatitis. Some, as W. Hale White,[3] do not believe in the necessity of operation in all cases. This author mentions a case in which the patient completely recovered after simple laparotomy. Robson and Moynihan, however, believe that chronic pancreatitis must be treated by drainage of the gallbladder. Most authorities agree that the treatment of chronic pancreatitis is mainly surgical.

Mikulicz[4] states that the surgeon must choose between two methods: "He must strive to remove the cause of the disease; this he will do when he finds impacted concretions in the common bile duct; the papilla Vateri or Wirsung's duct. The technic of all these operations is not unlike that of cholelithiasis. As impacted calculi generally give rise to an infectious cholangitis or an inflammation of the pancreatic duct, drainage, as a rule, of one or both ducts must be provided. One should also drain the neighboring portions of the peritoneal cavity with tampons. The second way is more indirect, inasmuch as only a free outlet for the confined and infected bile is established. This can be done through the gallbladder fistula by means of a cholecystotomy when the cystic duct is free, or by establishing a communication with the small intestine by means of a cholecystenterostomy. Both operations have their advantages and disadvantages.

"The technic of the first is more simple, and does not permit a permanent infection of the bile tract from the contents of the intestine. It has the disadvantage that the patient is burdened for a long time with an external fistula, the closure of which may prove difficult. The question as to which of these two operations is preferable has not yet been answered by clinical experience. I want, however, to emphasize that the importance of a retrograde infection of the bile tract from the intestinal fistula is by no means so great as it may at first appear; this, at least the experimental work of Radziewski, done in my clinic, would indicate. The danger of infection is greatly diminished when the plan which I recommended in these cases is employed: After cholecystenterostomy an enteroanastomosis is immediately added at a distance of about 10 cm. from the original anastomosis, which deflects the intestinal circulation from the loop in connection with the gallbladder.

"I should also recommend that the surgeon do not hesitate too long in operating for chronic pancreatitis, as severe disturbances of nutrition can occur following gradual degeneration of the organ. Of course, when only mild symptoms are present, one will not resort to the knife at once, but rather recommend internal medication. The results of operation at present in chronic pancreatitis are very encouraging. If I include 22 cases of Robson, in which there was only one death in connection with the operation, I find 36 cases reported, of which 13 recovered and 5 proved fatal."

The following case of chronic pancreatitis has come under our care:

J. C. D., aged 35, first consulted us on March 27, 1903.

Family History.—Father, mother, three sisters, and four brothers are living; one sister died of dysentery at the age of 28.

Previous History.—Patient has had measles and possibly mumps in childhood; at the age of 12, he contracted malaria in North Carolina, which lasted about a month; he was ill for three months thereafter with complications from this trouble; there is no history of venereal disease.

For the past five or six years the patient has had digestive disturbances, being unable to eat certain articles of food and being easily nauseated by disagreeable sights and odors; for the past 14 years he has had occasional attacks of abdominal colic; the patient has been accustomed to taking moderate quantities of alcoholic stimulants for years.

Present History.—The present condition began about August last; it began with pain in the right lumbar and hypochondriac regions. The pains were not constant, and varied in severity; at times they were sharp and lancinating, at other times dull and aching. The patient has complained of indigestion, which has been more or less acute during this period. This consisted of excessive nausea and frequent vomiting, which would come on rather suddenly, most frequently at night, accompanied by severe pains in the epigastrium. The vomited material consisted mainly of undigested food particles, mucus, and occasionally contained blood.

There was often a gushing of saliva into the mouth, which the patient estimated to be as much as three or four ounces at a time. After the severe pains would disappear a diffuse pain still remained over the abdomen; the excessive pains and vomiting attacks which at first occurred only occasionally, have recently become more frequent, so that at present an attack occurs at intervals of every three or four days.

The bowel movements are now frequently diarrheic, occasionally containing blood, especially after a severe attack. The patient has lost about 40 pounds in weight.

Physical Examination.—On examination the patient is found to be very poorly nourished and much emaciated, weight about 140 pounds. His mucous membranes are pale, face very much drawn, tongue slightly coated, pulse weak, the radial arteries slightly thickened; heart and lungs are normal.

Abdomen: On inspection, the abdomen is found somewhat distended, peristaltic movements are not visible; there is a distinct cyanotic appearance over the abdomen, the capillaries being markedly distended. The kidneys and spleen are not palpable, the liver is not enlarged. The only points of tenderness which are noted are a circumscribed area in the epigastrium in the median line just below the ensiform cartilage, and another beneath the right costal arch in the mammary line. The first point corresponds to the area of pain experienced during the acute attacks; a splashing sound can be elicited in the region of the stomach, reaching 1 cm. below the umbilicus. On inflation the stomach is found to reach to this point; the gastric contents after an Ewald test-breakfast, show a total acidity of 40; free hydrochloric acid absent; lactic acid absent; much mucus. Pepsin and rennet-zymogen diminished half. The urine is normal. Specific gravity, 1,020; it contains neither albumin nor sugar.

Blood: Red blood cells number 5,168,000 in 1 cm.; the white blood cells, 5,625; hemoglobin, 50%; stained specimens show nothing abnormal.

On account of the paroxysmal attacks of pain, this case was looked upon at first as possibly one of cholelithiasis; on the other hand, the rapid emaciation, together with the absence of free acid in the stomach contents, pointed in a measure, at least, to the possibility of carcinoma of the stomach being present, notwithstanding the absence of a palpable tumor. The diagnosis appeared so doubtful, that the patient was kept under close observation; numerous examinations of the gastric contents showed conditions similar to that already described. Notwithstanding a carefully regulated liquid diet and frequent lavage, the patient did not improve. The paroxysmal attacks of pain became more frequent and intense; the pain was almost entirely limited to the epigastric region, which was now constantly tender to pressure. With the attacks the vomiting and fecal discharge of blood became more frequent.

April 12: The fecal discharge of this morning was saved for examination. This stool was extremely copious, of a mushy consistency, a cadaverous odor, and of a yellow brownish color; it was found macroscopically to be distinctly fatty. On microscopic examination fat globules and fatty acid needles were extremely abundant. Fragments of striated muscles were also very numerous. Various examinations of the fecal discharges on April 15, 20, May 2, 10, and 14, revealed similar conditions. The stools were usually abundant, clay colored to yellowish-brown in appearance, mushy, and containing large quantities of fat and portions of undigested striated muscle fibers.

From the character of the stools, the paroxysmal pains in the epigastrium, the vomiting and passage of blood from the bowels, the rapid emaciation, a diagnosis of chronic pancreatitis was made, notwithstanding the absence of a tumor and the absence of glycosuria and jaundice.

It was evident that nothing but surgical intervention could prove of any avail in this case, and the patient was advised to enter the City Hospital; he was admitted on May 28, 1903.

On June 1 the abdomen was opened under chloroform anesthesia, an incision measuring five inches through the right border of the rectus muscle being made. The liver was found normal; the gallbladder was normal, but rather small; its wall was not thickened; no calculi were found, either in the gallbladder or in the ducts. The stomach was found fastened by adhesions to the under surface of the liver near the gallbladder and dragged much to the right of its normal position; the pancreas was found very hard, firm, and tense, producing a sensation of scar tissue to the touch; at one point the pancreatic tissue was so hard that the presence of a calculus was suspected, which, on closer investigation, was not found to be the case. The head of the pancreas was much enlarged.

The gallbladder was stitched to the abdominal incision with catgut and opened and a rubber drainage-tube introduced; the abdominal wound was closed with interrupted sutures. The entire operation lasted 45 minutes; the patient had considerable pain and nausea after the operation. During the first night he had three movements of the bowels, each of which contained blood. Large quantities of blood drained from the wound the next day. On June 5 the patient passed a half pint of blood from the bowels; opium was administered and an icebag placed on the abdomen. On June 9 the patient still passed blood, though his condition still remained good; the stitches were removed on this day. On June 13 he had another attack of pain similar to those before operation; it was accompanied by vomiting. The attack was promptly relieved by a hypodermic injection of morphin. The bile continued to discharge freely through the drainage-tube. On June 23 the patient was able to sit up and on July 1 able to walk and leave the hospital. The drainage-tube was not removed until August 20, the bile continuing to flow freely all the while. The patient made a speedy recovery, increased gradually in flesh and has had no more attacks of pain; he is able to eat plentifully of all foods and digest everything thoroughly. On February 15, 1904, the gastric contents showed normal conditions; total acidity, 45; free hydrochloric acid, 0.15%; the patient's weight is now 182 pounds, he weighing more than ever before and he is able to pursue his regular occupation with ease.

This case is especially interesting from the fact that notwithstanding the absence of a tumor, glycosuria, and jaundice, a diagnosis of pancreatitis was made on account of the character of the stools, the paroxysmal pains in the epigastrium, the vomiting and passage of blood from the bowels and the rapid emaciation, and also from the fact that thorough drainage through the gallbladder gave almost immediate as well as permanent relief.

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[1] Diseases of the Pancreas, p. 332.
[2] Diseases of the Pancreas, Nothnagel's Encyclopedia.
[3] Annals of Surgery, June, 1903.
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CONCERNING THE INVASION PERIOD OF THE MALIGNANT (ESTIVOAUTUMNAL) TERTIAN MALARIAL PARASITE.[1]

BY

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The fact that the propagation of malarial fevers occurs by mosquito inoculation is too well established to require any further confirmatory data, but certain points in connection therewith remain, to a degree, undetermined. One of these points is the period of incubation, or the length of time which elapses between the instant of inoculation and the first appearance of paroxysm, or fever. It seems not at all unlikely, as contended by a number of observers, that this period is a variable one, and that the variation is an extreme one, depending on certain ill-understood conditions of the subject of inoculation, and the stage and variety of the inoculated parasites.

The following 18 cases seem to give force to the proposition that, under the same conditions, the period of incubation for a number of individuals inoculated by mosquitos with the same malarial parasites, at approximately the same time, varies but slightly. The parasite with which we have to deal in this instance is the tertian variety of the estivoautumnal family.

The period of incubation for this parasite, the malignant tertian, as given by various authors, varies from four to twenty days.

Craig[2] says that the most satisfactory datum we possess is that given by Marchiafava and Bignami, and he quotes three cases cited by them, in which there existed practically no opportunity for error, and in which the incubation period was from nine to ten days.

The difficulties attendant upon reaching accurate conclusions in this matter, in all cases except experimental inoculation cases, *i. e.*, in all cases in which inoculation occurs naturally by medium of the mosquito, are apparent. Craig[3] also points out that the observations of natural inoculations are the only ones of value in determining the incubation period.

On April 11, 1902, at 7.00 a. m., 45 men of Troop A., Sixth U. S. Cavalry, left the station of Naic, in Cavite Province, Philippine Islands, to take part in certain operations in the field in the vicinity of Gonzalez Mountain. They were absent from their station eight days and seven nights. Two of these days were spent on the march, and one night, that of April 12, was spent at the town of Silang, *en route*. The nights of April 12, 13, 14, 15, 16, and 17 were spent in camp under shelter tents. Mosquito canopies were used at the home station (Naic) and had been used by these men up to the time of their departure, but were not taken into the field. The troops returned to their home station upon the evening of April 18, the men apparently in good condition. During the time in the field the health of the command was reported excellent; but one case of fever, a recurrence of a chronic infection, lasting but a day, was reported. During the same period there was but one admission for malarial fever from the men of the troop left behind in the garrison. The camp site occupied for six days and nights had not previously been occupied by American troops, and there were no houses in the vicinity. There was one outpost a short distance from the camp, and a guard consisting of a noncommissioned officer and three men was maintained there from April 13 to 17, inclusive. As neither surgeon nor hospital corps attendant accompanied this expedition, my information concerning the camp and its surroundings was obtained from members of the expedition.

During the week following the return of the expedition to the garrison no cases of malarial fever were admitted from Troop A, Sixth Cavalry. Within 48 hours from the night of April 25, 18 men from the returned expedition were stricken with malarial fever, and 15 were admitted to the hospital. During the same period there were no admissions from the detachment which had remained in the garrison.

The blood of each patient was examined microscopically before quinin administration was begun, and estivoautumnal parasites (malignant tertian organisms) were found in each specimen, in most cases in great profusion. The parasites were unmistakably of the same variety. The fever in each case was sharp and remittent in character and lasted from two to six days. The fever curve (except as obscured by quinin administration) and the clinical manifestations were those of malignant tertian fever. There were no spontaneous cures, rather massive doses of quinin being required.

In the present group of 18 cases the following facts bearing upon the incubation period are known: The date upon which the men went into camp without mosquito canopies, and consequently the first date upon which general inoculation might occur, was April 12.

The time of the outbreak of the epidemic was the 48 hours from the night of April 25 to April 27, inclusive.

Systematic blood-examinations in all cases of malarial disease at the post of Naic had been made and recorded.

A review of this record for the preceding six months showed that only three of the eighteen patients had suffered from malarial disease in the past half year, and but one patient within the month preceding this outbreak. Curiously in this case the previous attack was a clear case of benign tertian infection, and in the present attack both benign tertian and estivoautumnal tertian organisms were present in the blood, *i. e.*, a double infection. Clearly the present attack was a fresh infection with the malignant tertian (estivoautumnal) organism, as were the other 17 cases.

If we take the 24 hours ending upon the evening of April 14 as the first day of exposure, and assume that all of these cases were inoculated within 24 hours, we find that there was an incubation period of 12 days for those patients who were stricken on the night of April 25, and of 13 days and 14 days, respectively, for those stricken on the nights of April 26 and April 27. These are somewhat longer periods than in the three cases cited by Marchiafava and Bignami referred to before, and it is probably not fair to assume that these 18 men were all inoculated within 24 hours. Indeed, the facts seem to indicate that this did not occur.

Careful inquiry of the men affected as to where mosquitos were most troublesome elicited an expression quite unanimous to the effect that they were much worse at the outpost mentioned.

The records show that 40% of the expedition were infected, and that of those men who did outpost duty 65% were infected. We, also, find that about 72% of the whole number of sick were those men who did outpost duty. Or to state the case otherwise, of the men who did no outpost duty about 82% escaped infection, while of those who performed outpost duty 35% only escaped.

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[1] Read before the Union Medical Association of Northeastern Ohio, at Masillon, Ohio, May 10, 1904.

[2] Estivoautumnal Fevers, Craig, p. 71.

[3] Ibid, p. 73.

These facts are too significant to permit us to escape the conclusion that the victims were in most cases infected while upon outpost duty. A few of the men performed more than one tour of guard duty at the outpost during the five days it was maintained and for this reason and other circumstances relating to the relief of the guard, rotation, etc., it is difficult to carry the investigation further.

It seems fair, however, to take the midpoint of the 120 hours during which this outpost was maintained and the midpoint of the 48 hours during which the men were admitted to the hospital sick, as reckoning points to determine an average incubation period. This done we ascertain the average to be 12 days. If now we allow each man 24 hours immediately preceding admission to the hospital as a portion of the period of sickness we reduce the invasion period to 11 days and if we make this allowance 48 hours, (the period required for the complete cycle of the causative parasites in these cases) we reduce the incubation or invasion period to 10 days, which closely corresponds to the observations of the Italians named. It is certainly fair to make some allowance of this kind, bearing in mind that the patient does not ordinarily seek the hospital until too ill to continue his duties.

In view of the foregoing facts, it is believed that the following is an accurate statement. In an epidemic of 18 cases of estivoautumnal fever (of the malignant tertian variety) which occurred in Troop A, Sixth U. S. Cavalry, in the Philippine Islands in April, 1902, the invasion or incubation period was between 10 and 11 days.

It has seemed futile to attempt to locate the original human source of infection in this epidemic. Should we look for it in a latent or passive infection existing in some member of the expedition, we are confronted with the fact that the parasite undergoes an intramosquito (a reproductive) cycle preceding the formation of sporozoids in which form the parasites are inoculated, and that this intramosquito cycle occupies a period of about 10 days, according to Manson, Ross and the Italian observers. It would be impossible to harmonize the facts and dates of this exposure and epidemic with such an hypothesis and we are therefore led to conclude that the inoculating mosquitos in this epidemic obtained the malarial parasites from some other human source, probably from native Filipinos who had previously been in the vicinity, it being a fact well known and proved that the natives suffer extensively from malarial disease, both in its active and latent forms.

GANGRENE OF THE FINGER CAUSED BY CARBOLIC ACID.

BY

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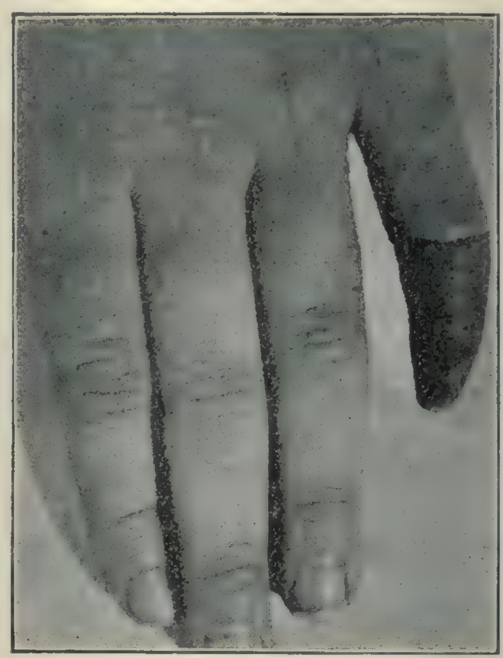
of Philadelphia.

Sufficient attention has not been given to the danger of producing gangrene by the use of solutions of carbolic acid, even when comparatively weak, applied as a moist dressing for a number of hours. Notwithstanding the occasional report of cases, this danger is not widely recognized, and many physicians have not had their attention attracted to the subject at all. It is with the hope of attracting further notice to the matter that this communication is made.

The matter has been worked out experimentally, and it is now well known that the use of the full strength of the acid is not necessary to produce gangrene. When full strength acid is applied, the parts turn white, and a superficial slough is cast off. Such white cauterized areas are sometimes seen in the vagina, when a carbolic acid douche has been extemporaneously prepared. Globules of undiluted acid remain in the water and may be left in the vagina, cauterizing any part with which they come in contact. I have frequently seen superficial erosions caused in this way, but never extensive gangrene. In the case of a finger, if dilute solutions are used it seems to be necessary for the production of gangrene that the entire finger be surrounded by the solution and tied up in it for at least 24 hours.

An excellent review of the whole subject of carbolic gangrene, illustrated by colored plates and photographs, has been furnished by Francis B. Harrington,[1] visiting surgeon to the Massachusetts General Hospital. He has discovered, or seen through others, 18 cases at the Massachusetts General Hospital, and finds in the literature 132 cases, produced usually by *dilute solutions.* He shows that in most of the cases the effect is painlessly produced by a dressing kept moist for about 24 hours, and that the strength of the solution employed may be from 1% to 5%. Experiment shows that the result is not due to tight bandaging, that the dilute solution is quite capable of producing the effect, and that gangrene does not always follow the application. Josef Levai, of Budapest, quoted by Harrington, showed experimentally that the death of the part is due to chemic action, and that other diluted chemicals might produce the same effect if applied by a moist compress for 20 to 24 hours. It may be assumed that the reason for the more frequent occurrence of carbolic acid gangrene is, that this is the agent that occurs to the minds of the laity, of drug clerks, or of some physicians for use as an antiseptic. The fact that the same individual may be in the habit of using the same solution without accident does not militate against the fact of the danger, since the same solution does not always produce the same result. Especially in dermatology and in minor surgery is caution necessary, and the knowledge of the danger should be much more widespread than it is.



Carbolic acid gangrene of finger.

Two cases may be briefly mentioned:

In one, a young woman applied several years ago, at the outpatient service of the Presbyterian Hospital, at that time in my charge. Three-fourths of the length of her middle finger was dead black in color, somewhat shrunken, and a line of demarcation had formed close to the hand. Entire death of the part had occurred, and amputation was the only alternative. She stated that for a trifling injury she had applied at a drug store for something to put on the finger, and had been given carbolic acid lotion, in which her finger had been tied up, with the result stated. The strength of the solution was not known, but as pain had not been caused, it was probably not great.

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[1] Amer. Journal of Medical Sciences, July, 1900, p. 1.

The other case was recently brought under my care by a physician of this city, who is the father of the little patient. The child, a girl of 7, and perfectly healthy, met with a trifling injury of the finger, and without calling the attention of the parents to the condition, an officious servant had probably thrust the finger into a bottle of carbolic acid, and had then tied it up. The servant afterward denied the use of the acid, stating that the child herself had put it on, but there was no question as to the use of the agent.

The degree of dilution, if any, could not be determined, owing to the denials of the servant, but the bottle used contained undiluted acid. When brought to my office, the little finger of the left hand showed the condition illustrated in the photograph, which was taken on the tenth day after the application. Beginning at the proximal interphalangeal joint, a dry gangrene had involved the remainder of the finger. It was absolutely painless, dry, without odor, absolutely black, and shrunken. A sharp line of demarcation extended across the dorsum at the joint named. On the palmar surface the vitality of the finger was preserved a quarter inch lower, and the line of demarcation had not yet been sharply established, the dead black over the last phalanx shading off to a gray-black and then into healthy tissue again. Hopeless disorganization of the finger was recognized, and an alcohol dressing was used to destroy any carbolic acid remaining in the half dead tissue, and to save as much anterior flap as possible. Spontaneous separation of the last phalanx occurred at the joint, with a gradually thinning cuff of tissue higher up. This gave a longer finger than amputation by the knife would have done, the stump being somewhat tapering and quite useful. In this unfortunate case the only evidence lacking is the strength of the solution.

SPECIAL ARTICLES

THE TRAINING OF THE SURGEON.*

BY

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Pain, hemorrhage, infection, the three great evils which had always embittered the practice of surgery and checked its progress, were in a moment, in a quarter of a century (1846–1873) robbed of their terrors. A new era had dawned; and in the 30 years which have elapsed since the graduation of the class of 1874 from Yale, probably more has been accomplished to place surgery on a truly scientific basis than in all the centuries which had preceded this wondrous period. The *macula levis notæ* clung to surgeons the world over until the beginning of the nineteenth century, although distinguished and scholarly men, as well as charlatans and barbers, have practised the art in almost unbroken succession from the time of Hippocrates (460–375 B. C.) to the present day. A warning for all time against satisfaction with the present achievement and blindness to the possibilities of future development is the imperishable prophesy of the famous French surgeon, Baron Boyer, who over a hundred years ago declared that surgery had then reached almost, if not actually, the highest degree of perfection of which it was capable.[1]

Tempted to belittle by comparisons the performances of our progenitors, we should remember that the condition of surgery has at all times reflected the knowledge and thought of the ablest minds in the profession. We may well recall the admonition so gently given by the talented von Volkmann, who was also a popular poet, writing under the pseudonym of Richard Leander:

> "Hoch aufhebt Schnee-schimmernd das Haupt in die Wolken
> die Jungfrau,
> Aber sie deckt mit dem Fuss ein unendliches Land."

Surgery, like other branches of the healing art, has followed in its progress zigzag paths, often difficult to trace. Now it has seemed to advance by orderly steps, and through the influence of some master mind, even by bounds, again it has stumbled, apparently only from error to error, or has even receded; often there has appeared some invention or discovery, for which the time was not ripe and which had to await for its fruitful application or, perhaps, its rediscovery, a more favorable period, it might be centuries later.

There is a most intimate interdependence of physiology, pathology, and surgery. Without progress in physiology and pathology, surgery could advance but little, and surgery has paid this debt by contributing much to the knowledge of the pathologist and physiologist, never more than at the present time. Harvey's immortal discovery marks an epoch for surgery, as it does for all medicine, for without knowledge of the circulation of the blood only the most primitive kind of surgery is thinkable. And yet, there is abundant proof that the ligation of vessels, with the introduction of which Ambrose Paré (1517–90) has until recently been accredited, was known to the school of Alexandria; carried, it is said, to Rome by Euelpistus, it is mentioned by nearly all surgical writers of importance from Celsus to the Renaissance. The brilliant Fallopius (1523–67), Paré's contemporary, alas, a very short-lived one, wrote much about the use of the ligature for the arrest of hemorrhage. Nevertheless, until Harvey demonstrated (1628) the true course of the blood, the principles underlying the control of bleeding by the ligature could not be understood, and surgeons studiously avoided operations, which entailed hemorrhage and necessitated its control.

We can hardly understand, in these days, that surgeons who were at the same time anatomists and physiologists, could have accepted for so many centuries, almost without remonstrance, Galen's views. Our inability to comprehend their state of mind with reference to this problem, illustrates particularly well the difficulty experienced when we attempt to transport ourselves to other times, to obtain the point of view which subjugated our forefathers of centuries ago. It is now, as it was then, and as it may ever be; conceptions from the past blind us to facts which almost slap us in the face. The blood which spurted from the divided artery was believed to come not from the left heart, but in some mysterious and indirect way from the veins, in which it was supposed to flow and ebb to and from the right heart. Harvey knew nothing of the paths by which the arterial and venous systems communicate, and his discovery was not made complete until Malpighi, in 1661, demonstrated by the microscope the capillaries.

How bewildering hemorrhage must have been when a wound suddenly filled with blood from a source unknown, and when sometimes, with little bleeding, a patient suddenly died from aspiration of air into the veins! What more natural than to pack quickly the wound, as Heliodorus and others were wont to do, with compresses of lint or sponge, to ligate large masses of tissue by circumvection, to draw the bleeding edges of a wound tightly together by stitches, as is still sometimes done, or to sear the bleeding surfaces with the cautery or with boiling oil! Imagine the terror and suffering of the patient, the desperation and haste of the surgeon, conditions not suited to the tranquil pursuit of physiologic knowledge.

In all times, even to the present day, the surgeon's chief concern during an operation has been the management of the bloodvessels. The fear of death on the table from hemorrhage has deterred many a charlatan and incompetent surgeon from performing otherwise perilous operations. The care exercised in the control of hemorrhage may constitute the chief difference between a rapid and a slow operator. This was eminently the case in the days within my experience when two or three artery clamps were considered abundant for operations which now require 100 and more.

Five things declared by Paré, usually designated as the father of French surgery, as proper to the duty of a surgeon may serve to indicate how restricted was the field of surgery before the course traveled by the blood was determined:

1. To take away that which is superfluous, as in amputations.
2. To restore to their places such things as are displaced, as in hernias.
3. To separate those things which are joined together, as in parts rendered adherent by burns.
4. To join parts which are separated, as in stitching up a wound.
5. To supply the defects of nature, as in setting an eye, an ear, a nose, or one or more teeth; filling up the hollowness of a defective palate with a gold or silver plate.

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*The Annual Address in Medicine, delivered at Yale University, June 27, 1904.

The studies of Hunter, born just 100 years after Harvey published (1628) his demonstration of the circulation of the blood, and 70 years after Malpighi discovered the capillaries (1661), on the healing of wounds, on inflammation, on the ligation of arteries, were made possible by the discoveries of these great investigators. John Hunter's (1728–1793) name is eclipsed by that of no other surgeon, and for the fame of his contributions, particularly to biology and physiology, an inextinguishable lamp will forever burn. Let us remain with him if only for a moment, for he is an inspiration and a teacher of us all, as great perhaps for his time as the world has seen or will ever see again.

How fascinating to follow the groping in the dark, and the searching for the light, of a great mind. How refreshing, and what a lesson is his honest doubt. "I am not able, under such circumstances," he writes,[*] "decidedly to say which is the best practice, whether to leave the slough to separate, or to make a small opening and allow the blood to escape slowly from the cavity." And, again, speaking of that common class of injuries in which the wound communicates externally and the blood has formed a scab over the breach, he says:[†] "But this operation of nature reduces the injury to the state of a mere superficial wound, and the blood which is continued from the scab to the more deeply seated parts, *retaining its living principle* [italics mine], just as the natural parts do at the bottom of a superficial wound, the skin is formed under the scab in the one case as in the other, yet if the scab should either irritate or a part underneath lose its uniting powers, then inflammation and even sometimes suppuration may be produced." Here Hunter recognizes facts which have been fully appreciated only in recent years, that there is a power for good in the blood, that the blood clot has a value and should be undisturbed, and that the dry scab usually desirable is sometimes harmful.

Under the conditions existing until the time of Hunter, near the end of the eighteenth century, it was doubtless right that the practising surgeon should have been sharply differentiated in social position and professional standing from the physician proper; the latter being equipped with all the academic knowledge of the time, the former an apprentice of the barber shops. "The reasoning of the Army surgeons endured as butter in the sun," wrote Abraham A. Gehema, in 1690, and the Army commanded the services of the best surgeons. Nevertheless, it is often refreshing to find records of sound personal observations in the writings of the old surgeons who, rude and unlettered though they might be, were dealing with realities at a time when the minds of physicians were buried in scholastic subtleties and fruitless speculations.

In the German universities, when chairs for surgery were first created, it was considered beneath the dignity of the physician who taught the doctrines of this art actually to practise it. Thus Heller (1708–1777), about the middle of the eighteenth century taught, among other things, surgery both in Göttingen and Berne, but never demeaned himself to perform an operation. Billroth,[‡] commenting on this arrangement, says, "That Albert von Heller in Berne should for many years have lectured on surgery without ever having touched a single human creature with the knife is for us, in these days, hard to comprehend." How different apparently from Heller's was the attitude of mind at that time of John Hunter (1728–1793), in England, whose practice yielded a yearly income of 6,000 guineas; and yet in spirit, perhaps, not so different after all, as exemplified by the remark to an assistant, "Well, Lynn, I must go and earn this damn guinea, or I shall be sure to want it tomorrow."

Even in America a little more than a hundred years ago a definite stigma still adhered to the exercise of the surgeon's art. Thus writes the eminent Dr. John Morgan, founder of the Medical Department of the College of Philadelphia, later the University of Pennsylvania, in a letter from London, November 10, 1764, to Dr. Cullen, after a long period of study abroad: "I am now preparing for America, to see whether after 14 years of devotion to medicine I can get my living without turning apothecary, or practitioner of surgery."[‖]

It was not until the year 1800 that the Royal College of Surgeons received its charter, and then only with great difficulty. Parliament had again and again refused to grant a new charter to the disbanded "Company of Surgeons." Lord Thurlow is reported to have said in the House of Lords when the bill had passed the Commons, "There is no more science in surgery than in butchering," and it was only when the Court of Examiners, a body still in existence, decided to appeal to the Crown, to King George III, that the charter was ultimately obtained. From the days of the great Hohenstaufen, Frederick the Second, who in 1231 commanded the teachers at Salernum diligently to cultivate the art of dissection, up to the present time, medicine has repeatedly been aided and advanced by the enlightened intervention of kings and rulers. When Maria Theresa brought Gerhardt van Swieten from Leyden to Vienna in the face of great opposition from the profession, she laid the foundations of the fame of the medical school of Vienna, and she placed to her credit an achievement from which Austria and Germany still profit. In Prussia, medicine has enjoyed the support of the Crown without interruption from the time of Frederick the First to the present day. The splendid new equipment of the surgical department of the University of Berlin is largely the result of Emperor William II's wisdom and liberality. "A king or a privileged class," writes President Hadley,[*] "ruling in accordance with traditions and trying to act for the interests of the people will give a much larger measure of real freedom than is possible under a democracy whose members have no respect for the past and no higher aim than their own selfish advancement."

The founding of the Academy of Surgery in Paris, in 1731, has been referred to as the turning stake in the history of surgery, as the starting line of its scientific labors and of its true career, and the French regard the five anatomic demonstrations made a few years before by the surgeon, La Peyronie, in the College of St. Come, as the inauguration of the new epoch. V. Bergmann reminds us that a Theatrum Anatomicum for students of surgery was erected in Berlin in 1713, but this exerted no such wide influence as the Paris Academy. The development of clinical teaching can be traced by unbroken tradition directly to Boerhaave, professor at the University of Leyden, in the early part of the eighteenth century, and a teacher of unsurpassed influence and renown. His pupils carried the new methods to Austria, to Germany, to Edinburgh, and their descendants in the faith were the founders of the early medical schools in this country. In its influence upon the development of medical teaching, the University of Leyden occupies historically the first position.

The relation of surgery to general medicine, at the end of the eighteenth century, was in Germany much less satisfactory than in Great Britain and in France. Under the teacher of clinical medicine was a surgeon who demonstrated the surgical cases. When Reil was called from Halle to Berlin, in 1810, as professor of medicine, he naturally expected that the customary relations would be preserved, and that Carl Ferdinand Graefe, a young protégé of Wilhelm v. Humboldt, would operate under his direction. But by a mandate from the throne, the independence of Graefe and of surgery was established. Graefe was given a responsible post as Army Surgeon, and his services in war were of such a high order and so greatly esteemed by the King that an independent surgical clinic was soon established and entrusted to him. The first equipment of this clinic was a very modest one, conforming to the straitened condition of the State's exchequer. Five times in the first nine years of its existence his hospital of 10 beds was obliged to seek new quarters, but in 1818 it was located at the site of the present surgical clinic of the University of Berlin. Philipp v. Walther, his illustrious contemporary, gives his impressions of Graefe's clinic, which he visited in 1834: "A remarkable, splendid spectacle, conducted in a dauntless and highly gifted manner is Graefe's clinic, in Berlin; we have no prototype of it either in France, England, North Italy or Holland. Its disposition is entirely national, purely German." "What changes have taken place in a single generation," writes von Bergmann,[*] "changes brought about by the same indefatigable activity of the German clinical teachers and by their absolute devotion to their work, the devotion springing from innermost convictions, which made it possible for Graefe, after 15 years of clinical toil, to win such testimonials from his fellows."

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[*] Hunter: Palmer's ed., Vol. iii, p. 247.

[†] l. c., p. 252.

[‡] Lehren u. Lernen, p. 45, 1876, Wien.

[‖] Packard: The History of Medicine in the United States, p. 191.

[*] Arthur T. Hadley: The Relations between Freedom and Responsibility in the Evolution of Democratic Government, Chas. Scribner's Sons, 1903.

In the year 1876, the year when I first walked the wards of Bellevue Hospital, New York, the dawn of modern surgery in America had hardly begun and it may be of interest to note some of its characteristics at that time. The discovery of ether was not so old as to have obliterated all traces of the old surgical rule, "Cito tuto et jucunde," but the rapid method of operating was gradually giving place to the safer one. Conservative surgery was made possible by general anesthesia, as was illustrated particularly well in the exsection of joints and the subperiosteal resection of bone. The discovery of the ophthalmoscope, an invention of incalculable importance, had led to the establishment of the specialized eye surgeon, and it soon proved a great boon to general surgery, leading as it did to the adoption of innumerable speculums and mirrors for the examination of hitherto unexplored regions. As a result of a reaction against bleeding and against the reckless waste of blood at operations, there developed a fondness, almost a mania, for bloodless operations, for styptics and the actual cautery, for écrasement linéaire (Chassaignac) for galvanopuncture and electrolysis. To the employment of galvanopuncture in the treatment of arterial angiomas is due the introduction by Pravaz of the hypodermic syringe, which it is interesting to note was originally designed solely for the purpose of conveying to these growths a substance (solution of iron chlorid) capable of producing coagulation. This little instrument, destined soon to play a part so useful, so indispensable, entitles its inventor to the lasting gratitude of mankind.

None of these methods for the bloodless division of tissues was destined to supplant the knife, so that surgeons became interested in devising better means for the prevention of loss of blood. In 1873, at the German Congress of Surgeons, in Berlin, von Esmarch gave to the world his method of producing artificial bloodlessness ("die kunstliche Blutlehre").[2]

But no truly great and essential progress in fundamental surgical principles had been made since Hunter's time until the monumental labors of Pasteur opened the vista through which for a time only the eyes of Lister could peer.

It is hard to realize that nearly 40 years have passed since Lister and Pasteur made to surgery a contribution rivaled only by Harvey's in importance. It was in 1867 that Lister first made known the almost incredible results of his experience with carbolic acid in the treatment of wounds. The great merit of Lister lies in his clear recognition of the significance of Pasteur's discoveries in revealing the underlying causes of the infection of wounds and in the adoption of measures fitted to prevent and combat such infection. This merit will remain, whatever changes may be made in the details of antiseptic and aseptic surgical procedures.

It was not, however, until 1875 that even in Germany Listerism obtained a substantial foothold. How I should like to tell the true story of this period in this country and abroad, to do full justice to Lister and his few faithful disciples in the United States and Great Britain, who for nearly twenty years contended with prejudice and parried the almost venomous thrusts of the sceptical and the envious.

Why was Germany the country first to adopt antiseptic surgery? Why did almost every surgeon in every German university eagerly embrace Lister's system almost at the same moment and as soon as it was clearly presented? The answers to these questions are, I believe, to be sought mainly in the character of the scientific and practical training of surgeons in Germany, and it is especially upon the question of the training of surgeons that I wish to dwell in the remainder of this address. What I shall have to say relates not so much to the mere teaching of surgery in the undergraduate curriculum, as to the requirements for the training of those who desire to fit themselves for a career in surgery.

Thirty years ago as I sat upon the benches, often seven hours a day, listening to medical lectures, I was so impressed with the characters and lives of some of my teachers that I believed they represented all that was most advanced in medicine. But a day in Halle, at the clinic of Volkmann, was a revelation to me. There I heard by one of the young assistants at the early morning clinic, an impromptu discourse on epithelioma at which I marveled. At home the whole subject of tumors had been treated of in one lecture, in one hour, in the "tumor lecture." Attending the Congress of German Surgeons, which each year takes place at Eastertide in Berlin, I heard the subject of hip-joint tuberculosis discussed. One surgeon alone reported on 600 cases, more or less, some of which he had observed 20 years or longer, and most of which he had been able to follow. His methods of observation were new to me; his knowledge was inspiring; I was thrilled by his masterful exposition. Within two weeks, by a strange coincidence, I found myself attending in America a meeting of a very superior "surgical society" in one of our large cities, at which the same subject, "morbus coxarius," was under consideration. Only one of the surgeons had had an experience of as many as 28 cases, and of the subsequent history of most of these he knew very little. The contrast was not only in the knowledge and presentation of and interest in the subject, but in the audience. The Deutsche Gesellschaft für Chirurgie admits to its fellowship any reputable surgeon of any country of the world and its halls at each congress are filled and overflowing. The membership of the select "surgical society" was limited to 20, and the average attendance was less than this number.

The profession in this country was hardly more responsible for the conditions which impeded advance at that time in America, than were Germany's physicians for the conditions which in that country so favored it. It may be that the rise and multiplication of proprietary schools of medicine without organic connection with a university was a necessary incident in the rapid growth of a new country, but it is absurd to expect them to yield results in the education of physicians and in the advancement of knowledge comparable with those of the well-supported medical departments of European universities. It is difficult to free either the educated public or our universities from the reproach that they remained so long indifferent to the needs of higher medical education. The times are changing, and we have learned in our own time, indeed, within a decade, how superior in all respects is the endowed university medical school to the old-time proprietary school. Who would have believed that one or two well-utilized endowments could have achieved in so short a time so much? It was not only because some of the best men in this country were attracted to the university medical schools, fortunate enough to be so endowed, that the great progress was made; it was also because the further development of these men was made possible by the opportunities which they proffered and the atmosphere which they developed. The influence of these men, comparatively little before, almost at once, under the new auspices, was felt not only in this country, but abroad. The growth of these men and of these schools has been so great that they are already well known and honored in all civilized countries. Much of what Welch foretold here in 1888 and in Cleveland in 1894[*] has already come to pass. Although we now have in the United States several (five or six) moderately well-endowed medical schools with a university connection, the problem of the education of our surgeons is still unsolved. Our present methods do not by any means suffice for their training. Do we require stronger proof of the inadequacy of these methods in producing young surgeons than is presented by the socalled sacrifices which our young men today are willing, nay, most eager to make in order to obtain a training which seems, even to them, not only desirable, but absolutely essential for success of a high order? Here I may be permitted to instance conditions which have evolved in a natural way at the Johns Hopkins Hospital, where the plan of organization of the staff differs from that which obtains elsewhere in this country.[3] The average term of service for the interne on the surgical side who succeeds to the house-surgeonship in this hospital is at present eight years—six years as assistant, in preparation for the position, and two years of service as actual house surgeon. Adding to these the four years in the medical school and the junior and senior years in college, which in some colleges may well in considerable part be devoted to branches introductory to the study of medicine, the prospective house surgeon has to contemplate 12 or 14 years of hard work, very hard work, in order to secure this prize, to which in this country of necessity only a very few at present attain. Thus far the success of the three or four men who have received, approximately, this training is so convincing that the very best graduates of our own and of other schools are eager for the opportunity to be tested as to their fitness to rise to the position; and I know from applications which have been made to me this year that men of the desired quality would gladly serve ten years on the surgical staff in order to obtain the experience which the house-surgeonship and the training leading to it afford. The number of years which an interne who has become house surgeon is expected to serve with us is not and never has been prescribed.

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[*] Die Entwickelung des Chirurgischen Unterrichts in Preussen, Berlin, 1893.

[*] W. H. Welch: Some of the Advantages of the Union of Medical Schools and University—New Englander and Yale Review, September, 1888. Higher Medical Education and the Need of its Endowment.—Medical News, July 21, 1894.

It will be objected that this is too long an apprenticeship, that the young surgeon will be stale, his enthusiasm gone before he has completed his arduous term of service. These positions are not for those who soon weary of the study of their profession, and it is a fact, that the zeal and industry of these young assistants seem to increase as they advance in years and as their knowledge and responsibilities become greater. Nowhere certainly can a surgeon in a given period acquire so much, mature so rapidly, as in a hospital with an active and properly conducted service. The time devoted to the training in surgery of those who hope to be teachers should not be curtailed, but young men contemplating the study of surgery should as early in life as possible seek to acquire knowledge of the subjects fundamental to the study of their profession.

It was our intention originally to adopt as closely as feasible the German plan, which, in the main, is the same for all the principal clinics of the German universities. The house surgeon, or first assistant, as he is called in Germany, is selected, after several years of service, from a number of well tried assistants. There is no regular advancement from the bottom to the top of the staff of resident assistants. Only a small proportion of these venture to entertain the hope of becoming first assistant. Occasionally an assistant from another clinic may immediately, or almost at once, after transfer, succeed to this position over the heads of those who have served many years. This admirable system, which undoubtedly has its disadvantages, is possible only in a country where like conditions prevail and a close affiliation exists between the universities or where some great inducement exists for the making of assistants of the highest possible order. The professor of surgery, or the surgical chief, desires to secure as his first assistant or chief of staff a man of great promise, not only because of the obvious immediate advantage to the clinic, but because such an assistant is likely to have tendered him, ultimately, the chair of surgery in some smaller university. It is a matter of great satisfaction and pride to a professor of surgery to have supplied from his staff one or more university chairs. So too, it is a great disappointment and sometimes a keen sorrow to the professor of surgery when his scholarly, highly trained and devoted first assistant after a service with him of eight or nine years is compelled to resign himself to an instructorship, to content himself with the title "Privat-Docent." This occurs often, in fact is usually the case, because there are so many more retiring first assistants than there are vacant chairs of surgery in the 20 German universities. Whenever, consequently, there occurs by the death or voluntary retirement of a professor of surgery, a vacancy in a university, there are possibly 20 first assistants and perhaps as many Privat-Docenten hoping for promotion, not necessarily to this particular university; for the vacancy, unless it is in one of the smallest universities, is usually filled by the professor in a still smaller one.

What are the inducements which make it worth while for the young men in Germany to devote so many years to preparation for the practice of surgery, what the careers to which they aspire, and what manner of men are they who furnish by their example and by their achievements the great stimulus?

Not only the first assistant but all the members of the surgical staff of one of the great university clinics in Germany, enjoy almost ideal facilities for learning surgery and for prosecuting researches. The amount of clinical material is great. The operative work begins early in the morning and often does not cease until late in the afternoon. The outpatient department is controlled by the chief surgeon and is conducted by his assistants, a patient when discharged is consequently not referred to some dispensary or other and lost sight of. The pathologic material obtained at operation is carefully worked up in the special laboratories for surgery and, if need be, is preserved in the museum, which should always be an important feature of the surgical department of a university. Every facility and the greatest encouragement is given each member of the staff to do work of research.

Although during the 8 to 12 years of hospital service as assistant in some large university clinic he has laid the foundation of his reputation, the real life work of a German surgeon begins when he is invited to fill a professional chair. He now longs to prove himself worthy of the new position he has the incentive to inspire others to achieve, he measures himself by a new standard, and there is born in him the desire to rise higher, to sow the seed which will produce a bloom worthy of the greatest universities, possibly even of Berlin. In European countries no effort, no amount of time, few sacrifices would be considered too great if thereby the chair of surgery in a university might be secured. In Germany the prestige of the position is something that we in the United States who have not lived abroad cannot truly comprehend. In each university the chair has its imperishable traditions, its long line of famous surgeons, whose names are cherished and revered for their services to science, to their universities, to their country and to their fellows. In the nineteenth century, to mention only some of those who have passed to the majority, in the University of Berlin, were v. Graefe, Dieffenbach, v. Langenbeck; in Vienna, Vincez v. Kern, Billroth, Albert, in Heidelberg, v. Chelius, Carl Otto Weber,[4] Gustav Simon; in my student days there were in Leipsig, Thiersch; in Halle, v. Volkmann; in Bonn, Busch; in Tübingen, Victor v. Bruns; in Munich, v. Nussbaum; in Strasburg, Lücke; men of great renown, every one. To enroll one's name with such as these, to inherit something of their skill, their knowledge, their zeal, their honor, their sense of duty, is not this worth while? The professor of surgery in Germany is usually a man of great influence and power. His affiliations, his responsibilities, his knowledge of surgery and the allied sciences, and often of art, of literature, and of the world's affairs produce a type of man which his country may well contemplate with pride.

America, too, in spite of discouraging circumstances, has produced great surgeons, but it is to be deplored that here conditions prevail which hitherto have not encouraged, if they have not actually prohibited, such special development as I have outlined. I have known professional chairs in one of the principal medical schools of this country to go actually a-begging—a-begging, of course, only of men who would adorn the position. Recently I asked a prominent surgeon, to whom a chair in one of our chief universities had been offered, why he had not accepted it. He replied that his practice was a large and lucrative one, and that he had neither the time nor the inclination to prepare and deliver 100 lectures, more or less a year. Young men are naturally only too glad and eager to secure a professorship which would insure a good living and a certain distinction, but older men who are already well known and with an assured income have no inclination to undertake teaching of a prescribed kind for which they are not trained, and for which the rewards are not, in their opinion, proportionate to the labor. Even to those who have held the chairs of surgery for years, the work sometimes becomes so irksome that they seek to abandon it as soon as directly or indirectly it ceases to yield a sufficient return.

The faults of our system of educating surgeons begin almost at the botton and continue to the very top. I am considering especially the training of the best men—those who aspire to the higher career in surgery. On graduating they become hospital internes, but their term in the hospital is only one and a half, occasionally two years, only a little longer than the term of hospital service required in Germany of every applicant for the medical degree, and not so long, on the average, as that required of each medical graduate of the University of Tokio. The interne suffers not only from inexperience, but also from over experience. He has in his short term of service responsibilities which are too great for him; he becomes accustomed to act without preparation, and he acquires a confidence in himself and a self complacency which may be useful in time of emergency, but which tend to blind him to his inadequacy and to warp his career. A surgeon should find his greatest stimulus and support in his assistants with whom he spends, or should spend many hours a day, but this is only possible when they have had opportunities for sufficient development.

Think of the labor of breaking in two new house surgeons each year, and of the incompleteness of their work. "I thought I had instructed you to examine the larynx after every goiter operation," complains the attending surgeon. "No, it must have been my predecessor or some other house surgeon whom you so enjoined," replies the interne. It is a grave mistake, it is a shame to check suddenly the advance of those superior young men who are tense with enthusiasm, who rejoice in the work to which they hope to be able to dedicate their lives. It is from these men, we must not forget, that our teachers of surgery are made.

But much as the interne suffers from the brevity of his hospital experience, the hospital suffers more and the surgeon most. Every important hospital should have on its resident staff of surgeons at least one who is well able to deal not only with any emergency that may arise and to perform any operation known to surgery, but also to recognize the gross appearances of all the ordinary pathologic tissues and lesions.* But the interne leaves the hospital unequipped; eventually, it may be, he secures the position of attending surgeon to some hospital, and then he is expected to teach others to perform operations which he himself has not learned to do, and to pronounce at the operating table upon conditions with which he is not familiar and which possibly he has never seen nor heard of.

We need a system, and we will surely have it, which will produce not only surgeons, but surgeons of the highest type; men who will stimulate the first youths of our country to study surgery and to devote their energies and their lives to raising the standard of surgical science. Reforms, the need of which must be apparent to every teacher of surgery in this country, must come on the side both of the hospital and of the university, and it is natural to look to our newer institutions, unhampered by traditions and provided with adequate endowment, for the inception of such reforms. It is eminently desirable, if not absolutely essential, that the medical school should control a hospital of its own. There should be such an organization of the hospital staff as I have indicated, providing the requisite opportunities for the prolonged and thorough training of those preparing for the higher careers in medicine and surgery, and permitting the establishment of close and mutually stimulating relations between chief and assistants.

The professors of medicine and surgery occupy a peculiar position. They are teachers in the universities and at the same time teachers in the technical schools, in the hospitals, which in this country are in only one or two instances unfortunately under the control of the university. As university instructors, it is still a question just how much of the technic they shall teach, and as workers in the technical school, the hospital and in private practice, how much time they shall devote to laboratory investigation. It is doubtful if an ideal adjustment, if there were such a thing, could always be preserved, because in one individual there reigns a passion for laboratory pursuits, in another the love of the practical and of the rewards which practice may bring. Barker has recently, in an admirable address,† mooted this subject. Emphasizing the evils of the proprietary school and the inadequateness of what he designates as the "pseudouniversity school," he proposes the name, "semiuniversity school," for the "six or eight best medical schools in the United States," for the reason that only the subjects of the first two years are taught by men (university professors) "who do not engage in the private practice of medicine," and "who give their whole time and energies to the teaching and investigation of the sciences which they represent." It is to be noted that the the true "university medical school," in the sense in which this designation is used by Barker, exists nowhere, and probably never has existed.

The professors who teach in the departments of the last two years "are either not paid at all or are paid small sums, almost always less than the remuneration which pertains to a university chair, and almost always too little to provide the professor with a living income." "It is obvious," Barker continues, "that if those who teach the clinical subjects have to make their living from private practice, they will be compelled to direct their activities so as not to interfere with that practice." And further, he says, "I should like to see what the result would be if men with these capacities were bred to university careers, were placed in charge of hospitals especially constructed and endowed for university purposes, and were sufficiently paid to permit them to give up private practice entirely and to devote their whole time and strength to teaching and investigating in such hospitals." Time permits only the very briefest consideration of this proposition, with which I am in the fullest sympathy, and which for a long time, perhaps for 20 years or more, I have seriously debated.

Certain objections may, I believe, with great propriety be urged against the prohibiting the acceptance of fees by professors of surgery in universities:

1. To be an impressive teacher of surgery, to attract important cases in large numbers, to exert an influence far and wide as a surgeon, to know his subject thoroughly, the surgeon must operate every day and always. A very considerable part of the surgeon's time must be spent in the operating-room; more and more, it would seem, as time advances, for the number and variety of operations which a general surgeon performs each year is prodigiously increasing.[5]

2. With a fixed salary, the surgeon may devote himself to the work of his choice, whatever that may be. If his tendencies are in the direction of research, he will neglect his operative work; if he is a natural operator, he will chafe under the restrictions which prohibit the acceptance of fees so easily within his reach.

I know of one or two men today occupying important chairs of surgery in Germany to whom operating is less agreeable than teaching, and whose clinics, in consequence, suffer greatly from want of surgical material. Billroth had comparatively and actually little operating to do when in the days of sepsis he was most earnestly engaged in his microscopic studies and laboratory pursuits; and Thiersch, although one of the greatest names in surgery, was not a great operator and had small operative material even for his day.

3. An able and successful surgeon probably would not for the sake of fame merely, and the usual professor's or any feasible salary be content to operate so constantly and to incur the anxieties attendant upon a large surgical practice. Indeed, he probably could not relish all fees if he would, for the exigencies of his family and his tastes would prohibit his doing so. Young and comparatively untried men could, of course, be induced to take the position, and some of these would undoubtedly regret the compact.

4. Barker proposes, if necessary, to give the professors of the practical branches (technical professors we may call them), a larger salary than the others; but this would at once place the purely scientific men in an awkward position; it would pave the way for discontent among the chemists and physicists and others who might with propriety claim that their salaries should be increased because they, too, might make a fortune if they were allowed to turn their ideas or discoveries to commercial account.*

5. Furthermore, it may be asked if it is not desirable, perhaps, to have in the faculty of a university a few men of large

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* The internes should be encouraged and afforded every facility for the prosecution of work in research.

† Medicine and the Universities. An address delivered before the Western Alumni of the Johns Hopkins University, at the meeting in Chicago, February, 1902.

* Professors of Chemistry and Physics accept fees, and all professors are at liberty to do so.

means and large affairs? They are likely to be brought more closely in touch with influential people and with the outside world.

6. After all, the hospital, the operating-room, and the wards should be laboratories, laboratories of the highest order, and we know from experience that where this conception prevails, not only is the cause of higher education and of medical science best served, but also the welfare of the patient is best promoted. It remains with the teachers of medicine and surgery to make them so. The surgeon and the physician should be equipped and should be expected to carry on work of research; they hold positions which should make them fertile in suggesting lines of investigation to their assistants and associates; they should not only be productive themselves, but should serve as a constant stimulus to others.

I should like to see the plan which Dr. Barker advocates carried out to the letter, and if it should succeed no one would rejoice more than I. But I would not advocate giving the surgeon or physician a larger salary than the others. The salaries of all must eventually be increased at least two or threefold. There is, however, a compromise which even at present is altogether feasible. Let the surgeon be permitted to accept remuneration for services to certain patients operated upon in the hospital which the university provides or controls. He might well under only very exceptional circumstances be permitted to visit a patient in his own town, or even State. His consultations and operations should all take place at the hospital. Under special circumstances he might be permitted to visit a patient in another State, if it were impossible for that patient to come to him. Private patients in a hospital need consume little or no more of the chief surgeon's time than the patients in the public wards.

While it has been my main purpose in this address to call attention to certain defects in the existing methods of medical education, especially in the opportunities for the advanced training of surgeons in this country, I would not be understood to minimize or decry the great achievements of American surgery. Courage, ingenuity, dexterity, resourcefulness are such prominent characteristics of our countrymen that it would have been surprising if from the labors of her many earnest and devoted teachers and practitioners there had not resulted contributions to the science and art of surgery which have carried the fame of American surgery throughout the civilized world. The names of your own Nathan Smith and Jonathan Knight will always be treasured not only by this university, but wherever the history of surgery is cultivated. There is barely time for even the briefest reference to the recent contributions of America's surgeons to their art and science, but I should do my countrymen scant justice did I fail to emphasize the importance of at least one monumental contribution, one which, I believe, redounds more to the glory of American surgery than any achievement of the past. It is hardly possible to overestimate the value of the modern work on the subject of appendicitis, nor to attribute to it too great a share in stimulating and clearing the way for the great strides made in the entire field of abdominal surgery in the past 12 or 14 years. It is convincing testimony to the advanced character of this epochal work that continental surgeons were for several years unable fully to comprehend and accept the teachings of their coworkers in the new country. As operators some of our surgeons are not surpassed by any I have seen; there are, I believe, few operations in surgery which cannot be performed as well in this country as anywhere in the world, and quite a number of operations are best performed by the surgeons of America.

A loyal son of Yale, I have rejoiced in the increasing prosperity of the medical department of Yale University during these recent years. Especially gratifying have been the manifestations of interest on the part of the University in the advancement of this department, and in general in the cause of higher medical education. I may be permitted to express my appreciation, and I believe I may add that of all concerned with these important problems, of President Hadley's valuable contributions to the discussion of this pressing topic.

It need hardly be said that the Yale medical department is hampered by inadequate resources. I am confident that during the past year no gift to the University has been more usefully and worthily bestowed than Mrs. Farnam's generous bequest to the medical department. With still larger additions to its endowment there is every reason to believe that the Yale Medical School will maintain a prominent position in the forward movement of medical education and research, and become one of the chief ornaments of this great University, receiving and conferring the stimulus of lofty ideals, of large achievement, of high renown.

FOOT NOTES.

[1] Could Boyer, we ask, have been satisfied with the status of surgery when anesthesia was undiscovered, when hemorrhage was awkwardly and insufficiently controlled, when infection of wounds was not understood and could not be prevented. And yet I might quote from the writings of distinguished men of our own times to show that even today some think that surgery is almost complete. Anesthesia, one of the greatest blessings, is at the same time one of our greatest reproaches, hemorrhage is still awkwardly checked, and of surgical infection once started we have often little control and then mainly by means of the knife. We have reason to hope that the day will come when hemorrhage will be controlled by a quicker procedure than the awkward, time-consuming ligature; when infections will be controlled by specific products of the laboratory, and when pain will be prevented by a drug which will have an affinity only for the definite sensory cells which it is desirable it should affect. The first of these may be last and the last first. Let us trust that it may, as Gross[*] expresses it "be a long time before the laws of this department of the healing art will be as immutable as those of the Medes and Persians." "Literature," said Horace Walpole, "has many revolutions, if an author could rise from the dead after a hundred years what would be his surprise at the adventures of his work." Gross recognized, not altogether without regret, that this was particularly true of scientific works however erudite they may be. "Few survive their authors."

[2] Verhandlungen der deutschen Ges. f. Chirurgie, 1896 (The Jubilee Congress). Von Esmarch is one of the very few surgeons living who, even as a student, can recall the days before anesthesia. He maintains that he who was not a participant of those times cannot picture to himself the enthusiasm which took possession of every physician, and particularly of the students in the surgical clinic. Whereas, before the introduction of ether, the operating-rooms were filled with the groans and shrieks of the unfortunate victims, the appalling spectacle causing many students to faint, now, of a sudden, absolute quiet reigns, a stillness almost supernatural, broken occasionally by the senseless chattering or joyous singing of the patient. Familiarity with the use of cocain in surgery has robbed somewhat the preanesthesia days of their interest to the surgeon. We used to admire and wonder at the courage of the old day surgeons who could inflict such torture for such small rewards, but we know now that certain operations can be performed with very little pain even without the employment of a local anesthetic. It is often unnecessary to do more than anesthetize the skin to perform a very considerable operation, in the neck for example. From cocain we learned in one year (1885) more about the relative sensitiveness of the various tissues and organs than from all the literature of our forefathers. The skin being anesthetized and incised, we were surprised to find that the underlying parts were comparatively insensitive to handling and, for the most part, even to cutting. The accidental cutting or crushing of nerves caused the most exquisite pain, and we noticed that the nerve supply of bloodvessels[†] is so abundant that the severing or clasping of even very small bleeding points usually started a cry or some sort of remonstrance from the patient; and now, after many years of experience with cocain, we interpret an unexpected moan as signifying an insult to some small unseen bloodvessel or nerve. These facts, learned, I say, in one year, perhaps in six months of experimentation with cocain, were not clearly revealed by all the previous ages of surgery. The explanation undoubtedly lies in the facts that in olden times the first cut through the skin so unnerved the patient and perhaps the surgeon that differentiation was impossible, and that the operation was performed in such haste as to preclude careful observation. I fear that so much practice with cocain as an anesthetic has obtunded to some extent our sensitiveness to pain in others. Formerly it taxed one severely to employ cocain in certain operations which we now perform with equanimity; we are in danger perhaps of acquiring the kind of immunity (it is not indifference) which it seems to me dentists possess or have cultivated to such a high degree. Briefly, then, the story of the surgery of preanesthesia days has become less interesting because it has been robbed of its terrors by the lessons which cocain has taught us. If the surgeon of the past could only have known what it seems to the modern surgeon he should have known better than all else, namely, the relative sensitiveness of the various tissues, he could hardly have failed to discover methods of producing anesthesia of the skin. That one could deliberately divide a nerve of the size of the sciatic or ulnar or even the minutest filaments visible without exhausting his ingenuity to find something to deaden the exquisite or agonizing pain seems inconceivable. How blind we are and how blind we ever shall be.

[3] The surgical staff consists of nine men, eight internes and one externe. The externe is an assistant in surgical pathology, he attends operations whenever it seems desirable in order to do with a clearer understanding the pathologic work, to take charge of and describe[‡] the pathologic material obtained at operations and to keep in touch, for his own benefit, as well as for the sake of the surgical department, with the clinical work. Four of the internes serve for one year, only

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[*] Gross: Autobiography, Vol. i, p. 140.

[†] John Hunter recognized the fact that parts richly supplied with blood were much more sensitive than the comparatively bloodless parts.

[‡] I am sure that much of the material for surgical pathology can be correctly described only when it is perfectly fresh. It cannot be painted because in less than a minute, in a few seconds often, the appearance of a freshly cut surface is greatly changed. Only those who are well trained as macroscopic pathologists, who have naturally a discriminating eye for color, a good sense for form and some talent for expression can properly describe the fresh material. Many, if not most, of the descriptions are worthless or at best serve only as reminders to those who can distinctly recall the case. The descriptions, by two trained men, of ordinary fresh material may differ so greatly that one could not believe they pertained to the same specimen. Color photography might be employed, it seems to me, with great benefit, for recording the appearance of fresh specimens.

the honor men of each class at graduation being entitled to these positions; but the *permanent staff*, socalled, consists of four men, the house surgeon and three in line of preferment. Men from any part of the country, if they have had the proper training, are eligible for the permanent positions. Great care is exercised in the filling of the vacancy on the permanent staff which occurs once in two or three years, and advancement is not guaranteed to the appointee. The house surgeon's term of service is still optional. He receives a salary, the other assistants are not paid. The assistants are expected in addition to their ward and operating-room duties, to prosecute original investigations and to keep in close touch with the work in surgical pathology, bacteriology and, so far as possible, physiology.

[4] It is interesting to note that Weber, professor of pathologic anatomy at Bonn, at the instigation of Helmholtz, was called (1865) after long deliberation to succeed Joseph von Chelius in Heidelberg. Much astonishment was naturally expressed that a pathologist should be invited to take a surgical chair, but the choice proved a most happy one, and although Weber lived to teach surgery only five semesters, he left in Heidelberg ineffaceable impressions of his great activity and learning. In the days when operations the world over were few and far between and when little was known of surgical pathology, it was natural and reasonable that particular stress should be laid upon a careful training in anatomy in preparation for the practice of surgery; but now when time is so short and the art of surgery so long and the operative material so abundant, the prospective surgeon's work in anatomy should be very much curtailed to give time for a very thorough training in pathology and also in physiology. The more definite the knowledge of a subject becomes, the more easily it is acquired. The surgeon should quickly master the anatomy which he requires, and gross pathology will soon be for him an easily explored field; he already looks to physiology for his particular field of research. The value to the surgeon of patient dissection of many injected and hardened cadavers is very much overestimated. The general topography of a part can be quickly and sufficiently recalled by reference to an illustration; it is a knowledge of the fascias that the surgeon who wishes to perform an operation deftly and neatly requires, and this can be acquired only by rapid dissection of perfectly fresh material, or better still, of course, by frequent repetition of the particular operation. A hundred dissections of the embalmed neck would not shed much light upon the operations for the removal of goiter, nor even of the ganglia of the sympathetic. I am speaking from the standpoint not of the student, but of him who wishes to operate artistically.

[5] Professor von Mikulicz writes me from Breslau: "When I was a student in Vienna there were days, particularly in winter, when not a single operation occurred in the University Clinic, so scarce was the operative material. Today the number of cases for operation is so great in the large German clinics that even when operations are conducted simultaneously on two tables we find that three or more hours of intense work is required almost every day." Through the kindness of friends in Boston and New York I am able to append the reports which testify to the great increase in the number of operations performed in a year in the Massachusetts General, the Boston City, the Roosevelt and the New York Hospitals. The statistics furnished by the venerable Massachusetts General Hospital are particularly instructive. In the entire decennium prior to the discovery of anesthesia only 385 operations were performed in this hospital, an average of 32 operations a year. In the first decade subsequent to the employment of ether, 1,893 operations were performed, an average of 158 per year. In the decade preceding Lister's visit (1876), to this country, from 1868 to 1878, 7,696 operations were performed. In the next decade only 10,119 operations were performed in this hospital; but from 1894 to 1904, 24,270 were performed; and in the year 1903, over 3,000 operations were performed in the Massachusetts General Hospital. The other hospitals mentioned show an increase in similar proportions.* It may surprise some that the decade following the introduction of antiseptic surgery, from 1878 to 1888, should show such a slight increase. This may be taken as an indication of what is true, viz., that the majority of the operations which are done today were not only not attempted, but were not known fifteen years ago. Indeed many of them were unthinkable before the introduction of antiseptic surgery.

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*MASSACHUSETTS GENERAL HOSPITAL.

Number of operations performed in decade previous to discovery of ether	385
Number of operations performed in decade subsequent to discovery of ether	1,893
Number of operations performed in decade previous to use of antiseptics in this country (1878)	7,696
Number of operations performed in decade subsequent to use of antiseptics	10,119
Number of operations performed during last ten years (1894–1904)	24.270
Number of operations performed during year (1903)	3,109

BOSTON CITY HOSPITAL.

In 1878	316	operations	were	performed.
From 1878 to 1887 inclusive	5,882	"	"	"
From 1893 to 1902 "	16,269	"	"	"
In 1902	1,923	"	"	"

ROOSEVELT HOSPITAL, NEW YORK.

In 1878	132	operations	were	performed.
From 1878 to 1887 inclusive	4,860	"	"	"
From 1894 to 1903 "	10,181	"	"	"
In 1903	2,719	"	"	"

Operations in the gynecologic division are included.

NEW YORK HOSPITAL.

In 1878	142	operations	were	performed.
From 1878 to 1887 inclusive	2,706	"	"	"
From 1894 to 1903 "	13,002	"	"	"
In 1903	1,680	"	"	"

Medical School Suspended.—The Baltimore University School of Medicine has been suspended from membership in the American Association of Medical Colleges. Charges of violating the rules of the Association were preferred by the Baltimore Medical College. It was alleged that students who had left the Baltimore Medical College in their final year were admitted to the Baltimore University School of Medicine and awarded diplomas after three months' attendance.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 2, 1904. [Vol. XLIII, No. 1.]

1. The Scourge of Nostrums and Irregular Practitioners; Chairman's Address before the Section on Materia Medica, Pharmacy and Therapeutics. OLIVER T. OSBORNE.
2. Multiple Fracture of the Lower Jaw Complicated by Double Fracture of the Upper Jaw. THOMAS L. GILMER.
3. Dental Education. (Continued.)
4. Dysentery: A Report of Several Cases in which Bacillus Dysenteriæ (Shiga) was Found in Washington, D.C. LOUISE TAYLER-JONES.
5. Prostatectomy: Report of 51 Cases Operated on from May 6, 1901, to February 26, 1904. (Concluded.) JOHN B. MURPHY.
6. Röntgen Ray Treatment of Leukemia: Report of Case with Apparent Improvement; Death; Autopsy. LAWRENCE C. GROSH and WILLARD J. STONE.
7. Ankylosis of the Jaws. G. LENOX CURTIS.
8. A Case of Typhoid Fever with an Unusual Complication. WILLIAM EDGAR DARNALL.
9. Mesenteric Embolism and Thrombosis: A Study of 214 Cases. JAMES MARSH JACKSON, CHARLES ALLEN PORTER and WM. CARTER QUINBY.

1.—See *American Medicine*, Vol. VII, No. 24, p. 928.

6.—Röntgen Ray in Leukemia.—L. C. Grosh and W. J. Stone reported a case in which there was a reduction from 266,250 to 10,600 leukocytes per cm. and a decrease from 52% to 2% of myelocytic elements with an apparent improvement in the general condition of the patient under the influence of 20 röntgen ray applications. Then suddenly he began to fail in strength and died from general asthenia. The superficial burns on abdomen and elbow caused by the rays were healing nicely. No evidence of intoxication from the rays such as rise of temperature, seroalbuminuria, etc., had been noted at any time. Autopsy showed the findings usually present. Fibrous hyperplasia in spleen and liver was marked. The greatest good apparently may be hoped for when the applications are begun while the organs are passively enlarged from leukocytic infiltration and before the hyperplasia of the cellular constituents of the bone marrow becomes a chronic process. [H.M.]

8.—See *American Medicine*, Vol. VII, No. 24, p. 922.

Boston Medical and Surgical Journal.

June 30, 1904. [Vol. CL, No. 26.]

1. Anomalies of Thyroid Secretion. FREDERICK C. SHATTUCK.
2. The Significance of the Tuberculosis Crusade, and Its Future. EDWARD O. OTIS.
3. The Physiology of the Ureter. BYRON ROBINSON.
4. Conservative Surgery of the Uterine Appendages with Especial Reference to the Ovaries. EDWARD L. TWOMBLY.

3.—The Physiology of the Ureter.—Byron Robinson states that the physiology of the ureter is practically comprised in three functions, (*a*) peristalsis; (*b*) secretion; (*c*) absorption. There are three constant main isthmuses, viz.: (*a*) One adjacent to the distal kidney pole, the proximal ureteral isthmus; (*b*) one at the arterioureteral crossing of the vasa iliaca and ureter, the middle ureteral isthmus; (c) one at the entrance of the ureter into the bladder, the distal ureteral isthmus. There are three ureteral dilations or urinal reservoirs, viz.: (*a*) One consisting of the calyces and pelvis, the proximal ureteral dilation or reservoir; (*b*) the main lumbar, middle ureteral dilation or lumbar spindle; (*c*) the main pelvic ureteral dilation or pelvic spindle. From a number of tests he is convinced that it is impossible for the urine to regurgitate from the bladder into the ureter. Under normal conditions the urine enters the bladder by spurts or jets, which results from a peristaltic wave of muscular contraction which travels from the ureter. This can be well seen in the dog, which being etherized and the abdomen opened, the intestines pushed aside, the ureters becoming visible behind the peritoneum, these waves of muscular contraction pass down the ureter at intervals of from three to five minutes, and are quite noticeable. The ureter is an independent organ, physiologic and anatomic, performing its function as independently as the heart or other organs. The physiology of various portions of the ureter is discussed. [A.B.C.]

4.—Conservative Surgery of the Uterine Appendix, with Special Reference to the Ovaries.—Edward L. Twombly makes a special plea for exploratory incision in the ovary. He states that an exploratory incision should be made in an ovary which has been the seat of constant pain, with exacerbations during the menstrual periods, even if it appears normal or slightly enlarged. The same procedure should be done in both ovaries where there have been constitutional symptoms pointing to the ovaries, when they seem normal, or large, but otherwise healthy. As a large cyst involving the ovary is likely to be duplicated on the other side, he advises the exploratory incision in the second ovary, thereby lessening the chance of recurrence, and saving a secondary operation, often finding and removing by resection a similar growth beginning in the apparently unaffected ovary. He believes that pain would be relieved by a wedge-shaped incision and the wedge removed in thickened capsules; and, by a more careful approximation, adhesions, which are stated to be the greatest cause of secondary operations, would be more and more avoided. A number of illustrated cases are reported. [A.B.C.]

Medical Record.

July 2, 1904. [Vol. 66, No. 1.]

1. The Distinctive Character of the Temperature Curve of Measles and of Scarlet Fever, and the Treatment of Hyperpyrexia in these Diseases by Baths of Increasing Temperature. HENRY W. BERG.
2. Grave Anemia Due to Hookworm Infection. LOUIS M. WARFIELD.
3. Acute Tetanus Cured by Intraneural Injections of Antitoxin. JOHN ROGERS, JR
4. The Nonsignificance of Clinical Symptoms in Determining the Pathologic Conditions of Appendicitis. A. P. STONER.
5. Hygiene in Gynecology. C. A. VON RAMDOHR.

1.—Temperature Curve of Measles and Scarlet Fever. Treatment of Hyperpyrexia.—H. W. Berg states that these curves are as characteristic as those of typhoid, typhus, and smallpox. Including the exanthematic eruption on the mucous membranes as part of the eruptive stage, he divides the subsequent course into the stage of defervescence and that of desquamation in these diseases. The pyrexia covers the first two stages. In measles the accession of fever is gradual, the fastigium limited, and the defervescence by crisis. In scarlet fever the accession is acute, the fastigium lasts through almost the whole of the eruptive stage, and the defervescence is by lysis. The writer presents charts illustrating the curves. The pyrexia is the combined result of the influence of germ and toxin on biologic processes, and of the inflammatory changes going on in the mucous membrane and skin. The influence of the toxemic element is less in measles than in scarlet fever. The slight drop in the fever in measles before the appearance of the exanthema is due to the acme of the inflammation of the mucous membranes having passed. The fall by crisis is due to the cutaneous inflammation having run its course. Complications should be sought when the typical curves vary. [H.M.]

2.—Grave Anemia Due to Hookworm Infection.—L. M. Warfield thinks this disease responsible to a great extent for the lifelessness and unproductiveness of country communities in the South. The writer reports several cases illustrating the necessity of examining the stools in anemia especially if there is a history of previous ground itch and attacks of diarrhea. He believes that the majority of anemias in the country districts are due not to malaria as hitherto believed but to the hookworm and in almost all cases there have been previous attacks of ground itch. There is long continued fever in severe grades. Any one can recognize the eggs under the low power of a microscope. The treatment is castor-oil or Epsom salt in the evening, no food until noon of the next day, while at 8 a. m. 30 grains (2 gm.) of thymol are given in water or capsule. [H.M.]

3.—Acute Tetanus Caused by Intraneural Injections of Antitoxin.—John Rogers, Jr., reports the case. A boy of 11 sustained a punctured wound of the left foot by a rusty nail; on the seventh day symptoms of tetanus began to appear; there were trismus, stiffness of the neck, and rigidity of the muscles of the back of the neck. He was given 20 cc. of antitoxin subcutaneously, the dose being repeated some hours later. During the night his condition became worse, and on the following day, under chloroform anesthesia, the anterior crural nerve and the sciatic nerve of the left extremity were exposed and a half dram of antitoxin injected into the substance of each, several punctures being made in each nerve. The needle was also introduced in the spinal canal between the second and third lumbar vertebras, being manipulated with the object of abrading, to some extent, the nerve sheaths of the cauda equina, and one and a half drams of antitoxin injected. The wound was cleansed, and cultures made showed tetanus bacilli plentiful. On the ninth day the patient's condition was somewhat worse. A lumbar injection was made between the second and third dorsal vertebras and the cord punctured, one and a half drams of antitoxin being injected. On the following morning the patient was somewhat improved. On the second day following this operation a third lumbar injection was given; following this the patient began slowly to recover, and was finally discharged cured. The author believes that the treatment here recited demonstrates conclusively the effectiveness of the intraneural injection of the antitetanic serum. He believes that failure to secure improvement immediately after injection into the anterior crural and sciatic nerves was due to the fact that the obturator nerve was not likewise treated. [A.B.C.]

4.—Nonsignificant Symptoms in Appendicitis.—A. P. Stoner calls attention to the frequency with which we encounter appendicitis without classic symptoms. He says that now and then we meet a case in which it is impossible to say whether or not the patient has even an inflamed appendix. In the early stages of appendicitis the pains are diversified over the whole abdomen, or may be confined to the gastric region. These phenomena are explained by the fact that the superior mesenteric plexus which supplies the appendix also sends filaments to the intestines. In some instances in which a low grade of inflammation of the organ exists, the pains never become localized around the appendix, but during each attack or exacerbation of the disease, pain may constantly be observed in the gastric region. Two illustrative cases are reported. One was a man of 46, given to excess in drink. He had had repeated attacks of vomiting and purging, occurring at intervals of from three weeks to three months, and lasting from two to six days. At no time was there indication of appendicitis. An incision was made over the gallbladder region in the belief that disease of the liver or bile passages existed; they were found normal, and the region of the appendix being explored, that organ was found diseased, and its removal resulted in a cure of the patient. The second patient was a man of 27, who experienced abdominal pain. Examination revealed an induration over McBurney's point, otherwise there were no symptoms of appendicitis. Laparotomy revealed a badly diseased appendix, which was removed. Stoner states that a diseased appendix may be responsible for a variety of symptoms which may be attributable to other organs. No case, however apparently mild, should be entrusted to nature or to drugs. [A.B.C.]

5.—Hygiene in Gynecology.—C. A. von Ramdohr pronounces hygienic treatment the most valuable therapeutic agent in combating women's troubles. As a hygienic measure marriage between minors, between people one of which is syphilitic, between near kin, between people who are by nature of their poverty unable to rear their young, ought to be prevented if possible. The influence of crowded quarters in congested parts of cities is unhygienic; for there is inherent absence of cleanliness, there is insufficient clothing, improper food, lack of education, and often overcrowding of young girls in sweatshops and factories. Among the wealthier classes the bottle cannot equal a mother's nourishment and care, and children's balls and fashionable schools will not help raise the morale or physique of the fashionable girl. Preventive hygiene ought to reform these evils. In those suffering from gynecologic troubles the general constitutional treatment often required is truly hygienic. It also behooves the physician in many instances to inquire into the marital relation, the means taken to prevent conception, etc., and remedy what is possible in this direction. Hygienic treatment also demands attention to home surroundings, work performed, recreations, athletic exercises, use of stimulants and narcotics, and mode of dressing. It is with this graduated and superintended hygiene that the wellknown watering places in Europe obtain their stupendous results. In the treatment of females, absence from home influences and the husband; fresh air, baths, and spongings, carefully administered; carefully prescribed exercises, attention to diet and digestion, early hours—all these hygienic measures do more toward curing a patient of her symptoms than long-continued local or symptomatic treatment indiscriminately employed. [W.K.]

New York Medical Journal.

June 25, 1904. [Vol. LXXIX, No. 26.]

1. Albuminuric Retinitis. L. WEBSTER FOX.
2. The Carbohydrates as Etiologic Factors in Stomach Disorders. W. E. DEEKS.
3. The Fever of the Puerperium (Puerperal Infection). (Continued.) JAMES HAWLEY BURTENSHAW.
4. A Plea for a Truer Therapy—Real Treatment of the Sick. WALLACE C. ABBOTT.

1.—Albuminuric Retinitis.—L. W. Fox states that this condition is present in about 30% of all cases of Bright's disease. It seems to be more frequent in males than in females. In the greater number of cases the affection is found to be associated with that form of chronic renal disease known as contracted kidney, but it may be found in connection with any form of renal disease. It is nearly always bilateral, but may be unilateral. The acute form is characterized by swelling, congestion, hemorrhages and phenomena suggestive of acute inflammation, while the chronic form is attended by degenerative changes, such as are indicated by hemorrhages and numerous dirty white spots. The changes in the eyeground are described in the most minute detail. Vision is nearly always impaired or lost, according to the number, extent and situation of the hemorrhages. The universal experience seems to be that most patients die within two years. [C.A.O.]

Medical News.

July 2, 1904. [Vol. 85, No. 1.]

1. Medical Education in Colorado. S. G. BONNEY.
2. A Consideration of the Question of Drainage in Cases of Acute Appendicitis with Spreading Peritonitis. LUCIUS WALES HOTCHKISS.
3. Primary Myokymia: With Report of a Case. ROBERT M. DALEY.
4. Diagnosis and Treatment of Internal Hemorrhoids. H. A. BRAV.
5. Observations on Obstetrics in General Practice. J. F. MCNULTY.

2.—Question of Drainage in Acute Appendicitis with Spreading Peritonitis.—Lucius W. Hotchkiss states that since January, 1895, 114 cases of appendicitis have been operated upon at the J. Hood Wright Hospital. From 1895 to 1898 inclusive, 42 patients were operated upon, with a mortality of 13, or 31%; among these were 12 cases of rapidly advancing peritonitis, with free pus in the peritoneal cavity, and of these, 11 died. From 1899 to 1902 inclusive, there were 72 patients operated upon, with no mortality. Among the 72 were 15 patients suffering from gangrenous appendicitis with advancing peritonitis. He enters into a discussion as to the good result secured in the last series of cases and the poor results secured in the first series, and lays it to no one particular thing, except that stress is laid upon thorough irrigation of the abdominal cavity with hot saline solution. Hotchkiss says he has gradually been forced to abandon his original position and has amply demonstrated, at least to his own mind, the great value of the smaller incisions, of the location and removal of the appendix largely by the sense of touch, which does away with overmuch exposure and handling of the intestines, the free irrigation of the peritoneum with hot normal salt solution, depending upon this rather than drainage, and the removal of the diseased appendix in every possible case. The 15 cases of spreading peritonitis in the last series of cases are reported in detail. [A.B.C.]

3.—Primary Myokymia.—R. M. Daley reports a case in which there is moderate tremor of the hands, fibrillary twitching of all the muscles of the legs and the posterior muscles of the thigh. There is a constantly recurring contraction of muscular bundles, sometimes the same bundle contracting once, more often several times. The distribution of the muscles affected is symmetric. These contractions occur in every visible portion of the muscle, and evidently take place throughout the entire substance. They involve sometimes a small, sometimes a large bundle. Daley has never seen the contraction of a bundle wider than a half inch, but has noticed the contraction of a narrow bundle running through the entire length of the gastrocnemius. The contractions are occasionally slow and wormlike, other times sharp and quick. The strength varies likewise. The movements are more marked when the muscle is in an active state. The patient is conscious of the contractions. He has been under observation a year, and in some muscles the movement is growing more rapid and the condition is extending. He has been on increasing doses of strychnin and arsenic, specific treatment, bromids, chloral, galvanism, röntgen rays to the spinal column, gelsemium and tonics, without benefit, save that a combination of gelsemium and corium reduced the contractions to a marked degree for a time. The writer believes the contractions in this case due to a perversion of the normal efferent impulses which preserve normal tone, the cause of the perversion being some disturbance of the peripheral motor neuron. Lack of nutritional changes shows there is no disturbance in the muscle itself. The patient had engaged in athletic exercises to excess. [H.M.]

4.—Diagnosis and Treatment of Internal Hemorrhoids.—H. A. Brav states that internal hemorrhoids may be confounded with cancer, polyps, and prolapse of the rectum. The belief that permanent cure cannot be effected with palliative measures is true in the third stage of hemorrhoidal development, when we have to deal with a firm, hard fibrous tumor. It is not true in the first stage of the disease; here palliative measures should be tried. Hemorrhage from bleeding piles is most efficiently relieved by injection of cold water after each bowel movement; suppositories of 10 grains of tannic acid are efficient. The rectum may be distended, illuminated, and the bleeding points controlled. In certain cases that refuse operation he has found the injection of carbolic acid into the pile efficient and curative, having treated some 30 cases in this manner. He employs for this purpose 1 part of pure carbolic acid to 2 parts of glycerin and 2 parts of water, the amount injected into each hemorrhoid being from 5 to 10 drops. Brav's experience in the treatment of internal hemorrhoids leads him to the following conclusions: 1. In the treatment it is important, in the first place, to determine whether the disease is primary or secondary to some affection of the pelvic organs. 2. In the first stage of hemorrhoidal disease no operative treatment is indicated. 3. The true value of the nonoperative treatment is frequently underestimated in the second stage of hemorrhoidal disease. 4. None but operative treatment should be resorted to in the third stage of hemorrhoidal disease. [A.B.C.]

5.—Obstetrics in General Practice.—J. F. McNulty says that the obstetrician may become meddlesome by rupturing the membranes too soon, by introducing disease germs into a fine culture medium—the contents of the uterus; hence the necessity for strict attention to the details of antiseptic surgery. Gynecologists grow rich upon the neglect of the obstetric practitioner. The obstetrician should have at his finger-tips the normal diameter of pelvis and fetal head and he should have a mental picture of all the positions the head may assume in passing through the parturient canal. If the use of forceps in indicated, use them just as you would any drug which is indicated. It is not good practice to endeavor to rotate the head of the fetus with forceps in position. If in premature labor the os is found dilated with pain and hemorrhage the prospect of saving the child is poor. In such cases the writer has made it his practice to dilate rapidly, if necessary, and turn out the contents of the uterus. The prospect of hemorrhage following a complete operation of this character is slight. The danger comes from leaving some of the after-birth intact. It is very essential that we manage breech presentations with great caution. Until the breech appears in the vulva there is, as a rule, no danger to the child. But we must act quickly when the breech appears. [W.K.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

Henbane.—The "cursed hebenon," by the introduction of whose juice within the external auditory canal, Claudius was credited by the ghost of Hamlet with having procured the solution of his mortal coil, has proved something of a *pons asinorum* to Shakesperian commentators. The word does not seem to be discoverable elsewhere. But the general consensus of opinion has resolved it into *henbane;* the trouble may have been originally due to a *lapsus pennæ*, or a mistake of a transcriber or of a compositor. The fatal properties of the drug in question agree sufficiently with the mysterious ones attributed to henbane by Shakespere and his contemporaries. The allusion is, however, sufficiently interesting to induce us to place before our readers the account of henbane given by the famous English herbalist, William Salmon, in 1684–1685. It is as follows:

> *Hyoscyamus, Faba Suilla* (Sow-bean), ———, Henbane; cold in 4°, dry in 1°. It is Emollient, Hypnotick, Narcotick, Arthritick, and Vulnerary. The Essence thereof cools all manner of inflammation, helps spitting of blood, and such as cannot hold their water, easeth the most violent pains of the Gout, swellings of the Privities, and tumors of Women's breasts. Use it with as much caution as Opium.

And we are further informed, under the head of "Seeds" that, "Taken in the weight of ℈ss with Mead, it helps Coughs, Rheums, Defluxions of Humors to the Eyes or Breast, and all Issues of Blood; as also such as cannot hold their water." The poisonous properties of henbane do not receive prominent notice in the above items. The other allusions of Shakespere to its powers seem, however, to justify the decision in question. Dropping of poisonous juices into the ear had a traditional fame as a refined mode of assassination in that age. Ambroise Paré (1517–1590), the founder of modern surgery, was a contemporary of William Shakespere (1564–1616). In the great work which he published in 1579, and dedicated to his royal patron and patient, Henry II, King of France, he reminds His Majesty that he had already been surgical adviser to no less than three of his predecessors. He does not, of course, allude to the fact that he had been accused by his jealous contemporaries of procuring the death of one of them (Francis II) by introducing poison into his ear while engaged in treating some lesion of that organ. But such is the history of professional life! The elder Pliny is, as usual, instructive and entertaining on the subject of henbane:

> Moreouer, vnto Hercules is ascribed Henbane, which the Latines call Appollinaris; the Arabians, Altercum or Altercangenon, but the Greeks, Hyoscyamus. Many kinds there be of it: the one beareth black seed, floures standing much vpon purple, and this herb is full of pricks. And in very truth, such is the Henbane that groweth in Galatia. The common Henbane is whiter, and brancheth more than the other: taller also than the Poppy. The third kinde bringeth forth seed like vnto the graine of Irio. All the sort of these already named, trouble the brain, and put men besides their right wits: besides that, they breed dizzinesse of the head. As touching the fourth, it carrieth leaues soft, full of down, fuller and fatter than the rest: the seed also is white: and it groweth by the sea-side: Physitians are not afraid to vse this in their compositions, no more than that which hath red seed. Howbeit, otherwise this white kinde especially, if it be not throughly ripe, proueth to be reddish, and then it is rejected by the Physitians. For otherwise, none of them all would be gathered, but when they be fully drie. Henbane is of the nature of wine, and therefore offensiue to the vnderstanding, and troubleth the head: howbeit, good vse there is both of the seed itselfe as it is in substance, and also of the oile or iuice drawn out of it apart. And yet the stalks, leaues, and roots, are imploied in some purposes. For mine owne part, I hold it to be a dangerous medicine, and not to be vsed but with great heed and discretion. For this is certainly knowne, that if one take in drink more than foure leaues thereof, it will put him beside himself. Notwithstanding the Physitians in old time were of opinion, that if it were drunk in wine, it would drive away an ague. An oile (I say) is made of the seed thereof, which if be but dropped into the ears, is enough to trouble the brain. But strange it is of this oile, that if it be taken in drink, it serues for a counterpoison. See how industrious men haue bin to proue experiments, and made no end of trying things, insomuch that they haue found means and forced very poisons to be remedies.

The Shakesperian passage which introduces the unique "hebenon," and gives so thrilling an account of its effects, presents also another feature of special interest, as it indicates that the "myriad-minded" dramatist possessed an (at least) approximate knowledge of the circulation of the blood. In no other way can the following lines be explained:

That, swift as quicksilver, it courses through
The natural gates and alleys of the body;
. . . .
. . . .

REVIEW OF LITERATURE

Head Tetanus.—Grober[1] says this condition follows injuries to the head, especially about the eyes, nose and cheeks. In this form the period of incubation is longer than in the other types of tetanus. The symptoms appear first in the pharyngeal muscles, then in the masseter, then in the upper part of the body and finally in the lower portion. Grober says that owing to the prominence of the pharyngeal spasms this type of tetanus may be at first confounded with hydrophobia. If the spasm of the muscles of deglutition be overlooked, the picture of this disease simulates that of other forms of traumatic tetanus but in the last-named, paralyses rarely occur which are frequent in head tetanus, especially of the facial nerve. [J.F.]

Embolism of the Abdominal Aorta.—Ernest Barrie[2] reports a case of embolism of the abdominal aorta, being the third case which has come under his personal observation, and in which the diagnosis was confirmed by autopsy. Only 37 similar cases are reported in medical literature. The patient under consideration was a woman, aged 37 years, who presented herself for a severe attack of asystole, as a result of aortic insufficiency complicated with a double mitral lesion of rheumatic origin. Under the influence of complete rest, milk diet, and proper medicinal treatment, the patient had nearly entirely recovered, showing only slight tachycardia with arythmia, when it was discovered that the right leg showed livid patches over its entire surface. The temperature of this limb was lower than the left. These phenomena increased, and at the end of two days the whole limb was cyanotic and cold; complete anesthesia and analgesia of the skin developed. About this time the left leg became involved so that they both remained inert, without their being true paraplegia, however. At the same time, the patient suffered from extremely violent pains in the limbs. Coma and algidity gradually supervened; the heart sounds became feeble and the pulse imperceptible. Death occurred on the twelfth day after the onset of these symptoms. The autopsy showed classic mitral lesions with aortic insufficiency. The aorta was atheromatous, diminished in caliber, and below the level of the third lumbar vertebra; it was completely obliterated by an adherent clot which extended on the right side into the external iliac and femoral arteries. On the left side it occupied the external iliac, terminating at the crural artery. No other arterial obliteration was present. In comparing the clinical histories of similar cases, it is noticed that the onset is usually sudden, accompanied by violent pains in the limbs. Occasionally only one limb is affected. Multiple visceral disturbances are usually present. Death is generally rapid. [L.F.A.]

Recent Writings upon Arthritis and Kindred Disorders.—F. J. Poynton,[3] in a review of the year's work in this line, states that the general impression given is that the problems of arthritis are generally becoming less complex; the blanks in our knowledge are accepted as blanks to be filled in by further investigation. Arthritis deformans is named as an example. Each year it is becoming more apparent that many different infections, as tuberculosis, syphilis, rheumatism, and gonorrhea, will produce a rheumatoid condition of the joints. A more philosophic appreciation of the processes of bacterial infection has tended to make arthritis more simple; infection is not so often considered a process controlled by iron laws; the same infection may produce various classes of lesions. Greater caution is being made in regard to appeals to secondary infection. Poynton would have this axiom control the scientific study of arthritis. The existence of a secondary infection must be proved as conclusively as the existence of the primary infection. This would do away with the favorite device of explaining some unusual feature in a case of arthritis by ascribing it to a secondary infection. An interesting problem now coming to the front is the occurrence of arthritis from the injection of antitoxic serums. If arthritis actually is produced by the bacteria-free injections it would appear that the condition may arise from the circulation of poisons in the blood. In commenting on McCrae's article on arthritis deformans, Poynton says that it seems increasingly possible that many cases will prove to be a form of rheumatism and others the result of other infections, as syphilis, tuberculosis, etc. Whether one peculiar condition, to be called arthritis deformans, will be differentiated is still doubtful. [A.G.E.]

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[1] Mitth. a. d. Grenzgeb. d. Med. u. Chirurg., 1904, Bd. xiii, Heft 1.
[2] Journal des Praticiens, Vol. xvii, No. 51, 1903, p. 801.
[3] The Practitioner, June, 1904.

Tuberculosis in an Infant of 40 Days.—Comby[1] reports the case of a male infant, born before term, of a tuberculous mother. The baby was with her for a month, but during this time, as well as until its death, the infant was fed by the bottle. The child had diarrhea and vomiting, was pale and emaciated, but at no time did it have any fever. At the autopsy a portion of the pulmonary tissue was found to be in a state of splenization, but no pulmonary tuberculosis could be discovered; some of the tracheobronchial glands, however, were found in different stages of caseation. All the other organs were normal. The advanced degree of the lesions speaks for tuberculous heredity. [E.L.]

Types of Arthritis Deformans.—R. L. Jones[2] furnishes the notes of six cases of this affection. In the first two, muscle cramps and vasomotor phenomena were present as prodromal symptoms and, according as one or other predominated, resembled tetany and Raynaud's disease. In the last named diseases and in early arthritis deformans, three groups of symptoms, vasomotor phenomena, muscle cramps, and periarticular swelling, are common to all three. Jones is led to believe that under some conditions they may graduate insensibly into each other as members of one family group possessing a common origin, namely, cerebrospinal toxemia. The fact that definite cord changes have seldom been found in cases of arthritis deformans is not considered as a strong argument against this view; it conforms in this respect with other spinal toxemias, as tetany. The great improvement in the joint condition of one patient, who also had the symptoms of Graves' disease, from the administration of thyroid extract, suggests the trial of that drug in other cases, at least when other standard remedies have failed. [A.G.E.]

Inflammation of the Pericardium with Puncture of the Same.—Doebert[3] reports two cases. In one there was a pericardial friction sound in the lower quadrant of the area of dulness and to the right of the sternum. The apex scarcely reached as far as the mammary line. Owing to the increase of the area of heart dulness puncture of the pericardium was undertaken in the fifth intercostal space external to the mammary line, but with negative results. Sometime afterward 45 cc. was obtained in the fourth intercostal space in the right parasternal line by means of aspiration. Two days later 250 cc. was obtained by means of a Dieulafoy's needle at the same point. At the postmortem he found both visceral and parietal layers thickly covered with a fibrinous exudate, but only 5 or 10 drops of blood-tinged fluid in the sac. The mitral valve presented a verrucose endocarditis, and the aortic leaflets showed newly-formed ulcers. After the second case had been under observation three days, 400 cc. of serous fluid was obtained from the right pleural cavity; some few days later the pericardium was punctured in the parasternal line in the fourth intercostal space, and 12 cc. of cloudy serous fluid was aspirated. On the sixth day of observation the right pleural puncture was negative, but 400 cc. was removed from the left pleural cavity, and owing to the threatening condition of the patient the pericardium was again punctured in the fourth intercostal space 3 cm. to the right of the sternum in the recumbent position, with negative results. The needle was introduced .5 cm. internal to the last puncture in the same space and in an almost sitting posture, when 300 cc. of cloudy serous fluid was obtained. After this, patient gradually improved and soon left the hospital. [J.F.]

Facial Anomalies with Coincident Changes in the Extremities.—Babes,[1] from his observations believes there is a region in the upper half of the face about the base of the skull that must be looked upon as center upon which depends the development of the extremities. In the course of his observations he has noted the coincident deformities of the extremities and anomalies of the head and face as for instance cheilognathoschisis, slight sclerosis of the base of the skull and partial hypoplasia of the hypophysis with 6 well-developed fingers and toes on each extremity which are well developed. The association of these anomalies he calls "acrometagenese."

Leukocytosis in Perityphlitis.—A. Federmann[2] says that leukocytosis is to be regarded as a healthy reaction of the organism toward infection. Every case of perityphlitis has a typical leukocyte curve, which varies according to the intensity of the inflammatory process. In mild cases the curve is low and falls rapidly to normal. In more severe infections the curve rises higher and remains high for a longer time. In the most severe forms the curve falls soon, while the symptoms increase in severity. The leukocyte curve is only of value when considered carefully in conjunction with all other symptoms. In the first two days the leukocyte count is usually below 20,000 in simple appendicitis, while it rises above that mark in more severe cases. A low count with severe symptoms at this stage denotes a beginning general intoxication and is a bad sign. On the third to fifth day a high count with severe symptoms indicates immediate operation, as there is no tendency to encapsulation of the abscess. If the count is low, however, the operation should be deferred, as the resisting powers are thus shown to be low. If the count continues to fall, with severe symptoms, the prognosis is bad. After the first week, a leukocyte count above 20,000 indicates a well encapsulated abscess. If the symptoms are still severe, immediate operation is indicated, as the abscess is still growing. [B.K.]

Syphilitic Tumor of the Thyroid in the Newborn.—Goulon[3] reports the case of an infant, born 20 days before term, of parents who at the time of conception both showed signs of secondary syphilis. The mother was treated with antisyphilitic injections all through her pregnancy, and when the baby was born it bore no outward manifestations of the disease; at the anterior part of the neck, however, there was a tumor presenting the outward characteristics of a congenital goiter. The infant was put upon perchlorid of mercury solution, 1 to 1,000, a half teaspoonful daily, and within a comparatively short time the tumor had entirely disappeared. The child received no iodids, and the mother had not been taking iodids for two months. [E.L.]

Primary Multiple Muscular Tuberculosis.—F. Lejars[4] reports the case of a man with possibly slight tuberculous lesions at the apices, who developed, within a short time, four tuberculous tumors in the muscles of both thighs, the right forearm, and the left arm. The tumors were manifestly intramuscular, and nonadherent to the skin or bone. Fluctuation was evident in some of them, and in their slow development they resembled the course of "cold abscesses." The tumors were excised, and bacteriologic examination revealed the presence of the tubercle bacillus. This muscular tuberculosis is evidently of hematogenous origin, the infection being carried by the blood from some primary focus, such as the lungs. The muscles usually affected are those which are most active, and the tuberculous lesion frequently starts at the junction of the muscular and tendinous parts. These facts point to the conclusion that fibrillary ruptures may play some part in the etiology. The monomuscular form must be diagnosed from sarcoma, lipoma, syphilitic gumma, suppurating hematoma, typhoid abscess, etc. The multiple form is more readily diagnosed, as these other tumors are rarely multiple. The treatment of this condition is complete excision of each tumor as a whole, repeated if necessary. [B.K.]

Two Cases of Gonococcal Sepsis with Demonstration of the Gonococci in the Blood.—Krause[5] says in the one case swelling of the knee-joint developed four weeks after an attack of gonorrhea; a few days later pains in the head, chest, and back developed; accompanying these were chills. At this time there was no heart murmur. Cultures from the patient 44 hours after the inoculation showed cocci that morphologically resembled gonococci. At the autopsy cultures were again made from the blood and the same organism obtained. The postmortem revealed a fibrinous pericarditis, ulcerative endocarditis, and pneumonia. In the second case the first blood cultures remained sterile. A few days afterward joint pains developed, the spleen became palpable, and the fallopian tubes enlarged. Blood cultures were again made and the gonococci found. This patient recovered. [J.F.]

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[1] Archives des Medecine des Enfants, 1904, vii, 98.
[2] Edinburgh Medical Journal, May, 1904.
[3] Berliner klin. Wochschrf., 1904, No. 18.

[1] Berliner klin. Wochschrf. 1904, No. 18.
[2] Mitth. a. d. Grenzgeb. d. med. and Chirurg., Bd. xiii, Heft 2, p. 230.
[3] Archives des Medecine des Enfants, 1904, vii, 36.
[4] La Semaine Médicale, June 1. 1904.
[5] Berliner klin. Wochschrf., 1904, No. 19.

Blood Investigations in Bilharzia Disease.—From his investigations in Egypt, A. Kautsky Bey[1] believes that bilharzia disease is the principal factor in the etiology of Egyptian anemia, while *Ankylostomum duodenale* plays very little part in its causation. The reasons for this latter statement are: 1. The rarity of ankylostomum eggs in the stools. 2. The normal behavior of the hemoglobin value in ankylostomiasis, while it is much below normal in bilharzia cases. 3. The absence of eosinophilia in ankylostomum cases. Bilharzia anemia is characterized by an oligochromemia, *i. e.*, a lower hemoglobin value than is justified by the count of the red corpuscles. It is further distinguished by a marked eosinophilia. The anemia is evidently not caused by the actual loss of blood, but by a toxic substance evolved by the parasites. [B.K.]

The Tuberculosis Question.—Heller[2] maintains that bovine tuberculosis is responsible for a certain number of cases of human tuberculosis. According to his own and the observations of others, tuberculosis of the lungs should be grouped under two principal heads: 1. Primary inhalation tuberculosis, which is again subdivided into alveolar, bronchial, and lymph follicle of the lung. 2. Secondary tuberculosis. This group is divided into that form where the infection is carried by the blood stream, where it is carried by the lymph stream, and into that form that arises as a result of inhalation. Heller says we are sure that the infection in acute miliary tuberculosis is carried by the blood stream in the greater number of instances, and in fewer instances by the lymph stream. [J.F.]

Myositis Infectiosa.—This is an inflammation of striated muscular tissue, running the course of an acute infectious disease, and occurring much more frequently in Japan than in the occidental countries. H. Miyake[3] reports 33 cases fom Japan. All but one resulted in the formation of abscesses in the muscles. Cultures from these abscesses showed *Staphylococcus aureus* in all but one case, in which streptococcus was found. The disease must be classified as a septicopyemic affection, in which the striated muscles form the sites of least resistance. Those muscles which are the most used become the seats of inflammation, overexertion and subcutaneous injury playing an important part. The relatively great frequency of the disease in Japan is attributed to the climate, racial peculiarities and the character of food eaten by the natives. The disease is ushered in by a chill, and is characterized by high fever, general pains, weakness, with contraction and loss of function in the affected muscles. The typical localized inflammatory swellings are then observed, these usually going on to abscess formation, with general septic symptoms. If the abscesses are evacuated early, recovery is the rule, and the muscles rapidly recover their substance and function. The author's experiments show that the organism recovered from the abscesses is not specific for this disease alone. [B.K.]

Experiments upon Surviving Mammalian Intestine.—R. Magnus[4] has made a series of interesting investigations on the mammalian intestine, which he kept alive in Ringer's solution. His conclusions are as follows: (1) Spontaneous movements of the intestinal musculature continue unchanged after the removal of the mucous membrane. They are not, therefore, dependent upon sensory irritation coming from this membrane, but are automatic movements; (2) even after the removal of the mucosa and of Meissner's plexus, situated in this, the movements of the musculature continue. They are, therefore, independent of this plexus. Even the local peristaltic reflexes are brought about without the influence of the plexus; (3) a simple tear at the inner boundary of the circular musculature does not arrest its motility; (4) if, however, such a tear is made at the outer border of the musculature, whereby this is more or less completely separated from Auerbach's plexus, the spontaneous movements are permanently arrested, although the irritability of the muscle is preserved; (5) the longitudinal muscular coat, which in this experiment remains connected with Auerbach's plexus, preserves the capacity for spontaneous, rhythmic contraction; (6) if the separation of the coats is so conducted that Auerbach's plexus, which lies upon the longitudinal coat, remains entirely intact, the movements of the longitudinal muscle have, in every respect, a normal type and rhythm; (7) this proves that the automatic movements of the intestinal musculature are not myogenic, but are dependent upon centers located in Auerbach's plexus; (8) it is possible to make preparations of the intestinal wall that contain or do not contain the centers for automatic movements. [D.R.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Improved Form of Suture for Appendicitis Operations.—T. S. Webster[1] describes his method of applying sutures to secure accurate closure of the muscle-splitting wound in appendicitis operations. It is a modification of the mattress suture, and best described in his own words: It is placed parallel to the fibers of the external oblique, instead of at right angles, as in the ordinary mattress suture. In closing a small incision it is inserted through the inner edge of the external oblique aponeurosis, about a half inch above the lower end of the separation. The lower margins of the internal oblique and of the transversalis muscles are drawn up to normal position. The suture is passed through them, carried along on the peritoneum and put through the same muscles from within outward, appearing on the inner edge of the external oblique incision a half inch below the upper end of the separation. Then it is carried across to the outer edge of the separation of this muscle and passed through the same structures in reversed order, from above downward, finally appearing on the outer margin of the external oblique, opposite the starting point. When this suture is tied all the muscles are in normal apposition, so that it is difficult to discern the lines of division. Webster finds that robust subjects are healed in three days, sit up on the fourth day, and go about with no discomfort on the fifth day. Less vigorous patients may require as long as 10 days. [A.G.E.]

Intravesical Hernia.—Victor Blum[2] found in a man of 23 who suffered from chronic incomplete retention of urine, by means of the cystoscope, a congenital diverticulum and a cone-shaped invagination of the wall of the bladder in the region of the fundus, in which peristaltic movements were visible. This socalled hernia (Brösike) lay in the abdominal cavity and repeatedly showed signs of incarceration by reason of the contraction of the muscle bundles at the hernia ring. When urinary troubles exist in this rare condition, incarceration must be thought of. Blum claims that this is the first case of hernia of the bladder that was recognized *intra vitam*. [J.H.W.R.]

Leukocyte Count in Appendicitis.—Herbert French[3] reports the results of this investigation in 83 cases, which are divided into four groups, with elaborate tables of statistics for each. The cases show remarkable variability. The lowest figure meaning pus in every instance was 32,000 in contradistinction to 20,000 as claimed by certain other observers. The tables are well worth studying. We give French's conclusions which are temperate and valuable: "The value of leukocytosis in relegating a given case of appendicitis to its proper group, and in deciding whether an operation should be performed or not, is apt to be overrated. Its value, judged from the present cases, is even less than that deduced by other recent observers from the figures they have found. Many cases with 20,000 leukocytes have resolved spontaneously; many with 15,000 or less have had pus present. At the same time, leukocyte counts have afforded valuable evidence in certain cases. In no case where the leukocytes have reached 35,000 has pus been absent. A rising count is of more importance than is the absolute number. Above all, leukocytosis is to be regarded as but one clinical sign among many. By itself it may mislead, but taken in conjunction with the pulse-rate, the temperature, and the general condition of the patient, it is an additional sign which may be most valuable in the diagnosis of a difficult case." [A.G.E.]

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[1] Zeit. für klin. med., Bd. lii, p. 192.
[2] Berliner klin. Wochschrf., 1904, No. 20
[3] Mitth. a. d. Grenzgeb. d. Med. and Chirurg., Bd. xiii, Heft 2, p. 155.
[4] Arch. f. d. gesamm. Physiol., Bd. cii, Hft. 7, April 9, 1904.

[1] Canada Lancet, May, 1904.
[2] Wiener klin. Wochenschrift, 1904, No. 8, p. 209.
[3] The Practitioner, June, 1904.

Congenital Absence of the Patella.—Heine[1] reports such a case in a man 34 years old. The patient states that his father and his sister had knee-joints similar to his own. The patient served in the army and says he never had any difficulty in performing his work or in taking part in all kinds of sports. When viewed from the anterior, the joint appears flattened, the condyles of the femur and the tuberosity of the tibia are prominent. The fossa patellaris deepens when the leg is at a right angle to the thigh. The tendon of the quadriceps extensor lies between the two condyles of the femur. When the patient attempts exerted movements this muscle tendon seeks support, usually on the external condyle. Heine believes the condyles in comparison are larger than normal. [J.F.]

Treatment of Prolapse of the Rectum.—P. Duval and C. Lenormant[2] believe that anterior operation is necessary in addition to the posterior reparative procedure usually employed for complete prolapse of the rectum. Three indications are to be met: 1. Reconstruction of the perineum and the anal canal. 2. Narrowing of the rectal ampulla. 3. Suppression of Douglas' culdesac when it is abnormally developed and especially when it forms a hernia. The rectopexy of Marchant is the posterior operation of choice; in addition, the writers describe the technic of their anterior operation which is to follow and complete that of Marchant; the two combined meet all the indications above mentioned. An incision is made in front of the anus and the rectum freed from the urethra and prostate or vagina; the space formed is bounded behind by the distended anterior wall of the rectum, on the sides by the levator ani muscles, and at the bottom of the culdesac, thus exposing the structures needed. First the culdesac is disposed of; then the ballooned anterior wall of the rectum is narrowed by the series of folds and suspended to the levator ani muscles; lastly the internal faces of those muscles are sutured firmly to each other. Two cases in which the combined operations were done consecutively or at different sittings have yielded very satisfactory results. [A.G.E.]

Diagnostic Procedure for Vesical Neoplasm.—Alessandri[3] gives a method. Inject suddenly and with force, some sterile water into the suspected bladder. On withdrawal there will likely be found fragments of the neoplasm in the water, which may be subjected to microscopic and bacteriologic tests as desired. In connection with this it may be noted that the author prefers suprapubic cystotomy in interference. [T.H.E.]

Melanosarcomatosis of the Pia Mater.—Oskar Stoerk[4] reports a case of this rare affection in a man of 31, who two months prior to his admission to the clinic, suddenly was seized with headache, vomiting, vertigo, tinnitus, disturbance of vision, and weakness of the legs. He died a month after his admission, and autopsy revealed the presence of a melanosarcomatosis of the pia mater of the brain and cord. The corpora quadrigemina were compressed, the cerebellum pushed backward, the aqueduct of Sylvia was compressed and the lateral and third ventricles were dilated. [J.H.W.R.]

Sarcoma of the Alimentary Canal.—E. M. Corner and H. A. T. Fairbank[5] record a case of sarcoma of the colon that produced intussusception; it is the fifth case of intussusception due to sarcoma, and the only one occurring in the colon. It is also the eleventh reported case of sarcoma of the colon. The patient was a boy of 9; the tumor was at the middle of the ascending colon, and was shaved off under the supposition that it was an adenoma; recurrence followed, and death occurred from shock due to a second operation. The writers analyze 175 collected cases, distributed as follows: Esophagus, 14; stomach, 58; small intestine, 65; ileocecal region, 20; large intestine, 11; rectum, 7. The following features serve to distinguish sarcoma from carcinoma of the intestine: (1) Age of the patient; (2) more rapid course in sarcoma; (3) presence of a tumor of considerable dimensions; (4) early and severe anemia and wasting; (5) almost constant presence of pain, often severe; (6) absence of hemorrhage; (7) presence of irregular fever. The average duration of life is about six months. [A.G.E.]

Hyperalgesic Zones after Pistol Shots in the Head.—Milner,[1] as his recently published article was in print, had the opportunity of observing another case. The patient was brought to the hospital unconscious, bleeding from the nose was profuse. The next day the patient became conscious and a left-sided hemiplegia developed. The right eye protruded, the conjunctiva was infiltrated with blood; in the left eye there was protrusion and sugillation. Milner found that the skin of the neck, posterior part of the head, and over the anterior portion of the chest was extremely tender to the touch. Later the hemiplegia became more extensive, the patient stupid, and the hyperalgesia less marked and less extensive. At the autopsy he found great destruction of the structures about the base of the brain, and Milner believes the hyperalgesia arose as result of the irritation of the sympathetic nerve fibers around the sinus cavernosus. [J.F.]

Operation for Ascites following Cirrhosis of the Liver.—J. H. Jacobson[2] reports four cases in whom the Talma operation was performed. Three patients died, 1 from uremia, 1 from toxemia, 1 from unknown causes. Two died within a week after operation, one 5 months after, perhaps slightly benefited. The fourth patient is alive at the end of 15 months and is in good health. Jacobson gives the percentage of cures or improvements following the operation as about 49%. It has been of benefit in cases of hypertrophic cirrhosis without ascites and promises some hope in cases of ascites due to cardiac disease. Of Jacobson's cases, 2 were atrophic, and 1 each hypertrophic and syphilitic cirrhosis. Simple scarification of the omentum and a corresponding area on the parietal peritoneum is sufficient. Scarification of liver, gallbladder or spleen is not essential. Dietetic treatment of the patient should be continued after the operation and alcohol in every form avoided. [A.G.E.]

Surgery of Appendicitis.—Bastianelli and Signorelli, considering 94 cases, are of the opinion the earliest interference is justifiable. It is not necessary to have a perforation, or evidence of peritoneal involvement, before interfering. Delay may mean the sudden and grave appearance of avoidable complication. Ceccherelli disputes statistics, and suggests that no rule is absolute. [T.H.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Thyroid Relations in Obstetrics and Gynecology.—R. C. Buist,[3] at a recent meeting of the Edinburgh Obstetrical Society, narrated the histories of several cases in illustration of this relation. Pregnancy occurred after thyroid treatment of a woman suffering from myxedema; there is only one recorded case of pregnancy in this condition. Another patient with goiter had only one living child from 12 pregnancies. C. Watson showed specimens illustrating hypertrophy of the thyroid and parathyroid glands under the influence of a raw meat dietary. O. Nicolson said that the results of physiologic experiments in this line had not been taken advantage of in clinical obstetrics. Persons suffering from goiter and animals from whom the thyroid has been excised are apt to develop symptoms of autointoxication when their diet contains too much animal proteid. It appears that this food uses up too much of the scanty thyroid secretion, and also yields but little iodin. Explanation of the remarkable success of an exclusively milk diet in the prophylaxis of eclampsia would seem to lie in the relation of nitrogenous food to thyroid secretion. The administration of thyroid extract in such cases rests upon a rational basis; thyroid activity may also be stimulated by potassium iodid. [A.G.E.]

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[1] Berliner klin. Wochschrf., 1904. No. 19.
[2] Revue de Chirurgie. May 10, 1904.
[3] Il Policlinico (Rome), No. 28, 1904.
[4] Wiener klinische Wochenschrift, 1904, No. 7, p. 184.
[5] The Practitioner, June, 1904.

[1] Berliner klin. Wochschrf., 1904, No. 19.
[2] Cleveland Medical Journal, June, 1904.
[3] Scottish Medical and Surgical Journal, May, 1904.

The Formalin Treatment of Puerperal Sepsis.—E. Hoerschelmann[1] reports the case of a primipara of 24, who in the seventh month of pregnancy began to complain of general malaise. She had been well up to then, and believed that she had overworked herself while making hay. The day before she entered the hospital she had severe pain, and discharged discolored amniotic fluid. She was examined very cautiously, and with strict antisepsis. The next day she gave birth to a macerated fetus spontaneously, the amniotic fluid being very fetid. A putrid placenta was expressed two hours later. Temperature normal. The next day she had a chill, fever of 104°, and a pulse of 150. The uterus was douched with boric acid solution, ergot given internally, and an icebag applied locally. The next day on account of repeated chills, high temperature, and fetid discharge, lysol douches were given. Three days later, on account of symptoms of sepsis, an enema of a pint of 1% salt solution containing eight drops of formalin was given, and at the same time opium by mouth. The patient had a stool within 10 minutes, the temperature dropped somewhat, and the patient felt much better. During the night profuse sweating; symptoms of sepsis about all gone. The patient recovered quickly. [E.L.]

Rupture of the Uterus.—W. A. Dorland[2] presents a critical study of 50 cases, one of which he reports from the standpoint of treatment. His own case, in which rupture occurred during version by the attending physician, was treated by immediate operation and suture of the wound; the patient recovered, despite a slough on the uterine surface of the tear, which was supposedly due to a deep suture catching a nutrient artery. Dorland's study of the 50 cases occurring since 1900 shows the great superiority of the operative course of treatment according to modern technic, although many abdominal surgeons and obstetricians claim better results from an expectant plan of treatment. Of the 50 patients, 12 died, a mortality of 24%. Of those treated expectantly, 25% died; of the 31 operated upon, 16% died; 3 died before treatment of any sort could be instituted. Dorland concludes that incomplete lacerations of the uterine wall, if hemorrhage be not severe, may be treated expectantly; complete rupture should be operated on at once under favorable conditions, and after packing and conveyance to a hospital when uncleanliness of locality and lack of surgical appliances demand such course. Tables with brief notes of the 50 cases are appended. [A.G.E.]

Forced Delivery in Eclampsia.—Kroemer[3] gives a detailed history of two cases to show the value of conservative treatment in eclampsia in distinction from such radical measures as cesarean section, and to illustrate the fact that emptying the uterus is only a part of the general therapy in eclampsia, that delivery alone will not cure the patient. Eclampsia exists through the intoxication of the mother from the fetus. This increases through a considerable time, rising from day to day, and reaches an acute stage when there is interference with the outflowing tubes of the system. The emptying of the uterus relieves both kidneys and ureters. The early rupture of the amniotic sac brings favorable results by relieving the pressure on the ureters. The important indication is to diminish the poison of the organism by stimulating skin secretion through baths and packing, by high irrigation of stomach and intestines, by venesection, subcutaneous infusion or transfusion. In most cases these measures arouse labor pains or counteract in some degree the rigidity of the os uteri, so that the way is prepared for forceps delivery. Cesarean section requires an anesthetic, which adds another poison to those already in the system. The second case also shows the value of the metreurynter. Kroemer summarizes his experiences thus: The general poisoning of the maternal organism in eclampsia is the main theory of physicians, and indispensable are the introduction, assistance, and completion of the results reached through regulated or forced delivery. [W.K.]

Modern Theories of Eclampsia.—E. Wormser[1] has performed experiments after the methods of Voit, Ascoli, and Weichardt to determine the exact value of the theories concerning the etiology of eclampsia brought forward by these men; although his syncytiolytic serum was made in the exact manner described by them, his results in most respects differed absolutely from theirs, nor could he agree with Liepmann, who was able by means of his placenta particles to precipitate the specific serum of pregnant animals. In not one of his tests was this precipitation reaction noted. [E.L.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Theocin.—Arnheim and Alkan[2] find theocin and its salts indicated in all anasarcas of cardiac, hepatic and renal origin, in which the renal epithelium is capable of stimulation. Its action is very powerful but evanescent, lasting at the longest only 48 hours, and its effect must be followed by digitalis, calomel, or other diuretics. It acts only by stimulating the secretory power of the renal epithelium and not by increasing the blood-pressure. In myocarditis and nephritis it may be necessary first to improve the condition of the cardiac muscle before relieving the edema. In acute inflammation of the kidney, theocin is counterindicated. [E.L.]

Cure of Hydronephrosis.—Geyer[3] reports curing a case of hydronephrosis with helmitol, a combination of urotropin with formaldehyd citric acid. He gave from 45 gr. to 60 gr. (3 gm. to 4 gm.) daily. Within a few days the pus began to diminish and the urine cleared up, until all the pus had disappeared from it. The patient has now been well for five months. He suffered no inconvenience from the drug. [E.L.]

Mercuriol Oil: A New Mercurial Injecting Substance.—In cases in which it is necessary to inject mercury, M. Moeller[4] recommends mercuriol oil, an amalgam containing 90% mercury and 10% aluminium and magnesium. He mixes a definite quantity of it with an equal quantity of olive oil and injects from $\frac{1}{20}$ cm. to $\frac{1}{5}$ cm. He speaks of it as an active injection preparation, followed by but slight local irritation symptoms. It is neat, clean, exact regarding dosage, painless, and remarkably active. He has employed it thus far in 60 cases with the best satisfaction. [E.L.]

Treatment of Erysipelas.—The following method of treatment in erysipelas of the face and neck has given M. Meunier[5] very good results: It consists of local applications and slight friction with

Menthol	40 gm.	(10 dr.)
Powdered camphoris	11 gm.	(3 dr.)
Methyl salicylate	60 gm.	(16 dr.)
Guaiacol	9 gm.	(2 dr.)
Vaselin	180 gm.	(6 oz.)
Lanolin	250 gm.	(8 oz.)

Thirty gm. (1 oz.) of this usually suffices; the rubbed surface is covered with a dressing. He has also obtained good results with it in inflammatory rheumatism. [E.L.]

Treatment of the Tuberculous after Their Transference to Sanatoriums.—P. Pregowski[6] has noticed repeatedly that individuals suffering from tuberculosis, but in apparently good condition, become suddenly worse from three to four days after arriving at a sanatorium, and occasionally a fatal result is observed. He advises, therefore, to treat all such patients during the first five to twelve days after their arrival as if they were much worse than they really seem. He puts them to bed, prescribes medicine and a diet as if they had had a hemorrhage, and in some cases even warms the room and keeps the windows closed. [E.L.]

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[1] St. Petersburger medicinische Wochenschrift, 1904.
[2] Medicine, June, 1904.
[3] Zentralblatt für Gynäkologie, May 14, 1904.

[1] Münchener medicinische Wochenschrift, 1904, li, No. 1, January 5.
[2] Therapeutische Monatshefte, 1904, xviii, 20.
[3] Therapeutische Monatshefte, 1904, xviii, 147.
[4] Archiv für Dermatologie und Syphilis, Vol. lxvi, 89.
[5] Bulletin général de Thérapeutique, 1904, cxlvii, 272.
[6] Zeitschrift für Tuberculose, 1904, v. 329.

Gallogen.—Gallogen is an odorless, yellowish powder of pleasant taste, soluble in alkalies, but not in neutral and acid fluids. It is a combination of gallic and ellagic acids, and is employed by Haas[1] as an active intestinal astringent. It is not dissolved by the gastric secretions, therefore acting only in the small intestines. He employed it in intestinal tuberculosis, finding it especially valuable in recent cases. In dysentery, also, the stools diminish in number, and mucus, blood and pus disappear from them. Colic and rectal pain and tenesmus disappear under its use. The diarrhea of visceral syphilis yields to its influence. The powder evidently covers the ulcerated surfaces, thus protecting them. In cholera infantum, chronic intestinal catarrh and other intestinal affections of childhood, it was found useful. The daily dose is from 30 gr. to 40 gr. (2 gm. to 2.5 gm.); it may be increased without danger. [E.L.]

Mercury Salicylarsenate.—This new salt of mercury, described by Coignet,[2] contains 38.46% mercury and 14.4% metallic arsenic. Both metals are held in a "latent" state, which attenuates their toxicity, and permits administration in much larger doses than other mercurial preparations. A man of 60 kilograms weight can stand a dose of 6 gm. of this salt, whereas 0.09 gm. is the limit for mercury biniodid. Mercury salicylarsenate is soluble to the extent of 0.03 gm. to 0.04 gm. to the cubic centimeter, the solution is easily sterilized without decomposition, and its injection is usually painless. In therapeutic effect it ranks with the best salts of mercury, while it affords the additional effect of arsenic. [B.K.]

Mustard Poisoning.—E. Kolbe[3] reports the case of a woman of 38, who had been taking mustard grains by the teaspoonful daily before eating, on account of gastric pain; the day before being found poisoned, she had taken more than six teaspoonfuls. When found she presented a picture as of having been poisoned by a narcotic. She was unconscious, with cyanosed face and mucous membranes; her pulse was small, irregular, 116; her temperature 96°, her pupils pinpoint, breathing slow and Cheyne-Stokes (3 to 8 per minute), all voluntary muscles spasmodically retracted. When called the patient would wake for a moment and recognize the bystanders, but at once would fall asleep. The catheterized urine contained a trace of albumin and 5% of sugar. The treatment at first consisted of camphor injections and keeping the patient awake after lavage had been performed. She suddenly collapsed and breathing ceased. Artificial respiration was resorted to, saline solution injected, hot applications made to the abdomen, and atropin given hypodermically, against the diaphragmatic spasm. The patient recovered, complaining only of itching of the skin next day. Ordinarily, oil of mustard produces gastroenteritis, ultimately killing by central paralysis. Kolbe's patient died a year later of stricture of the colon, which had existed before the poisoning; the gastric mucous membrane showed absolutely nothing abnormal. [E.L.]

Cutaneous Camphor Treatment, Especially in Tuberculosis of the Lungs.—Walter Koch[4] asserts that after using this medicament for five years he is well satisfied with the results obtained, but adds that it cannot be looked upon as a specific. The results he saw were as follows: Temperature fell, the night-sweats disappeared, expectoration was accomplished with greater ease, appetite was improved, and the patients gained in weight. He at first injected the oil of camphor subcutaneously; now he uses an ointment which is sold under the name of "prævalidin." [J.F.]

Radium Container for Stomach, Esophagus, and Rectum Application.—M. Einhorn[5] has constructed an instrument which consists either of a glass, aluminium, or hard rubber capsule, the top of which is screwed on. To the top a piece of cord is fastened. The radium is placed in the capsule, the top screwed on, and the patient swallows the capsule. If treatment is to be applied to the stomach it is allowed to enter the alimentary canal for a distance of 50 cm., where the capsule remains for an hour or so. [J.F.]

The Diuresis Produced by Theocin in Healthy Persons.—H. Dresser,[1] in a report of his investigations, states that of all the purin bases given in solution the diuretic action of theocin was the most powerful. Blood in renal disease and dropsical fluid contain the same percentage of salts as healthy blood. These salts cause the retention of water, one gram of NaCl retaining from 100 to 110 times its weight of water in the body. The elimination of water alone therefore does not result in lasting success. Theocin eliminates not only the water but the constituents in solution. In diuresis after water drinking the increased expulsion of nonelectrolytes (urea) is relatively greater than that of the salts. Diuresis causing expulsion of the electrolytes is far more rational than the giving of saline diuretics on the one hand and of infusions and decoctions on the other, which latter act simply as water drinking does. [H.M.]

Exodin, a New Cathartic.—Alfons Stauder's[2] findings concerning this diacetyl-rufigallic-acid-tetramethyl-ether closely agree with those reported by Ebstein. It is tasteless, odorless, and does not cause nausea, gastric oppression or other unpleasant symptom. Even patients with ulcer of the stomach can take it without ill-effect. It acts usually in 18 to 24 hours; in mild chronic cases or when the dose has been repeated, it acts in 8 to 12 hours. Its slow action shows that it has no injurious or irritant effects on the intestinal mucosa. It does not occasion a sudden and temporary downward peristalsis, but has a more protracted stimulant effect. This explains why gastric pain and colic are absent; why with rare exceptions evacuations are soft and formed, diarrhea being very rare, and why it is not followed by constipation. Ebstein highly praised exodin in pregnancy, even in the early months. It does not lose its efficacy when repeated at intervals. In spastic obstipation, intestinal paralysis with large fecal accumulations, warm oil enemas should be given; and when the scybala have been softened exodin facilitates their evacuation. The dose for adults is two or three tablets of .49 gm. (7.5 gr.) and for children one tablet. [S.G.]

NERVOUS AND MENTAL DISEASES

J. K. MITCHELL

EDITORIAL COMMENT

Miraculous Cures.—The view of the unchangeability of human nature is borne out by the testimony of miraculous cures, and faith-healing in its various aspects. The Jansenism of France, furnished examples strictly comparable with those of modern Lourdism, and with Eddyism and Christian science emancipation from physical ills. In 1727, there died a high-minded and pure-living Jansenist ecclesiastic, Archdeacon Paris. His exemplary conduct and untiring charity had endeared him to the multitude; but, the special tenets of his sect were obnoxious to the Papal authorities, and detested by the Jesuits, whose influence had procured their condemnation. But, as disapproval and persecution always strengthen faith, his personal admirers flocked to offer up their devotions at his grave. Soon miracles began to be reported from that shrine, and attested by numerous eye-witnesses. In time, the sick, and lame, and blind, were brought and laid upon his tomb, and were quickly made whole. After about four years of such procedure, more pronounced effects developed. Neurotic developments of a startling kind—hysteric, cataleptic and epileptic—were reported; these the Jansenists attributed to God, and the Jesuits to the devil. The evidence was sifted by the learned and scientific authorities of the day. The eminent French physicians, Hecquet and Lorry, attributed the whole to natural causes. On the other hand, one of the foremost of contemporary English scholars visited the scene, and expressed his full conviction of the reality of the cures. In the interest of orthodoxy versus Jansenism, the Archbishop of Sens denounced the alleged miracles. His attack elicited the production of a splendid quarto volume, bearing the title, "La Verite des Miracles operes par l'intercession de M. de Paris, Demontrée contre M. l'Archevéque de Sens. Ouvrage dedié AVROY par M. de Montgeron Conseillier au Parlement." A Utrecht, mdccxxxvii—which forms a monumental example of the perversion of intellectual ingenuity. There is a most artistic frontispiece which displays the saintly Jansenist before a crucifix, in an attitude of extreme devotion; and a splendid folding plate precedes the text, which pictures one of the afflicted lying on his tomb, undergoing the process of cure; with a devoted crowd around. The text includes eight elaborate "demonstrations" of miraculous healing; each of which is illustrated by two fine engravings—of the conditions of the patient before and after the process. Each individual record is established by a flood of reliable testimony, and is followed by a series of "propositions," lucidly enunciated and depended with brilliant logical skill. An ocean of "Pieces justificative" relating to the various cases concludes this remarkable volume. The history of the emotional element of human nature tends ever to repeat itself.

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[1] Therapeutische Monatshefte, 1904, xviii, 151.
[2] Lyon Médical, June 5, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, No. 7, Bebr. 11.
[4] Berliner klin. Wochschrf., 1904, No. 18.
[5] Berliner klin. Wochschrf., 1904, No. 18.

[1] Edinburgh Medical Journal, February, 1904.
[2] Therapie der Gegenwart, June, 1904.

REVIEW OF LITERATURE

Hysteric Skin Symptoms and Eruptions.—Thomas D. Saville[1] gives a somewhat exhaustive discussion on this subject and completes his article by pointing out the resemblance of the skin to the central nervous system. He points out that serous and serosanguineous affections, such as urticaria, ischemic spasm, angioneurotic edema, etc., are hysteric manifestations and that the affections depend, in part or altogether, on the neurovascular irritability and irregularity. He does not exclude the toxic, or blood factor in the causation of these effusions, but says that they may act in conjunction with the nervous condition. Comparing the skin to the nervous system, he says that the central nervous system is formed wholly by an infolding of the superficial cells of the embryo, which afterward forms the skin, and these are the only 2 structures which are developed from the epiblast. The physiologic resemblance is found in the fact that, whereas the skin, with its tactile corpuscles, the eye and other external sense organs develop from the epiblast represent the external projections of the sensoriums, just as the central nervous system represents the internal projections of the same. A consideration of syphilis affords a striking illustration of their pathologic resemblance. This disease is especially apt to affect both the skin and the central nervous system in preference to, though not to the exclusion of, other parts of the body. Undoubtedly the places in which to study syphilis are in a skin and nerve clinic and these are likewise the best places to study hysteria.

A Cortical Center for the Innervation of the Bladder.—After discussing bladder disturbances due to cerebral lesions, M. Friedmann[2] publishes the case of a boy of 9, who was struck by a brick on the left side of the head. Previous to this the boy had been well. A depressed and splintering fracture of the skull was produced at a point midway between temple and median line. The wound were at once operated upon, and it healed without difficulty. There was no symptoms of general disturbance, nor of compression, excepting the existence of a tonic cramp in the right hand immediately after the injury, and for a little time after recovery a decided clumsiness in writing. The only focal symptom which was noticed appeared with the injury; it consisted of a difficulty in urination, which within 9 weeks changed into a total incontinence; this did not exist at night. This incontinence continued unchanged for over a year, disappearing gradually during the second year. The boy never complained of headache or dizziness, but had a constant and well-defined general nervousness without, however, having his intellect impaired. From a careful study of this case the author supposes that the brick injured the center of innervation for the bladder. Comparing the anatomy of the brain with the portion of the skull depressed, the center must lie close to the edge of the upper third of the posterior central convolution, immediately adjacent to the upper parietal lobe. The arm and hand center lie immediately in front of this point, and as they were not injured to any extent, shows that the bladder center must be very circumscribed. [E.L.]

Cyst of the Frontal Sinus Compressing the Brain.—L. Mayer[1] presented a brain which showed a depression in the right frontal lobe, the result of pressure from a cystic tumor which developed in the frontal sinus. The patient, a woman of 53, began five years previously to suffer from neuralgia in the right frontal region, especially in the neighborhood of the supraorbital nerve. At the same time the right eye became prominent and the palpebral fissure as well as the eye assumed an abnormally low position. Vision in the right side became dim, and mental hebetude was present. The frontal sinus was opened and a large quantity of fluid removed. The deep wall of the sinus was completely atrophied. About a year later the frontal region began to swell, forcing the eye downward and forward and causing intermittent pain. The patient complained of diplopia and feeble vision on the opposite side. There were no symptoms relating to the functions of the brain. It was found upon operating that the cyst extended into the cranium, where it formed a cavity the size of a fist. The membranes of the cyst were adherent to the meninges. The patient died a few hours after operation, due apparently to the sudden escape of the cerebrospinal fluid, which occasioned an arrest of the cerebral functions. [J.H.W.R.] [A similar case is now in the wards of the Philadelphia Hospital. A large frontal tumor, dimness of vision, and exophthalmus of the right side are the only symptoms.]

Insanity and Alcoholic Excess.—J. Carswell[2] says: Habitual inebriety manifests something more than the drink crave and is of the nature of a reversion to the mental qualities of primeval man. In 90% of these the cause is an inherited constitutional defect, which will appear in some gross forms of sensuality. An inebriate rarely develops the characteristics of certifiable insanity. Better control is a crying necessity in the public interest, but we will not thereby reduce the asylum population appreciably. Habitual inebriety is not a stage in the causation of insanity, but a form of mental disorder. The increased number of the insane under care in Scotland cannot be cited as an evidence of alcohol caused race degeneracy, because the facts show that only an insignificant part of the increase has occurred at ages when inherited degenerative mental disorders develop. The Glasgow Parish Council has 1,040 children under its care, most of whom are boarded in the country under selected guardians. These are the offspring of drunken and degraded parents, and yet the council claims that these children turn out as regards conduct and success in life as well as any other portion of the community. [H.M.]

The Action of Radium on the Nerve-centers.—M. Shukowski[3] has made a series of animal experiments with the purpose of determining the influence of radium on the psychomotor centers. The net result of his studies may be thus summarized: The rays of radium increase the original excitability of the psychomotor centers. The quantity of increase and the duration of it depend on the quantity of radium employed and, apparently, on its radioactivity. Following the period of increased excitability comes an interval of its diminution, sometimes falling below the original degree. All these deductions apply only to small quantities of radium, as 10 mg. to 15 mg. (⅙ gr. to ¼ gr.) of the bromid. It is possible that larger quantities will lead to somewhat different results. [L.J.]

Myasthenia Gravis.—Henry Hun[4] reports a case of this condition with very complete clinical, autopsy, and histologic notes. The patient was a locomotive engineer of 32. His illness began as a left-sided ptosis followed by weakness in the neck muscles and, 1 month later, by weakness of the entire left hand, left forearm and right middle finger. Afterward the process extended to the left leg and finally became distributed over the entire body. Death finally came from dyspnea. Autopsy revealed no definite lesion except a tumor occupying the region of the thymus gland. This tumor was a soft, almost fluctuating, globular mass 5 cm. (2 in.) in diameter. It was connected with neither the trachea nor esophagus and exercised no pressure on either. The histologic findings other than normal were limited to the tumor of the thymus gland and metastases in the muscles, the central nervous system and other tissues being apparently normal. The tumor consisted of small round cells, similar to those found in the normal thymus, surrounding masses of epithelioid cells also like those found in the thymus. The latter, however, showed no tendency to atrophy or concentric arrangement which normally produce the corpuscles of Hassal. On the contrary they presented the appearance of marked proliferation and of glandular activity. In pieces of muscle taken from the chest and upper arm there were found small circumscribed collections of lymphoid cells resembling the small round mononuclear cells of the thymus. These cells were between the muscle fibers which showed no loss of striation or atrophy. Both the thymus and muscle findings were practically identical with those of a case reported some time since by Weigert. The case may be regarded as one of lymphosarcoma of the thymus with muscle metastases. [A.G.E.]

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[1] The Lancet, January 30, 1904.
[2] Münchener medicinische Wochenschrift, 1903, 1, No. 37.

[1] Journal Médical de Bruxelles, No. 51, 1903.
[2] Scottish Medical and Surgical Journal, November, 1903.
[3] Obosrenie Psychiatrii, November, 1903.
[4] Albany Medical Annals, January, 1904.

Cerebellar Lesions in Certain Forms of Mental Disease.—In 2 cases of senile dementia H. Bridier[1] found increase in neurogliar tissue around the cells of Purkinje. In a rapid dementia occurring in a syphilitic, he found cellular lesions, and also certain cells resembling those of Purkinje, but smaller. In a slowly progressing dementia he found marked morphologic changes of a destructive nature. This shows the necessity of examining minutely the cerebellum in all cases of mental disease. [B.K.]

Innervation of Bladder and Rectum.—E. Hirt[2] reports a case in support of Muller's new theory: A boy of 7, who had always been sickly and whose right leg had been amputated, was admitted to the hospital on account of a growth on the lower part of the vertebral canal. Within 2 weeks it produced retention of urine and feces and complete paralysis of both lower extremities. All the reflexes were absent, with the exception of the anal reflex. The muscles were atrophic and showed the reactions of degeneration. Within a relatively short time the vesical and rectal picture changed. The patient had 2 soft stools daily and about every 2 hours he would expel a quantity of urine in the form of a stream, without being aware of either process. At the autopsy an epidural growth occupied the spinal canal at a level of the eleventh and twelfth thoracic vertebras. The centers lying in the fourth and fifth sacral divisions were totally diseased, and if our old teaching was true, there must have been constant dribbling of urine and complete vesical paralysis. The bladder, however, was thick, small, and its walls contracted. In its entirety, bladder, rectal and penile state (constant erection), this case speaks for the existence of Muller's extraspinal automatic centers. [E.L.]

Pseudobulbar Paralysis of Children.—This is described by Déjérine as a paralysis more common in adult life. Decroly[3] calls attention to the fact that it may occur in infancy, or even take origin in fetal life. In children breathing assumes an abdominal type, and the pulse is a trifle faster. The mentality suffers. And various and variable nervous conditions arise, while palsies of special nerves will occur. Treatment is unsatisfactory. The author finds many cases of severe involvement of the sense of hearing. The child must be educated through other senses. [T.H.E.]

The Role of Infection in Acute Nervous Diseases.—S. O. Jaroshewsky[4] draws attention to the infectious element in many nervous diseases. All nervous affections of an acute character are either infectious or they follow infections. This holds good of central and peripheral acute nervous disorders. In a few cases we know the specific cause, as in epidemic cerebrospinal meningitis, the polyneuritis called beriberi, acute tetanus, partly also acute chorea, etc. The same microorganism may underlie different affections, and, conversely, different microbes may produce similar diseases. All depends on the virulence of toxins, the properties of the bacteria, etc. The true nature of toxins remains as yet problematic. We may confidently expect, however, that a better insight into the pathogenesis of acute nervous diseases will result in a radical reform of our present neurologic nomenclature. [L.J.]

Bilateral Absence of the Cerebellum with Compensatory Enlargement of Another System.—G. Anton's[1] patient was a boy, who was the ninth child. The mother was 42 at his birth and was healthy. The birth was normal, but it was not until his fourth year that he could sit or stand up, and even then only with assistance. He could use his legs better in bed than when attempting to walk. All movements were weak and his attention was difficult to fix. The child died as a result of accidental strangulation at the age of 4½ years. [J.H.W.R.]

A Peculiar Form of Writer's Cramp.—S. Slansky[1] reports the case of a patient who was utterly unable to write, if a second person were present, or even if he thought another person were in the room and watching him. Under such circumstances he would be seized with a cramp in the arm, and a tremor of the right thumb and forefinger. When unobserved, he could write well and for long periods. The condition developed gradually over a period of 7 years. Physical examination was entirely negative. The disturbance was evidently of a purely psychic origin, and is probably allied to such conditions as "urinary stuttering," etc. [B.K.]

Use of Galvanic and Faradic Currents in Treatment of Neurasthenia.—Rafael Perez Vento[2] encourages a judicious use of electricity, over a period of some months in cases of neurasthenia, and follows the method of Erb as to character of current. At the base of the patient's neck is placed the positive pole of galvanic current, with the negative on forehead. The current is alternated in direction during the course of each treatment. Next, by a faradic current, each muscle in turn is to be treated. At least by the eighth day of such procedure must be determined the possible value in a given case. Usually a notable strengthening of attentive power in the neurasthenic occurs. [T.H.E.]

The Diagnosis of Hysteria.—Hugh T. Patrick[3] speaks first of hysteric anesthesia which must be looked for because very frequently the patient is unaware of its presence, and the physician has no reason for suspecting its presence. Three striking characteristics of hysteric anesthesia are discussed: 1. Its distribution. It rarely, if ever, corresponds to any anatomic part of the nervous system. 2. Its limitation or border. The anesthesia of hysteric origin has a sharply limited and well-pronounced border. This point must be carefully looked for by gradually approaching the points located in the normal area and the anesthetic region. 3. The rapid shifting of the sharp border of the anesthesia. This is determined by marking the border and then returning in a few minutes after making some other part of the examination, to locate it anew. It will be found to have shifted very decidedly. This shifting of the border applies to hysteric hyperesthesia or tenderness as well as to anesthesia. Patrick has found this point exceedingly useful in the examination of tender joints. If the case is one of tender spine and one or more vertebras be located as the seat of trouble there is not a patient who can locate those same spines 15 minutes later—or at least a second or third time. [A.G.E.]

The Diagnostic Value of Babinski's Reflex.—W. P. Ossipow[4] has made a study of this reflex, in connection with a series of neurologic cases. Babinski's reflex is a comparatively recent acquisition (1896), and consists in a reversal of the normal reflex plantar flexion of the toes. When the Babinski phenomenon is present, instead of the plantar flexion of the large toe, we see a marked extension of the same. The degree of extension is subject to considerable variations. As to the diagnostic value of the reflex, the author makes the following assertions: It is a reliable indication of pyramidal degeneration; it may be relied upon to differentiate true hemiplegia from the hysteric form, several authors to the contrary notwithstanding; in locomotor ataxia, the presence of the reflex points to involvement of the pyramidal tracts; in functional derangements the reflex is absent. [L.J.]

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[1] Lyon Médical, January 24, 1904.
[2] Münchener medicinische Wochenschrift, 1903, Vol. 1, No. 37.
[3] Il Policlinico (Rome), No. 8, 1904.
[4] Obosrenie Psychiatrii, November, 1903.

[1] Wiener klinische Wochenschrift, 1903, No. 49.
[2] Prager med. Woch., 1904, No. 1.
[3] Revista de Medicina y Cirugia de la Habana, No. 17.
[4] Wisconsin Medical Journal, October, 1903.
[5] Obosrenie Psychiatrii, July, 1903.

Diseases of the Lateral Spinal Columns and Spastic Spinal Paralysis.—M. Rothmann[1] is opposed to considering spastic spinal paralysis a symptom-complex due to disease of the crossed pyramidal or posterolateral column, as claimed by Erb so long ago as 1875. His observations on man and experiments on lower animals up to monkeys have failed to produce this complex, when the columns in question were injured or diseased, and have convinced him that disease of either of these tracts is not the cause. Pure spastic spinal paralysis is such a rare condition that it should not be considered a disease entity, either clinically or pathologically; it were better to class the few existing cases under the name of "Erb's pseudospastic paresis," and to reserve the term "spastic spinal paralysis" for the spastic paretic symptom-complex with true paralysis of the lower extremities seen in affections of various spinal tracts. Increased tendon-reflexes and slight weakness of the extremities may be due to diseases of the pyramidal tracts, but spasticity is the result of changes of the cells of the anterior horns, for which no cause has been determined, and which have been demonstrated only by the late stains. It is possible that pyramidal degeneration acts as predisposing cause to this condition. [E.L.]

Experimental Trophic Influence in Producing Gastric Ulcer.—Mario Donati[2] finds no evidence that the nerve centers of the pons, or the medulla, may bring about round ulcer in the stomach, but rather lengthy experiments would show the connection of the intrinsic nerve supply, and gastric centers, in its etiology. The extrinsic nerve-supply must be reckoned with, because of altered states of gastric function controlled thereby. [T.H.E.]

Unilateral Facial Spasms.—M. Lannois and A. Porot[3] have had the opportunity of studying a number of such cases, and divide them into the true and the hysteric facial hemispasm. The former is further to be distinguished from tic douloureux. Its principal characteristics are that it is always unilateral, involves only the muscles innervated by the facial nerve, and is composed of clonic spasms. These are arranged in a series of increasing severity, sometimes ending with an actual tetanization of the muscles. The spasms are absolutely uncontrollable by the will, and frequently occur during sleep. The spasm of all the muscles produces an expression entirely different from any known expressions of the face. Frequently there is also diminution in the sense of hearing on the same side. The spasm is never accompanied by pain, but there is often a history of neuralgias in the past. Sensibility is diminished during the attacks. The cause may lie in irritation either of the cortical centers for the face, the bulbar center, or the peripheral nerve. Some cases are of reflex origin, the trigeminal being the afferent nerve. In hysteric spasm there is usually a history of preceding emotion, with the presence of other hysteric stigmas. In the two cases reported, there was a tonic spasm, limited to only a part of the face. [B.K.]

The Psychoses of Early Syphilis.—A. A. Tsaregradski[4] deplores the lack of attention given to the psychiatric manifestations of early lues. As such he mentions acute paranoia and amentia. These syphilitic disturbances, like all similarly derived psychoses, are of an organic nature. Malnutrition, hard labor, irregular and unhygienic life, abuse of alcohol, etc., are all agents of prime importance in the production of insanity in a syphilitic. The mental disorder corresponds to the secondary stage of syphilis, and appears in company with the adenopathy and cutaneous lesions. Timely specific treatment promptly arrests these psychic complications. Occasionally mental derangement is seen as a psychic reaction to the knowledge of syphilitic affliction, but in such cases there is no organic lesion, and the disturbance is transitory, requiring mental treatment only. [L.J.] In our experience, the psychoses secondary to syphilitic lesion are marked off by their tendency to stupor, whatever the form of fundamental clinical type of mental disorder. Pseudoreminiscence is also a particularity, and the existence of signs of organic disease of brain, shown by sudden onset of hemiplegia.]

Physiology of the Vagus.—M. Sihle[1] experimented upon dogs with a view of determining the effect of peripheral irritation of the vagus upon the bronchial musculature when the heart's action is excluded, and upon artificial expiration and inspiration. He concludes that section of the cardiac branches of the vagus is practicable without opening the thorax; peripheral irritation produces bronchial stenosis; the stenosis thus caused is not conditional upon change in circulation, but is a result of a spasm of a muscle. He further concludes that bronchial stenosis may result from swelling of the mucous membrane; interchanging of gases is impeded both by bronchial spasm and by swelling of the bronchial mucous membrane; in forced expiration the withdrawal of the gases is interfered with by the closure of the bronchioles; irritation of the vagus favors the closure of the bronchioles; swelling of the mucous membrane after bilateral section of the vagi offers no greater obstacle to expiration than to inspiration; prolongation of expiration in bronchial stenosis is manifestly of nervous origin. [J.H.W.R.]

Judicial Opinion on the Mental Condition of a Pregnant Kleptomaniac.—Kornfeld[2] reports the case of a woman with a family history of slight mental unbalance, who had convulsions about the time of her puberty, and her intellect was inferior. She showed no actual mental unbalance until her first pregnancy, when she complained of nausea, headache, forgetfulness, and was irritable and violent; she had maniacal attacks at times. All this disappeared after her confinement, to reappear with her second pregnancy in a more violent degree. After every violent outbreak she would feel and act better for several days. She was arrested for stealing a few small things; she explained these thefts by saying she was driven to them by something which she could not control. Basing his judgment upon all of the foregoing, the court considered this a case of mania or insanity with irresistible propensity to steal, and liberated the woman. [E.L.]

Etiology of the Athetosic Syndrome.—Valli[3] reports in detail the history of several cases in their development. There is noted at the beginning, usually, grave psychic disturbance, which may amount to maniacal outbursts. After such an onset, a variable period ensues, leading over by irregular stages to the completer establishment of the syndrome. Certain cases give no history of mental affection, but an obscuration of mentality sooner or later is, in all likelihood, probable. Admitting the variable clinical aspect and evolution, one concludes that it is in the pyramids the origination must be found. [T.H.E.]

Localization in Hemichorea.—Aufschlager[4] reports a case in which choreic movements suddenly began in the left arm, and continued until the patient's death, 15 years later, from pulmonary tuberculosis and tuberculous meningitis. There was no hemianesthesia, which distinguishes this case from the usual picture of posthemiplegic chorea. The author supposes that the hemichorea arose in place of the hemiplegia, as there was no history of paralysis. After death, an old apoplectic cyst was found in the posterior part of the right optic thalamus, this lesion probably accounting for the hemichorea. [B.K.]

The Physiologic Action of Mechanical Vibrations.—A. Shtsherbak[5] made a series of experiments along this line. He concludes that the latter represent a biologic factor of considerable importance in the life and activity of the nervous system. The vibrations are perceived by special peripheral nerve-endings in the bones and periosteum. The vibration method is easily carried out and offers an important new means of studying the normal and pathologic physiology of the nervous system. [L.J.] [The claim that individual segments of the spinal cord can be separately affected by vibration does not seem fully supported.]

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[1] Deutsche medicinische Wochenschrift, June 11 and 18, 1903, Nos. 24 and 25.
[2] Il Policlinico (Rome), No. 14, 1904.
[3] Lyon Médical, February 7, 1904.
[4] Obosrenie Psychiatrii, December, 1903.

[1] Wien. klin. Woch., 1903, No. 43.
[2] Allgemeine Zeitung für Psychiatrie, 1903, lx.
[3] Il Policlinico (Rome), No. 8, 1904.
[4] Zeit für klin Med., Bd. li, p. 195.
[5] Obosrenie Psychiatrii, October, 1903.

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Shorten the Time from the Cow to the Baby!—One is glad to find the energetic Health Commissioner of Chicago taking up the needed reform of the delay in shipping milk and delivering it to city households. It seems strange in these days of suburban trains and trolleys that the bulk of the milk used in such a city as Chicago should be from 24 to 36 hours old before its delivery. This is really criminal, and should be made illegal. There is no reason why the milk should ever be over 12 hours old when delivered. It is well known by every physician that the older it is when drunk the less its food value and the greater the danger, and when bulk milk is over 24 hours old it probably does more harm than good. Are we not fast reaching, indeed, have we not already come to the time when bulk milk should be interdicted for use by children, and only that bottled in the country, and at once after milking, allowed? About 25% of all deaths is of children under 5 years of age, and of these certainly a large proportion is due to old, poor, impure, and diseased milk. The most expensive milk in the long run is the cheapest. The low-priced milk is the poorest in nutritive value and the richest in disease. Its use by children should be discouraged in the public interest.

The Cost of One Disease in One State.—By careful calculation the cost of malarial fever in Texas alone is estimated by Dr. Woldert to be at least $5,000,000 a year, and probably nearer $10,000,000. One person in twelve, in some places, is down with the disease. What a good business plan it would be to save three-fourths or nine-tenths of this wasted money by preventing the disease. No physician doubts the possibility; the methods of prevention are well known and are easily carried out. The public, however—at least its lawmakers—cannot be brought to realize the wisdom of such economy. Money can be found for "junketing tours," public buildings of a political character, and a hundred less necessary measures, but nothing, or next to nothing for stopping the greatest loss to the community—that from disease. For every dollar spent to pay public health officers and the expenses of preventive medicine, there can be $100 saved. It is this financial aspect, unfortunately, that must be emphasized, and which, long enough and loudly enough reiterated, may at last bring about some attention and practical law making on the part of our legislative bodies. Some philanthropist should give a $1,000 prize for the best essay on the subject, The Expense of Disease to the State, designed to show the common people how much could be saved by Boards of Health if made active and powerful by public money and support. Such a pamphlet sent and repeatedly sent to every voter should in time establish competent public health officers, and then lessen the mortality rate by half, and the morbidity figures by three-fourths. For every death there are two years of sickness, and even with our present knowledge at least half of all this waste of money and life is unnecessary.

Careless Mistakes of Good Druggists.—The uncertainties of therapeutics, and of drug therapeutics in particular, are so many that the addition of needless ones is a source of exasperation to the physician, more especially when these superfluous difficulties come from the source whence he expects skilled assistance, namely, the pharmacist. Physicians, being fallible, are often indebted to pharmacists for calling attention to slips and errors in their prescriptions. On the other hand, dishonest and incompetent druggists with substitutions, adulterations and drugs of inferior quality, do much to thwart the conscientious and competent physician in his endeavor to relieve suffering and promote recovery. Also, they interfere with the progress of science by the needless uncertainties that their failures to dispense the drugs ordered or to dispense preparations of good quality and activity, may cause in the mind of the unwitting prescriber. All this is well known; no remedy has been found for the situation, and probably none will be found until avarice and indolence shall cease to be characteristics of human nature. But there is another source of error in the work of the physician, clinically and scientifically, that might well be spared and could easily be avoided. Educated and honest druggists, meaning to dispense exactly what the prescriber writes for and to give the best quality obtainable, are guilty of errors due to carelessness, that no less certainly than the intentional errors of their dishonest colleagues prevent success in treatment. Here are three instances which have occurred in the experience of the writer of this paragraph within a week: 1. *Hydrastin hydrochlorate* was dispensed in place of *hydrastinin hydrochlorate*, although the name of the drug intended was written out in full and legibly.

2. A *solution of strontium bromid* made by a specified French manufacturer was dispensed instead of the *salt, strontium bromid*, made by the same manufacturer, although the symbol used was that of ounces and not that of fluid ounces, the latter being used, however, for the fluid vehicles in the same prescription; while the word "solution" or "liquor" was *not* written in connection with the strontium bromid. 3. *Suprarenal powder* (*crude*) was dispensed instead of *suprarenalin*, the latter name being written out in full and legibly. In the first instance, hydrastin failed to control a uterine leakage of blood, which yielded to hydrastinin. In the second instance, the quantity of strontium bromid contained in the mixture dispensed was 60 grains instead of 480 grains as ordered—reducing the dose taken to less than 4 grains, instead of 30 grains as intended. It would have been strange had the desired effect resulted. In the third instance, a substance practically inert in the dose prescribed (one-twentieth of a grain) was dispensed, instead of a powerful cardiac and vascular stimulant, prompt and definite in its action. Such mistakes as these are inexcusable, devoid, though they are, of venality. Is it any wonder that, after being annoyed by a multiplication of such experiences, knowing, too, the frequency of venal disregard of physicians' orders by druggists, many practitioners should become more and more inclined to direct patients to take prescriptions to specified pharmacists, who can be depended upon not only for honesty and professional knowledge, but also for care and accuracy in reading and in following prescriptions?

The tuberculosis quack is the price that must be paid for singling out one disease and waging especial war upon it. To some this plan has seemed unwise, but the profession generally has approved of it, and it is therefore necessary for us as a whole to "meet the competition" in the best way possible. The circular letter now before us, of the "specialist" tuberculosis quack is headed, in caps, *Strictly Confidential!* and the charge is reemphasized throughout. Why is it to be such a great secret, if "my patients recover RAPIDLY and REMAIN WELL?" Why is it a matter to be ashamed of? It is because money-making is at the root of the "Institution," its owner, and "specialist in charge." And it is money-making which deceives the patient and bribes the attending home physician to turning over his patients to the divider of the spoils. The modern quack may not be an ignoramus, he may even have "studied in all the great institutions of Europe," and may have stolen a considerable amount of genuinely scientific knowledge from the profession to which he plays traitor. But he preserves the true financial tradition and aspect. Witness this excerpt from the letter:

> My proposition is this: If you feel convinced, after reading the report sent you, and will refer all of your consumptives to me, I will pay you $50 for each case that remains with me 2 or more months—$25 when the patient has remained one month and at the end of two months I will send you the other $25. To convince you of my honesty and implicit faith in the specific method I use I will say that at the end of 15 days if any patient is not very decidedly better, and well pleased with the treatment, that no charge will be made for services and medicines—the patient to pay $1 a day for board only. No money is required until the end of 15 days, at which time (should the patient be pleased) one month's treatment is to be paid for. For rates see last cover page of report sent you. Twenty-five percent from these rates is made to the families of physicians in good standing. With but little effort upon your part you can send me at least 20 patients annually, thereby making $1,000.00, besides being instrumental in saving many lives and aiding me in building up a great institution for this unfortunate class of people. This will only go to one physician in each place—no one besides you will get this in your town. If this is agreeable to you write me at once so I can place your name and address on my books. I will send you literature for prospective patients. Write me how many reports you desire and they will be sent you free. If this does not suit you kindly keep all confidential. *Above all, never mention this to any one whom you should send to me for treatment.* I shall observe the same. Please drop me a line at once, either accepting or rejecting my offer. From a business point of view I refer you to the City National Bank of ——, ——.
>
> Fraternally yours,
>
> —— —— ——.

All of which is argument that professional institutions should be carried on as simply and cheaply as possible; that the State must at once inaugurate tuberculosis sanatoriums, at public expense; that the home treatment of the disease should be systematized, instruction given, and reform carried out in a thoroughgoing manner. One of the most effective means of preventing the quack is to prevent the disease and the diseased patients, upon which he preys.

Picrotoxin Poisoning.—Instances of accidental poisoning by preparations of cocculus indicus are by no means rare, and the use of the drug, owing to its stupefying properties in the capture of fish, was formerly quite extensive. That it possesses more than a potential medicolegal importance is not so well understood, and this fact makes especially valuable a contribution to that phase of the subject by H. C. Carel,[1] of the University of Minnesota. Recent happenings have shown the existence of a regular traffic in picrotoxin, or a decoction of the berries from which it is derived, in the northern counties of Minnesota. Saloon keepers appear to be the principal purchasers of the drug; the method of using is to place a certain quantity in the liquor of some half-drunken customer who is known to possess considerable money. The man becomes helpless and is easily robbed. All would be well were it not for the fact that occasionally an overdose is given and the man dies. Three times, within as many years, Carel has isolated picrotoxin from the body of a man who had fallen a victim to this poison; he also has knowledge of three other cases, in which death fortunately did not ensue. The three cases mentioned are believed by Carel to be the only ones in the history of toxicology in which picrotoxin has been isolated from the body of a poisoned human being. Two points are to be emphasized: (1) The great liability of deaths under these circumstances being attributed solely to alcoholism or its results; (2) the comparative safety of those who employ the "knock out" drug in question, because of the little attention paid to it by physicians in general, and even by toxicologists.

War, Politics, and Medicine.—How many and how intimate are the relations of medical science to the world! When one thinks of the war in the East there are probably called up only images of wounded soldiers, hospitals, attendant nurses, etc. But other aspects are in reality more vital and far reaching. At least, so think the Russian physicians. At the recent ninth Congress of Physicians and Surgeons, four of the principal sections adopted the following resolution:

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[1] St. Paul Medical Journal, June, 1904.

> A systematic and rational struggle with infant mortality, alcoholism, tuberculosis, syphilis, and other widespread diseases, which form in Russia a public evil of enormous extent, is possible only under conditions enabling a broad dissemination of enlightenment concerning the true causes of their development and the methods of combating them, the necessary conditions being complete freedom of the individual, of speech, of the press, and of assembly.

Three other sections adopted this one:

> Believing that the extraordinarily high infant mortality of Russia is due mainly to the poverty and ignorance of her population, the congress expresses the profound conviction that a successful struggle with this evil is possible only by way of broad social reforms.

Another section of the congress resolved that "corporal punishment should not exist in Russia, and the assistance of a physician, in the capacity of witness or expert, in the administration of such punishment, is inadmissible." These resolutions were naturally distasteful to the reigning bureaucracy, and at the instance of the St. Petersburg municipal authorities the presiding officer of the congress refused to read them publicly at the last general session. The American profession will undoubtedly extend to their Russian colleagues every evidence of sympathy and encouragement in their humane struggle.

"War, "Graft," and Medicine.—The following incident of Russian administration, if true, as seems probable, shows the valuation put upon the soldier's life by the Russian official class:

> A number of royal personages, relatives of the Czarina, had combined to equip a hospital train at St. Petersburg with every requisite for the comfort of the sick and wounded, the box compartments being carefully secured with Imperial seals. After the train left St. Petersburg the Czarina telegraphed, commanding a careful inspection of the contents of the train. Under this authority the seals, which were apparently undisturbed, were broken, and the contents were found to be useless blocks of wood. Nothing of any value was found.

In contrast with this is the purity of Japanese administrators, the reception of American nurses, and such facts as that of multitudes of the Japanese poor going without breakfasts in order to help the government with the two or three cents thus saved. The sympathies of the medical profession will probably be upon the side which cares most scrupulously for the health and lives of the common soldier. Since modern medical science has arisen, the "God of Battles" is not "upon the side of the strongest battalions," but upon the side of those who attend most zealously to the laws of sanitation and the cure of disease. This is the new and all-controlling factor in national struggles.

The money-making doctor—and by that term is meant the one who makes money by trickery—is like the fabled ostrich which was said to imagine its body was hidden when its head was out of sight. It is strange how soon not only his colleagues, but also his patients and the general public are well aware of the doctor who is "on the make," while he supposes that his "subtle schemes" are wholly unknown. All good physicians recognize that the profession is as a rule insufficiently paid for its services, but the attempt to "get even" by sharp methods is a poor one, defeats its own end in the long run, and leads to therapeutic crime. Illustrative is the following excerpt from the letter of a patient concerning a physician in an American city:

> My reason for not going back to Dr. —— was that though he is clever in his profession, he is not a perfectly honorable man, and has not a good name here among the best physicians. He has been accused of sending charity patients to the hospital for free treatment, and at the same time collecting his own bills from them. There have been other things of the same nature, like charging one woman $75 and her sister $15 for the same service. Dr. —— is pretentious and insincere.

The correspondent also complained that treatment was unduly prolonged, and only in part satisfactory, and being an exceptionally intelligent and scientific man, the fact shows that morals and therapeutics have an intimate relation which is not suspected by the astute plotter.

Foreign Bodies in the Stomach.—The celebrated author of the "Religio Medici," refers in one of his works to "the method also of curation lately delivered by Daniel Beckkerus, and approved by the Professors of Leyden in the Tract *de Cultivoro Prussiaco*, 1636, that is, of a young man of Spruceland that casually swallowed downe a knife about ten inches long, which was cut out of his stomach, and the wound healed up. In which cure to attract the knife to a convenient situation, there was applyed a plaister made up with the powder of loadstone." It is somewhat difficult, perhaps, for many readers to determine which of the ingredients of this well-authenticated case deserves the largest proportion of wondering admiration; the nature and dimensions of the object swallowed, the preparatory therapeusis which was adopted before the operation, or the fortunate issue of the latter when carried out. Hypochondriac males and hysteric females have on various occasions achieved morbid distinction by swallowing foreign bodies of almost every conceivable shape and chemic composition—mineral, metallic, vitreous, osseous, horny, etc. Sir Thomas Watson mentions a case in which the patient, a sailor, had converted his stomach into a museum of knives, forks, spoons, buttons, medals, clasps, etc. A great many foreign bodies of what might at sight appear of unmanageable shapes have passed safely *per vias naturales*, especially if the coin swallower's trick is adopted—of living some days afterward on the driest and most constipating forms of food—sometimes with the addition of flakes of cotton wool interspersed. A truly record case has just been published in Paris by Dr. L. Monnier, in which gastrotomy was successfully performed on a young man of 22, "*d' intelligence tres obtuse*," who had for some months suffered from nervous "crises" which led to the diagnosis of pachymeningitis with Jacksonian epilepsy. The state of the patient's intellect excluded the possibility of obtaining a satisfactory history. He habitually held his hand (with a portion of the clothes) before his mouth, and articulated in monosyllables. He complained of his head, and it was only on the fifth day after admission that he gave indications of abdominal uneasiness. He was then found unable to sit upright on account of the acute pain which in that position developed in the umbilical and left hypochondriac regions. There was, however, no vomiting or other prominent digestive trouble; but there was diarrhea, with stools of unusual and varying colors. Palpation gave, on one occasion, the sensation of a body shaped like a spoon, situated in the vicinity of the splenic flexure of the colon. On the following day there was rumbling as of nuts or metallic bodies rolling over one another. Radioscopy gave negative results. Intestinal lavage was first tried, but finally gastrotomy was performed. Eight coffee spoons were removed from the stomach; also portions of forks (including the prongs), of handles and blades of knives, of nails, keys, hairpins (of various kinds)—25 in all, and weighing collectively 230 grams. The patient made an uninterrupted and complete recovery.

Two Kinds of Surgeons.—We do not know whether the following quotation from an English journal concerning the French surgeons, is accurate in every respect, but it tells of one type of physician which exists in every community. The illustrative examples are thus described:

> There are at least two very great surgeons who are indifferent to the advantages the operation may bring them. They are Professors Le Jard and Felizet, both just as disinterested lovers of science as Le Menestrier. One never meets them in society. They are satisfied to live plainly. Not to sacrifice their hospital work, they prefer not to have a large private practice. I am not acquainted with either, and what I know of them is through pupils who revere and admire them. Le Jard's faultlessly skilful hand is directed by a sensitive conscience. He bestows as much pains on an all but hopeless case as on one that might give fair promise of recovery. He has often thus succeeded in snatching patients from the very jaws of death. Wealthy persons know nothing about him, nor about Felizet, nor Le Menestrier, who is a physician. These men will probably retire from their hospital work with a little more—not much—than bread and cheese. They will not repine at this. To sink to the level of tradesmen clever in the art of self-advertisement would fill the old age of minds constituted like theirs with remorse.

How many such there may be can never be known. The description of another class it is unnecessary to give.

Census of the Philippine Islands.—The population of the Philippine Islands, according to the census just completed, is 7,635,426, of which 647,740 are classified as wild and uncivilized, although not without some knowledge of the domestic arts. This is the first accurate and complete enumeration of the Filipinos ever made, those undertaken by the Spanish authorities being largely estimates. The tables give separate enumerations for 343 islands which bear names, and many others are grouped together unnamed. The most populous island is Luzon, which contains a total of 3,798,507, of which 223,506 are classified as wild. Panay is next in population with 743,646, of which 14,933 are wild; Cebu, third, with 592,247, all civilized, and Mindanao is fourth, with 499,634, of which 252,940 are wild. Jolo, with 44,718 inhabitants, contains only 1,270 who are civilized, and the province of Cotabato, with 125,875 people, has but 2,313 civilized. The city of Manila contains 219,028 inhabitants, which includes 15,901 who reside on vessels in the harbor, while 11,460 live in the limits of the city walls. General Sanger says the aborigines of the Philippines are believed to be the Negritos, of which 23,000 still remain. They are very short in stature, the males averaging only 4 feet 10 inches, and the females even less. Their color is black, their hair woolly and bushy, and their toes are remarkably prehensile, they using them almost as well as fingers.

AMERICAN NEWS AND NOTES

GENERAL.

Gift to Charity.—By the gift of Anna T. Jeanes, of Germantown, Philadelphia, who spent nearly $200,000 in erecting a home for indigent Quakeresses in Germantown, the Germantown Hospital now becomes the owner of a handsome residence situated on Chew street, Germantown, the gift of the donor.

Casualties on the Fourth of July.—According to statistics compiled by the Chicago *Tribune* to July 6, it appears that throughout the country on the Fourth of July there were 3,049 persons hurt as a result of accident, and 52 persons killed. As evidence that the agitation carried on by the newspapers, medical journals, Boards of Health, etc., giving warning of what might be expected on the Fourth of July, and urging systematic and intelligent treatment for all wounds, it is gratifying to observe that so far very few cases of tetanus have been reported.

Miscellaneous.—Pennsylvania: It is stated that 300 inhabitants of Lykens Valley were poisoned on July 4 from eating ice cream that was contaminated; no deaths were reported.—Dr. C. E. Stewart, of the University of Pennsylvania, has been appointed Professor of Physiology at Dartmouth College. **Boston**: The number of deaths reported to the Board of Health for the week is 172, as against 202 the corresponding week last year, showing a decrease of 30 deaths, and making the deathrate for the week 14.60. **New York**: Dr. Emily Dunning, the first woman doctor to act as house surgeon in a hospital in New York City, has taken charge of Gouverneur Hospital. Dr. Dunning has been serving as ambulance surgeon and doing other hospital work at Gouverneur for the last year.—Dr. Wm. R. Pryor, Professor of Gynecology at the New York Polyclinic Hospital, has been appointed Attending Gynecologist to St. Vincent's Hospital. **Baltimore**: Contracts for additions to be made to St. Joseph's Hospital, on Caroline street, near Oliver street, amounting to $45,000, have been awarded to Contractor Henry S. L. Maas. The plans for the improvement were designed by Architects Baldwin & Pennington. **New Jersey**: The State Board of Medical Examiners of New Jersey granted licenses to 43 successful candidates. The candidates represented 20 medical colleges, located in Philadelphia, Boston, Baltimore, New Haven, New York City, Brooklyn, Syracuse, Washington, Chicago, Toronto, and Naples, Italy.

Sunstroke and Heatstroke.—The Bulletin of Chicago's Health Department for the week ended June 18, says: There are two forms of sunstroke. The mildest is that known as heat exhaustion. This manifests itself in the case of people who are overcome by heat without being actually sunstruck. In this form the skin is pale, cold and clammy, and the pulse feeble. While death sometimes results, the patients under good treatment will usually recover. Persons affected in this way should be removed to a shady spot and have their heads and chests dashed with cold water. Spirits of ammonia (hartshorn) should be applied to the nostrils, and sometimes it is necessary to administer small quantities of stimulants. Heat stroke or insolation is the serious form of this trouble, and the one to be most closely guarded against. In cases of real insolation the face becomes purplish, eyes bloodshot, veins swollen and corded and the skin dry and burning hot to the touch. It is not always fatal, but many of those whose lives are saved are ever afterward invalids, with brain power more or less impaired. The effect of the sun's heat seems to be most marked on the brain and spinal marrow. When real insolation occurs the brain becomes so heated that the human "heat center" controlling the production of bodily heat, is affected and the temperature rises from the healthy mark 98.5° as high as 110° or over, and often keeps on rising for some time after death. The "heat center" lies at the back of the head and should be protected from the direct rays of the sun.

NEW YORK.

New York and the Whipping-post.—Discussion of the advisability of establishing the whipping-post for wife beaters has been revived by the advocacy of this method of dealing with cruel husbands by President Redmond, of the New York State Superintendents of the Poor, now in annual convention. Mr. Redmond says that the whipping-post would add terror to the wife beater's punishment, and terror is the element needed to awaken in a coward the sense of his obligations toward his wife and his family.

Street Sweepers and Tuberculosis.—The examination of the physical condition of the 1800 street sweepers employed by the city, shows that 283 are affected with tuberculosis, contracted during the course of their work by inhaling disease-laden dust. What will be done to remedy the situation is not certain. It is recognized that the peril to the community by the infection of the sweepers is greater than an equal prevalence of the "white plague" among any other class. Their constant presence on the streets, poisoning the dust, and being poisoned in turn, makes them ready distributers of the malady.

PHILADELPHIA, PENNSYLVANIA, ETC.

Milk Inspection.—The Public Health authorities of Philadelphia are making a crusade against those who violate the city ordinance by selling impure milk. The reports of the department show that during the last week upward of 2,500 quarts of impure milk were dumped into gutters. Formerly imperfect milk was sent back to the dairy. On an average 240 samples of milk are taken weekly from milk shops or cans at freight stations.

Meat Dealers Fined.—Dr. Warren and the Public Health authorities of Philadelphia have caused to be arrested and fined a number of meat dealers for violation of the pure food ordinance. It is stated by the authorities that a number of warrants are yet to be served, and others will doubtless be brought to account for violation of the law. It appears that meats are preserved with sodium sulfid, which is dangerous to the system when taken for any length of time.

SOUTHERN STATES.

Statue to Dr. William Elias B. Davis.—The memory of Dr. William E. B. Davis, late of Birmingham, Ala., will be appropriately perpetuated by the erection of a monument by the Southern Surgical and Gynecological Association, of which Dr. Davis was the originator as well as founder. He not only conceived the idea, but organized the Association in all its details, and served as its secretary and executive officer for 13 years. The Association does well in thus testifying its appreciation of this distinguished physician, whose memory will live in spite of granite or bronze.—*Buffalo Medical Journal.* The statue will be made by G. Moretti, who was the designer of Vulcan (the Colossus iron man which represents the Birmingham district at the St. Louis Exposition) and will be in bronze, 7½ feet high, standing upon a granite pedestal 9½ feet high. Signor Moretti is now making a marble bust of Dr. Davis in Alabama marble. The plaster cast is a very fine likeness. He has made an indemnity contract to have the statue ready by the first of December next, that it may be unveiled at the coming meeting of the Southern Surgical and Gynecological Association.—[Editorial from the *Alabama Medical Journal*, May, 1904.]

WESTERN STATES.

The American Academy of Ophthalmology and Otolaryngology.—The ninth annual meeting will be held in Denver, Col., August 24, 25, and 26, 1904.

Chicago's Low Deathrate.—The Bulletin of the Chicago Health Department for the week ended June 4, states that the 235 deaths reported during the last three days of the month made a total of 2,225 for May, 1904, and an annual rate of 13.6 per 1,000 of population. This is still nearly 13% lower than the average May mortality, and nearly a fifth less than the mortality of May, 1903. Last year there were 2,675 deaths in May, or 450 more than last month. Of this saving, 201, or 44%, were infants and children under 5 years of age.

The Thirtieth Annual Session of the Mississippi Valley Medical Association will be held at Cincinnati, Ohio, October 11, 12, 13, 1904, under the presidency of Dr. Hugh T. Patrick, of Chicago. The headquarters and meeting places will be at the Grand Hotel. The annual orations will be delivered by Dr. Wm. J. Mayo, of Rochester, Minn., in surgery, and Dr. C. Travis Drennen, of Hot Springs, Ark., in medicine. Request for places upon the program, or information in regard to the meeting, can be had by addressing the secretary, Dr. Henry Enos Tuley, Louisville, Ky., or the assistant secretary, Dr. S. C. Stanton, Masonic Temple, Chicago, Ill. The usual railroad rates will be in effect.

Mortality Statistics in Indiana.—The Monthly Bulletin of the Indiana State Board of Health for May states that the total number of deaths reported was 2,971; rate, 13.1. In the preceding month 3,322 deaths; rate, 15.2. In May, 1903, 2,421 deaths; rate, 11.3. By the last comparison, there appears an increase for this month. Deaths by important ages were: Under 1 year, 367, or 13.1% of the total deaths; 1 to 5 years of age, 185; 5 to 10 years, 82; 10 to 15 years, 58; 15 to 20 years, 144; 65 and over, 804, or 28.8%. Some important causes of death were: Pulmonary tuberculosis, 415; typhoid fever, 49; diphtheria, 20; scarlet fever, 14; measles, 34; whoopingcough, 5; pneumonia, 319; diarrheal diseases, 31; cerebrospinal meningitis, 34; influenza, 17; puerperal fever, 17; cancer, 95; violence, 149; smallpox, 6.

CANADA.

Miscellaneous.—The Provincial Board of Health of Ontario has under discussion a number of schemes for the disposal of sewage in Toronto. Several schemes are proposed, one of which—the carrying of the sewage to a point nine miles east of the place in the lake where the intake for the water-supply is situated—has received considerable support; but a series of experiments which have been conducted seem to give ground for apprehension that, under certain circumstances, the lake currents would render this distance an inefficient protection. The other plans suggested are methods of sewage treatment and filtration. A new aspect of the water-supply problem has arisen since the recent disastrous fire, and it is probable that a separate system for pumping water for fire-protection purposes will be required; the ordinary system, with the great and constantly increasing demand for ordinary use, does not give sufficient pressure.—A decidedly progressive action was taken by the town of Brockville when they decided at the beginning of 1903 to supply antitoxin free to all cases of diphtheria, and also in immunizing doses to those exposed. The amount paid out by the corporation was, during the year, $277 for a total of 186,500 units. The object of so doing was to insure the use of this treatment in as many cases as possible and so accustom people to its use: the results shown by the vital statistics were very gratifying. From January 1 to October 23, 82 cases were reported, with a mortality of 4.

FOREIGN NEWS AND NOTES

GENERAL.

Antidysentery Serum.—The Public Health and Marine-Hospital Service states that much attention is being attracted, especially in Italy and England, to the experiments at present being made in Ceylon by the Italian physician, Castelani, whose name has already been brought into prominent notice through his scientific studies of sleeping-sickness in Uganda. Castelani, who now occupies the chair of pathology in the medical school at Colombo, Ceylon, has been invited to go to England to make a demonstration of his studies and experiments before the Liverpool School of Tropical Medicine.

Miscellaneous.—The mortality from tuberculosis was reduced in Berlin from 31 per 1,000 inhabitants in 1876 to 19 per 1,000 in 1901.—*The British Medical Journal* states that T. J. Britten, formerly manager of the Wolhuter Gold Mines, has been awarded the first prize of £500 and the gold medal offered by the Transvaal Chamber of Mines for the best appliance for the prevention of miners' tuberculosis. The suggested remedy is damping the dust by means of a water jet while drilling is in progress and while the blasting is taking place.—Sir William H. Broadbent, Dr. Nathan Raw and Dr. A. P. Hillier were appointed to represent the British National Association for the Prevention of Consumption and Other Forms of Tuberculosis at the International Conference on Tuberculosis, recently held in Copenhagen.

Insanity in Scotland.—On January 1, 1904, there were in Scotland 16,894 insane persons of whom the board had official cognizance, including the inmates of training schools for imbecile children and of the lunatic department of the General Prison at Perth. Of these, 2,532 were maintained from private sources, 14,309 by parochial rates, and 53 at the expense of the State. This was an increase of 236 over the previous year. Since 1858 the number of lunatics under the jurisdiction of the board had increased 190%. The increase of the population during the same period had been 52%. In 1858 the total number of lunatics per 100,000 of the population was 192. The average for the five years, 1866–70 was 215; for 1876–80, 248; in 1886–90 it had risen to 290; for 1891–5 it was 313; for 1896–1900, 337; while in 1904 it had reached 359.

The Liverpool Cancer Research Fund.—The first report of the application of the Liverpool Cancer Research Fund, given by Mr. Sutton Timmis, as a memorial of his wife, has just been published. The fund consists of a sum of £10,000, of which an amount not exceeding £1,500 may be spent annually under the direction of a committee, the proceedings of which have been brought into close relation with the Liverpool Royal Infirmary and with the Liverpool University. In addition to a brief history of the establishment of the fund, and to a financial statement, the report contains an account, by the director of the research, Dr. Grünbaum, of the lines upon which it has been begun and will be continued. These are chiefly experimental, as it is felt that statistical and geographic inquiries may be more effectively undertaken by the London and German committees.—[*Science.*]

Method of Preserving Chloroform.—An English surgeon who had a patient die from the effects of chloroform, called for an investigation on the part of the authorities and a chemic examination of the chloroform. This aroused the indignation of the hospital authorities, and led to much discussion on the subject. With reference to the method of preserving chloroform, Dr. Témoin contributed a paper on the subject. Dr. Témoin said that he had for several years used a very simple method by which chloroform may be kept for an indefinite time without decomposition. This method, which was devised by M. Allain, a military apothecary (*pharmacien-major*), consists in the addition of a little flour of sulfur—four grams to the kilogram of chloroform. The small quantity of sulfur which the chloroform dissolves appears to concentrate on itself the decomposing action of the luminous rays, for it is precipitated in the presence of light and is redissolved in the dark. Using this method Dr. Témoin has given chloroform 6,000 times without the slightest mishap, and he has presented the Academy with a bottle of chloroform prepared in 1896 which he believes to be in excellent condition.

OBITUARIES.

John Jastremski, at his home in Baton Rouge, July 5, aged 63. He was born in Haute Garonde, France, coming to Baton Rouge in 1858, where he engaged in the practice of his profession until 1883, when, from a member of the board of supervisors of Institute for the Deaf, he was appointed superintendent of that institution, which position he held until the time of his death, 21 years later. His father was Dr. Vincent Jastremski, a Polish exile of the Revolution of 1832. The deceased was active in political and social life in Baton Rouge, and had a wide circle of acquaintances and friends.

William H. Saylor, at his home in Portland, Ore., June 8, from heart disease, aged 60; a graduate of the Willamette University of Medicine, Portland, Ore., in 1869; one time president of the Oregon State Medical Society; former professor of anatomy at Willamette University, and later professor of clinical surgery and genitourinary surgery in the same institution. He was president of the State Board of Medical Examiners of Oregon.

John Boyd Wilson, at his home in Harrisburg, Ill., July 7, aged 72. He was a native of Winchester, Va.; was formerly principal of the Frederick High School and of Hampton Military Academy at Hampton Roads, Va.; a graduate of the Jefferson Medical College, Philadelphia, and from the University of New York. He served as surgeon of the Confederate army during the Civil war.

Julia Fiedelman committed suicide at her apartments in New York City recently, aged 35. She obtained her medical degree in Germany and coming to New York successfully passed the required examination, but owing to failure to secure practice, it is asserted, she became despondent, with the above result.

Henry H. Seys, at his home in Springfield, Ohio, June 17, from nephritis, aged 73; a graduate of the University of Maryland in 1853; surgeon in the Federal army during the Civil war; former health officer of Springfield and a widely known physician.

Willard P. Derrickson, at his home in Wilmington, Del., July 10, after a brief illness from spinal meningitis; a graduate of Jefferson Medical College. He was a member of the staff of the Delaware Hospital at the time of his death, and was prominent in the Masonic order.

Duncan N. Patterson, of Mangum, N. C., at the home of his daughter in Charlotte, N. C., June 25, aged 74; a graduate of Jefferson Medical College, Philadelphia, in 1854. He was formerly president of the Medical Society of the State of North Carolina.

James B. Neil, at his home in Nashville, Tenn., June 27, aged 67; a graduate of the University of Nashville, medical department, in 1866; assistant surgeon of the Confederate service during the Civil war.

Leonard Brooks Parker, at his home in Marine City, Mich., June 19, aged 85; a graduate of the Castleton (Vt.) Medical College, in 1843; for 58 years a resident of the city in which he died.

E. L. Applewhite, at his home in Tylertown, Miss., June 24. He had been a sufferer from Bright's disease for some time. A graduate of the Hospital College of Medicine, Louisville, Ky.

Lucian A. Lowden, committed suicide by taking strychnin, at his office in N. Indianapolis, Ind., June 21, aged 43; a graduate of the Medical College of Indiana, Indianapolis, in 1885.

Floyd Whitcomb, of Warren, Pa., was drowned in Conewango creek, near Frewsburg, N. Y., June 30; a graduate of the medical department of the University of Buffalo in 1882.

William J. McNiff, at his home in Worcester, Mass., June 17; a graduate of the University of Vermont, medical department, in 1898; member of the American Medical Association.

Mary Partridge, of Bennington, Vt., committed suicide by drowning at Red Rock, Lake Champlain, June 29; a graduate of the New York Medical College for Women in 1884.

D. Peter Belew, at his home in Edenburg, Shenandoah county, Va., July 10, aged 85. He formerly enjoyed an extensive practice in the community in which he lived.

G. S. Limerick, at his home in Vicksburg, Miss., July 8, aged 40; a graduate of Bellevue Medical College, New York, and a prominent physician of Vicksburg.

Frank R. Robey, from hemorrhage of the lungs, at his home in Houston, Texas, June 23; a graduate of the Moharry Medical College, Nashville, Tenn., in 1883.

M. Ayres Robinett, was killed by an electric car at his home in Beach City, Ohio, June 18, aged 56; a graduate of the Cleveland Medical College in 1870.

John Edward Maguire, at his home in Pigeon Cove, Mass., June 22, aged 38; a graduate of the College of Physicians and Surgeons, Boston, in 1888.

Clifford F. Odell, at his home in Moline, Ill., June 15, from tuberculosis, aged 23; a graduate of Keokuk Medical College, Keokuk, Ia., in 1903.

Henry J. Power, at his home in McKeesport, Pa., June 15, from heart disease, aged 49; a graduate of the University of Pennsylvania in 1881.

Elijah Williams, of Arundle county, Md., at the Maryland University Hospital, July 5; a graduate of the University of Maryland in 1869.

John J. Quinn was found dead in his office in Superior, Wis., June 17, aged 40; a graduate of Detroit College of Medicine in 1893.

Samuel M. Trinkle, at his home in Philadelphia, July 5, aged 64; a graduate of Hahnemann Medical College in 1872.

Henry Echtermacht, at his home in Lancaster, Pa., July 7, aged 84.

A. J. Ainsworth, at his home in Hazlehurst, Miss., July 7, aged 66.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 8, 1904:

SMALLPOX—UNITED STATES.

			Cases	Deaths
Delaware:	Wilmington	June 25–July 2	1	
Dist. of Columbia:	Washington	June 18–25		3
Florida:	At large	June 18–25	14	
Georgia:	Macon	June 25–July 2	1	
Illinois:	Belleville	June 1–30	7	
	Chicago	June 25–July 2	1	
	Danville	June 25–July 2	1	
Kentucky:	Covington	June 25–July 2	1	
Louisiana:	New Orleans	June 25–July 2	5	
Maine:	Madawaska region	June 18–25	18	
Michigan:	Detroit	June 14–21	2	
	At 88 localities	June 18–25	Present.	
Missouri:	St. Louis	June 25–July 2	2	
Nebraska:	Omaha	June 25–July 2	4	
New Hampshire:	Manchester	June 25–July 2	1	
New York:	New York	June 25–July 2	1	1
Ohio:	Dayton	June 18–July 2	3	2
Pennsylvania:	Altoona	June 25–July 2	1	
	Philadelphia	June 25–July 2	2	1
	Steelton	June 25–July 2	1	
Tennessee:	Memphis	June 25–July 2	4	
	Nashville	June 25–July 2	1	

SMALLPOX—FOREIGN.

			Cases	Deaths
Austria:	Prague	June 11–18	9	
France:	Paris	June 11–18	12	1
Great Britain:	Bradford	June 4–18	15	2
	Bristol	June 11–25	6	
	Cardiff	June 4–11	1	
	Edinburgh	June 4–11	2	
	Glasgow	June 17–24	31	3
	Liverpool	June 11–18	1	
	London	June 11–18	7	
	Manchester	June 4–18	12	1
	Newcastle-on-Tyne	June 11–18	5	
	South Shields	June 11–18	1	
India:	Bombay	May 31–June 7		12
	Calcutta	May 28–June 4		2
	Karachi	May 29–June 5	1	
Panama:	Panama	June 12–19	1	1
Russia:	Moscow	June 4–11	12	8
	St. Petersburg	June 4–18	24	7
	Warsaw	May 14–June 4		45
Spain:	Barcelona	May 20–June 20		27
Turkey:	Alexandretta	June 4–11		2
	Beirut	May 28–June 4	Present.	
	Constantinople	June 12–19		7

YELLOW FEVER.

			Cases	Deaths
Ecuador:	Guayaquil	May 25–June 8		15
Mexico:	Merida	June 12–18	7	1
	Vera Cruz	June 18–25	2	1
Panama:	Panama	June 12–19		1

PLAGUE.

			Cases	Deaths
Africa:	Johannesburg	Apr 11–May 7	2	3
Australia:	Brisbane	May 3–21	7	2
	Sydney	May 14–21	1	
Egypt:		May 21–28	20	10
Including Alexandria, 1 case, 1 death; Port Said, 1 case, 1 death.				
India:	Bombay	May 31–June 7		78
	Calcutta	May 28–June 4		70
	Karachi	May 29–June 5	30	30
Peru:	Payta	May 29–June 4	11	7

CHOLERA.

			Cases	Deaths
India:	Calcutta	May 28–June 4		24
	Madras	May 28–June 3		2
Turkey:	Bahrein Islands	May 10	Epidemic.	

Changes in the Medical Corps of the U. S. Army for the week ended July 9, 1904:

CONNER, MICHAEL E., contract surgeon, is relieved from further duty with troops and will report at the Presidio for temporary duty at that post.

BARNEY, First Lieutenant CHARLES N., assistant surgeon, is assigned to temporary duty in the office of the chief surgeon, and will proceed from Fort Schuyler to Governor's Island, N. Y., daily, and return for that service, until July 20.

Davidson, First Lieutenant **Wilson T.**, assistant surgeon, will report at the Army General Hospital, Presidio, for duty, relieving First Lieutenant Edmund D. Shortlidge, assistant surgeon, who will report for duty at Fort Miley, relieving Contract Surgeon Edward B. Bailey, who will report at Fort Mason, for temporary duty during the absence of First Lieutenant Charles W. Farr, assistant surgeon.

Tignor, Edwin P., contract dental surgeon, leave granted for fifteen days is extended fifteen days.

Strauss, Julius, sergeant first class, now at Baltimore, Md., is relieved from further duty in the Philippines Division, and will report upon expiration of furlough at Columbus Barracks for duty.

Slater, Ernest F., contract surgeon, is granted leave for twenty-five days.

Lyster, First Lieutenant **Theodore C.**, assistant surgeon, is relieved from further duty at the U. S. Military Academy, West Point, N.Y., and will report to Rear Admiral John G. Walker, chairman of the Isthmian Canal Commission, for duty pertaining to the maritime quarantine of Panama and Colon.

Henderson, First Lieutenant **Albert B.**, assistant surgeon, having been found by an army retiring board incapacitated for active service, his retirement from active service, June 30, 1904, under the provisions of Sec. 1252, R. S., is announced. Lieutenant Henderson will proceed to his home.

Changes in the Medical Corps of the U. S. Navy for the week ended July 9, 1904:

Miller, J., Jr., assistant surgeon, detached from the Denver, and ordered to the Kentucky—July 1.

Asserson, F. A., assistant surgeon, detached from the Kentucky, and ordered to the Navy Yard, New York, N. Y.—July 1.

Pryor, J. C., surgeon, commissioned surgeon, with rank of lieutenant-commander, from March 3, 1903—July 2.

Langhorne, C. D., surgeon, commissioned surgeon, with rank of lieutenant-commander, from June 9, 1903—July 2.

Farwell, W. G., McLean, N. T., and **Grayson, C. T.**, assistant surgeons, commissioned assistant surgeons, with rank of lieutenant, junior grade, from June 28, 1904—July 2.

Miller, J., Jr., assistant surgeon, orders to the Kentucky revoked; detached from the Denver, and ordered to duty with the marine battalion on the Isthmus of Panama—July 6.

Changes in the Public Health and Marine-Hospital Service for the week ended July 7, 1904:

Purviance, George, assistant surgeon-general, granted leave of absence for one month from July 1, 1904, on account of sickness—July 7, 1904.

Kalloch, P. C., surgeon, granted leave of absence for eight days from July 7—July 1, 1904.

McIntosh, W. P., surgeon, to assume temporary charge of the Portland (Me.) quarantine station during the absence on leave of the medical officer in command—July 1, 1904.

Currie, D. H., assistant surgeon, to report to chairman of board of examiners, San Francisco, Cal., July 25, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—July 1, 1904.

Korn, W. A., assistant surgeon, to report at Washington, D. C., for special temporary duty—July 5, 1904.

Holt, J. M., assistant surgeon, to report to chairman of board of examiners, San Francisco, Cal., July 25, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—July 1, 1904.

Trotter, F. E., assistant surgeon, to report to chairman of board of examiners, San Francisco, Cal., July 25, 1904, for examination to determine his fitness for promotion to the grade of passed assistant surgeon—July 1, 1904.

McLaughlin, A. J., assistant surgeon, to proceed to Atlantic City, N. J., for the purpose of making a physical examination of certain keepers and surfmen in the Life Saving Service—July 7, 1904.

Foster, A. D., assistant surgeon, granted leave of absence for seven days from July 8—July 6, 1904.

Robertson, H. McG., assistant surgeon, to proceed to Port Pleasant and Tuckerton, N. J., for the purpose of making a physical examination of certain keepers and surfmen in the Life Saving Service—July 7, 1904.

McKeon, F. H., assistant surgeon, relieved from duty at New York (Stapleton), N. Y., and directed to proceed to New Orleans, La., and report to the medical officer in command for duty and assignment to quarters—July 7, 1904.

Spangler, L. C., pharmacist, to report to chairman of board of examiners, Tampa Bay Quarantine, July 11, 1904, or as soon thereafter as may be determined by the chairman of the board, for examination to determine his fitness for promotion to the grade of pharmacist of the second class—July 1, 1904.

Boards Convened.

Board convened to meet at Washington, D. C., July 6, 1904, for the physical examination of an applicant for appointment as second assistant engineer in the Revenue Cutter Service. Detail for the board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Board convened to meet at Tampa Bay Quarantine, July 11, 1904, or as soon thereafter as may be determined by the chairman of the board, for the examination of Pharmacist L. C. Spangler, to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Assistant Surgeon R. E. Ebersole, chairman; Acting Assistant Surgeon G. H. Altree, recorder.

Board convened to meet at San Francisco, Cal., July 25, 1904, for the examination of assistant surgeons, to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the board: Passed Assistant Surgeon W. G. Stimpson, chairman; Passed Assistant Surgeon Rupert Blue; Passed Assistant Surgeon H. S. Cumming, recorder

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J., June 7 to 10, 1904.

[Specially reported for *American Medicine*.]

(*Continued from p. 52.*)

Section on Practice of Medicine.

FOURTH SESSION.

This session was devoted to a symposium on gallbladder diseases.

Etiology of Cholecystitis and Cholelithiasis.—W. L. Bierring (Iowa City) stated that the gallbladder is one of the most vulnerable points for infection in the abdomen, being similar to the fallopian tube and the appendix. The liability to infection is mainly due to its position in regard to the intestinal tract. In the great majority of instances no microorganisms are found in the gallbladder during health. Infection may take place through the blood or by way of the common bile duct, the latter being the most frequent. Clinically, bacteria are found in the gallbladder in many systemic diseases, typhoid fever being one of the most important; they may remain dormant for long periods of time. Personal observation and experiment lead Bierring to conclude that infection of the gallbladder with virulent bacteria is not of importance when the flow of bile is not interfered with. The normal muscular action of the gallbladder is hindered by the presence of stones and the consequent stagnation of bile favors infection. Among the organisms more frequently found are the typhoid bacillus, colon bacillus, streptococcus, staphylococcus, pneumococcus, proteus vulgaris, and the tubercle bacillus. The close relation of cholecystitis and cholelithiasis is a prominent feature. Among the predisposing influences of the former are age, sex, pregnancy, gluttony, and indolence. Gastric and intestinal diseases also influence by virtue of their liability to extension up the common duct. Cardiac disease and nephritis are also predisposing causes. Cholelithiasis is associated with structural changes in the lining of the gallbladder. The nuclei of stones are made up of bacteria or of material resulting from bacterial invasion of the gallbladder. To these is added cholesterin, which is formed in the gallbladder or the biliary passages. If calcium salts be brought in contact with an excess of cholesterin, they may combine to form gallstones. Experiments tend to show that there is a possibility of increasing the quantity of cholesterin by irritants without the presence of bacteria. There is no convincing evidence that food of any sort increases cholesterin formation. The cause of cholelithiasis is usually cholecystitis, but other conditions are commonly present to favor the formation of stones. Among them are diet, dress, habits of living and other similar influences.

The Relation of Disease of the Gallbladder and Bile Ducts to Disorders of the Stomach and Intestines.—Bertram W. Sippy (Chicago) announced that he would consider only one phase of the topic, namely, the effect of gallbladder disease on the stomach and intestines. At the outset he stated that gallstones may not only simulate all diseases of the gastrointestinal tract, but may produce them. First are those resulting from reflex disturbances due to gallbladder disease. Among them are gastric myasthenia, paresis of the intestines, gastralgia, and spasm. The latter are more usually due to local irritation, however. An important point in the diagnosis of the condition is that lactic acid may be present in pyloric obstruction from gallbladder disease, and thus simulate cancer, lactic acid not usually being found in other nonmalignant disease of the stomach. Another class of cases produced by gallbladder disease are anatomic lesions due to the proximity of the gallbladder. The regions most commonly involved in this way are the pylorus, the first and second portions of the duodenum, and the hepatic flexure of the colon. The pathologic conditions to be studied are those that result from cholangitis, cholecystitis, and cholelithiasis. There are no exact statistics showing the frequency of adhesions to the structures named, but they vary from 25% to 38%, according to different observers. The duodenum is usually last to be drawn in by an exudate. Clinically, pyloric and duodenal obstructions are the most important and dangerous of these complications. Gallbladder disease stands next to ulcer as a cause of such obstruction, this meaning that it is often enough to be seriously thought of as a cause whenever obstruction exists. Stenosis is caused in many ways. The clinical picture is local tenderness, possibly some elevation of temperature, intestinal peristalsis is apt to be absent; there is probably a history of previous cholecystitis. The condition may simulate gastric ulcer very closely; there may be a tumor that is mistaken for cancer. Sippy is sure that lives are being sacrificed by physicians assuming that a palpable tumor in the region of the pylorus is malignant and treating it on that basis. Biliary fistulas between the stomach and gallbladder are not of infrequent occurrence; about two-thirds of the fistulas are between the gallbladder or ducts and the colon. They present no characteristic features, and are often undiagnosable. As to the management of pyloric or duodenal obstruction arising during or immediately after an attack of gallbladder disease, it is usually considered the correct procedure to do a gastroenterostomy as soon as the diagnosis of obstruction is made, particularly if the obstruction is of high grade. Sippy has seen two such cases cured by absolute rest in bed and rectal feeding for several days. Gastroenterostomy seemed at first strongly indicated, although the gallbladder disease was subsiding when the patients were first seen. Very rarely should gastroenterostomy be done during the acute stage unless there be also evidence of old cicatricial adhesions; treatment should otherwise look to the relief of the acute condition alone. Regarding gallstone ileus, the size of the stone does not determine the result; obstruction in the duodenum or jejunum is rare. There is nothing especially characteristic of this form of obstruction; fecal vomiting at the same time that gas and feces are passing by the bowel is more common than in obstruction from other causes. The differential diagnosis between ulcer of the stomach or duodenum and cholelithiasis is often difficult, as the symptoms of both may be absolutely the same, even to hemorrhage and hyperchlorhydria. The examination of a test-meal is important. An important point to remember is that though the analysis of individual symptoms seems disheartening, there is not much difficulty in differentiating typical cases if the whole clinical picture be carefully studied.

Diagnosis of Cholecystitis and Cholelithiasis.—Parker Syms (New York) said that one of every 10 adults has gallstones, and that 5% of these suffers from symptoms. Today the diseases of the gallbladder and bile ducts belong to the surgeon as appendicitis. The pathologic conditions which give rise to symptoms are: (1) Inflammation with or without the presence of stones; (2) stones, with or without accompanying inflammation; (3) inflammation of the regions around the bile passages; (4) neoplasms of the biliary passages, with or without the presence of gallstones. Symptoms were then discussed seriatim. Pain is usually colicky in type, of sudden onset, and more apt to occur when the stomach is empty. Tenderness is present just below the free border of the ribs or at Mayo Robson's point—the junction of the lower two-thirds with the upper third of a line from the umbilicus to the ninth costal cartilage. Fever and chills are common, the temperature chart exhibiting a series of angles rather than curves. There may be the subsidence of all symptoms when gangrene occurs and before sepsis follows; this is a dangerous condition. Vomiting is usually reflex and independent of nausea. It may dislodge the stone. The pulse is accelerated and the tension increased. Collapse is frequent in severe cases and may obscure the diagnosis. Tumor may be felt when there is obstruction of the biliary passages and accumulation of bile; it is pyriform, fluctuating, and may be tender. In some cases the crepitus of stones may be detected. Jaundice may be present or absent, slight or marked, continuous or intermittent; it is dependent on obstructive causes, and one should not hesitate to make a diagnosis when it is absent. The principal feature of the urine is the presence or absence of bile, and of the blood the presence of leukocytosis. The stools may contain bile, but its absence is significant. The röntgen ray diagnosis of gallstones has thus far been rather unsatisfactory. While positive findings are of great value, negative results are of but little importance. The differential diagnosis must be made between gallbladder disease and gastric ulcer, appendicitis, renal colic, angina pectoris, acute pancreatitis and portal phlebitis. The diagnosis from cancer of the neighboring organs can often be made only by exploratory incision. A point regarding appendicitis and gallbladder disease is, that at the same period of the attack the patient suffering from the latter is in better condition than one having appendicitis. For special diagnosis of gallbladder disease, Syms considers the chart given by Brewer as the most accurate epitome.

[*To be continued.*]

Section on Surgery and Anatomy.

FIFTH SESSION (CONTINUED).

Surgery of the Trifacial Nerve and its Ganglions.—John B. Murphy (Chicago) recedes from his former position with regard to resection of the gasserian ganglion, which gives good final results but has an enormous mortality when considered that the disease of itself does not cause death. Tiffany, in over 100 cases, found a mortality of 22%; in cases which he collected personally Murphy found a mortality of 17% which can, no doubt, be materially reduced by the use of modern methods, but will always remain high. Pathology gives no positive evidence whether the disease is central or peripheral, though it has been believed to be central because the pain recurs after resection of the peripheral nerves. This may be because of regeneration of the nerves after removal of a considerable segment which Murphy found in one case personally. The injection of osmic acid in dogs produces permanent paralysis. As to the clinical results, time must tell what its value will be, but Bennett in 20 cases has two patients who have remained well four years or over. To be efficacious, the injection must be into the individual nerve bundles. It is easy to use, nontoxic, and has special affinity for nerve tissue. Ten to 12 drops of a 2% freshly prepared aqueous solution of osmic acid are injected into the nerve trunk. Murphy has had cessation, or permanent relief of pain in 11 cases which he has treated. It is too early to speak of permanent results, but if he were suffering from trifacial neuralgia, he would want this method tried before a dangerous intracranial operation were performed.

Intracranial Neurectomy for Trigeminal Neuralgia, Cases and Comments.—Harry M. Sherman (San Francisco) briefly reported 5 operations on 4 patients, with 3 uneventful recoveries from the pain, but one of these patients left with an inexplicable facial paralysis. In the 2 operations on the same patient, the root of the nerve was cut behind the ganglion; anesthesia that was only temporary followed; a second operation that removed the ganglion was followed by permanent anesthesia. Inference, that the nerve, cut behind the ganglion, united and resumed its function; the pouring of salt solution into the skull before the suture fills all vacant spaces and excludes the air; the ease of the repetition of the operation on the same patient, including the stripping up of the periosteum without finding great adhesion, and without particular hemorrhage, was emphasized.

Summary of the Final Results of Four Cases of Division of the Sensory Root for Tic Douloureux.—Charles H. Frazier (Philadelphia). The advantages of division of the sensory root instead of removal of the ganglion are that it minimizes hemorrhage, exposure is less difficult, the cavernous sinus not being exposed; the abducens nerve is not interfered with, and less time is required for the operation. It has been styled the physiologic removal of the ganglion. Credit for suggesting this operation is due to Spiller. Abbe divided the second and third divisions of the nerve just at the point of exit from the skull, but it is no more difficult to divide the sensory root, and the results are much more satisfactory. In four cases operated upon there has been no recurrence three, two, and one year after operation. There seems definite proof that the sensory root does not undergo regeneration.

Discussion.—C. K. Mills (Philadelphia) for many years has observed many cases of trifacial neuralgia and has seen the results of all methods of surgical treatment, except the osmic acid method. He has been led to believe that the condition is best treated either by the removal of the ganglion or division of the sensory root. It matters little if the operation be thorough which is employed, though the latter has some advantages. He is led to believe in the necessity for intracranial operation because the pain returns after all peripheral operations of which he has any knowledge. Spiller (Philadelphia) has examined 15 ganglions removed at operation, and has found marked changes in all; he believes that the disease extends from the ganglion to the periphery. If Murphy's method proves successful, it will be of the greatest advantage, for the intracranial operations are attended with considerable danger. Osmic acid, he believes, would be better than division of the peripheral nerves. It is hard to understand how, if the sensory root is divided, sensation can return, as is reported in Sherman's case. Because of the possibility of regeneration, he believes it desirable to remove a part of the sensory root. Weir (New York) stated that he tried the osmic acid method 20 years ago without satisfactory results, although he did not do the work as thoroughly as Murphy reports. He does not see what advantage the method has over resection. Guttapercha tissue, when left in the body, becomes perforated; he has found this to occur in two cases. From experience, he has come to believe that the intracranial operation is the only method that gives relief. Horsley (Richmond) reported two operations for removal of the ganglion, with relief of pain in both cases. He advises preliminary ligation of the external carotid as a valuable aid by preventing hemorrhage. He also blocks the nerves, as suggested by Crile, by the injection of cocain, in order to prevent shock. No operation replaces evulsion of the ganglion. Cushing's (Baltimore) experience has led to the general belief that the intracranial operation is necessary when all three divisions of the nerve are involved. He does not agree with Murphy that major neuralgias do not threaten life, as it has been found that at least 50% of these patients, if allowed to go on without relief, commit suicide; four out of 20 of his own patients were hoping for death at the time of operation, and had no belief that there was any possible relief for their sufferings. A question of great importance is whether the high or low operation be employed. Recently the advocates of each method are coming to adopt the operation nearer horizontal, which leads directly to the ganglion. With improvement in methods the mortality has been progressively reduced from the 22% first reported by Tiffany to 15% in the series reported by Carson, and in his own cases the mortality has been but 5%. The mortality in 15 cases reported by Lexer and in nearly 100 operations by Cushing and friends who have used his method is only about 5%. Murphy, in closing, again emphasized the dangers of intracranial operation and stated that he had had a mortality of three out of 11 cases. Personally, he would be reluctant to have an intracranial operation performed. Sherman, in closing, expressed his belief that the sensory root was surely cut in the case which he mentioned, for it was hooked up on both sides and, moreover, permanent motor paralysis of the muscles of mastication followed.

Laminectomy: A Further Contribution.—John C. Munro (Boston) believes that with improved technic the results of these operations will be improved. Fracture dislocations in the lumbar region are specially suited for operation because there is little danger to the cauda, while in the cervical region there is considerably more danger. When shock is severe it is sometimes wise to wait until it has subsided. It is impossible to tell just what patients will be benefited and in any case the number is not great. However, in a series of cases treated by operative methods, while others used as control were treated on the expectant plan a distinct gain was seen from the operation. One patient who had been treated on the expectant plan for nine weeks without any improvement began to gain immediately after the operation and progressively improved until he was able to walk out of the hospital. The improvement is perhaps from relief of the pressure of effusion, for in some cases there is no other explanation of the improvement. The results of operations for fractures, tumors, syringomyelia and myeloma were given.

Discussion.—Lund (Boston) said that to give relief in these cases many unnecessary operations must be done. Very much depends upon the technic as regards the success of the operation. It is difficult to get under the laminas, and sometimes the shock is greatly increased. He believes that Munro's instrument for this purpose is of great value. In several cases he has seen improvement and no deaths have resulted from the operation. He compares the condition of patients with fracture to that of a man upon whom a tree has fallen. Without we lift up the mass that is crushing him, we can never tell whether he will recover or not. Cushing (Baltimore) called attention to the importance of discriminating between hematomyelia, from which spontaneous recovery may be expected, and crushing injuries.

The Treatment of Cold Abscesses and Sinuses in Tuberculous Disease of Bone.—V. P. Gibney (New York City). As yet no specific has been discovered to prevent the formation of cold abscesses; they appear late and are slow to heal. Gibney believes that in these cases the general surgical dictum to incise wherever there is pus may be somewhat modified with advantage. Cases treated by open incision, according to the usual method, usually either die in the hospital, go home to die, or remain as permanent residents. In these cases, rest and projection of the joint can be used with the greatest advantage, and the abscess itself can be treated at any time. In recent years he has never allowed an abscess to rupture. In most cases treated by aspiration alone, rupture does not occur. Aspiration and the injection of iodoform have not been used for years. The ideal method is to remove the focus of disease feeding the abscess, but inability to do this in most cases leads us to temporize. If the abscess be diagnosed, fixation and protection, sometimes the use of extension, will lead to absorption and recovery of many patients. If pus accumulates in considerable amounts, aspiration should be tried. It this fails, incision and evacuation and closure, under the strictest asepsis, will lead to recovery, as a rule. Overfeeding, especially with the use of mixed fats and the best hygienic conditions, is of great importance.

Section officers were elected for the ensuing year before the reading of papers on the program. A. J. McCosh, of New York, was unanimously chosen chairman; Floyd W. McRae, of Atlanta, Ga., secretary.

[*To be continued.*]

Section on Obstetrics and Diseases of Women.

THIRD SESSION (CONTINUED).

A Series of Mistaken Diagnoses.—T. S. Cullen (Baltimore) reported five cases in detail, in each of which a mistake had been made in diagnosis. Case 1 presented classical signs of a large multilocular ovarian cyst; at operation it proved to be a partially parasitic myoma. Case 2. Globular uterus, enlarged with two subperitoneal nodules. On account of general history, no examination of scrapings was thought necessary; at operation an advanced adenocarcinoma of corpus was found. Case 3. Projecting from right side of uterus was a globular mass and from vicinity of right cornu a subperitoneal nodule. Uterus and nodules were movable. Intraligamentary and subperitoneal myomas diagnosed. At operation the subperitoneal nodule proved to be a tense and kinked hydrosalpinx, the intraligamentary growth an adenocarcinoma of the ovary invading the bladder wall. Case 4. Patient 60 years of age; recently had temperature of 100° to 103°. Marked pain in pelvis; slight discomfort in defecation. In vaginal vault, and apparently attached to the posterior surface of the uterus, was a slightly irregular but globular mass. Diagnosis lay between adhesions of subperitoneal myoma glued to the pelvic floor and pelvic abscess. Operation showed an irregular globular tumor involving sigmoid flexure. This had dropped over to the right side and become adherent to the pelvic floor. Between the growth and the floor was a small abscess, due to rupture of a diverticulum from the intestine. Case 5. A woman presented herself with what was believed to be a large adenocarcinoma of the right kidney. Operation showed the condition to be malignant disease of a portion of the liver. Since the disease appeared to be confined to a certain portion of the liver, the mass, including about a third of the liver, was excised, bleeding being controlled by suture ligatures. The patient recovered.

The Nominating Committee here reported the following names to be acted upon by the section for officers during the ensuing year: C. L. Bonifield, Cincinnati, chairman; F. F. Lawrence, Ohio, vice-president; W. P. Manton, secretary; J. W. Bovée, Washington, D. C., delegate.

The Stem Pessary for Scanty and Painful Menstruation.—J. H. Carstens said the brains of many females, during the developmental period from girlhood to womanhood, are overwrought, and take much of the blood which should go to develop the pelvic organs. The result is a small uterus, painful and often scanty menstruation. In these cases the stem pessary does good by practically forcing the uterus to go into labor in its effort to expel the foreign body. This work thrown on the uterus develops its muscle and brings increased blood-supply. After a time the painful and scanty menstruation becomes normal. He has succeeded by this treatment in a number of cases.

Injury to the Rectum in Gynecologic Examinations.—Howard Kelly (Baltimore) called attention to the delicate tissue of the rectum, and the ease with which it is injured. Hepatic and pelvic abscesses are occasionally ruptured in pelvic examinations, but the report of rectal injuries in such examinations is not common. The vagina is rarely seriously injured in this way because of its more resistant structure. Kelly reported four instances of rectal injury which had occurred within his own clinic in the past 15 years. In three of the cases a laparotomy being necessary anyway, the ruptured bowel was sutured from within the abdomen. In the fourth instance the rupture was sutured through an opening made in the vaginal vault. All of the patients recovered. Kelly insisted on greater delicacy and care in pelvic examinations, especially when made through the rectum. The best position for the patient for such examinations is the knee-chest posture, the bowel having been well emptied. Air can be let into the rectum, which is thus "ballooned," and examination is made easy.

Propriety, Indications and Methods for Terminating Pregnancy.—Frank A. Higgins (Boston) stated that the field for the indications for the termination of pregnancy is broadening. Acute pulmonary tuberculosis is an indication for terminating pregnancy, but when the disease is of a chronic form pregnancy should not be terminated artificially. In a good many instances of heart disease the procedure is indicated. Since 33% of women developing serious nephritis die not long after going to term, abortion should be seriously considered in these cases, especially if the kidney complications came on early. Pernicious vomiting of pregnancy was considered at length, as were also cancer, placenta prævia, etc. Generally the attitude of the church is not so antagonistic as is supposed when it is made clear to the interested parties that something is necessary. Higgins exhibited a dilator, somewhat similar to the Bossi instrument, which he had himself devised, and which he has used with satisfaction. The several means of accomplishing abortion were discussed at length. Hall (Kansas City) deprecated the advocacy of enlarging the field for abortions; the public is only too ready to seek such measures when not advised by physicians; the latter should perform abortion only as a *dernier ressort.* He would rather prevent pregnancy, in case a woman were not capable of bearing a child, than terminate the pregnancy after it had occurred.

Adherent Uterus as a Complication of Labor.—John C. Applegate (Philadelphia) reported two cases in detail and concluded practically as follows, agreeing in the main with the report recently made by Dr. Oui, of Lille, of his investigations in France, that in hysteropexy with slightly different technic from that ordinarily practised, this complication may be obviated; viz., the high suspension of the uterus to the anterior abdominal wall with two sutures placed in the anterior surface of the uterus opposite or a little below the insertion of the tubes instead of in the fundus on the median line or posterior to it. The advantages of a high suspension in this way are anteflexion, support, ability of the uterus to expand more symmetrically during pregnancy and contract more regularly during labor, short bands of adhesions are just as liable to form, does not seriously complicate pregnancy and if the bands of adhesions do not form, the pendulous yielding abdomen and enlargement of the uterus to that point are fairly well proportioned, and when the uterus is emptied, it symmetrically contracts and retracts, inertia is not a factor, and the organ is still supported. Contrasted with this, the disadvantage of ventral fixation are: Extreme anteflexion, frequently vesical irritation, if the suspensory bands are sufficiently long to allow freedom and mobility in pregnancy, they are too long to be of any value in supporting the uterus after it has been emptied at term, inability of the uterus to expand symmetrically in pregnancy or contract regularly in labor, torsion of the uterus, malposition of the ovum, uterine inertia and the danger of rupture in labor.

Discussion.—Dunning (Indianapolis) has done the operation of ventral suspension in 165 cases. Eight of the patients to his knowledge have had practically normal deliveries afterward. He knows of no complications arising as a result of suspension in any case. He suspends by suturing the anterior surface of the uterus to the peritoneum above the pubis. Shortening of the round ligaments fails in a quarter of the cases and often causes dragging and discomfort. Frey reported having performed 120 suspensions. He does the operation much as described by Dunning. He reported a case in which a woman came to term with a uterus in fixation. After being in labor 24 hours a cesarean section was done.

Section on Ophthalmology.

SECOND SESSION (CONTINUED).

The Conservative Treatment of Affections of the Lacrimal Apparatus.—S. D. RISLEY (Philadelphia) presented this paper. He reviewed the anatomy of the lacrimal apparatus and showed wherein the surgical methods usually employed ignored this factor in the treatment. The nasal duct he stated, was never entirely patulous. The passage of the tears was brought about by capillary attraction, gravity, and the pressure induced by winking. Obstruction was usually due to swelling of the mucous membrane. He then remarked that all surgical interference which impaired the physiologic function of the drainage system should, as far as possible, be avoided. His treatment consisted first in the instillation of cocain and adrenalin after which a small probe could be introduced or better the cannula of an especially constructed syringe could be entered and the duct irrigated. Irrigation he thought to be of greatest value, using peroxid of hydrogen and silver nitrate in acute cases, and iodin and similar stimulating applications in chronic affections. Frequently he employs irrigation alone. He cautioned against probing, as usually employed on account of the injury that might result. In his opinion, Bowman, Nos. 3 or 4, was most practicable, the smaller probes being rather dangerous. Not infrequently he precedes syringing by slitting the canaliculus with a Weber's knife, being careful not to carry the incision into the sac and thus slit the common, the maintenance of the integrity of which he considered highly essential. As an argument against forcible dilation by large probes, he laid great stress on the normal variation in anatomic relation of the nasal duct. He also plead for a careful examination of the mucous membrane of the nasal cavities and adjacent sinuses in all cases. He stated, however, that while a relation existed between them, lacrimal disease was disproportionately less than nasal disease, due in all probability to the natural situation and direction of the canal and its drainage. When distorted, disease was likely to occur. He then exhibited an all-metal lacrimal syringe with a metal collar for its support, provided with a short curved hollow needle. He stated that in his experience, forcible dilation, cutting operations involving the lining tissues of the long nasal duct, or extirpation of the lacrimal sac have rarely proved necessary when seen at first hand, and conservative methods, such as irrigation, were employed.

Discussion.—G. E. DESCHWEINITZ (Philadelphia) who agreed with Risley in many respects, did not think favorably of too much probing. He said that one should carefully consider whether the cause of the epiphora was lacrimal or due to some condition in the nasal duct, or at its lower extremity. He believed that when true dacryocystitis was present, extirpation of the sac should be the only treatment. L. C. BROSE (Evansville, Ind.) considered that conservative treatment was contraindicated when there was only one eye, or when the affection was bilateral with continually inflamed sacs and corneal ulcers, and thought extirpation was the proper treatment in such cases. L. CONNOR (Detroit) stated that he had discarded metal syringes and used the ordinary medicine dropper in irrigating the sac. In intermittent or recurring cases he passes large probes, and has noticed that they passed relatively easy without any bad results and with a satisfactory cure. SUTPHEN (Newark) said he thought the convexity of the probe should be turned toward the nasal side. He also asked for information regarding the treatment in cases in which the lower punctum was absent. BERNSTEIN (Baltimore) cited cases in patients and in dried skulls, in which the passing of probes was impossible. In some instances he has found polypoid degeneration of the inferior turbinal as a cause of the disease. He said he practised extirpation of the sac, enucleating it entire, without first slitting it. THEOBALD (Baltimore) stated that he still believed in the efficiency of probes, and thought that while the punctum, canaliculus and valves were normal, they were not necessary for drainage. He referred to the good results following slitting of the canaliculus, and said he preferred the use of probes in suppurative caries of the duct to extirpation of sac. E. E. HOLT (Portland, Me.) quoted various different opinions in treatment of lacrimal conditions, and agreed to a great extent with Risley. In suppurative cases he said he routinely slits the canaliculus, passes a large probe, and after its removal introduces a lead style, which is worn for a variable period to avoid repeated probing. W. H. WILDER (Chicago) stated that he performs the radical operation in obstinate cases, and thinks it is of great value. He injects paraffin having a melting point of 112° F., into the sac, and then applies ice to solidify it, after which the sac is resected. In closing the discussion RISLEY conceded that the probe was of value only when the duct was very large, but preferred the conservative plan of treatment. The repeated passing of large probes he designated as cruel surgery, considering the crushing they occasion. He did not cut the common canal, as he thought such a procedure would later be followed by a cicatrix, especially if probed. The repeated passing of probes and use of styles often served to keep the irritation, which when ceased, allowed the disease to subside. In acute dacryocystitis, the treatment he employed was antiphlogistic and unirritating.

The Mathematical Point of Reversal in Skiascopy.—SWAN M. BURNETT (Washington, D. C.) read this paper, in which an endeavor was made to show that mathematically the point of reversal must lie at the nodal point of the observer's eye. Diagrams were presented which served to strengthen the argument materially. The essayist briefly reviewed several wellknown optical facts, and showed that in all published studies of the fundamental laws of skiascopy there was apparent lack of accuracy in placing the point of reversal. He remarked on the very vague and indefinite theories as to its location, and especially considered the one in which the point of reversal was placed in the pupil of the observing eye.

Discussion.—J. E. JACKSON (Denver) agreed with Burnett that the nodal point and not the pupil was the point at which the reversal takes place. Previously he had used the pupil to indicate the approximate location of the same, but had not considered it as the exact location. He blamed the confusion that had arisen concerning this point to the imperfections in the methods of expression, particularly as regards confusion of the image with the object. He also stated that it was of great practical importance to follow the mathematics of this question to acquire a working capacity for the facts, especially in the shadow test. STEVENSON (Akron, Ohio) believed that the point of reversal could only be at the nodal point when it corresponds to the pupil of the eye, and illustrated this by means of a diagram. He also showed that raising and lowering of a light without tilting it, affected the point of reversal, and drew another diagram to illustrate this point. He further stated that if the observer could dilate the pupil it would always be at the point of reversal. In closing the discussion, BURNETT strongly emphasized the point he had previously made, that the point of reversal must lie at the nodal point of the observer's eye.

The chairman then directed the secretary to read the letters from the Reed Memorial Committee relative to collecting of funds for the same.

[*To be continued.*]

Section on Laryngology and Otology.

FOURTH SESSION (CONTINUED.)

The Palliative Treatment of Acute Mastoiditis and Its Limitations.—PHILIP HAMMOND (Boston). This paper consisted of a description of the conditions accompanying acute mastoiditis in the different stages of inflammation, of the methods of treatment, of the time when paracentesis should be performed, the indications for the use of wicks for drainage and of the hot douche, the influence of leeching and of cold applications, of the importance of absolute rest and the value of general treatment during the early stages. Accompanying this was a report of 50 operations of cases that were treated in the hospital in which the illness had existed from one to 30 days prior to admission; all but six had discharge from the ear on entering the hospital. In all cases he advises first paracentesis preferably under nitrous oxid gas on account of the severe pain which it would cause, the insertion of gauze wicks for drainage and in most of them the application of cold by means of the Leiter coil. The wicks are used in all early cases in which the discharge is serous, though when the discharge is too thick to be drained by this method irrigation is resorted to. The old method of using leeches is good in some cases though may mask the tenderness of the mastoid. Of the six patients that entered the hospital with the drum membrane intact three came to mastoid operation.

Discussion.—DENCH (New York) does not now approve of the ice coil because of its masking of symptoms, the superficial tenderness being relieved, though later deeper involvement may develop. He thinks the drooping of the upper and posterior wall of value as a diagnostic symptom. PISCHEL (San Francisco) condemns cold and rather favors the use of heat. RICHARDS (Fall River) spoke in favor of the use of the various preparations made of clay and glycerin for antiphlogistic effect.

FIFTH SESSION.

Some Considerations Arising from the Difficulty of Choice of a Time for Mastoid Operation. Prospective Results.—D. A. KUYK (Richmond). The paper comprised reports of cases with comments under three heads: (1) Features obtaining in mastoiditis as a complication of, or sequel to, the exanthem; (2) mastoiditis as a complication or sequel of influenza; (3) mastoiditis occurring in the course of chronic suppurative otitis media. Especial stress is laid on the time of operation, whether to operate early when mastoiditis is suspected, or to await the appearance of positive symptoms.

Discussion.—DENCH (New York) strongly commends the exploratory operation in cases of uncertain mastoiditis.

Two Cases of Objective Aural Tinnitus, Due to the Action of the Tubopalatal Muscles.—W. A. WELLS (Washington). The paper consisted of a review of literature, with report of one case of involuntary and one voluntary objectively perceived; clicking in the ears. Posterior rhinoscopic examination in both cases. The sounds were found to be isochronous with contractions of the tubopalatal muscles, and in the involuntary case with a choreic up-and-down movement of the larynx. Remarks on the function of the tubal muscles and the explanation of the origin of the sounds.

Discussion.—HOLMES (Cincinnati) mentioned two cases which came under his observation with rythmic contractions of the drum membrane.

Tuberculosis of Both Middle-ears in an Infant.—DUNBAR ROY (Atlanta). Rarity of reported cases of tuberculosis of the middle-ear, especially in infants. The uncertainty of correct diagnosis is always to be considered. Infant, six months old, ears had been running for six weeks. Fairly well-nourished child, with considerable cough and an offensive discharge from both auditory canals. No history of mastoid involvement, and absolutely no objective symptoms, Partial left facial paralysis. Left ear: Canal filled with offensive discharge. After its removal the canal was seen to be two-thirds occupied with granulation tissue, which bled profusely when touched. No necrosis discoverable. Right ear: Discharge not so profuse as left. Canal filled with granulation tissue. Grandmother and one uncle dead of tuberculosis, another uncle in advanced stages. Wellmarked family history of tuberculosis. Tissue removed showed giant cells and numerous tubercle bacilli. Lungs show numerous rales, a severe cough present. Treatment: First by attempted removal of tuberculous mass through canal. Three days later paralysis of both external recti of eyes, and two days later convulsions and death. No autopsy. The question of immediate radical operation on left side and the futility of cleaning out middle-ear through auditory canal. Existence of scepticism as to primary middle-ear tuberculosis.

Election of Officers.—Robert C. Myles, of New York, was elected chairman; Otto T. Freer, of Chicago, was reelected secretary; John F. Barnhill, Indianapolis, delegate. On motion, which was unanimously carried, the officers of the section were complimented and extended a vote of thanks upon the success of the present meeting, which was considered the most satisfactory held since the organization of this section.

Section on Materia Medica.

FOURTH SESSION (CONCLUDED).

The Value of Internal Medication and Local External Application in Pneumonia.—GEORGE DOCK (Ann Arbor, Mich.) says in the treatment of this disease the physician should endeavor to obtain rest, both mental and physical, for the patient, the temperature should not be taken while the patient is asleep. As remedial measures he advises a cathartic early, food at short intervals, abundance of water, ice instead of opium for pain, and cold bath to reduce the temperature. When the patient is extremely toxic, Dock advises the Brandt treatment. For delirium he gives morphin and bromids, and for tympanites, first enemas, and if that does not succeed, turpentine internally and externally. When the heart becomes weak he first applies the ice-bag externally over the precordial region and gives hot milk. Ventilation is important, and open windows will, in many instances, substitute for oxygen.

Prevention and Treatment of Heart Failure in Pneumonia.—S. SOLIS COHEN (Philadelphia) maintains that the causes of heart failure are due to (1) the toxins; (2) the mechanical obstruction; (3) the tendency to clot formation owing to the altered condition of the blood. The toxins, he says, act upon the nervous system and the heart muscle. For the treatment of the toxins he advocates blood-letting early, diuresis, and diaphoresis. The serum treatment does not seem to meet the requirements. Blood-letting is also indicated when the heart is suffering because of the mechanical obstruction. In this condition one might even puncture the right side of the heart, although Cohen says he has never performed this operation; beside these measures he applies the ice-bag or Leiter's coil and administers veratrum viride. He introduces salt solution to prevent the coagulation of the blood, since this condition is due to the toxins. Oxygen must be given in abundance —Cohen does not believe the open windows are sufficient. He says heart failure is sometimes due to want of food. Cohen lays great stress upon rest; the patient must make no attempt to accomplish any movement, if change of position is desired, it must be done by the attendant. Sleep is absolutely necessary and must be obtained in some way or other, since it is often the direct cause of heart failure. Cohen givs nitroglycerin to relax the peripheral bloodvessels in combination with digitalis.

Serum Treatment of Pneumonia.—J. M. ANDERS (Philadelphia) thinks the unfavorable results obtained with the antipneumococcic serum is due to the fact that very often the pneumococcus is accompanied by other bacteria which are instrumental in the production of the pneumonia. He believes that the character of the infection should be determined before the serum is used. Anders says he does not believe the serum treatment hastens the termination of the disease; he has seen a slight reduction in the temperature, but massive doses must be given early. The serum does not seem to have antitoxic power. Anders does not believe it advisable to use antistreptococcic serum in pneumonia.

Discussion.—WEBER (Milwaukee) says the pneumococcus and its toxins act upon the vessels as vasomotor paralyzers, and secondarily upon the heart. He says the ice-bag over the heart increases the flow of blood through that organ. He asserted that barium chlorid acts upon the vessels only. POTTER (Indianapolis) believes that the toxins are the most important factors to be dealt with in pneumonia. H. C. WOOD, JR., (Philadelphia) says in the treatment of pneumonia the right heart must be stimulated, and that nitroglycerin is the best drug to accomplish this end. FUNK (Harrisburg, Pa.) believes the lives of many are saved and the lives of many could be saved if venesection were done more frequently. WHITE (Providence, R. I.) asked how to relieve the delirium in pneumonia. STRANAHAN (New York City) maintains that ergot overcomes the vasomotor paralysis very well and relieves the delirium. OSBORN (New Haven, Conn.) from observations finds that pneumonia is more frequent in winters when there is no snow on the ground. DOCK believes that we have to deal with a vasomotor weakness rather than heart failure, which is secondary to the first. For vasomotor weakness he gives ergot and strychnin. He says the delirium is sometimes a meningeal complication; if not, he treats it with ice, and baths. COHEN is favorably impressed with the sprinkle in these cases.

Therapeutic Value of Massage in Acute Cases.—JAY W. SEAVERS points out that the lymph-glands are commonly situated near joints and upon the flexor surfaces so that movements give rise to natural massage and in that way stimulate the onward flow of the lymph. Massage very often does good by distracting the patient's attention from a certain part. It improves nutrition; it aids in heat elimination, and improves the digestive organs. The erythrocytes and the leukocytes are increased in the peripheral blood.

Discussion.—Foss confirms the views expressed by Seaver. NEWTON (N. J.) believes massage in baths would be of great value. STERN says the permeability of the body is greatly increased by massage. SEAVER, in closing the discussion, says the blood flow can be much increased by massage.

Section on Hygiene and Sanitary Science.

THIRD SESSION (CONTINUED).

The Sanitary and Moral Prophylaxis of Venereal Diseases.—PRINCE A. MORROW (New York). Our methods of dealing with venereal diseases must be differentiated from ordinary sanitary methods and must be adapted to the communicative mode. These are not the diseases of the human body, but in their essential causes are social diseases and their prophylaxis a social as well as a sanitary problem. The vast complexus of morbid states, dystrophics, and degenerations making up the pathology of hereditary syphilis have their origin almost exclusively in marriage. There is more venereal infection among virtuous wives than among professional prostitutes in this country. The policy of inaction which prevails in this country is due chiefly to the failure of all methods heretofore employed to materially diminish prostitution, which is the chief cause of these diseases. It must be admitted that reglementation is condemned by its practical results. The fatal defect of the continental methods is that they ignore the masculine spreader of contagion. Unilateralism—"one sidedness"—is the essential weakness of official surveillance of prostitutes. There is one communicative mode which distinguishes the venereal disease from other contagious diseases. The act is voluntary. The man who cohabits with a prostitute wilfully exposes himself to infection. The man who infects his wife and children does so wilfully. Since this voluntary act cannot be restrained by force, one must bring to bear agencies which act upon the will of the individual. The majority of men who carry uncured venereal diseases into wedlock do so in ignorance. Education, therefore, is the most valuable prophylactic agency, and this education is most timely applied to the period of youth. Exposure occurs most commonly in the young, and the impelling force is not, as a rule, animal instinct. Definite information, timely acquired, would have a strong inhibitory influence upon the youth of both sexes, and especially on young men. Young women are deterred by the fear of maternity, and to this should be superadded the fear of loathsome disease. Fortunately, it is not necessary to spread such information at large among young women, but in the ranks of those who chiefly replenish the prostitute's calling such knowledge would have a notable restraining influence. For young men in the upper classes of high schools, right instruction should be provided. To be deterred from this necessary work by considerations of false modesty is to allow right views to give place to wrong and dangerous ones acquired from vicious companions. Not very much is to be expected from appeals to the ethical or moral perceptions of the young, though such teaching is essential and is of the highest order. The young man has, however, the highest respect for physical excellence, and the hazard of venereal disease, if properly placed before the minds of the young, will have great weight. The gospel of fear is not an ignoble message. St. Paul says, "we persuade men by the terrors of the law." No plan of prophylaxis can be considered comprehensive which does not take into account the social conditions which favor the fall of women into shame. The hygienic and moral upbuilding of manhood will diminish the demand, and adequate defenses of the sources of feminine weaknesses will diminish the supply of prostitutes. Next we must sterilize every known source of infection by correct treatment. There is not one special hospital in this country for venereal cases, and in some cities venereal patients are excluded from general hospitals. The safety of the people demands very large and free facilities for the cure of such cases. No reforms can be inaugurated in the absence of public sentiment. We must, therefore, arouse the public mind to the social and economic importance of this subject, using every avenue of enlightenment available for that purpose. The popular misconception that venereal diseases are the exclusive appanage of vice must first be removed. Let the people see that the penalties of unchastity fall multiplied upon the innocent.

The Status of the Antituberculosis Work in the United States at the Present Time.—S. A. KNOPF (New York). The work of the past two years on this subject has far exceeded the work of the preceding five years. There are now in the United States 27 and in Canada 3 associations for the prevention of tuberculosis. The organization and methods of the New York Charity Organization Society's Committee were described in detail. The most recent and probably the most important addition to the list of antituberculosis societies is the National Association for the Study and Prevention of Tuberculosis, whose organization was begun in Baltimore in January, was completed at Atlantic City on June 6. A list of special hospitals, sanatoriums, colonies and dispensaries was given, numbering 132 institutions in 35 States, territories and provinces. This list includes but one seaside sanatorium for scrofulous and tuberculous children, "The Seaside Tent Sanatorium of New York Society for Improving the Condition of the Poor," at Seabreeze. There should be a much larger number of such sanatoriums. There is also great need of special dispensaries for the treatment of indigent cases of pulmonary and laryngeal tuberculosis. Such dispensaries are now to be found in New York, Boston, Baltimore, Philadelphia, New Haven, Chicago, Providence, Scranton, Minneapolis, and Worcester. Beside these special dispensaries, many general dispensaries and hospitals have separate classes and wards for tuberculous cases. Speaking of tuberculosis among the insane, Knopf said that tuberculosis more frequently follows the development of insanity than precedes it. Insanity is oftener a cause than a consequence of tuberculosis. That the cure of tuberculosis and of mental disease can proceed synchronously is demonstrated by the tent life inaugurated by McDonald at the Manhattan State Hospital for the Insane on Ward's Island, New York. The best illustration of what can be done for tuberculosis in prison is furnished by the Texas Agricultural Colony for Tuberculous Prisoners. The net earnings of this colony in the first year of its existence amounted to $25,000, an experience which should encourage the establishment of similar colonies in other States. Agricultural and horticultural colonies offer also a practical and economic means of completing and confirming the results of sanatorium treatment, often a perplexing problem in the case of those patients whose former occupations cannot be resumed except at serious risk of relapse. Knopf reported at some length upon the Tuberculosis Exposition in Baltimore, saying that from a local attempt to give the people of Maryland an object lesson in the prevention of tuberculosis, it grew to be a national enterprise, and educational center of the history, distribution, variation, causes, cost, prevention and cure of tuberculosis. The author reiterates with fresh emphasis his plea for a Ministry of Public Health at Washington, D. C., to be in constant touch with all State and city Boards of Health, with effective laws to combat tuberculosis in man and beast throughout the union. Effectual cooperation can be best obtained by the coordinating power of such a federal bureau or ministry. To combat tuberculosis as a disease of the masses successfully requires the combined action of a wise government, well-trained physicians and an intelligent people.

[*To be continued.*]

AMERICAN PROCTOLOGIC SOCIETY.

Sixth Annual Meeting Held in Atlantic City, June 8 and 9, 1904.

[Specially reported for *American Medicine.*]

Things of Specialism and of this Society that Make for Optimism.—WILLIAM M. BEACH (Pittsburg). The president's address was a thoughtful and well-considered argument in support of specialism in general, and of proctology in particular. He pointed out that the favorable recognition which had been accorded this specialty was largely due to this society, and that as a direct result, though only six years old, the advertising charlatan had practically disappeared. The high type of men composing the membership was alluded to, and the continued exercise of careful circumspection in admitting new members advocated.

The Surgical Treatment of Prolapse of the Rectum.—J. M. MATHEWS (Louisville) reported excellent results from drawing up the colon and suturing it to the abdominal wall. He had resorted to the method in a number of cases, and believed the operation, colopexy, worthy of more general adoption.

The Treatment of Pruritus Ani with the Röntgen Rays.—J. R. PENNINGTON (Chicago) from an experience covering a period of several years, had reached the conclusion that the röntgen rays were a valuable therapeutic measure in certain obstinate cases in which no cause for the pruritus is discoverable, and in which the secondary changes in the parts affected are most marked. He had succeeded in a number of instances in effecting a cure after every other form of treatment had failed.

The Present Status of the Treatment of Cancer of the Rectum.—LEWIS H. ADLER (Philadelphia) considered four methods of treatment: (1) The röntgen rays; (2) radium; (3) extirpation; (4) colostomy. Speaking from his own experience, he condemned the first two mentioned, the röntgen rays as aggravating the disease and apparently hastening death, the radium as being noneffective. With reference to extirpation, he said that cancer of the rectum, at the stage usually discovered by the surgeon, is far less amenable to operative treatment than cancer occurring elsewhere; that extirpation, even when thorough, is followed by cure in only a small percent of cases, owing frequently to prior metastasis; that the danger attending excision of growths situated above the lower two or three inches is very great; and that the results as to freedom from pain in successful cases are usually far from satisfactory. He personally had been unable to advise excision in more than 5% of cases. Colostomy the author regarded a valuable palliative operation, the patient living in comparative comfort an average of three to four years. Personally he does not advise colostomy as early now as formerly.

The Flexible Rectal Tube.—S. T. EARLE (Baltimore) condemned this as impractical and of limited utility. His investigations of the subject had led him to conclude that as ordinarily employed by nurse or patient, the instrument curls upon itself in the lower rectal chamber and very rarely enters into the sigmoid. This difficulty may be overcome in a measure by attaching the nozle of a fountain syringe to a tube and allowing enough water to enter bowel to distend it in front of advancing tube. In inexpert hands the instrument is capable of harm, and except in the hands of the physician himself, the writer thought it should give place to the ordinary enema nozle and elevation of patient's hips, by which method the same results can generally be obtained.

Polyadenomas of the Rectum.—G. B. EVANS (Dayton, Ohio) referred to the comparative rarity of the disease and emphasized the importance of early and complete removal of the tumors, their tendency to undergo malignant changes being the chief danger. With the more general employment of instruments of precision in rectal examinations the writer predicted that polypi would be more frequently encountered in future.

Some Observations on the Treatment of Rectal Diseases.—W. L. DICKINSON (Saginaw, Mich.) spoke of the great prominence diseases of the rectum have gained in the past 25 years. When he was a student the entire subject was disposed of in one lecture by the professor of surgery, "piles" being the only disease alluded to. Improvements in the office treatment of these conditions were discussed at some length, the author showing that it is possible in a large number of cases to do good, thorough work without general anesthesia and confinement of patient to bed.

Rectal Valves, with Report of Operative Cases.—L. J. KROUSE (Cincinnati) discussed the indications for valvotomy and endorsed it as a justifiable operation in properly selected cases, reporting a series of cases in which great and permanent benefit had followed its performance.

The Treatment of Simple Rectal Fistula by Excision and Suture without Cutting the External Sphincter Muscle.—HOWARD A. KELLY (Baltimore) described the technic of an operation devised by himself and successfully employed in a number of cases. The procedure is applicable only when the fistula is simple and direct and consists of dissecting out the tract, beginning at the external opening. "The rectal orifice is then carefully excised through the wound so as to make a transverse opening parallel to the sphincter fibers. The wound is then closed by interrupted silkwormgut or silver wire sutures taking care to draw the circular fibers together above and below the rectal orifice."

Sterile Water Anesthesia in the Radical Treatment of Rectal Diseases.—S. G. GANT (New York) said that in his opinion the hospital, general anesthesia, and confinement to bed constituted a routine which as applied to rectal diseases was both unnecessary and unjustifiable in most instances. For several years he had been seeking a means to overcome these disadvantages. After trying the various agents for producing local anesthesia he had abandoned them one after another because of toxic effects, hemorrhage, pain, or noneffectiveness. Finally he concluded that the anesthetic effect of these agents was due rather to pressure than to the drugs employed and was lead to try sterile water alone. This gave him the happiest results. He reported 320 cases operated upon by this method, which included practically every variety of rectal disease amenable to operative treatment. The results had been so gratifying that he heartily recommended that the method be given a trial by other surgeons.

Papers by LEON STRAUS (St. Louis) and A. TIERLINCK (Gand, Belgium), in the absence of the authors, were read by title.

Officers elected: President, J. R. Pennington, Chicago; vice-president, L. H. Adler, Philadelphia; secretary-treasury, A. B. Cooke, Nashville. Executive Council: W. M. Beach, Pittsburg; S. G. Gant, New York; G. B. Evans, Dayton.

The Society adjourned, to meet in Pittsburg, May, 1905.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Seventh Annual Meeting, Atlantic City, New Jersey, June 6 and 7, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 54.*]

Differential Diagnosis of Gastric Ulcer.—H. W. BETTMAN (Cincinnati) stated that unfortunately there was not sufficient distinction made between the acute and chronic ulcers. Two points which he emphasized particularly in regard to acute ulcer were: 1. That it occurs almost exclusively in women, hemorrhage being the first symptom, and hyperchlorhydria is not a symptom. 2. In acute perforation the rigidity in the right iliac region often leads to a mistaken diagnosis of appendicitis. The symptoms of chronic ulcer he related as: 1. Pain. 2. Vomiting. 3. Hemorrhage. 4. Hyperchlorhydria. 5. Tenderness upon pressure over a localized area. These symptoms are seldom all combined, and while pain occurring shortly after meals and relieved by emptying the stomach, is a suggestive factor, yet this pain may be simulated by carcinoma, gastralgia, hyperchlorhydria and not quite so well by gastric erosions, but the pain in gastric ulcer is far more likely to be relieved by orthoform than in the other conditions. He considered in detail, neurotic gastralgia, gastralgia associated with gallstones and erosions of the stomach, the latter of which he believed to be a distinct entity. The diagnosis becomes more difficult when the ulcer leads to the formation of a tumor at the pylorus. The clinical history is of the utmost importance, and there may have been marked dilation without having produced pronounced symptoms for years, in cases of ulcer stenosis, the ulcer comes on gradually. Small hemorrhages can only be accurately detected by examination of the gastric contents.

Further Remarks on the Use of Orthoform in the Diagnosis of Gastric Ulcer.—F. H. MURDOCH (Pittsburg, Pa.) stated that since he had reported the use of this drug two years ago he had seen three additional cases in which it was of great value. The first was a male, aged 60, who one and a half years before had a severe attack of pain in the abdomen, which was relieved by morphin hypodermically, followed by pain and soreness in the right iliac region, causing the attending physician to suspect appendicitis. He had one or two other attacks about a year later, which were relieved in the same manner; the following attack, which was quite severe, orthoform (8 grains) was given by the mouth, with entire relief. The second case was that of a woman, 33 years of age, with a history of pain in the stomach extending over a considerable time, which had been diagnosed as biliary colic. Examination of the stomach contents revealed the presence of free hydrochloric acid, and the diagnosis was then made of gastralgia, the result of chronic gastric ulcer. An attack of pain was entirely relieved in this patient in half an hour by eight grains of orthoform. The third case was a female, 30 years of age, who had been suffering from gastric trouble for four or five years, at first only once or twice a year, but gradually becoming worse, until she was seldom free from the attacks for more than a day or two at a time. Physical examination showed a mitral presystolic murmur, and the stomach was dilated. The diagnosis was chronic gastric ulcer, but rest in bed produced no effect, and two physicians who saw her in consultation with the author, attributed the trouble to gastritis. Suddenly one day she was seized with severe pain in the epigastric region. Orthroform was ordered and the first four doses relieved the pain for about six hours, and the fifth entirely relieved her.

Discussion.—J. KAUFFMANN (New York) did not believe that such a clinical entity as an erosion exists, believing that the small pieces of mucous membrane in the washing water were brought about artificially by the introduction of the tube, which he felt was substantiated by the fact that these pieces of mucous membrane were well preserved and contained fresh blood cells. He believed the use of smooth tubes and care in washing out the stomach would avoid these in many instances, and stated that he himself had seen them only occasionally, and then in those cases where the patient vomited during the lavage. He also felt that the use of the term erosions in the sense of a clinical entity from which resulted these pieces of mucous membrane in the washing water, was objectionable, for the reason that the term was used by anatomists to express the condition brought on by hemorrhage followed by necrosis of the tissue, whereas if the substance in the wash water was derived from such areas as these, it would not present the perfectly preserved glands and fresh blood cells. A. L. BENEDICT referred to a case which had at first been diagnosed as appendiceal colic, in which, after making several tests, it was demonstrated that the vomiting and hemorrhage were due to back pressure from a sclerotic liver. He stated that he did not see how it would be possible to diagnose between conditions which are due to gallstones and those which are due to local organic conditions of the stomach, such as neuralgia, while, of course, the diagnosis could be made between local gastric pain and that caused by gallstones. He stated that he could not diagnose a gastric ulcer positively without hemorrhage. He believed when the case was under careful comparative examination for some weeks we might be pretty sure of the condition, but when it is only seen once or twice, or when there is no pain or other symptoms, he felt he could only be positive upon the appearance of the blood. J. C. HEMMETER stated that in a number of experiments which he made in washing out empty stomachs, you could see not only the fragments of columnar epithelium, but also the alveolar present, some of which went down into the muscularis mucosa. He believed that erosions did exist. He had demonstrated this pathologically with the stomach of a patient who was never supposed to have had stomach trouble, and in whom a tube had never been passed, yet so soon as the stomach was washed, pieces of the matter came off. Furthermore, he stated that he felt if proper precautions were taken, soft tubes used in the lavage, and still these pieces of membrane were found in the washing water, we are justified in believing that there is some degenerative process in the stomach. J. A. LICHTY stated that he did not believe one could positively determine, either from a chemic analysis or scientific investigation, whether gastric ulcer was present or not. He also believed that there were many cases of unrecognized chronic gastric ulcer, with small and unnoticed hemorrhages, which were responsible for many cases of supposed simple anemia, the true condition not being recognized until there is extensive hemorrhage. The positive diagnosis of gastric ulcer he believed it was very difficult to make, prior to the appearance of the hemorrhage. M. MANGES (New York), while he felt that our diagnosis in cases of gastric ulcer might not always be absolutely correct, yet from the symptomatology without hemorrhage, we have in the vast majority of cases sufficient to make us suspicious, as the question is not a question of extravasation of blood and ulceration of the bloodvessel, but a question of a loss of substance in the gastric wall. MAX EINHORN (New York) stated that while he recognized the fact that occasionally some excoriation might be caused by lavage, but referred to the fact that the particles were continually present in the washing water from some stomachs, no matter how smooth the tube or how much care used; while in others under exactly similar conditions, they would be absent. That such a condition does exist, he believed was further shown by the fact the treatment of such conditions by silver nitrate or other astringent substance will cure the condition and prevent the appearance of such particles. He remarked that hypersecretion might be due as well to nervous attacks as to gastric ulcer. J. KAUFFMAN (New York) stated that while hypersecretion of the gastric juice might in some instances be due to other causes, yet when the Fleishmann symptom-complex was complete, he believed it was undoubtedly due to gastric ulcer. H. W. BETTMANN (Cincinnati) stated that, while it was true as a general rule that digestion leukocytes were present in gastric ulcer and absent in cancer, yet where the ulcer forms a pyloric obstruction, they are also absent, which reduces the value considerably as a diagnostic agent. T. B. FUTCHER stated that the digestion leukocytosis occurred in all five cases reported by him, in which the test was made, this being done in those cases because there was a doubt as to whether the condition was one of ulcer or carcinoma. F. H. MURDOCH referred to the work of Fenwick, who states that hemorrhage occurs in only 18% of gastric ulcer, and believed that if we wait for hemorrhage many of the cases will go undiagnosed, notably among which were the cases related in his paper.

SECOND SESSION.

Medical Treatment in Gastric Ulcer.—S. W. LAMBERT (New York) stated that there were two cardinal points—rest in bed and milk diet, the former having been first recommended by Craveyea, and the latter by Brinton, in between 1850 and 1860. He recommended that the patient be put to bed and all business cares and mental worriment avoided for such a period as the healing of the ulcer may require, which is rarely beyond six weeks, and during which time daily alcohol sponge baths and mild massage of the legs, arms and back are of great value. During the first part of this period, varying from four days in the mild cases to a week or more in the severe ones, nothing should be swallowed except water and pieces of ice. During this period nutrient and saline enemas may be given, the former consisting of eggs, milk, meat broths, etc., which should be predigested by means of pancreatic extracts and soda bicarbonate, and opium may be used to control irritability of the rectum. When feeding per the mouth is started, it should be begun on peptonized milk, in the same manner that infant feeding is conducted during the first two years of life, the methods being outlined in detail. He referred to the fact that there was a tendency in the disease to occur in new situations, as well as to relapse in old ones, and emphasized the necessity for prophylactic diet and mode of life after cessation of treatment. Thorough mastication and slow eating must be insisted upon, and alcohol, spices and highly seasoned foods avoided. The value of bismuth and nitrate of silver was discussed and the use of the stomach-tube recommended, except in those cases where bleeding had frequently occurred. He also considered in detail the various complicating factors, such as constipation, hyperacidity, anemia (for which iron was recommended), pyloric stenosis, and gastric hemorrhage, for which a remedy should be sought that will induce clotting of the blood, for which purpose rest in bed and applications of ice and swallowing of ice are of value.

Surgical Treatment of Gastric Ulcer.—JOSEPH BLAKE referred to the work of Mikulicz, Moynihan, Mayo Robson, and others, stating that his personal experience in operation included only cases of perforation, pyloric stenosis, and hourglass contraction, believing that acute gastric ulcer was essentially a medical disease. He stated that 98% of the cases of perforating gastric ulcer die unless operated upon, and urged the necessity for early recognition and operation in both gastric and duodenal perforating ulcer, stating that he had never lost a case that came to him within 24 hours after the perforation occurred. He stated that his personal experience was limited to 6 cases, 3 of whom died and 3 recovered, the 3 fatal ones being operated on respectively 21 hours, 48 hours and 6 days after the perforation. The cases which recovered were operated on respectively 6, 8, and 48 hours after the perforation, the latter being a case of perforation of the duodenum. He then went at some length into the detail of the procedure, and believed that where stenosis is present, gastroenterostomy is the operation of choice. He then dwelt at considerable length on hemorrhage, reciting in detail his personal experience with five cases and two deaths. He then discussed in detail the various operations, and in conclusion urged early diagnosis and surgical interference.

Classification of Gastric Ulceration and Hemorrhage: Report of a Case of Perforating Angiosclerotic Ulcer.—A. L. BENEDICT (Buffalo, N. Y.) discussed at some length the signification of the term ulcer, and then considered the following types of gastric ulcer: (1) The peptic, or round ulcer, occurring usually from functional or vasomotor disturbance; (2) the erosions due to heat, mechanical erosions, and those produced by radium, such as the röntgen rays and other similar radium forces; (3) ulcers due to organic degenerative disease, such as embolism and angiosclerosis; (4) catarrhal ulcers, analogous to external eczematous ulcers; (5) varicose ulcers, usually due to hepatic cirrhosis and resulting portal obstruction; (6) hemorrhage from the esophagus; (7) vicarious menstruation; (8) gangrenous ulcerations, such ulcers, as a rule, being cancerous; (9) phlegmonous ulcers, either beginning with an ulcer with secondary abscess or beginning with an abscess which may be either metastatic or local; (10) ulcers occurring in specific disease, such as cancers, sarcomas, tuberculosis, syphilis, and possibly typhoid fever, scarlet fever, diphtheria, pneumonia, and exanthematous disease; (11) traumatic lesions, due to external puncturing or crushing wounds. He then reported in detail a case of angiosclerotic gastric ulcer, including the pathologic findings at autopsy.

Discussion.—JULIUS FRIEDENWALD (Baltimore, Md.) presented a specimen showing a **carcinomatous degeneration in an old ulcer**, the case having terminated fatally after the performance of a gastroenterostomy, the patient giving a history of gastric ulcer existing for 20 years with quite a number of gastric hemorrhages. JOHN W. BELL (Minneapolis, Minn.) advocated complete rest for a sufficient length of time to allow the ulcer to heal, during which time nothing should be given but water; he recommended rectal feeding with peptones, and when feeding by mouth was resumed, in view of the fact that curds of milk are frequently vomited, viewed a thoroughly cooked cereal as possibly a better food. F. H. MURDOCH (Pittsburg, Pa.) felt that the curdling of the milk could be avoided by boiling the milk and giving it in teaspoonful or dessertspoonful at a time, so that a glass is consumed in 15 or 20 minutes. He recommended that female patients be put to bed, but that men got along very well without, but must be freed from mental work. He usually makes an examination of the stomach contents in cases of gastric ulcer, and if hyperchlorhydria is present, large doses of bismuth are of avail. He stated that the patient should be kept on liquid diet until the ulcer heals, which has sometimes been as long as six, eight, or even nine months. J. KAUFFMAN (New York) recommended more frequent operation for chronic ulcer. He did not believe that we should wait for hemorrhage before making the diagnosis, as many of the ulcers show no symptoms but pain. M. MANGES (New York) felt that the reason the bismuth treatment failed in many cases was because the dose was too small. He referred to the results achieved by surgery, and considered that gastroenterostomy had an exceedingly low mortality, but remarked the fact, that the operation having been done such a short time, the ultimate results could not be told as yet. FENTON B. TURCK (Chicago) stated that in experiments with gastroenterostomy on dogs he had noticed in many instances that the fistula closed. In rectal feeding he recommended that the enemas be introduced as high up as the iliocecal valve, which would render absorption more easy. MAX EINHORN (New York) stated that he did not employ rectal feeding, except in severe cases, nor as was usual in these cases there is plenty of gastric juice with an excess of hydrochloric acid, he did not think it necessary to peptonize the milk. He felt that the surgical mortality was too high to justify its employment except in cases where medical means had failed, and mentioned as one of the therapeutic agents of value, internal galvanism. S. W. LAMBERT felt that the patients who vomited the curds could not have peptonized milk, and commented highly on the value of gastroenterostomy. JOSEPH A. BLAKE referred to the comparative mortality between medical and surgical treatment and also as to the length of time some of the speakers reported the case to occupy by medical treatment. Adhesions he stated, he believed were due to traumatism and were most likely to occur in an operation which had required considerable handling of the abdominal contents. A. L. BENEDICT, recommended that the gastric contents, vomitus, etc., be carefully examined in cases of suspected gastric ulcer in order to discover whether hemorrhage was present or not, and believed that many mistakes would be made if the diagnosis depended upon pain alone.

[*To be continued.*]

AMERICAN SURGICAL ASSOCIATION.

Twenty-fifth Annual Meeting, Held in St. Louis, June 14, 15, 16, and 17, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 54.*]

Papillary Cysts and Papillary Tumors of the Ovaries, with Consideration of Prognosis and Treatment.—SAMUEL POZZI (Paris, France) read a paper on this subject, in which he summarized as follows: (1) Papillary tumors of the ovary, cystic or solid, must not be considered as always malignant. Some of these tumors never undergo malignant degeneration, and do not relapse after removal. Some relapse after a long time, and locally without metastases; (2) a careful distinction must be made between carcinomatous generalization, which takes place through the lymphatics and bloodvessels, and simple grafts which result from contact or from the growing over the peritoneum of detached papillary vegetations of the ovary. This process is benign, and can be compared to the grafting of papillomas and warts of the skin; (3) some of these tumors undergo a malignant degeneration which is for some time limited, but can later extend all over the mass, and which at last brings on a real generalization with cancer metastases. Before this last period, and at the outset of the malignant transformation, it is quite impossible to discern it with the naked eye, and microscopic investigations are needed. The prognosis is always uncertain in operations of this kind before a thorough pathologic examination. Even such examination may lead to misinterpretation, if it has not been carried all over the tumor, for the degeneration may be limited to a small part of the growth; (4) when positive symptoms of malignancy are absent, such as cancerous cachexia, or visceral metastases, operators must always treat these tumors as if they were benign, and proceed to remove, to the largest extent possible, the neoplasm. The disseminated growths, or even small parts of the papillary tumor detached and lost in the peritoneal cavity, may disappear. In other cases they may be the origin of local recurrence. But these relapses can be treated successfully by secondary operations; (5) frequency of successive invasion of both ovaries by papillary tumors furnishes an indication to remove the adnexa on both sides, even if one is still healthy, at least in women who are near the change of life. In young women it would be better to preserve a nondiseased ovary; (6) in bilateral papillary tumors the operative technic can be greatly improved by performing partial or total hysterectomy, according to the case; (7) drainage is not necessary when the cysts have no outside vegetations, and when there is no ascites. But in case ascites exists for some time, it would be well to drain the peritoneal cavity. Incomplete removal, or even an exploratory section, in unoperable cases, is often accompanied by a real diminution of ascites, with local and general improvement.

Ankylosis Treated by Arthroplasty. Clinical and Experimental.—JOHN B. MURPHY (Chicago) spoke on this subject. He mentioned three types of ankylosis, namely, ankylosis from periarthritis; ankylosis from capsular lesions; and bony ankylosis. Bony ankylosis could be relieved. Tissue could be interposed to prevent the reestablishment of bony union, and with the recognition of the changes which occurred in fat close to the aponeurosis, a joint could be produced with a serous secreting surface. His experimental work had shown that after the removal of the hip-joint in a dog, cartilage, synovial membrane, and the articular surfaces in their entirety, with replacement of tissue in the acetabulum, and replacement of bone again, he had produced a typical synovial membrane in the sense of a hygroma. In the production of hygroma, pressure on fatty tissue had a tendency to bring about a coalescence of the small fatty capsules. The shaft of these capsules produced a serous secretion, and there was developed a condition which was seen in housemaid's knee, over the trochanter of the boilermaker, and over the wrist of the stone-cutter. A serous secreting surface was brought about. This could be done in a joint. The surgeon could restore joints to practically their normal condition. The first case he reported was one of bullet wound of the abdomen. The bullet passed through the abdomen a little to the right of the median line, passed across the abdomen, perforated the intestine eight times, fractured the head of the femur, lodged in a pocket, remained there, worked its way out through ulceration, and was finally voided through the intestine. The wounds in the intestine were sewed up, and the patient recovered, with a sinus. The speaker saw the patient with ankylosis of the leg at right angles. He passed around a skiagraph, which showed bony union. After removing the head of the femur transperitoneally, cureting and removing the bony debris from the ilium, the wound was allowed to heal, and a plan was devised for the restoration of the joint and the relief of deformity. He decided that it was necessary, first, to expose the joint and to secure bony tissue for the new head. Second, it was necessary to interpose between the fragments not only muscle, but fascia, covered with fatty tissue, because the fatty tissue here, subject to pressure, like the fascia lata of the trochanter, formed hygromas. A U-shaped flap was made, carrying with it fascia lata and all the superficial tissue and skin, then the joint sawed from around the trochanter major. None of the muscles was divided. A circular chisel was used to chisel out the bone in all directions, and with the assistance and leverage of the femur and chisel, a fracture was produced at the base of the cavity, and the head, which was new bone formation, as the original head was removed, was thrown out in connection with the neck, rounded off with bone-cutting forceps, and curet used to enlarge the cavity. The next step of the operation was to separate the fascia lata with its fat and a few fibers of the gluteus muscle; a flap was swung in behind the muscular attachments, and the trochanter major put in around the head of the femur and sewed to the neck. The neck was made short to prevent reunion of the fibrous portion of the capsule which remained, because if the capsule remained in its fixed position, the ankylosis would continue, and this was one of the practical points he derived from this particular case. The trochanter major was sutured to the neck, the head replaced, the trochanter major rounded off, the flap turned down, and the wound drained. The result of the operation was ideal. Murphy passed around a photograph, showing the patient as he stood in the erect position, and the degree of flexion obtained at the end of four months after operation. The patient now had perfect motion and flexion. He mentioned other cases on which he had operated by this method, with gratifying results. The method was largely intended for the treatment of joints with ankylosis.

New Aids in Diagnosis of Surgical Diseases of the Kidney and their Value.—A. T. Cabot (Boston) read a paper on this subject. His conclusions from the experience he had had, and from his study of the work of others, were that segregation of the urines was of great use sometimes in deciding the question as to which kidney was diseased, or even as to which was most affected. Determination of the functional capacity of the kidney by testing the elimination through it might be of assistance by adding strength to what evidence we had, but would be often misleading if too implicitly relied upon for deciding operative measures.

Report of a Case of Acute Pancreatitis Associated with Gallstones.—James Bell (Montreal) said that the demonstrated facts in his case were: 1. That in March, 1898, there were all the characteristic lesions, as well as the signs and symptoms of acute pancreatitis, and at the same time an apparently quite healthy liver and gall passage, with two or three stones in the gallbladder. 2. That all signs and symptoms of pancreatitis disappeared, the patient recovering and considering himself quite well until nearly two years later, when a new train of symptoms developed, which were characteristically those produced by gallstones. 3. Three years after the attack of acute pancreatitis, it was demonstrated that while extensive and serious pathologic changes had taken place in the gallbladder, and bile ducts, all local signs of acute pancreatitis had during the same period of time entirely disappeared (subperitoneal fat necrosis, and swelling of the pancreas); that was to say, that acute pancreatitis developed before there were any pathologic changes in the gallbladder and bile ducts, and that while such changes were taking place the pancreatitis was recovered from. These facts would seem to be at variance with modern views of the etiology of acute pancreatitis which tended to attribute this condition in a general way to a pathologic change in the common bile duct due to the passage of gallstones from the gallbladder to the intestine.

Treatment of Congenital Cleft Palate: A Plea for Operations in Early Infancy.—Truman W. Brophy (Chicago) read a paper, by invitation, on this subject. After referring to the work of Lamonier, Kirmisson, Roux, and many others in this field, the essayist stated that after having studied carefully the literature and the methods pursued by other operators, he had endeavored to overcome the objections and to avoid the difficulties with which the older surgeons contended, and he was satisfied that the most desirable time to select for operating was within three months after birth. In operating at that time one was able to secure more satisfactory results than later in life, and avoided the objections usually raised by surgical writers. He believed in operating at as early an age as practical after birth, preferably within three months, and his experience of 20 years in operations performed for the closure of cleft palate, at from 10 days to 50 years of age, including 927 operations, had more and more justified the practice. Among the advantages mentioned in favor of early operations were the following: Surgical shock was less because the nervous system of a young child was not well developed, and it was not, therefore, capable of receiving the same impressions that it would late in life. Furthermore, young children usually reacted better. All mental apprehensions were eliminated, and alarm and dread were among the most powerful factors in producing shock. Following early operations there was much less deformity, for all the tissues, bony as well as soft, developed naturally and according to accepted types. When the operation was postponed for a few years, it was very difficult to secure as good results. When the operation was made in early infancy, the parts were sufficiently developed to give possibility for normal speech when the child had reached a speaking age. The author described his method of operating on cleft palate in detail, a description of which has heretofore been published in both dental and medical journals. In conclusion the author stated that if operations were made later in life, the patient should be placed under the instruction of one who had the perseverance, the ability, and patience to teach him how to overcome the defective speech which he had acquired.

[*To be continued.*]

AMERICAN ACADEMY OF MEDICINE.

Twenty-ninth Annual Session, Atlantic City, N. J., June 4 and 6, 1904.

[Specially reported for *American Medicine.*]

[*Concluded from page 52.*]

Is Equal Treatment of the Sexes Best, or do Girls Require the Same Treatment as Boys?—S. H. Weeks not being present his paper was read by the secretary. Shall a girl receive a college education? That depends entirely upon the girl, just as with a boy. She needs the highest education consonant with good health and proper physical development. Shall she receive the same kind of college education as a boy? As to breadth and thoroughness, yes, but not the same course. Shall she be educated in the same college? The author evidently believes that separate education is best, though many college men, particularly in the West are in favor of coeducation. Physical exercise should be encouraged, but regulated; it should not be too strenuous.

The Gynecologic Aspect of Mental Overstrain at Puberty and its Influence on Development.—W. E. Darnell (Atlantic City) said when the average pubescent girl is in school she has not enough blood in her body to supply the great demand from the brain, and also that needed to supply the rapid growth and development of the pelvic organs. He condemns the present educational system and blames the family physician and mothers for the excessive strain to which girls are subjected during out-of-school hours. It all leads to various neuroses, and finally, a complete breakdown in health.

Effect of Modern School Methods upon the Health of Teachers.—Jane L. Greely (Jamestown, New York) said the nervous strain upon the average teacher is too great, as a consequence she breaks down after 10 or 15 years' work, and is no longer considered capable. Teaching in the early grades is harder on the teacher than is more advanced work, because of the extra effort necessary to keep the child's attention. Teachers should learn to let the child's mind grow, should understand human nature, and should know how to relax from their work and rest. They should understand the true use of a vacation, and should learn how to play.

Discussion.—In the discussion on the foregoing symposium Hall said he believed it often did great good to keep a nervous child out of school for a year or more—not only does it grow physically, but mentally as well. He insisted on the value of manual training. T. D. Davis said one of the great difficulties confronting the teacher is the impossible task of bringing 40 to 60 unequal minds up to accomplishing the same thing. V. C. Vaughan said it is much easier to criticise our public school system than to offer something better and more practical. He does not believe higher education detrimental to the girl. His experience with students shows a greater percentage of illness among young men than among young women students.

The Correspondence Method of Treating Disease.—F. T. Rogers recited a number of instances in which he had personally answered the "ads" of quacks, simply to see what their wiles and tricks are. They are all the same—each simply follows some master in the art of quackery. He is surprised that reputable newspapers and periodicals should accept money from and advertise the nefarious wares of these charlatans. Publicity, the public criticism of men who permit such advertisements in their papers and periodicals is the main hope for the future. We should by every means educate the popular mind against such deceptions.

How May the Public School be Helpful in the Prevention of Tuberculosis?—S. A. Knopf (New York) spoke at some length of the hygiene of the schoolroom, its thorough ventilation, and cleansing, and the educational effect this has upon the child, to say nothing of its good effect in preventing disease. School curriculums should provide, when the weather permits, for out-of-door recitations, and particularly for singing in the open air. School children should be supplied abundantly with leaflets containing printed rules to be observed in the schoolroom and in the home to prevent tuberculosis. By this means they become missionaries, carrying instruction into every home, however humble. Teachers should be familiar with the gross signs and symptoms of tuberculosis, and with those signs indicating a predisposition to tuberculosis. A light luncheon of crackers and milk should be served to school children to upbuild the body.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

BY

S. A. KNOPF, M.D.,

of New York City.

To the Editor of American Medicine:—I am in receipt of a number of inquiries from all over the United States and from abroad, concerning the outcome of the various meetings which have taken place in Baltimore, Philadelphia, New York, and Atlantic City in regard to the formation of a National Tuberculosis Association. Although your esteemed paper brought out a short paragraph concerning the Atlantic City meeting, it must have escaped the notice of many of my correspondents, and I ask you, in the interest of the cause, to publish the following in *American Medicine*:

An American national organization for the study and prevention of tuberculosis has been formed at last. The constitution and by-laws of this new society were adopted on Monday, June 6, at Atlantic City. The objects of the Association, as stated in its constitution, are as follows: 1. The study of tuberculosis in all its forms and relations. 2. The dissemination of knowledge about the causes, treatment, and prevention of tuberculosis. 3. The encouragement of the prevention and scientific treatment of tuberculosis.

The following are the officers of this Association: Dr. Edward L. Trudeau, of Saranac Lake, N. Y., is its first president; Dr. William Osler, of Baltimore, and Dr. Hermann M. Biggs, of New York, are its vice-presidents; Dr. George M. Sternberg, of Washington, D. C., late surgeon-general, is its treasurer, and its secretary is Dr. Henry Barton Jacobs, of Baltimore. The board of directors, in addition to the officers above named, consists of Drs. Norman Bridge, of California; S. E. Solly, of Colorado; John P. C. Foster, of Connecticut; George M. Sternberg, of Washington, D.C.; Arnold C. Klebs and Robert H. Babcock, of Illinois; J. N. Hurty, of Indiana; William H. Welch, William Osler, H. B. Jacobs, and John S. Fulton, of Maryland; Henry M. Bracken, of Minnesota; William Porter, of Missouri; Edward O. Otis and Vincent Y. Bowditch, of Massachusetts; Mr. Frederick L. Hoffman, of New Jersey; Drs. Hermann M. Biggs, S. A. Knopf, Edward L. Trudeau and Mr. Edward T. Devine, of New York; Drs. Charles L. Minor, of North Carolina; Charles O. Probst, of Ohio; Lawrence F. Flick, Mazyk P. Ravenel, H. S. Anders and Leonard Pearson, of Pennsylvania; M. M. Smith, of Texas; George E. Bushnell, of the United States Army Hospital, and Surgeon-General Walter Wyman, of the United States Marine Hospital.

Its membership is to consist of three classes:

1. Members—those who are elected by the board of directors and who pay annual membership dues of $5. 2. Life members—those who pay $200 and are already members of the Association. 3. Honorary members—persons distinguished for original researches relating to tuberculosis, eminent as sanitarians or as philanthropists, who have given material aid in the study and prevention of tuberculosis.

The government of the Association, the planning of work, the arrangement for meetings and congresses, and everything that appertains to legislation and direction, is to be in the hands of the board of directors, and committees are to have the power to execute only what is directed by the board.

The board of directors is empowered, however, to appoint an executive committee of seven members, to which is entrusted the executive work of the Association. This committee, chosen at the meeting in Atlantic City, consists of Dr. Edward L. Trudeau, Dr. Henry Barton Jacobs, Dr. Edward O. Otis, Dr. Mazyk P. Ravenel, Dr. Arnold C. Klebs, Dr. John N. Hurty, and Mr. Edward T. Devine.

The board of directors is empowered to appoint representatives in the International Committee on Tuberculosis. It was decided at the meeting of organization that this representation was to be headed by Dr. Wm. Osler, his associates to be selected later. The board is authorized, also, to appoint such committees as may be necessary for scientific and educational work, and for the holding of meetings and congresses.

Drs. Osler, Trudeau, Biggs, Barrier, Huber, Knopf, Mr. Devine, and others addressed the meeting on the scope of the work which was before the Association. The addresses of the various speakers were received with enthusiastic applause, but the ovation given when Dr. Trudeau appeared on the platform surpassed anything the writer has ever been privileged to witness before. It was spontaneous, genuine, and lasted for minutes. It was a grand tribute from the vast assembly, not only to the pioneer of the sanatorium treatment in America, but to the grand qualities of Dr. Trudeau as a physician, scientist, and humanitarian. Dr. J. M. Barrier, of Delhi, La., in speaking of the fearful mortality from tuberculosis among the negroes, urged the new society to take up also the work of prevention of tuberculosis among the colored population of the United States.

Concerning the character of the new organization, I may be permitted to quote, in conclusion, the opinion of a layman, the editor of *Charities*, the organ of the New York Charity Organization Society:

"There are two conspicuous and equally gratifying features of this national movement. It is thoroughly representative of the leaders of the medical profession; and at the same time there are ample evidences of their determination to make the Association of direct practical value in legislation, in the education of the public, and in bringing about a coordination of philanthropic, medical, and educational agencies for the conquest of the great scourge.

"While the scope of the Association has not been officially outlined, it is evident from the stirring addresses made on the evening of the first meeting, that it will work directly for the better education of the public as to the means by which tuberculosis is communicated; for the erection of hospitals and sanatoriums; for the adoption by local Boards of Health of such measures as have been so effective in reducing the deathrate from the disease in New York City; for the formation of local committees and associations in various communities, and for the intelligent cooperation of State and municipal authorities, private voluntary agencies, and the medical profession.

"The question as to whether a special journal shall be established, was left over for later consideration; but either through a special periodical or through the use of the medical or the lay press, the Association will aim to bring about a practical and beneficial interchange of experiences, and a more intimate knowledge on the part of those who are at work in any community of the measures which have been found effective elsewhere. The executive committee was empowered to select an executive secretary, who will probably be a layman, and as soon as the condition of the Association's treasury warrants it, a determined and aggressive campaign will be opened.

"It will be a source of pride and gratification, not only to physicians but to all who have taken a sympathetic interest in the warfare against tuberculosis, that there now is a national body to which local associations and committees, hospitals and sanatoriums, legislatures and local municipal administrations may turn with confidence for the last word on any disputed subjects, and for encouragement and sympathy for all good work on lines which experience has approved as promising of good results."

The majority of the vast audience present at the Atlantic City meeting were enrolled as members of the new organization.

New Jersey's Deathrate.—In his annual report Dr. Henry Mitchell, secretary of the State Board of Health, urges municipal officers, clergymen and physicians to take more care in the obtaining of vital statistics. The State's deathrate, according to the returns, was lower than in any year except in 1898. The deaths numbered 420 less than last year, while the population increased 2.5%. Dr. Mitchell says there are fewer deaths from tuberculosis and diseases of children because of an improvement in milk supply and the observance of sanitary conditions. Deaths from smallpox are on the increase because of a general neglect of vaccination.

ORIGINAL ARTICLES

FRACTURES OF THE EXTREMITIES: A REPORT OF 1,000 CONSECUTIVE CASES, VERIFIED BY RADIOGRAPHS.

BY

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AND

M. I. WILBERT, Ph.M.,

of Philadelphia.

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The following report includes practically all of the fractures of the extremities received and treated at the German Hospital, Philadelphia, during 1902 and 1903, and may be considered as a continuation of the several similar reports previously published, making a total of 2,500 cases in which the clinical diagnosis has been corroborated, elaborated, or corrected by means of the röntgen rays, during the past eight years. We believe that we have sufficient reasons to assert that the figures embodied in the following report fairly represent the average of injuries of this kind.

If we compare the details of the enclosed tables with the summary of previous reports published recently,[1] we will find that in a general way at least, the figures correspond very closely.

That local or ephemeral conditions may and do play an important part in statistics of this kind must be admitted. This latter fact we believe to be well illustrated in the case of fracture of the carpal bones. We have repeatedly called attention to the fact that the carpal bones are much more liable to serious injury than was generally supposed, and we have also, from time to time, pointed out the conditions that are particularly favorable to the occurrence of an injury of this kind. In this connection it has been asserted that a sudden fall on the overextended or on the flexed hand, directly in line with the shaft of the radius, is more likely to produce a fracture of one or more of the carpal bones than a fracture of the radius or ulna at the lower end. This particular combination not infrequently occurred in falls from the bicycle. With the passing of the latter as a popular sport or means of locomotion, it would be expected that injuries peculiar to the use of the bicycle would be reduced in number. This we believe to be corroborated by the figures presented in the accompanying report.

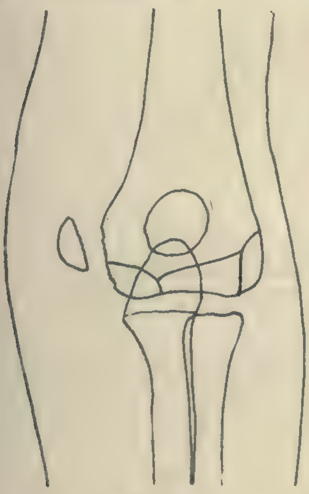

Fig. 1.

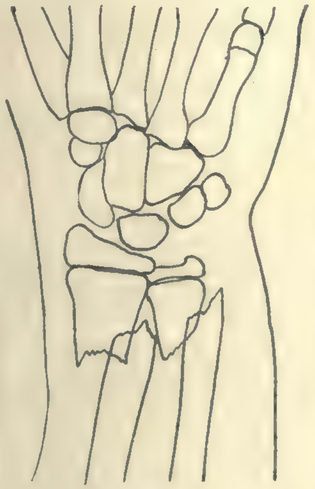

Fig. 2.

Fig. 1.—Outline drawing from Case No. 8,954, shows marked separation of inner epicondyle.

Fig. 2.—Outline drawing from Case No. 6.065, shows deformity usually accompanying a fracture of the lower end of both bones of the forearm in children.

Fractures of one or more of the carpal bones, although still quite common, are not nearly as frequent as they were four or five years ago. There is also a decided decrease in the relative number of fractures about the ankle and foot, two portions of the body that were not infrequently involved in accidents to bicycle riders. With the exception of these more minor details we believe that the figures present a very fair average of the number and kinds of injuries that our osseous framework is subject to at the present time.

Having repeatedly called attention to the desirability and importance of the routine use of the röntgen rays in all cases of injury or suspected injury to one or more of the bones of the body it could hardly be expected that we would allow this opportunity to pass without calling attention once more to this very essential innovation. While it must be admitted that röntgen-ray diagnosis may itself be insufficient or even misleading, if not correctly interpreted, this can hardly be the case when the röntgen-ray examination is made distinct and separate from the clinical examination, and entirely independent of its findings. The advantages derived from this latter procedure are of course that in cases in which the röntgen ray and the clinical diagnosis do not agree the resulting difference of opinion should, and very naturally would, lead to a more careful study of that particular case and a revision of the interpretation of the elicited signs of evidences to make them correspond.

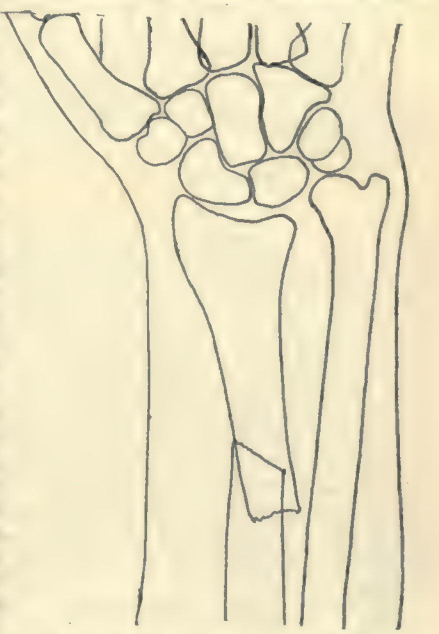

Fig. 3.—Outline drawing from Case No. 8,659, shows deformity at lower articulation, resulting from a fracture of the shaft of the radius.

While this procedure may not be practicable under all conditions it is, or at least should be made available in hospital or dispensary practice, with a view of not only giving the patient the benefit of the most advanced and most rational treatment, but also of preventing, so much as possible, these patients from becoming permanently disabled.

While the appended tables give a very good summary of the several facts and factors involved in these various cases, some comment in addition, may not be out of place.

Of the thousand cases reported here, 642 were of the upper, and 358 of the lower extremities. A total of 517 of the cases involved the right, while 483 involved the left side of the patients.

As in the previously reported series of cases, the discrepancy between the number of male and female patients is quite marked, there being 791 of the former to 209 of the latter, or very near the usually given proportion of 4 to 1.

As might be expected, from figures already published, the greater number of fractures occur between the ages of 11 and 40. This fact alone should serve to call attention to the great economic importance of these injuries and the necessity of making a full and complete diagnosis of each case and treating the patient accordingly.

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[1] *American Medicine*, January 23, 1904.

The variety or kind of fracture most prevalent at the several ages is also of interest, and not unimportant in statistics of this kind. Up to the tenth, or even to the twentieth year, injuries at or near the elbow are comparatively more frequent than any others, and are among the most difficult to diagnose satisfactorily, even by means of the röntgen rays. The reason for this is that the peculiar and varying development of the lower end of the humerus, differing as it does even in individuals of the same age, is likely to be misleading unless both elbows are carefully examined.

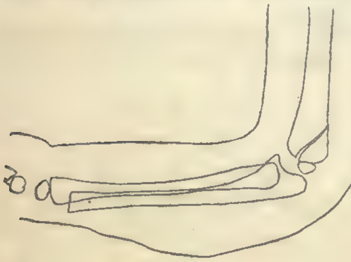

Fig. 4.

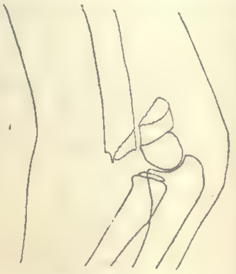

Fig. 5.

Fig. 4.—Outline drawing from Case No. 8,659, showing line of fracture in lower end of shaft of humerus in a child aged 3.

Fig. 5.—Outline drawing from Case No. 8,231, showing location of fracture and resulting deformity in a boy of 12.

While it is true that in by far the greater number of cases the fracture is either sufficiently extensive to be readily recognized, or is distinctly above the epiphyseal line, there is nevertheless a certain number of cases in which the injury is largely if not entirely confined to the epiphysis, and in which the accompanying fracture of the shaft of the bone, if present at all, is so minute as to be readily overlooked.

In older children, particularly in boys of 10 or 12, a marked separation of the epiphysis of the inner epicondyle is not of infrequent occurrence.

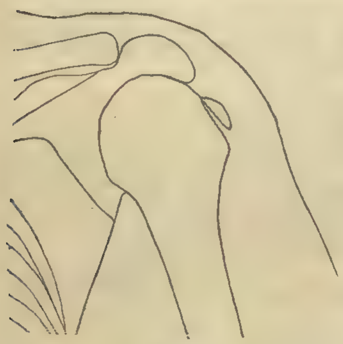

Fig. 6.

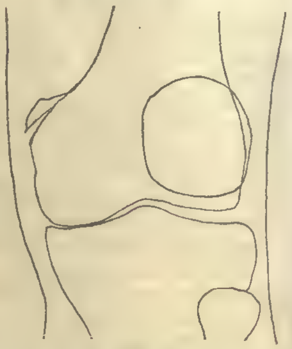

Fig. 7.

Fig. 6.—Outline drawing from Case No. 6,292, showing minute fragment of bone torn from upper and outer portion of humerus; injury in this case accompanied a luxation of the head of the humerus.

Fig. 7.—Outline drawing from Case No. 8,870, showing a fracture of inner condyle of femur, the result of a fall down the hold of a vessel.

This fracture is well shown in Figure 1 and illustrates the nature of this particular injury very well.

We shall have occasion to refer to these fractures again however, in connection with other fractures about the elbow and will take a review of the several items as they occur in the last table.

Of the 131 fractures of the hand, enumerated in this series, 31 were of the phalanges, 97 of the metacarpals, and 3 included both the metacarpals and the phalanges. Of the latter, one patient had a fracture of the proximal phalanx of the first finger and a fracture of the first and second metacarpals, one had a fracture of the proximal phalanx of the first finger and a fracture of the second metacarpal and the third had a fracture of the proximal phalanges of the second and third fingers and of the second, third and fourth metacarpal bones.

Of the phalangeal fractures 7 involved the first, 6 the second, 4 the third, 3 the fourth and 10 the fifth finger, while 1 involved both the second and the third finger.

Of the metacarpal fractures 23 involved the first, 21 the second, 9 the third, 15 the fourth, 24 the fifth, 1 the second and third, 1 the third and fourth, 2 the fourth and fifth and 1 the second, third and fourth.

In addition to the fractures enumerated here, there were also 2 fractures of the metacarpals, 1 of the second and 1 of the third, that were accompanied by a fracture of one of the carpal bones and have therefore been included in the fractures of the wrist, on account of the relatively greater importance of the injury to the carpal bones.

Of the fractures at or near the wrist, amounting to a total of 238, 96 involved the radius alone, 68 were fractures of the radius with an accompanying fracture of the ulna about on the same plane, while 5 were fractures of the lower end of the radius with a fracture of the ulna higher up. There were also 9 simple fractures of the ulna. Of the fractures that were complicated by a more or less extensive injury to one or more of the carpal bones, 16 were of the radius and 6 included both the radius and the ulna. In addition to these there were 34 fractures of one or more of the carpal bones and, as noted above, 2 fractures of carpal bones accompanied by a fracture of one of the metacarpals, making a total of 58 cases in which a more or less extensive injury to the carpus was found.

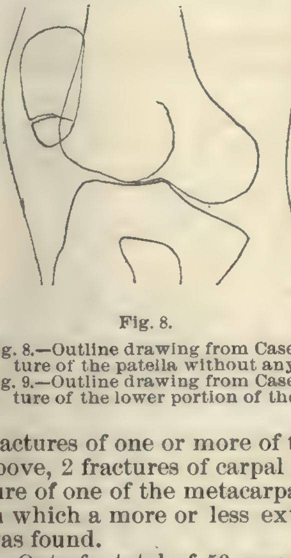

Fig. 8.

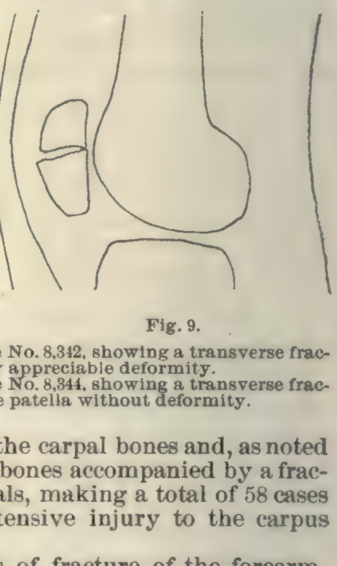

Fig. 9.

Fig. 8.—Outline drawing from Case No. 8,342, showing a transverse fracture of the patella without any appreciable deformity.

Fig. 9.—Outline drawing from Case No. 8,344, showing a transverse fracture of the lower portion of the patella without deformity.

Out of a total of 50 cases of fracture of the forearm, 15 involved the radius alone, 8 were of the ulna and 27 were of both the radius and the ulna.

In this connection it may be said that we have classed all fractures occurring within an inch and a half or two inches of the lower end of the radius or ulna, as fractures of the wrist. This we believe to be warranted by the fact that in all of these cases the natural contraction of the pronator quadratus muscles causes a marked deformity and considerable disarrangement of the lower articulating surfaces of the long bones. Figure 2 illustrates this point very well and also brings to mind another interesting fact: That in children the line of fracture, at the lower end of the forearm, is usually higher up than in adults and results in a deformity that is very much more difficult to reduce or keep in place.

How a fracture of the shaft of one of the long bones may and sometimes does cause considerable trouble at the adjoining articulating surface is well shown in Figure 3. This case illustrates the necessity of taking into account, in the treatment of fractures, the natural functions of each particular part and of striving as much as possible to get a restoration of these normal functions.

Of the 118 fractures at or near the elbow, 74 were in patients under 20, while more than half of these, or 38, were in children under 10. As noted before, considerable care is required in making radiographic examinations of this particular joint, both to avoid missing a serious injury and also to avoid mistaking a normal epiphyseal line for an abnormal or pathologic condition.

The total number of fractures at or near the lower end of the humerus was 74. Of these probably the most common, even in young children, is a fracture distinctly above the condyles or epiphyses. This is shown in Figures 4 and 5, these illustrations also show why in cases in which the fragments have separated, it is not infrequently difficult to bring the parts in apposition or to keep them in position. This is, of course, largely due to the peculiar angle at which the fracture or break has taken place.

Of the remaining fractures of the elbow 24 were of the ulna alone. Of these 18 were of the olecranon process, 3 of the upper end of the shaft, and 3 of the coronoid process.

The 3 fractures of the upper end of the shaft of the ulna were in children, one of them 3 and the other two 5 years of age. In addition to these fractures of the ulna there were 6 fractures of both the radius and the ulna and 12 fractures of the radius alone. An additional 2 cases of fracture of the lower end of the humerus were accompanied by a fracture of the upper portion of the ulna.

Of the 12 fractures of the humerus, in this series, all occurred in males and were distributed in all decades from 1 to 80; the youngest patient being but 6, while the oldest was 82. Of the 93 fractures at or near the shoulder, 27 were of the upper end of the humerus, 31 of the scapula, 8 of the humerus and scapula, 1 of the humerus and clavicle, 2 of the scapula and clavicle and 24 of the clavicle alone.

Many of these fractures at or near the shoulder, as illustrated by Figure 6, while not extensive are of themselves of such a nature that if not recognized and treated might cause considerable, and even permanent impairment of function.

In this connection too it may be well to call attention again to a very marked discrepancy usually contained in books on fractures. By far the greater number of authors speak of fracture of the clavicle as being comparatively very common. According to Stimson and others this injury constitutes 15% of all fractures, or about 19% of fractures of the extremities. In this particular series of cases the total number of injuries in which the clavicle was involved gives but a total of 2.7%.

Here again it is quite probable that local conditions have played quite an important part, Hamilton, for instance, quotes the carrying of heavy loads and the recoil from overloaded guns as being among the more prominent causes of fracture of the clavicle. As neither of these conditions may be said to prevail to any appreciable extent in modern city life, it will be seen how accidents from these sources have been entirely eliminated.

Of the fractures of the upper portion of the femur, 21 were of the head and neck, and eight of the shaft of the femur above the lower third.

At the knee there was a total of 64 fractures, of these 9 involved the lower end of the femur, 30 the patella, 2 the patella and tibia, 2 the tibia and femur, 3 the tibia and fibula, 6 the tibia, and 2 the upper portion or head of the fibula.

Fractures at or near the knee are not by any means as readily recognized as textbooks would lead one to believe. Figure 7 illustrates a type of fracture that is not at all infrequent. An injury of this kind may be brought about by various causes, and would, under ordinary conditions, be extremely difficult to recognize.

Even fractures of the patella are at times misleading. It frequently occurs that there is little or no separation of the fragments. In a transverse fracture of the patella this is due to the fact that the lateral aponeurotic structures have not given way and still hold the fragments quite closely together. This condition is well illustrated in Figures 8 and 9.

Of the 39 fractures of the leg, 15 were of the shaft of the tibia, 7 of the fibula, and 17 involved both the tibia and fibula.

The 146 fractures at or near the ankle-joint included 62 of the outer malleolus, 22 of the inner, and 40 of both the tibia and the fibula at the lower end. In addition to these there were 21 fractures involving one or more of the tarsal bones, and one of the tarsus accompanying a fracture of the lower end of the fibula. Of these tarsal fractures 15 were of the os calcis.

Injuries involving the ankle-joint are among the most trying with which the medical practitioner has to contend. It not infrequently occurs that a patient who has met with a slight mishap, falling and twisting or spraining his ankle, consults a physician, and because he can move his foot, and even walk on it with but slight inconvenience, insists that it is but a slight sprain or contusion, and positively refuses to have the joint immobilized or properly treated.

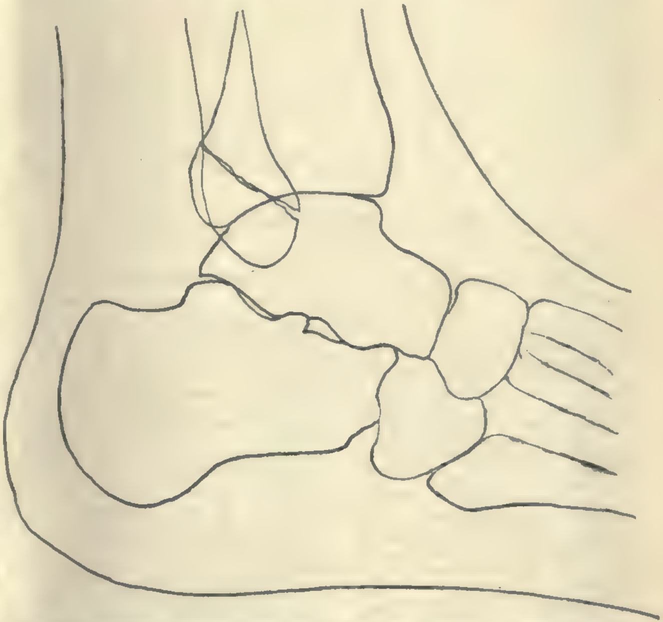

Fig. 10.—Outline drawing from Case No. 8,270, showing a characteristic fracture of the lower end of the fibula.

Dr. Percival Potts, in his "Remarks on Fractures and Dislocations" was probably one of the first to call attention to the important function of the lower end of the fibula, in connection with the full use of the ankle-joint.

Potts points out that the lower end of the fibula is firmly connected with the lower end of the tibia and the astragalus by firm and rather inelastic ligaments, and that in cases of fracture of the lower end of the fibula, or of rupture of the ligaments attaching it to the tibia and astragalus, there would be a tendency for the foot to slip off, or be displaced from the lower end of the tibia.

The most characteristic fracture at the lower end of the fibula is one that is of rather a different nature from that pictured by Potts in his dissertation on fractures, but is nevertheless quite as important. It involves the lower and posterior border of the fibula and the line of fracture is usually oblique, as shown in Figure 10.

It will no doubt be generally conceded that a fracture at this point not only carries with it all of the possibilities of a possible luxation, as pointed out by Dr. Potts, but would also, if allowed to go unheeded, be likely to cause considerable interference with the prompt and

TABLE NO. 1.—GIVING THE SEX AND THE SIDE INVOLVED IN THIS SERIES OF 1,000 CASES OF FRACTURE OF THE EXTREMITIES.

Part.	Sex.		Side.		Total.
	Male.	Female.	Right.	Left.	
Hand	121	10	77	54	131
Wrist	156	82	103	135	238
Forearm	36	14	23	27	50
Elbow	90	28	59	59	118
Humerus	12	....	6	6	12
Shoulder	69	24	55	38	93
Thigh and hip	21	8	15	14	29
Knee	53	11	34	30	64
Leg	35	4	18	21	39
Ankle	121	25	78	68	146
Foot	77	3	49	31	80
Total	791	209	517	483	1,000

TABLE NO. 2.—GIVING THE APPROXIMATE AGE AT WHICH THE INJURY OCCURRED IN THIS SERIES OF 1,000 CASES.

Part.	1-10	11-20	21-30	31-40	41-50	51-60	61-70	Over 70	Perc'nt
Hand	5	39	32	30	12	7	4	2	13.1
Wrist	10	41	43	40	42	41	18	3	23.8
Forearm	13	18	3	5	4	5	1	1	5
Elbow	38	36	15	10	9	8	2	....	11.8
Humerus	1	1	3	2	1	2	1	1	1.2
Shoulder	8	10	17	13	24	10	8	3	9.3
Hip	....	1	2	1	5	5	1	6	2.1
Thigh	5	1	....	1	1	....	....	....	.8
Knee	2	6	20	20	12	3	1	....	6.4
Leg	6	5	11	10	4	2	1	....	3.9
Ankle	9	19	28	45	19	21	5	....	14.6
Foot	1	12	31	13	20	2	1	....	8
Total	98	189	205	190	153	106	43	16	100

TABLE NO. 3.—A SUMMARY OF THE FRACTURES REPORTED IN THIS SERIES.

Upper extremity.			Lower extremity.		
Hand		131	Hip and thigh		29
Phalanges	31		Hip	21	
Metacarpals	97		Thigh	8	
Phalanges and metacarp'ls	3		Knee		64
Wrist		238	Femur	19	
Radius	96		Patella	30	
Radius and lower end of ulna	68		Patella and tibia	2	
Radius and ulna higher up	5		Tibia	6	
Ulna	9		Tibia and femur	2	
Carpus	34		Tibia and fibula	3	
Carpus and radius	16		Fibula	2	
Carpus, radius and ulna	6		Leg		39
Carpus and ulna	2		Tibia	15	
Carpus and metacarpals	2		Tibia and fibula	17	
Arm		50	Fibula	7	
Radius	15		Ankle		146
Radius and ulna	27		Inner malleolus	22	
Ulna	8		Outer malleolus	62	
Elbow		118	Both malleoli	40	
Humerus	74		Tarsus	21	
Radius	12		Tarsus and fibula	1	
Ulna	24		Foot		80
Radius and ulna	6		Metatarsal and tarsal	15	
Humerus and ulna	2		Metatarsal	35	
Arm		12	Metatarsal and phalanges	2	
Humerus shaft	12		Phalanges	28	
Shoulder		93			
Humerus	27				
Clavicle	24				
Scapula	31				
Humerus and scapula	8				
Humerus and clavicle	1				
Clavicle and scapula	2				

complete restoration of the use of the part, by excessive callous formation, or by the inflammatory exudate that is usually a sequence to injuries at or near a joint.

Of the 80 fractures of the foot, 35 were of the metatarsal bones, 28 of one or more of the phalanges, 15 of the metatarsal and tarsal, and 2 of the metatarsal bones, including one or more of the phalanges.

Tents for the Tuberculous in Illinois.—With the object of demonstrating that pulmonary tuberculosis, if not too far advanced, can be cured in the climate of Illinois, a tent colony is to be established at Ottawa, Ill., under the care of the Illinois Medical Society. Men and women patients will be received. The colony will be open summer and winter alike. Each tent will contain one or two sufferers. The tents will be waterproof, but the freest circulation of air will be allowed, so that the patients will live an outdoor life day and night.

OBSERVATIONS ON SMALLPOX PREVAILING IN PENNSYLVANIA SINCE 1898.

BY

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of Lewisburg, Pa.

Member Pennsylvania State Board of Health; Chairman of the Committee on Preventable Diseases.

Since 1898, there has prevailed in Pennsylvania, and generally throughout the United States, a type of smallpox, so mild that physicians and laymen alike have seriously asked: "Is it indeed smallpox?" Dr. Wm. M. Welch, of the Municipal Hospital, in Philadelphia, writing in 1899 of the smallpox of that year, said that, after an experience of 29 years and after a study of over 5,500 cases, he had never before seen this disease so uniformly mild.

Because this disease appeared to have been brought from the West Indies by our troops returning from the Spanish-American war, many have thought that climate in the tropics has modified the severity of smallpox, and hence they have called the disease now prevailing in the United States "tropical" or "subtropical" smallpox.

Is this correct? Have we not always had cases of mild smallpox?

I saw my first case of smallpox in Sunbury in 1880. It was of this type. In 1893–94 in Reading, Pa., occurred 713 cases, with 18 deaths. Neither physicians nor laymen ever came to an agreement as to the nature of the disease there, although the State Board of Health pronounced it true smallpox. In Danville, 1893, occurred 74 cases, with 4 deaths. The disease was there called "continued eruptive fever." It was diagnosed smallpox first by Dr. Wm. Leiser, Jr., of Lewisburg. In 1895, 9 cases and 1 death occurred at Ashbourne, Montgomery county, Pa. In 1894, this mild disease appeared in 52 different places in Pennsylvania. In 1898–99, 1,429 cases occurred in the State, with 18 deaths. Later the disease prevailed at: Jersey Shore, 120 cases, no deaths; Lanesboro and vicinity, 82 cases, no deaths; Amoy, Wayne county, 70 cases, no deaths; Scranton, 188 cases, 5 deaths; St. Marys, 100 cases, no deaths; Johnstown, 180 cases, 6 deaths; Cross Forks, 124 cases, no deaths; South Fork, 50 cases, no deaths; Hontzdale, 48 cases, no deaths; Shamokin, 150 cases, no deaths; Gilberton, 25 cases, no deaths; Myerstown, 100 cases, no deaths; Allentown, 205 cases, 1 death; Carbondale and vicinity, 25 cases, no deaths; McKeesport, 71 cases, 1 death; Glenshaw, 60 cases, no deaths; Altoona, 51 cases, 1 death; Parryville, 56 cases, no deaths; Erie, 62 cases, no deaths; Columbia, 130 cases, no deaths; Lebanon, 128 cases, 1 death; East Stroudsburg, 100 cases, no deaths; Shinglehouse, 52 cases, no deaths. This list could be greatly lengthened in Pennsylvania during the past three years.

Varieties of Smallpox.—Dr. Benjamin Lee, in a recent excellent article on "The Types of Smallpox," enumerates nine forms of the disease: (1) Natural discrete smallpox; (2) natural confluent smallpox; (3) modified smallpox; (4) modified confluent smallpox, or confluent varioloid; (5) hemorrhagic, or black smallpox; (6) hemorrhagic vesicular smallpox; (7) pseudohemorrhagic smallpox; (8) smallpox without eruption; (9) the present mild form of smallpox.

The great authority, Hebra, quoted by Pepper in his "Practice," gives a longer list, viz.: Variola siliquosa, V. pemphicosa, V. verrucosa, V. crystallina, V. papulosa, V. conica, V. globosa, V. acuminata, V. globulosa, V. tuberculosa, V. cornea, V. fimbriata, V. milaria, V. lymphatica, V. vesculosa, V. pustulosa, V. rosea, V. morbillosa, V. carbunculosa, etc. The disease, as we see it today, has received almost as many names, some of which are: Cuban itch, Cu-be-an itch, Italian itch, Hungarian itch, elephant itch, kangaroo itch, the bumps, impetigo contagioso, purpura hæmorrhagica, chickenpox, bold hives, varicella, Filipino measles, eruptive grip beanpox, waterypox, swinepox, that new disease, a cross between smallpox and chickenpox, erythema, pneumonia, pleuropneumonia, continued eruptive fever, typhoid fever, scratches, recurrent chickenpox, Italian eczema, pustular eczema, yaws, yarrows, rubeola, eruptive influenza, petechial fever, "I don't know what in the devil it is, but it is not smallpox," blood-poisoning, scarlatina. While the laity probably coined most of these names, the profession with alacrity adopted them, in this case abandoning the teachings of the fathers in medicine for old woman's fables. Hemorrhagic smallpox has been called "bloodpoisoning," "scarlatina," and "pleuropneumonia" in Pennsylvania in 1904. When asked why he does not think the disease smallpox the dissenting physician says:

1. "Because no one dies. Smallpox kills about 40% of its victims, Osler and Tyson say so." It is true that Osler and Tyson say that from 25% to 35% of those who contract smallpox die. But both those authors are describing only confluent smallpox and nearly ignore the discrete type. Tyson writes as though he did not know the disease personally and was only compiling. One would not suspect that Osler knew the disease, except that he tells that he had been in the Montreal epidemic of 1884. There is this noteworthy difference between the new and the old textbooks so far as the discussion of smallpox is concerned. The old writers speak as though they knew smallpox from start to finish, for as one of them says: "Smallpox is so universal that scarcely any person escapes having it at some time during his life."

Let us see what some of the older writers say of smallpox. Sydenham,[1] London, 1710: "There are two kinds of smallpox, the distinct and the running, commonly called the fluxed. On the fourth day inclusive from the beginning, and sometimes later, but rarely sooner, the pox breaks out, at which time the symptoms either abate or entirely disappear. The distinct smallpox is void of danger." Sydenham[2] says that in 1670, 1671, 1672, 1674 and 1675 there appeared in England an anomalous or irregular smallpox, which was by many thought to be a new kind or a new disease. Truly, there is nothing new under the sun. Mackintosh[3] says: "When properly treated distinct smallpox is very rarely fatal, everything depending upon the state of the lungs and brain." Dunglison[4] says: "Distinct smallpox very rarely proves fatal." Ziemssen[5] remarks: "From modified smallpox alone healthy adults hardly ever die." Dr. George Gregory,[6] of London, England, says: "Distinct smallpox is a disease of little or no danger." Edwin Lancaster,[7] M.D., F.R.S., states: "Discrete smallpox is the simplest form of the disease, and is rarely attended with danger to human life." Birmingham[8] says: "The discrete variety of smallpox is seldom fatal." Tanner[9] says: "Discrete smallpox is seldom attended with danger." A. B. Palmer[10] says: "In the mildest forms of smallpox, treatment is scarcely called for." George M. Beard[11] says: "Mild or distinct smallpox seldom proves fatal, but the malignant variety almost universally proves fatal." Thomas[12] says: "Distinct smallpox is not attended with danger, except as it approaches the confluent form." George B. Wood, former Professor of Practice of Medicine, University of Pennsylvania, said: "The distinct smallpox, when uncomplicated, is seldom fatal." John Mason Good[13] says: "The present writer caught smallpox casually in London when about 6 years of age, and passed through it with scarcely any disturbance and with not more than 20 scattered pustules." Dewees[14] says: "The Distinct variety of smallpox is rarely or never fatal." Roberts[15] says: "When an eruption appears the primary fever abates rapidly, so that the temperature falls nearly or quite to the normal in moderate cases; the patient feeling quite well." Erasmus Wilson, 1846: "During the prevalence of smallpox the variolous contagion develops itself in a variety of forms, some of which are remarkable for their severity, and others for their exceeding mildness. At times no eruptions at all appear.

But some of our most recent writers have not failed to call attention to the prevailing type of smallpox. Dr. W. M. Welch, in an address in 1899, very fully described the present disease from an experience with 728 cases, in not one of which death occurred. Dr. N. F. Davis[16] says: "In cases properly diagnosed as distinct or discrete variola, the patients quite uniformly recover. In cases with small eruptions on face the patients generally recover." Corlett[17] says: "In most cases of discrete smallpox the patients recover."

2. "An objection is made that there is no secondary fever." R. Thomas[18] says: "In the distinct smallpox there ensues little or no secondary fever."

In his works already cited Dr. George B. Wood says: "Secondary fever may be quite wanting." Lancaster says: "It is scarcely perceptible." Cullen,[19] of Edinburgh, in 1805, says: "Secondary fever sometimes follows distinct smallpox," and in a footnote he remarks: "In the distinct smallpox secondary fever seldom occurs." Corlett,[20] 1903, says: "Secondary fever very rarely occurs in the mild forms of smallpox." Watson[21] says: "Secondary fever is slightly marked in distinct smallpox." Tanner,[22] 1874, remarks: "Secondary fever is slightly marked in discrete smallpox." Dr. W. M. Welch:[23] "Secondary fever is not seen at all in the great majority of cases." W. Cullen, 1781: "Secondary fever does not always follow the discrete form of smallpox."

3. "There is no odor of smallpox." On this point Corlett[24] in his recent work says: "That there is a distinguishing odor to smallpox I have never been able to confirm. An equally extensive suppuration of the skin from other causes, with like inattention to cleanliness, will, according to my observation, give rise to the same nauseating stench." Again he says, that after 18 years' study, he has been unable to make out any distinctive odor. My own observation is that the odor only occurs in severe cases, when the patients are confined in warm rooms or in bed. I can make nothing characteristic out of it. Dr. Wm. Leiser, Jr., of Lewisburg, now attending a severe confluent case, says he cannot discover anything characteristic in the odor.

4. "There is no pitting." There is some pitting, though not much. In Philadelphia from 1% to 2% of the patients are perceptibly pitted. This lack of pitting is doubtless explained by the better sanitary conditions now generally prevalent. The pits are the result of an outside infection, in all probability. Osler[25] quotes and approves, but does not give authority: "It is very rarely the case that distinct smallpox leaves its mark." One gathers as much from many of the old authorities. Even in olden times, we are told, only every third person was marked. If all then had smallpox, 66% must have escaped without marks.

5. "The pustules are not always umbilicated." This is not a constant characteristic. The old writers do not claim it. "In varioloid, all landmarks are wanting."

6. "The eruption comes in crops, and in that, it resembles chickenpox." The idea that the eruption of smallpox occurs over the whole body simultaneously is erroneous. It generally begins on the face, and is frequently three days in reaching the feet. The "crops," socalled in smallpox, are not a reality, but only seemingly so. They are occasioned by the vesicles and pustules aborting at several stages. This causes an appearance much like crops of pustules or vesicles.

7. "It cannot be smallpox, because there is not enough eruption. There cannot be smallpox unless the body is covered with the eruption." This is an error. All the old authorities speak of sparse eruptions or none at all. Erasmus Wilson[26] quotes: "There may be no eruption at all, or the spots may be few and distinct." Strümpell[27] says: "There may be no eruption at all.

There are abortive cases, which recover with remarkable rapidity." There have been many cases reported in Pennsylvania the past year without any eruption.

Let us now see what some authorities say of distinct or discrete smallpox, our "mild" or "tropical" variety of the disease.

Dr. A. B. Palmer,[28] for many years professor of the practice of medicine in Michigan University, writes: "Many varieties of smallpox are mentioned. We have already seen that many cases are particularly mild throughout, and it is sometimes with difficulty that the patient can be kept within doors and isolated. He has but little suffering himself, and is remarkably indifferent to, or unconscious of the danger to which he exposes others by his presence among them, not seeming to realize that the mildest case may propagate the disease in its severest forms. Other exceptional cases may occur, as already stated, when the usual symptoms of invasion are followed by a few pocks, which soon dry up and disappear. In still other exceptional cases, the disease appears in the usual way, and the pocks are numerous but discrete, yet at the period when suppuration usually takes place, the vesicles dry up. In neither of the cases is there any secondary fever, and recovery is speedy." This peculiarly well describes the disease in Pennsylvania.

Dr. Geo. B. Wood,[29] professor of materia medica, University of Pennsylvania, 1847, said of distinct smallpox: "The secondary fever frequently develops on the eighth or ninth day, or may be quite wanting. Many of the pustules, instead of forming a regular scab, shrink away, in consequence of absorption of their contained fluid, and nothing but a pellicle of cuticle is left, which separates by desquamation. Between certain cases of varioloid and chickenpox there is absolutely no observable difference in appearance of the eruption." Watson,[30] 1838: "The severity of smallpox is almost always in direct relation to the quantity of the eruption. Sometimes there are not more than half a dozen pustules, sometimes there are many thousands." Similar statements are found in most of the old books. "Connected with smallpox, and arising from the same contagion, there are several forms of eruptive disease. I have mentioned the chief of these as varieties of modified smallpox. Now, these mild and irregular forms of variola, both parents and medical men wishing, I suppose, to believe nothing in disparagement of the protecting power of vaccination, are very apt to consider and to call 'chickenpox.' There is no doubt that an eruption of short duration, and vesicular through the greater part of its course, is often caused, especially in persons who have been vaccinated, by the contagion of smallpox." (Watson.[31])

John Eberle[32] says: "Modified smallpox is no new disease, having been observed and described for centuries past under the names of 'chickenpox,' 'horsepox,' 'swinepox,' etc. Matter taken from a modified pustule has produced genuine smallpox. In its mildest form it is scarcely distinguished from 'chickenpox.' The distinctive characteristics are: Pustules distinct, elevated, distended, circular, the intervening spots being red, and the fever closing when the eruption is completed." This form of the disease is characterized by the following features: 1. The eruption appears in successive clusters, and at uncertain periods after the beginning of the fever. 2. The vesicles seldom, if ever, enter into complete suppuration. 3. There is no secondary fever. 4. The drying off or scabbing occurs generally between the fifth and seventh days, the scabs falling off as early as the eighth or ninth day. 5. They leave no pits, but red discs or elevations.

Flint,[33] 1873, says: "Smallpox is modified in a certain proportion of cases, spontaneously, that is, irrespective of vaccination. These cases were seen previous to the practice of inoculation, or vaccination. The secondary fever was absent, and the constitutional disturbance small. Yet the mildest cases could give rise to malignant cases of smallpox."

Ziemssen,[34] 1875, says: "It is important to observe that many persons are only attacked by varioloid because apparently of a naturally slight susceptibility to smallpox contagion. We find accordingly frequent mention made of cases in which the disease was an extremely mild case. Only occasionally is there secondary fever in this mild form. Abortive pocks are characteristic in all stages of the mild disease. From varioloid alone, healthy adults hardly ever die."

John Huxham, 1787, London, says: "Though the contagion of the smallpox produces the same specific disease, yet the degrees of that disease are vastly different. Even the same contagion in the same house, family, or village, frequently produces very different kinds of pox, some extremely mild and distinct, some highly malignant and dangerous. We see innumerable instances in which the first seized shall have a very formidable kind, the subsequent a confluent, malignant, and fatal. This is every day's experience and yet amid all this, and from the very worst, intermediate instances happen of the most benign. So that it is quite demonstrated that the consitutions of particular patients greatly diversify the succeeding disease. And so it is in all cases."

Transmission of Smallpox.—Experience seems to show smallpox to be a contagious rather than an infectious disease; that is, the special contagion must come in direct contact with an individual to produce the disease. Commonly, the sick person himself conveys this material directly to the well. The disease is markedly contagious within the limits of the family. In no case has a physician, nurse, or inspector been known to convey the disease, within my experience.

Period of Contagiousness.—The period of contagiousness is from the time the fever appears until the patient is absolutely well. However, it is probably true that the disease is more contagious in the early stages rather than in the later ones.

Quarantine.—The sick must be kept in isolation until absolutely well. In the mild cases now prevailing, 30 days has proved a sufficient period for quarantine. A less period has been followed by outbreaks of the disease. Suspects must be held in quarantine for 15 days, for even when vaccinated some of them will develop varioloid, and varioloid will develop smallpox. To vaccinate households and to turn them loose, means to keep smallpox alive indefinitely. The quarantine must be absolute.

Diagnosis.—It is to be remembered that before the eruption is established it may be impossible to establish a diagnosis. It is to be remembered always in doubtful cases that chickenpox is a disease of children, and very rarely seen in adults. Corlett has not seen a case of chickenpox in an adult in 18 years. He quotes numerous authorities to the same effect.

Fumigation and Disinfection.—In no case has the disease broken out in a house where the quarantine was maintained for 30 days, or until the patients were absolutely well. Houses have been fumigated with formaldehyd gas. Furniture, beds and clothing have been fumigated, but not destroyed. Our belief is that the germ of smallpox dies a natural death in between 20 and 30 days, and that a large part of the fumigation and disinfection now practised is superfluous and an unnecessary expense.

Management of an Epidemic.—A local health board must at once be organized. A fearless health officer is a first necessity. Vaccination should be made free and compulsory. All eruptive diseases of whatever kind must be reported to the local health board by physicians and heads of families, under a heavy fine for neglect. Without this rule enforced, it is impossible to stamp out the mild type of smallpox. Isolation of the sick and of suspects must be absolute.

A municipal hospital is a great aid in fighting smallpox, but patients can be managed in private families without danger of spreading the disease.

In an epidemic, every one not vaccinated successfully within five years should have the operation repeated until successful. Boards of health should insist that no certificates are given until a successful result is obtained. While vaccination should produce a constitutional disturbance it should be a disgrace for a physician to produce an infected arm. Patients and parents, in the case of children, should be instructed to scrub the arm with soap and water, as a preparation for vaccination. The use of shields should be discouraged.

Prevention Cheaper than Cure.—Recently in Williamsport it cost the city $284 for each of 18 persons who had smallpox, or $5,132; 3,499 persons were vaccinated at a cost of 29 cents each. Every successful vaccination prevented one possible case of smallpox, or a possible expense of $284 was saved by the expenditure of 29 cents.

Vaccination.—Successful vaccination prevents smallpox. Mere scratching the arm is not vaccination in the true sense of the word. We need a new term to describe the operation. The physician who has infected arms following his vaccinations is the greatest enemy of vaccination. To issue a certificate of vaccination before it is known that the operation is successful, should be made a criminal offense. Medical societies should deal with offenders in the same manner as they handle abortionists.

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Large Stores Provide for Sick.—Small hospital wards are the latest features among the comforts and conveniences of the shops in a big city. In some of the shops there are trained nurses always in attendance, and in others perfectly equipped doctors' offices, where all sorts and kinds of ailments are treated, minor surgical operations performed, and in special emergency cases, future shoppers are assisted into the world amid surroundings eminently appropriate. In every shop of any importance there is a parlor where shoppers may retire to rest, write letters on the pretty stationery furnished by the establishment, and perhaps read the papers of the day, also provided by the same thoughtfulness. The old-time roller towel in most of the shops is replaced by the individual towel, which the tired and dusty shopper throws aside when she has dried her warm face, and it is quickly carried away by the white-capped maid in attendance. It is not strange that there should also be adequate means provided to give assistance in cases of temporary and sudden illness or accident. This medical service is not only for the patrons of the shops, but for the employes as well. The ordinary department store employs such large armies that it is possible to engage a physician to devote the whole or the greater part of his time to the work.

THE CAROTID BODY: ANATOMY, HISTOLOGY, EMBRYOLOGY AND TUMORS ARISING FROM IT.[*]

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HISTOLOGY AND ANATOMY.

The first intimation as to the existence of this organ was in all probability given us by Haller,[1] who, in 1743, wrote of the "de vera intercostalis origine," and again, in 1744, of "de nervorum in arterias imperio." Newbauer,[2] in 1772, clearly refers to such a body in his "descriptio nervorum cardiacorum." Andersch[3] gave us a practical description of the organ in 1751, although his work is recorded in "tract anatomico-physiologico," 1797. After that date the body was overlooked by many distinguished anatomists until 1833 when Mayer[4] recognized that beside two or three cervical ganglions there are other small ganglions in the neck which had been found and described by several authors and which are more or less intimately associated with the sympathetic nervous system. Another ganglion of more importance, and according to his knowledge not previously described, was the structure now called the carotid body which he located in the angle formed by the bifurcation of the carotid. It is the size of a grain of rice, oval in shape, red, firm and vascular. In structure and consistency it resembles the superior cervical ganglion. By means of a small band it is attached to the carotid at the bifurcation. The body is in relation with the "nervis mollibus," formed by a plexus from the superior cervical ganglion; a branch from the glossopharyngeal nerve, after sending a branch to the "nervis mollibus" penetrates the ganglion; before entering the ganglion, however, it receives another branch from the vagus. In order to find the ganglion one need only remove the common carotid together with about an inch of the internal and external carotids. Mayer found the ganglion in horses and in calves in the bifurcation of the common carotid; in calves the relation between the ganglion and the "nervis mollibus" is greater than in the human being. Mayer says the ganglion intercaroticum in its relation, its form and its texture may be likened to the celiac axis.

In the same year Valentine[5] described the body as pear-shaped, the apex of the pear pointing downward; it is gray in color and of firm consistency, and difficult to free from the surrounding structures. After maceration the internal structure is composed of reddish-white fibers, bands or septums which are interlaced and held together by fibrous tissue. The greater the angle of the carotid bifurcation the more superficial the organ. Maceration in water, continued for several days, dissociates its capsule and makes clear its internal interlacing structure and the ganglionic character of the organ. Valentine believed the carotid ganglion received communicating branches from the vagus. Branches are given off from both sides of the gland, part of which goes to the artery and the other part unites with the "nervis mollibus" so the gland is completely encircled with nerves. The band uniting the carotid body to the carotid artery, by microscopic examination, is found to be made up of nerve fibers.

Luschka,[6] in 1862, gives us the first microscopic description. He says the carotid body is not a ganglion in the ordinary sense of the term, but that it is a gland-like appendage, or part of the sympathetic structure of the neck. It is surrounded by adipose tissue and a sheath from the adventitia of the carotid, which must be cut before the gland becomes visible. It is connected with the common carotid by means of a band of elastic tissue, which becomes lost in the tunica media of the artery. The gland is firm and elastic; if compressed between two glass plates and examined with a lens, it is found to be composed of large and small spaces bordered by thick walls; the external portion of the walls is associated with the fine connective-tissue substance containing many oblong cells. He divides the spaces into two types, one vesicular, the other tubular. The tubules can be traced some distance; their course is usually very irregular and they lie between the vesicles. The vesicles and tubules contain round, granular, clear, and nucleated cells. Occasionally the cells in the vesicles resemble cylindric epithelium. He did not find any cells clearly ciliated, although some resemblance to ciliation could be detected. The arrangement of the cells in the vesicles and in the tubules is irregular; some, however, simulate the arrangement of the epithelium. The stroma of the organ contains many cells like those in the vesicles, either isolated or grouped. The organ, he says, receives its blood supply from the common carotid by means of a single branch, which divides and subdivides; the branches penetrate the organ and become lost in the stroma. He has never been able to find a capillary network.

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[*] From the laboratories of the Jefferson Medical College Hospital Read before the Pathological Society of Philadelphia, April 14, 1904.

Between the internal and the external carotid, Luschka finds a twirl of nerves, which he calls the intercarotid plexus, and which, he says, is made up of fibers from the superior laryngeal, the glossopharyngeal, and a number of branches from the superior cervical sympathetic ganglion. He believes the purpose of this plexus is to unite the sympathetic and the cerebrospinal nerves. So far as his observations go, the fibers from the superior cervical ganglion to the carotid plexus are related to the carotid gland; they also pass to the external carotid and its branches, as rami vasomotorii. In the substance of the carotid gland the nerves break up into a network, which penetrates the vesicles and tubules of the gland. Polar ganglion cells, related to the nerve fibers, are rarely found, but apolar cells, either in groups or isolated, are abundant; at times they are enclosed within the membranes of the vesicles and tubules. Those which Luschka believes are nerve cells always remain posterior to that part he designates the glandular portion of the organ.

J. Arnold[7] in 1865 takes the ground that Luschka's description of the organ is incorrect and that it does not contain gland structure. He says the carotid body is supplied by four vessels derived either from the common or external carotid arteries, upon each of which hangs sometimes an oval and at other times a round lobe composed of three or four lobules depending upon the division of the main artery. The vessels forming the lobules of the glomeruli possess thin, circular muscle layers. The epithelium seen in the average artery has reached a high degree of development. The efferent arteries soon after leaving the glomeruli surround the lobules and in association with the network of corresponding glomeruli form a widely meshed network. In noninjected preparations the apparent tubules are filled with finely granular nucleated cells, in the injected preparations they are occupied by gelatin. Fibers from the vagus, glossopharyngeal and the sympathetic form a plexus at the division of the common carotid between the branches; many fibers from this plexus penetrate the capsule of the organ. The fibers after reaching the inner portion of the body surround the lobes and lobules in a network. The gland, vesicles and tubules of Luschka are identical with the divisions of Arnold's glomeruli. The occlusion of the tubules with epithelial masses is apparent only. The ganglion cells in proportion to the presence of the nerves are not so abundant. Apolar ganglion cells surrounded by a common capsule in which are also epithelial-like cells are not present.

Switzer[8] is convinced of the ganglionic character of the carotid body. Sertoli[9] found a fibrous band surrounding the body described by Luschka but regarded it as formed of bloodvessel. Pfoertner[10] accepts Arnold's view; he recognized the tubules and acini as being formed from bloodvessels, the isolated bodies as glomeruli and says the sizes of the latter vary; sometimes they are composed of few, other times of many vessels. He often observed several vessels merged into the wider one which he held to be a vein. He found many nerves, no ganglion cells but fat in the stroma.

Kölliker[11] merely refers to the work of Luschka and Arnold upon the carotid body. Eberth[12] believes the carotid body, like the gland of Luschka is composed of whirls of vessels, which are mainly capillaries, some are normal, others widened. Frey[13] thinks the tissue of the carotid body is largely vessels; the cells present he likens to the cell element seen in the adrenal or to Waldeyer's plasma cells.

Heppner[14] says this body varies in size from that of a hemp seed to a cucumber seed; it is situated for the most part behind and in the median line of the common carotid, its apex projecting a short distance beyond the bifurcation. The organ is composed of a stroma and gland structure. The peripheral stroma is a continuation of the band connecting it to the carotid artery, in which band are many elastic fibers. From his preparations he is unable to decide whether to regard the lobules as cross sections of vessels, as held by Arnold, or glandular, as maintained by Luschka, since, in peripheral lobules, he can recognize structures in the alveoli that may be regarded as a membrane; he inclines to the latter.

Marchand[15] finds in an embryo of four months, the carotid body composed of a loose connective tissue, in which are many vessels and nerves. In the periphery the cells and fibers are arranged concentrically. At points the spheric groups of cells (zellballen) break up and gradually merge into a delicate fibrous tissue. In other places the cells form columns which very often show an inner relation to the vessels. Careful examination of the spheric groups of cells reveals lumina bounded by fine lines and filled with red blood cells. In the adult body two elements share in the construction of the lobules, namely, cells and vessels which are closely related to each other. In the connective tissue are collections of cells, the largest of which are sharply circumscribed, at times by a delicate band of fibrous tissue. These groups simulate gland acini, but they possess a fine intercellular reticulum. The collections of cells either embrace the capillaries or are in contact with one side.

Paltauf[16] says the lobules are composed of many vessels that are surrounded by a narrow band of fibrous tissue upon which is situated a stratified layer of oval nuclei. In chrome-osmic hardened preparation he recognized the vesicles, especially those limited with homogeneous walls and in which are the oval nuclei, as bloodvessels. He demonstrated muscle fiber nuclei in their walls. According to his investigations, the carotid body is not composed of whirls of vessels only, but the winding vessels that form the lobules and correspond to the glomeruli are surrounded by a reticulum of delicate fibrous tissue, in the meshes of which are cells, some of these lining the vessel. He is inclined to retain the name glandula carotica in the same sense as we speak of lymph-glands and thymus gland.

Kopfstein,[17] in an article on tumors of the carotid body, expresses the conviction that the normal organ is composed of vessels and cells. It presents lobulated structures, and is surrounded by a capsule. The cells are found between the vessels, and simulate in structure an acinus. These cell collections are intimately associated with the vessels. They are either concentrically arranged around the vessels or are closely united to one of their sides. Anatomically the body appears to be connected with the sympathetic system, since nerve fibers from the cervical ganglion enter it.

Princeteau[18] believes that according to researches of Rieffel, it is not an intercarotid but a retrocarotid corpuscle, attached to the carotid by a fibroelastic ligament called the ligament of Mayer. He says its position varies at times, in three cases he found it above the bifurcation and in one case on the posterior surface of the internal carotid. The arrangement of the bloodvessels has struck Princeteau as being very curious; the arteries supplying the body, break up in small tufts, each of which is made up of five small arteries. The main artery runs from below upward, one branch of which passes downward to reach the inferior pole. In the body the ramifications of the arteries can be followed for some distance. He has found usually four or five nerves that depart from the superior pole, run parallel to one another, and enter the intercarotid space where they intermingle with numerous nerve fibers to form the intercarotid plexus. The nerves are very numerous and emanate from various sources. In some cases he has seen them spring from the intercarotid plexus, but in the greater number of instances they came from the carotid body. Summing up its structure, he concludes that the inferior pole is arterial and ligamentous and the superior pole venous and nervous.

Kohn[19] says that between the two carotids, and above the bifurcation, lies an organ peculiar to itself, which he designates "paraganglion intercaroticum." The cells, the nerve fibers and the ganglion cells are derivatives of the sympathetic system. The specific elements of the organ are the chromaffin cells, which spring from the sympathetic (embryonic) cells. Their cell substance is very well preserved by the chrome salts but with other fixing agents preservation is poor; with the chrome salts they stain yellowish. The ganglion is abundantly traversed with nerve fibers in which lie the spheric groups of cells and the ganglion cells of the intercarotid nerve plexus. The organ is richly vascular but the vessels present nothing peculiar in their arrangement nor in their construction. Kohn says this body is neither glandular, as held by Luschka, nor is it glomerular, as maintained by Arnold; it belongs to a category of its own.

Heinleth[20] thinks the carotid body has a lobulated architecture. The structure of the lobules is composed of vessels and cells which bear a close relationship to one another. The lobules have the appearance of vesicular spaces, some of which are round, others tubular, they are either empty or contain granules, they possess limiting walls which at times are thick, containing many nuclei. The large spaces have laminated walls possessing muscle fibers. The small, more loosely built lobules, show between the vesicular spaces many round apertures lying in a reticulated connective tissue substance in which are round and oval nuclei.

Usually a nucleus lies along the periphery of each aperture, at times one lies in each lumen. The cells of the apertures contain an abundance of granular protoplasm; they are either low columnar or polygonal and simulate epithelial cells. The nuclei are often excentrically placed. The apertures have no relationship to the reticular structure, except that they lie in contact with it. By injection the cells in the apertures are particularly conspicuous, they appear to line parts of the vessels and parts of the apertures in the reticulated structure. Reclus[29] says there is present more than simple vascular glomeruli; between the vascular meshes are cells which have an intimate relation with the vessels. Szymonowicz and MacCallum[30] think the carotid body is divided by connective-tissue septums into follicles which are filled with masses of small round cells, the socalled "zellballen." These cells resemble epithelium, they are either round or polyhedral, and seem to be closely associated with the bloodvessels. They are apparently of connective tissue origin. These authors say the true nature of the body is unknown, but in all probability it is largely true reticulum. A branch of the carotid artery enters the body, breaks up into many smaller branches, one supplying each follicle. The branch of the follicle breaks into a capillary network which unites with a vein at the periphery of the follicle. The body contains many medullated and nonmedullated nerve fibers, fine branches of which go to the follicles. Ganglionic cells are rarely found.

Boehm and Davidoff[31] say septums, derivatives of the capsule, divide the carotid body into lobules which are in turn again divided into small round masses, "the cell balls," are composed of cellular cords, the elements of which are extremely sensitive to reagents. The cells are round or irregularly polygonal, and separated from one another by a delicate reticulum of connective tissue. The capillaries come in direct contact with the spheric groups of cells. The organ is comparatively rich in nerve fibers, and contains a few ganglion cells.

AUTHOR'S STUDY.

From the investigations I have made, it is not possible to believe that the carotid body is present as often as is generally maintained. In the eight fetuses examined, it was present only once. Three cats, one guineapig, and one rabbit contained no such structure. In one fetus a cervical ganglion occupied the position of the carotid body, and it was only after careful microscopic examination that the nature of the structure was recognized.

The body was found in the one instance attached to the common carotid artery 6 mm. below the bifurcation on one side, and on the other side it was found lying on the inner aspect of the external carotid, 0.5 cm. above the bifurcation. The attachment in both seemed to be by means of a delicate pedicle. They measured 7 mm. in diameter, were firm in consistency, and grayish-pink in color.

The body is enclosed by a fibrous capsule, the density of which varies at different points. From the capsule a band of the fibrous tissue penetrates the body, separating it into two nearly equal parts; from this main partition others diverge toward the capsule, and separate the halves into lobules. The fibrous tissue appears from a tinctorial point of view to be of two types, the coarser fibers with Mallory's reticulum stain, take the anilinblue with intensity, while the more delicate strands select the acid fuchsin in a somewhat modified hue—a deep lilac. With van Gieson, the delicate fibers fail to stain, or select the acid fuchsin very faintly.

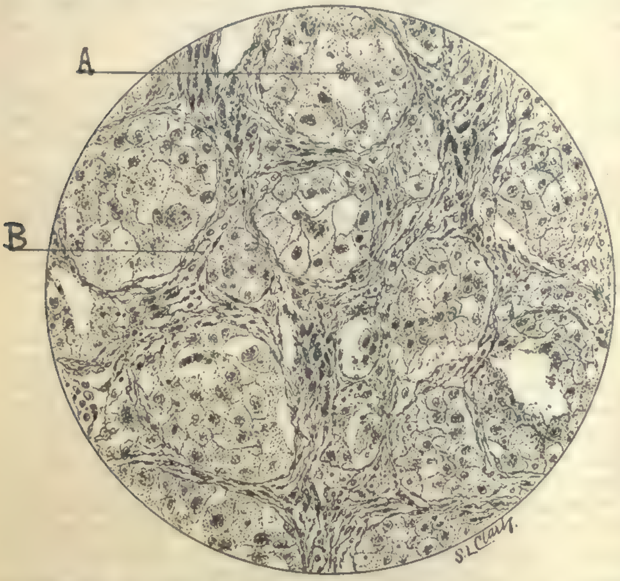
The fibrous tissue contains many bloodvessels. Many of these present nothing unusual, while others are lined with cells, having large round or oval excentric nuclei that evince no great staining affinity. The cell nucleus reacts to Mallory's reticulum stain in a manner similar to the delicate fibrous reticulum. The protoplasm is not abundant and possesses, with Mallory's reticulum stain, a reaction somewhat similar to that of the nuclei. Every now and then the entire bloodvessel wall is made up of somewhat similar cells. These cells are found, not only in and about the bloodvessel wall, but are also distributed throughout the dense fibrous tissue, especially the lobes already mentioned.

The lobules are composed of collections of cells that have no definite arrangement. In instances they appear separated by a delicate reticulum. In only a few does their disposition simulate gland structure. They are very closely set, making it difficult to outline the individual cells. The cells are large, their protoplasm is abundant, the nuclei are large, as a rule oval, and like the protoplasm, react poorly to stains. Minute bloodvessels can be found in all parts of these lobules. In most instances their walls are barely perceptible, but they are, nevertheless, nearly always present. Every now and then one is found that apparently penetrates a large cell, but even then a delicate wall can be made out. There appears to be an intimate relation between these cells and the bloodvessels, just how they are related I cannot from my present studies say. I am strongly of the opinion that these lobules are produced by the proliferation of the endothelial cells of the bloodvessels. The encroaching cells give rise to the apparently delicate wall observed. The sections examined contained neither multipolar cells nor nerve fibers.

EMBRYOLOGY OF THE CAROTID BODY.

Luschka believes the carotid body develops from the endoderm. In an embryo of 14 weeks, Valentine found the carotid gland present on both sides; its shape, firmness and connecting filaments were the same as in the fully developed organ.

Stieda,[21] in embryos of 11 mm., found a round body no longer connected with the epithelium of the pharynx nor of the thymus and regards it as the interglandula caroticum. Katschenko[22] says the structure from which Stieda believes the carotid body develops corresponds to the socalled Katschenko's thymus ganglion. He finds an ellipsoidal body on the internal carotid, at the bifurcation, in embryos of 14 mm. and 18 mm. The thickening adventitia is pushed to one side and later toward the bifurcation; at the same time many vessels, arising from the internal carotid, enter the body. Fischelis,[23] on the other hand, regards the glandula caroticum as originating from the tissue lying between the approximating ectodermal and the endodermal layers and does not consider the organ as developing from epithelial structure. Pierre de Meuron[24] believes the carotid body develops from the third branchial cleft. In sheep, the organ referred to is found near and above the bifurcation of the carotid although in embryos of 18 mm. it is not separated from the thymus. Rabl,[25] in mammifera and in birds, found the endoderm of the third cleft furnished the ventral diverticulum for the thymus and the dorsal bud for the intercarotid. Paltauf concurs in the view expressed by Katschenko.



Perithelioma of carotid body. Obj. B. and L., 1/8 inch; oc., 1 inch. Reduced one-half. A, red blood cell in an alveolus; B, bloodvessel in the stroma between alveoli.

Van Bemmelen,[26] in snakes, saw the retrocarotid corpuscle develop at the expense of the endoderm of the third cleft. Prennant,[27] after studying the opinions already given, concluded that the retrocarotid gland develops in the form of an epithelial bud at the expense of the endoderm of the third branchial cleft. Princeteau, from its position and relation to the common carotid, looks upon the origin as being in common with that of the common carotid which develops from the third branchial arch. Borst[28] says the carotid body originates from the mesenchyme. Heinleth believes the first indication of its development is a cellular thickening of the primitive carotid at its posterior and outer periphery. Kohn thinks the carotid body develops from the embryonal ganglion cells of the intercarotid plexus.

TUMORS OF THE CAROTID BODY.

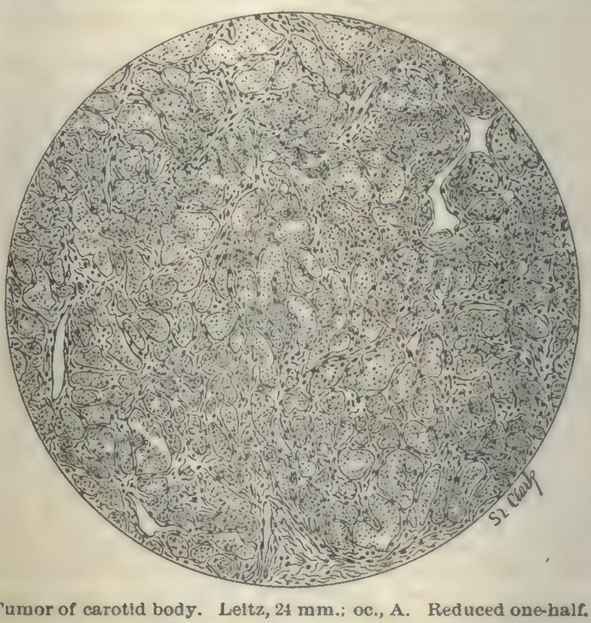
Case.[*]—F. J. R., aged 48, mechanic. Six years ago the patient first observed a growth just below the angle of the inferior maxilla and in the anterolateral part of the neck. It grew slowly but apparently continuously; it did not inconvenience him in the slightest degree. During these six years he has gained in weight.

Examination reveals a tumor that extends from the angle of the right inferior maxilla 2 cm. below the upper border of the larynx along the anterior border of the sternomastoid muscle. The outline of the tumor is indefinite to inspection; from its most elevated portion which is 5 cm. to the right of the median line on a level with the superior border of the larynx it merges gradually into the surrounding structure; upon palpation, however, the outlines of the growth are definite; it is firm, about 7 cm. by 4 cm. in diameter, and not attached to the skin, it is freely movable from side to side but not vertically. There was present neither pulsation nor expansion; the pupils were equal and the face was not flushed.

At the operation which was performed by Professor Hearn at Jefferson Hospital, the growth was found firmly attached to the common, internal, and external carotid arteries and internal jugular vein. Bleeding from the tumor was profuse. In attempting to dissect the neoplasm from the vessels, the jugular vein, the external and internal carotid arteries were torn: this accident necessitated the ligation of the common carotid below, the internal and external carotid above and the internal jugular vein above and below the growth in order to complete its removal.

For several days after the operation the patient could not speak above a whisper. He gained strength slowly but left the hospital eight days after operation. In a short time he began to complain of headache, especially in the median parietal region; then it was noticed that he became irrational for short periods only; there were no other symptoms to indicate a tumor of the brain. Soon after leaving the hospital he began to lose flesh rapidly, he complained of fatigue. There was no evidence of recurrence at the original site of the tumor nor at any other point. He died of cerebral anemia nine weeks after leaving the hospital.

Microscopic Examination of the Tumor.—The specimen consists of an irregular mass measuring 5 cm. by 3 cm. by 3 cm. It is dark red, soft and encapsulated. The capsule for the most part is smooth and glistening. The specimen cuts with ease, the incised surfaces are dark red, granular and contain many small cavities filled with blood.



Tumor of carotid body. Leitz, 24 mm.; oc., A. Reduced one-half.

The tissue was fixed in Bensley's fluid, embedded in paraffin, sectioned and the sections stained with hematoxylin and eosin, by Van Gieson's method, for elastica by Weigert's method, with Mallory's reticulum stain, with iron-hematoxylin, for myelin sheaths by Weigert's methods and for ganglion cells by Nissl's method.

Histology.—(See Figs. 1 and 2). The sections present an alveolar arrangement. The capsule is comparatively thick, composed of dense wavy fibrous tissue and contains a few lymphoid cells. From the capsule, bands of fibrous tissue penetrate the tumor giving support to the structure and, by division, form alveoli of a fairly uniform size separated by this stroma-like tissue; the fibrous septums thus formed are fairly constant in thickness and structure, although at points the fibrils are coarsely grouped and in not a few areas they are the seat of a hyaline degeneration. The alveoli are occupied by cells that are oval or round and measure from 15 to 20 μ in diameter. The nuclei are large, round or oval and stain with a moderate degree of intensity; the oval nuclei stain deeper than the round. The protoplasm is abundant, granular, and reacts to its selective stain with a fair degree of intensity. In some alveoli the cellular contents are closely packed, the cell outline indistinct and the grouping irregular; in others the cells are less crowded and there is a suggestion of tubular arrangement. In a few alveoli there are besides these cells a number of erythrocytes. Only now and then can an intercellular reticulum be demonstrated. The walls of the alveoli are thin and in many instances vessels appear to course in them, most often in the center of the wall, but every now and then vessels are seen lying very close to the alveoli, being separated from them by delicate strands of tissue only. There is no difficulty in demonstrating red blood cells in these vessels.

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[*] For the use of the clinical notes in this case I am indebted to Professor Hearn, of Jefferson Medical College, who operated upon the patient.

Elastin was found in the bloodvessels only. Nerve fibers were not found and ganglion cells were also absent. The bloodvessels were large and abundant in the supporting structure of the tumor, and were filled with blood.

Diagnosis.—Since in many places the bloodvessels can be seen in the alveolar walls and at times separated from the alveolar contents by a delicate strand of tissue, the supposition that the tumor cells are derivatives of perithelium is entirely reasonable. I am therefore, favorably impressed with the term "peritheliomа."

Etiology.—These tumors occur especially in adolescence and in adult life. In the cases reported the youngest patient was 18 and the oldest 60. Neither sex seems predisposed; in the collated cases there were eight females and six males; in one of the reported cases the sex is not given. In two cases there was a history of malignant disease in the family. One of the tumors was first noticed after the extraction of a tooth and fracture of the inferior maxilla; this patient had a history of inflammation of the throat and glandular swelling. In another patient there was a history of tonsillitis. One of the tumors was first observed after confinement. Heinleth explains the formation of these tumors as follows: The carotid body develops until the age of puberty, when it either atrophies or the development is arrested; if the body continues to grow a tumor is formed.

Symptoms.—They are not varied, but more or less constant. The tumor is insidious in its onset, slow in its growth, but later it may develop rapidly, when for the first time the patient consults a surgeon. Reclus says the tumors are seen early in those patients who present themselves to the surgeon for cosmetic purposes. He further observes that Maydl has operated upon three of these tumors in nine years, and therefore the neoplasms cannot be regarded as being extremely rare. There is always a history of long-standing growth. Maydl saw his first case six months after the appearance of the tumor and the second 16 years after it was first noticed; as a rule the patients come to the surgeon five or six years after the tumor is first observed. The growth of the neoplasm is slow during the first few years, but later usually becomes more rapid, at which time the patient seeks the advice of a surgeon. In these later stages the tumor may become painful and present other distressing symptoms; in Cuneo and Dainville's case there were lancinating pains radiating into the ear, associated with difficulty in swallowing, miosis of the right eye and vasomotor disturbances of the face. In Scudder's case the tumor became larger and tender when the patient caught cold; in one of Maydl's cases tinnitus developed just before he saw the patient. In the collated cases eight presented evident pulsation, in three there was no pulsation, in four there was no note of its presence or absence. In no case was there expansile pulsation. The pulsation is not caused by blood entering the tumor, but is due to transmission from the carotids. The skin is never attached to the growth. The neoplasm is movable sidewise but not vertically. As a rule a murmur is heard over the tumor. Reclus says the systolic tone is not more intense than over the common carotid. By pressure the tumor may be made to disappear; this disappearance is not due to the evacuation of the blood content, but rather to a displacement of other organs. Pulsation is synchronous in both temporals.

Diagnosis.—First, the position of the tumor, anterior to sternomastoid muscle, extending from the superior margin of the thyroid cartilage to within a few centimeters of the angle of the jaw; the evident pulsation, but no expansion; the murmur over the growth, but of no greater intensity than over the carotid artery; the synchronous pulsation in both temporals; the boggy or elastic character of the tumor; the movable skin over the growth; a history of long standing and of slow enlargement; in the few months prior to the time the patient presents himself to the surgeon the growth usually has been rapid; occasionally there are vasomotor disturbances, as flushing of the face and inequalities of the pupils. Of the collated cases, only one patient was tapped, and this was followed by a flow of pure blood. There is no constant predisposing condition.

These tumors have been mistaken for tuberculous lymph-nodes, lipoma, fibrolipoma, lymphosarcoma aneurysm, and aberrant thyroid; upon superficial examination, cystomas of the neck may be mistaken for tumors of the carotid body.

Reclus says tuberculous lymph-nodes are entirely hard or entirely fluctuating and multiple. As a rule, these nodes involve the surrounding structure and may be tender; lipomas are more superficial, are softer, and less consistent; although fibromas are harder than the carotid tumor, and are rarely found at this site, yet should they develop here, it would be very difficult to differentiate them from the carotid tumor. According to Kopfstein, pulsation and murmur rule out lymphosarcoma. Reclus observes that lymphosarcomas are hard, malignant, everywhere adherent, and of rapid growth. Absence of expansion rules out aneurysm; Kopfstein fortifies exclusion by the absence of syphilitic infection and atheroma in his case. The same author excludes aberrant thyroid by the absence of an enlarged thyroid gland; Reclus says he has never seen an aberrant thyroid as high as the thyroid cartilage. Cystomas of the neck are superficial, fluctuating; tapping gives either a light straw-colored or clouded fluid; as a rule, they are congenital.

Although Borst and Reclus say these tumors are benign, Marchand and Kopfstein state definitely that the tumors in their cases were malignant. Paltauf notes the recurrence of the tumor in one of his patients a year later. While I am inclined to look upon these tumors as malignant, I believe that in the case reported in this article the patient died of cerebral anemia rather than as a result of the neoplasm itself.

Reclus stands alone in questioning operative interference. He says if we consider that these tumors are benign and recognize the dangers incident to their attachment in this operative field, it is better to let them alone until they produce symptoms which are dangerous to life.

A table of reported cases is appended.

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TABLE GIVING ATTAINABLE DATA CONCERNING ALL THE REPORTED TUMORS OF THE CAROTID BODY.

No.	Operator.	Patient.	Sex.	Age.	D'ration of disease.	Symptoms.	External relations and appearances.	Ligations.	Nerves injured.	Microscopic appearance.	Clinical diagnosis.	Pathologic diagnosis.	Results.	References.
1	Riegner, 1880.	....	F.	32	4½ years.	Visible pulsation, no inequality of pupils, no flushing of face, expansion not noted, size of hen's egg.	No metastasis adherent to vagus; internal jugular and sympathetic.	All carotids; pharyngeal; internal jugular.	Vagus and sympathetic.	Alveolar structure, each alveolus is bounded by a structure that contains a capillary; alveolus has cells.	Lymphoma.	Whether of endothelial or perithelial origin Marchand does not say, but is malignant.	Died of bronchopneumonia.	Reported by Marchand, Festschrf. für Virchow, Bd. i, 1891.
2	Maydl, published in 1886.	....	M.	28	½ year.	Evident pulsation, no expansion, size of pigeon's egg.	No metastases, hard, encapsulated, in bifurcation.	All carotids; pharyngeal; superior thyroid.	....	Periphery is alveolar; alveoli contain polygonal cells; center more fibrous tissue and pigment.	Lymphoma.	Paltauf says perithelioma of carotid gland.	Postoperative hemiplegia and aphasia; in 4 years no return.	Allg. Wien. med. Zeitsch., 1886; Paltauf, Ziegler's Beitrage, 1892, Bd. xi.
3	Dittel.	Ph. S.	M.	32	Several months.	Pulsation slight, skin movable over tumor, last week's growth rapid, size of hen's egg.	Encapsulated, hard, vascular, lobulated; near it small tumor; carotid adventitia infiltrated.	All carotids; internal jugular vein.	....	In periphery columns and cylinders of cells, blood; spaces lined by endothelium; center fibrous, contains few cells.	Not made.	Same as above.	Died of secondary hemorrhage.	Paltauf, Ziegler's Beitrage, 1892, Bd. xi.
4	Gersuny, 1886.	....	F.	18	Not noted.	Not recorded; size of hen's egg.	Encapsulated; uneven, gray, granular; on section many canals; 3 cm. below mastoid.	All carotids; pharyngeal.	Paralysis of the left vocal cord.	Cell cylinders conspicuous; degenerated blood and cells in the alveoli; pearl-like in alveoli; like endothelioma.	Tuberculous lymph-node.	Same as above.	Paralysis of left vocal cord; no return in 4 years.	Same as above.
5	Albert, 1891.	....	M.	35	5 years.	Pure blood on tapping, no expansion, last year rapid growth, size of an apple.	In bifurcation; encapsulated, dark red, vascular, lobulated; recurrence in 1 year.	External carotid.	....	Similar to the last but presents hyaline degeneration.	Not made.	Same as above.	Cured, removed again 1 year later.	Same as above.
6	Maydl, 1893.	J. R.	F.	46	16 years.	Visible pulsation, murmur over tumor, no expansion, painful recently, size of hen's egg.	Adherent to jugular; carotid's media infiltrated; metastasis; encapsulated, hard, vascular.	All carotids; pharyngeal.	Sympathetic.	Stroma and alveoli, oval cell in the alveoli, numerous bloodvessels; hyaline degeneration of stroma and alveolar walls.	Carotid tumor.	Endothelioma.	Cured; mydriasis marked but stationary.	Kopfstein, Wien. klin. Rundschau, 1895, Bd. ix.
7	Maydl, 1895.	....	M.	34	4 years.	Pulsation ceases upon compressing carotid, systolic murmur; recently it inconveniences him.	Enlarg'd lymph node near tumor; carotid wall not infiltrated.	Common, internal, external carotids; pharyngeal; superior thyroid.	Vagus, sympathetic, hypoglossus, facial.	Same as No. 6; structure of lymph-node like tumor proper.	By exclusion intercarotid tumor.	Malignant; does not state definitely; says similar to No. 6.	Cured; aphonia, paralysis of left vocal cord.	Kopfstein, Wien. klin. Rundschau, 1895, Bd. ix.
8	Heinleth, 1900.	....	M.	60	....	Noticed after extraction of a tooth, site in the bifurcation of common carotid.	Tumor encapsulated and lobulated.	Tumor removed without any ligations.	None.	Cell groups enclosed by fibrous bands, between groups are capillaries with thin walls; tumor cells derived from capillaries.	....	Perithelioma of carotid gland.	Cured.	Heinleth, Centralblatt für Anat., 1900, Bd. ix.
9	Malmoosky, 1899.	....	F.	....	10 years.	Skin free, fremitus over tumor pulsation, bruit synchronous pulse in temporals, growth rapid in last year.	Surface smooth.	Common, external, internal carotids; internal jugular.	Removed 8 cm. of pneumogastric.	What were first thought to be lymph spaces are bloodvessels; cell proliferation from external portion of the wall.	Lymphosarcoma of the carotid sheath.	Perithelioma of the carotid gland.	Cured.	Malmoosky, Review, 1899, Contrib. a l'etude des tumeurs de la gland carotid.
10	Siniouschine, 1901.	....	F.	....	8 years.	Growth slow, recently pain in ear, skin free, tumor soft, movable sidewise, size of walnut.	....	Common, internal, external carotids; internal jugular vein.	None.	Excentric development, cannot tell whether cells are derivatives of endothelium or perithelium.	Fibrolipoma.	Unable to say whether endothelial or perithelial.	Cured.	Seance, 401, de la Soc. de Chir. de Moscow, 1901.

11	Reclus and Chevassu, 1903.	....	F.	49	5 years.	Pulsation, no expansion, souffle; upon pressure tumor apparently disappears; soft, 4 x 5 cm.	Encapsulated, brown, smooth, lobulated, elastic, adherent to the large vessels and nerves.	....	Cervical and branch of facial.	Masses of cells surrounded by capillaries whose walls are thin; the cell nuclei project into their lumina.	Tumor of the retrocarotid corpuscle.	Perithelioma of the retrocarotid corpuscle.	Cured.	Revue de Chir., xxviii, No. 8, 1903,
12	Scudder, 1903.	....	F.	Between 20 and 30	9 years.	Size of pigeon's egg; movable sidewise and over skin, pulsation, no expansion.	Tumor attached to the carotid artery.	Common, internal, external carotids.	....	Many vessels between which are large round and spindle cells and origin'te in tissue between vessels.	Not noted.	Variety of angiosarcoma known as perithelioma of the carotid gland.	Cured; in 13 months, no recurrence.	Scudder, Amer. Jour. of Med. Sc., Sept., 1903,
13	Macphater,* 1903.	....	F.	31	6 years.	First noticed after confinem't; growth slow until recently, then pain and uneasiness, pulsat'n, no exp'nsion, left side.	Firm, nodular invaded the surrounding structure; vascular.	Common, external and internal carotids; internal jugular vein.	None.	No description.	Not noted.	Undetermined.	Cured.	N. Y. and Phila. Med. Jour., 1903, Vol. lxxviii, No. 4.
14	MM. Cuneo and Francois Dainville, 1903.	....	....	23	3 years.	Rt. side lancinating pain radiating into right ear, miosis rt. eye, vasomotor disturbance of face, swallowing difficult.	Not adherent posterior to carotid; compression of sympathetic and pneumogastricslightly.	None.	None.	Fibroma presenting large vascular and lymphatic cavities.	Not noted.	Tumor of retrocarotid corpuscle.	Cured.	Société anatomique. 10, Juillet, 1903.
15	Hearn, 1903.	T. J. R.	M.	48	6 years.	Rt. side below angle of jaw; growth slow, no inconvenience, no pulsation, not attached to skin.	Encapsulated, firm, adherent to surrounding structure, carotids on its anterior surface.	Common, external and internal carotids; internal jugular vein.	None.	See below.	Question of fibroma, lymphoma or aberrant thyroid.	Perithelioma of the carotid body.	Cured of the operation, but died 2 months later.	....

* This case was not reported as a tumor of the carotid body, but the clinical history, general character, and operative difficulties seem to me to establish clearly the nature of the growth.

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THE CONCUSSIONAL VERTEBRAL REFLEXES.

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In medical literature I have repeatedly referred to certain visceral reflexes evoked by cutaneous irritation, viz., the lung reflexes of dilation [1] and contraction,[2] the heart reflex,[3] liver reflex,[4] the intestinal and stomach reflexes,[5] and more recently, to the aortic reflexes.[6] The reflexes in question are endowed with more than mere physiologic interest. They yield unequivocal demonstration of the fact that the sensory peripheral nerve terminations receive impressions which are conducted, communicated, or reflected by aid of the nervous system. Such impressions react on the viscera, and the manifestations of the reaction may be utilized in a diagnostic and therapeutic direction. The evidence heretofore adduced in explanation of the results achieved by electric, hydriatic, mechanical, and the balneary treatment of disease was naught else than a mere array of words conceived in conjecture only. Others less inclined to hypothesize sought an expeditious solution of the subject by referring their action to psychic suggestion. The recognition of the visceral reflexes is something more than an apologetic attempt to relegate the therapeutic procedures just mentioned to their proper sphere of action. The noteworthy investigations of Head, show, that in visceral disease, pain and disturbed sensation may be referred to definite cutaneous areas. Clinicians have given due regard to such cutaneous expression of visceral disease, which, if I may be permitted to call it, is practically an endogenetic skin reflex. They have, however, ignored the fact that we likewise possess exogenetic skin reflexes. It is within the realms of reason to anticipate that by means of the latter reflexes, we will be able to determine the condition of a viscus with as much precision as is now attained in the electrodiagnosis of a nerve and muscle. I have already shown that the heart and lung reflexes may be elicited elsewhere than through the skin. Thus the lung reflex of dilation, while localized by cutaneous irritation, may be made to implicate both lungs by irritation of the nasal mucosa or by percussion of the epigastrium. Similarly the lung reflex of contraction may be evoked by the application to the nasal mucosa of certain medicaments, and the latter fact is of great practical value, considering it as a method of procedure in the treatment of asthma, a subject which will receive further consideration in a forthcoming work on the latter disease. The heart reflex, as already shown, may be provoked by irritation of the nasal, gastric, and rectal mucosa. More recent investigations by me demonstrate that the heart reflex can be elicited by swallowing. If the patient, standing before the röntgen rays is instructed to swallow water, each act of deglutition is followed by a visible contraction of the heart, *i. e.*, a recession of the myocardium dissociated with the normal contraction of that muscle. The latter fact, no doubt explains the resuscitating effects of swallowing water in faintness acting similarly to the impact of water on the skin by inducing the heart reflex. Physicians have always recognized the effects of emotions on the heart, but no tangible evidence of such effects has been forthcoming. The epigram of Peter is worth repetition; "The physical heart is the counterpart of a moral heart." The conventional expression of the frightened individual, "My heart was in my mouth," finds justification by a röntgen ray study of the heart. Tell the patient standing before the rays that you are going to burn him with a hot iron, and the effect on the heart is at once manifest. It is a veritable psychic heart reflex implicating the entire heart. The latter becomes at once very much reduced in size, and appears as if it were retreating toward the neck. I know of no irritation, cutaneous or otherwise, that is so pronounced as is this psychic factor of fright in inducing the heart reflex.

The foregoing fact is of the utmost importance in eliminating emotional influences in the treatment of cardiac diseases. Even in an ordinary röntgen ray examination of the heart, one may observe in nervous patients a retraction of the heart mass. Mr. Bezley Thorne[7] noted that the heart shrank after exposure to the röntgen rays. It is evident that the shrinkage thus observed was naught else but cardiac reaction to emotional influences, for a röntgen ray examination to the average patient is a momentous procedure. I have frequently witnessed the pulmonary reaction of fright; the lungs become hyperresonant on percussion and the superficial areas of cardiac, hepatic and splenic dulness become diminished (psychic lung reflex of dilation). I have more recently elicited a heart reflex limited to the right heart ventricle. If we percuss the muscles (tapotement) of the extremities we can at once obliterate the area of superficial cardiac dulness. This is essentially a heart reflex of muscular origin exclusively, as such a reaction does not follow irritation of the skin of the extremities nor after percussion of the bones. Percussion of the muscles of one arm only suffices to elicit this heart reflex. Another curious feature of the myopathic heart reflex is that it causes retraction of the right heart ventricle only, the left being uninfluenced. Placing the subject before the röntgen rays, this reflex is at once evident. After the heart borders are outlined, request an assistant to percuss the muscles of one arm by means of a percussion hammer. Following the maneuver, the right ventricle shows considerable retraction. The effect on the systemic blood-pressure by percussion of the muscles is very slight and this is obvious considering that the left heart ventricle is uninfluenced by the maneuver. Like many other innovations in medicine my reflexes have by no means been unconditionally accepted by the profession and even doubt has been cast on their existence and I may therefore be pardoned if I cite the corroboration of other observers. In this country, Cabot, Monell and Cooper have recognized the practical value of my reflexes. At a meeting of the Société Médicale des Hôpitaux (July 24, 1903), MM. Pierre Merklen and Jean Heitz, read a paper on the "Reflexe Cardiaque d'Abrams,"[8] and confirmed and extended my observations. In England, Auld[9] refers to the practical value of the "lung reflex of Abrams," in diagnosis and treatment. His observations show that much light was shed on the state of the lungs by testing their response, either in whole or in part to the normal reflexes, and Auld suggests that the latter should be tested as a matter of routine in the investigation of cardiopulmonary diseases, just as the reflexes are tested in the investigation of diseases of the nervous system. In Italy, Dr. Augusto Plessi[10] recognizes the importance of the lung reflexes in diagnosis, as they enable us to differentiate lung dulness dependent on consolidation from that dependent on atelectasis. In studying the vertebral reflexes we enter an entirely new domain and one may be very readily convinced that the manipulation of the vertebras by the osteopath and the effects on the patient, are not wholly a question of suggestion; on the contrary, the osteopath unknowingly elicits many visceral reflexes, which may operate for good or evil. Concussion of the vertebral spinous processes whether by manual manipulation or by vibratory massage, will induce palpable, lung, heart, liver, spleen, stomach and intestinal reflexes depending on the vertebras subjected to concussion. In eliciting the concussional vertebral reflexes, I employ an S. S. White dental mallet weighing about 4 oz. and a pleximeter of felt (Fig. 1).

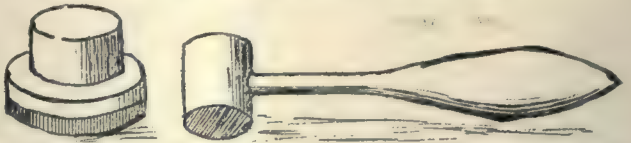

Fig. 1.—Mallet and pleximeter for evoking the concussional vertebral reflexes, as well as the lung reflex of contraction and the stomach and intestinal reflexes.

In the absence of the latter, one may strike the spinous processes of the vertebras with the knuckle of the second finger, although with less effective results. In either method, the spinous processes to be concussed having been marked with a dermograph, they are struck a series of sharp, vigorous blows. The reaction on the viscus or viscera is of short duration, hence the objective demonstration of the visceral reflex as ascertained by percussion must be executed immediately after vertebral concussion. It may be superfluous to add that previous to the execution of the vertebral concussional maneuver, the heart, spleen, and liver must be defined by topographic percussion, so that the subsequent change in the area of percussion of the organ may be recognized.

The anatomic landmarks of the spine are easy of recognition. First, there is usually a furrow or median groove in the back, at the bottom of which lie the spinous processes. In emaciated individuals the spinous line replaces the groove. Palpation and definition of the spines is facilitated by directing the patient to double over to the front, or the spines may be rubbed with the hand, thus evoking a spot of hyperemic redness over the tip of each spinous process. For our purpose, it is only

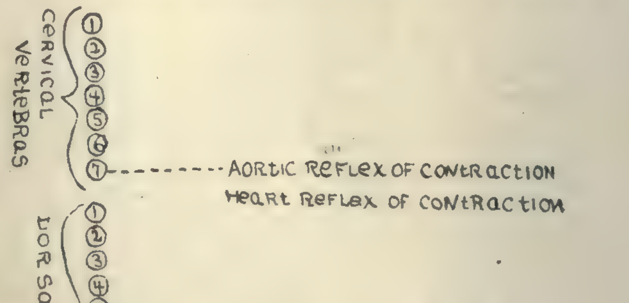
Cervical Vertebras
1
2
3
4
5
6
7
Aortic Reflex of Contraction
Heart Reflex of Contraction
Dorsal Vertebras
1
2
3
4
5
6
7
8
9
10
11
12
Aortic Reflex of Dilation
Heart Reflex of Dilation
Lumbar Vertebras
1
2
3
4
5
Stomach, Intestinal, Liver and Spleen Reflexes of Contraction

Fig. 2.—Vertebral concussional reflexes, showing the vertebras to be concussed for their elicitation.

necessary to define the processes from the seventh cervical to the third lumbar vertebra. The seventh cervical vertebra is readily recognized owing to its prominence, and may serve as a guide to count downward. When the patient is sitting with the arms hanging at the side, the inner end of the spine of the scapula is on a level with the third dorsal spine, and the inferior angle of the scapula corresponds to the seventh dorsal spine. The spine of the last dorsal is on a level with the head of the last rib. The highest part of the ilium is about the level of the fourth lumbar spine. Reference to the illustration (Fig. 2) shows the reflexes thus far elicited by me.

Brief reference will now be made to the practical value of the foregoing reflexes.

The Aortic Reflexes.—Cherchevsky[11] first directed attention to an early sign of arteriosclerosis, viz., that in normal conditions the diameter of the aorta varies at different times; that it dilates if the region over the arch is struck with the percussion hammer, while it shrinks in size if the blows are struck in the epigastrium. In arteriosclerosis he contends that it is impossible to produce these variations in diameter. The author, as I have already shown,[12] has misinterpreted the phenomena obtained by his maneuver. What he really elicits is a circumscribed lung contraction adjacent to the part struck on the chest by the hammer, and the blow on the epigastrium merely causes the collapsed lung area to dilate, thus supplanting dulness by resonance. Concussion of the dorsal vertebras, eighth, ninth, tenth, eleventh, and twelfth, will cause dilation of the aorta, and the course of the arch of that vessel can easily be defined, owing to the dulness obtained by strong percussion after vertebral concussion. Concussion of the seventh cervical vertebra causes the dulness to evanesce at once (counterreflex of aortic contraction). The duration of either reflex is from a half to one and a half minutes. That alternate dilation and contraction of the aorta follow the concussional maneuvers already mentioned may be controlled by the röntgen rays. Control investigations have demonstrated that the lung is in no wise implicated in the percussion changes. Evoking the aortic reflexes may be of considerable moment in determining the elasticity of the aorta, and thus recognizing early arteriosclerosis. My investigations on this subject are too limited for citation. Dilation of the aorta, however, may be easily recognized.

The Heart Reflexes.—Heretofore, only one heart reflex was recognized, viz., the heart reflex of contraction, but when the same dorsal vertebras are concussed for evoking the aortic reflex of dilation, a decided increase in the area of cardiac dulness may be obtained by percussion, implicating chiefly the area to the left of the sternum. Not infrequently the lower sternum previously resonant becomes dull on percussion. This increase in the area of cardiac dulness is not associated, as the röntgen rays show, by any increase in the diameters of the heart. The latter fact corresponds with the investigations of Kornfeld,[13] who demonstrated that the heart muscle possesses the property of increasing the size of its cavities without any corresponding augmentation of tension of its walls, a condition which he calls *ausweitungsfähigkeit.*

The clinical applications of the heart reflexes are various. Percussion of the heart, as executed ordinarily, yields an absolute or superficial, and a deep or relative dulness. Practically little or no value can be attached to the superficial dulness in estimating the size of the heart, as it varies with the position of the overlapping lung borders. Even the lightest percussion blow will provoke sufficient cutaneous irritation to induce the lung reflex of dilation, *i. e.*, an acute dilation of the lungs, which may diminish the area of superficial cardiac dulness even to obliteration. Cabot[14] has observed how a forcible percussion blow over the lungs increases the resonance to be obtained by subsequent blows. He says: "Any one who has demonstrated an area of percussion dulness to many students in succession must have noticed occasionally that the more we percuss the dull area, the more resonant it becomes, so that to those who last listen to the demonstration, the difference which we wish to bring out is much less obvious than to those who heard the earliest percussion strokes. Abrams has referred to this fact under the name of the lung reflex." The mere influence of room temperature materially changes the results of percussion. Let any one after percussing the areas of superficial dulness direct a current of cold air, *e. g.*, from an atomizer, over the regions percussed, and the result will be, diminution or obliteration of the areas in question. It is evident from what has preceded that, while the heart reflex can always be determined by the röntgen rays, after cutaneous irritation of the precardium, mere percussion cannot determine its existence, as the irritation necessary to evoke the heart reflex will also induce the lung reflex of dilation, which must necessarily mask the heart reflex.

Thus the observations of Schott and others who seek to demonstrate the effects on the heart by percussion of the carbonated baths are evidently erroneous. Heitler[15] perpetrates the same error by failing to take into consideration the coincident lung reflex when executing cutaneous irritation. He seeks to determine the sufficiency of the heart muscle by a series of percussion blows over the heart region. If thereafter the cardiac dulness is much diminished, it is an evidence, he argues, that the cardiac musculature is sufficient, for the tendency of the normal muscle tonus of the heart is to maintain a limited patch of dulness. Even vigorous percussion to elicit the deep cardiac dulness is replete with error, for it elicits a lung reflex of dilation, which is proportional to the intensity of cutaneous irritation, hence a barrier is interposed by the dilated lung, which interferes with the propagation of the percussion blow to the underlying heart. When clinicians aver that they can delimit the right heart border by a plexor and pleximeter, not only do they defeat their object by inducing the lung reflex of dilation, but by evoking the lung reflex of contraction, the dulness of the latter is confounded with cardiac dulness. One may elicit the heart reflex of contraction without inducing the lung reflex of dilation by concussion of the seventh cervical vertebra. There are many indications for the practical application of the heart reflexes, but space forbids their discussion. Mention may, however, be made of a simple method for differentiating a dilated heart from a pericardial effusion. The heart reflex of contraction may be evoked by concussion of the seventh cervical vertebra, whereas, the counterreflex of heart dilation may be provoked by concussion of the dorsal vertebras already indicated. In the former instance, the area of cardiac dulness will diminish, in the latter, it will be increased in simple heart dilation, whereas in effusion the area will be uninfluenced.

The Liver and Spleen Reflexes.—I have already shown[16] that when the skin contiguous to the lower liver border is irritated with the finger-nail or the blunt end of a pencil, the lower liver border may be observed by percussion to recede a half inch or more depending on the degree of cutaneous irritation. In eliciting this liver reflex it is necessary to map out the lower liver border after the manner suggested by me[17]; the patient is instructed to incline his body backward as far as possible and if now percussion is attempted which must be light and the finger firmly embedded in the tissues, the difficulty of determining the lower liver border is reduced to a minimum. The skin liver reflex only causes a recession of the lower liver border whereas if the liver and spleen reflexes are elicited from the spines of the vertebras, the preceding viscera contract *in toto.* The faculty of the liver and spleen to contract is necessarily diminished in certain pathologic conditions and when such conditions are fully recognized, the liver and spleen reflexes will become endowed with a definite diagnostic significance. It is enough to know, however, from the standpoint of the therapist, that it is possible to influence these organs by peripheral irritation and while a reflex in itself is a mere objective demonstration of such action, there are a host of other conditions which, when once aroused will substitute a physiologic for a pathologic condition.

The Stomach Reflex.—The stomach and intestinal reflexes have been fully discussed in another contribution[18] to which attention is directed. In this communication, I have attempted to show, that when the first three lumbar vertebras are concussed the tympanicity of the stomach and intestines will be supplanted by dulness. For purposes of diagnosis, it will be necessary to review another method of inducing the stomach reflex of contraction. To elicit the latter reflex, our field of observation is limited to the Traube area, that half-moon shaped space which normally yields on percussion a tympanitic sound owing to the presence of the cardiac end of the stomach. The Traube area is bounded above and laterally by the contiguous borders of the liver, lung and spleen. Firmly fixing our pleximeter (see Fig. 1) in the center of the Traube area of tympanicity, we strike the pleximeter with the mallet a series of vigorous blows and then proceed to percuss the area in question. One observes at once that this region which formerly yielded a tympanitic sound now presents on percussion a dull or even flat sound. The phenomenon thus obtained is the stomach reflex of contraction. It is of variable duration. The stomach reflex of contraction is most conspicuous when the patient is examined before the röntgen rays. According to this method the stomach is moderately distended by air and then concussion is executed by aid of mallet and pleximeter in the Traube area. One observes at once after administration of the vigorous concussion blows that the fundus of the stomach will recede fully an inch or more.

The stomach reflex of contraction may also be provoked after the manner cited by concussion of the abdomen contiguous to the stomach, but the same maneuver will also induce the intestinal reflex of contraction which likewise yields on percussion a dull tympanicity, hence, the stomach reflex should only be obtained from the Traube area for the reflex evoked will be essentially associated with the stomach and not with the intestines. It may be necessary to differentiate a left-sided pneumothorax from a distended stomach or a diaphragmatic hernia. In pneumothorax the stomach reflex of contraction would not be present, but could be evident in the other two conditions. The motor power of the stomach can be gauged by the degree of the stomach reflex; the latter being indicated by the grade of dulness consequent on the concussion blows in the Traube area. I know of no better method for determining the lower border of the stomach by percussion than the maneuver already indicated for inducing the stomach reflex of contraction. One may percuss not only the stomach border but likewise the exposed anterior surface of the stomach for the dulness of the stomach is easily differentiated from the tympany of the surrounding intestines. Here then is a method which achieves a double object, viz., determination of the motor power of the stomach and defining its area. One must percuss quickly as the reflex is of short duration, but if necessary it may again be elicited and topographic percussion completed. A critic may aver that if this stomach reflex is one contraction, the percussional area of the organ will be necessarily diminished. With this contention I agree, but I present the counterargument that in the conventional method of ballooning the stomach the reproduction of the gastric area will be augmented. The presence of a neoplasm and its association with the stomach may be shown to exist by aid of the stomach reflex, for elicitation of the latter will cause a dislocation of the growth upward and to the left. A sensitive point supposed to be connected with the stomach would likewise be dislocated by the same maneuver if really connected with that organ.

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FLUORESCENT TRANSLUMINATION OF THE STOMACH.

BY
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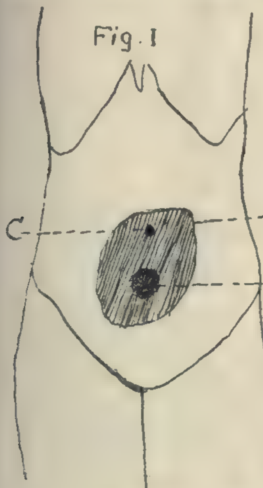
Years ago when Einhorn introduced the gastrodiaphane I used his instrument with some degree of satisfaction, especially in determining the position of the lesser curvature and in discrimination between gastric and hepatic tumors in certain cases favorable for the application of the method. But the number of cases in which the additional information thus gained over the results of other methods of examination has been sufficient to warrant gastrodiaphanoscopy by the original method has, in my personal experience, been comparatively small. The drawbacks have been the limited zone of illumination, and the considerable manipulation of the light rendered necessary, together with some uncertainty as to whether there was not transmission of light occasionally through the colon on the one hand, and failure to reach the true upper border on the other hand. Following W. J. Morton's suggestion of the use of fluorescent solutions in diagnosis and treatment, and R. C. Kemp's demonstration of its value as a means of determining the position and size of the stomach, I have once more taken up the subject. Kemp's technic has been employed, except that I have used my own modification of Einhorn's diaphane instead of Lockwood's stomach light as advised by Kemp. While the latter instrument, according to Kemp, is lighter and more easily swallowed, my instrument gives a firmer terminal for manipulation, and possesses some advantages therefore in cases in which no lesion of the gastric mucous membrane is present. I have not had to resort to pressure upon the abdomen which Kemp speaks of, in order to outline the whole stomach satisfactorily. On the contrary, the simple pushing forward of the tube suffices to bring the viscus into full lumination, the upper portion remaining bright while the greater curvature and gradually what seems to be the whole stomach, is brought into glow. The position of the lamp is marked by a more intense brightness and a deeper color, and its motion along the border can thus be made out. In a case of marked gastroptosis exhibited to visiting members of the American Medical Association this was demonstrated beautifully, the emergence of the lamp from the cardia and its retrocession therein being so clearly visible that no doubt of the position of the organ could be entertained. Especially clear was the position of the umbilicus in relation to the luminous area as indicated on the figure. In another case, also seen by visitors of the American Medical Association, an area of shadow (Fig. 2) in the midst of the illuminated zone, proved at operation to be the lower border of an unusually distended gallbladder stretching in a diagonal direction. The case was one in which the anatomic diagnosis of enlarged liver and pancreas, distended gallbladder and displaced stomach was verified by the Section, and will be recorded in detail by the surgeon. The diaphane, which was made for me many years ago by Otto Flemming of Philadelphia, is like Einhorn's, except that the socket of the lamp is made in two separate parts, permitting a new lamp to be substituted in a moment for one that has been burned out. The patient is given quinin bisulfate, .13 gm. (2 gr.) three times daily before the examination, and the fluorescin solution is made up some hours previous to its use. To examine a number of cases in succession in the dark room I had a gallon each of solution No. 1 and solution No. 2 prepared, and each patient was given a tumblerful of each solution to drink about two or three minutes before the lamp was introduced. Solution No. 1 consists of sodium bicarbonate in distilled water, .162 gm. (2½ gr.) to the fluidounce. Solution No. 2 consists of the same basic alkalinized water, with the addition of 7.5 cc. (2 fl. dr.) of glycerin and 16 cg. (¼ gr.) fluorescin to the pint. By taking a half pint of each solution the patient introduces into his stomach 8 mg. (⅛ gr.) of fluorescin, 3.75 cc. (1 fl. dr.) of glycerin, and one pint of distilled water. I find this a sufficient quantity of fluid, and like Kemp, find that a greater proportion of fluorescin diminishes the illumination.



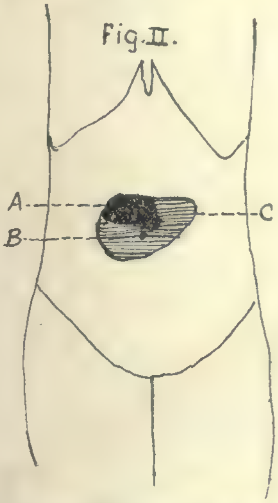


Fig. I.—Diagram showing fluorescent transllumination of stomach. A, position of lamp at period of greatest transillumination; B, shaded portion shows area of maximum transillumination; C, umbilicus.
Fig. II.—Diagram showing zone of illumination and shadow in case of displaced stomach, partly covered by distended gallbladder. A, shadow; B, umbilicus; C, zone of illumination.

To Einhorn, Morton, and Kemp we are indebted for a simple, easily applied, and very satisfactory method of wide application in clinical diagnosis.

VERSION IN DELAYED OR OBSTRUCTED LABOR.

BY

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of Philadelphia.

In transverse presentations, with or without prolapse of an arm, version is usually indicated; but if there is a contraction ring high up, if ergot has been given, if questionable expedients to secure delivery have been used, or unskilful efforts at version have been made, the case may be beyond the reach of version. In cases in which the child has been already sacrificed by delay and other unwise measures, it may be perilous to the woman to attempt delivery by the natural route. I recently saw two such cases in which this question arose. In one, 12 hours had elapsed since rupture of the membranes and prolapse of an arm; in the other, 6 hours. In the latter case the arm had been powerfully pulled on, ergot had been given, and the tissues about the perineum and vagina were contused and lacerated. So much hemorrhage had occurred from these lacerations that the woman was depleted, had some increase of temperature, and a pulse of 140. In both, the lower uterine segment was thinned; and yet under these unfavorable conditions version was successfully made. The first convalesced without fever, the second had a sharp febrile invasion due to infection at the seat of the lacerations, but within a week she was as well as ever. Under the influence of complete etherization, by exercising the utmost gentleness, and especially by careful assistance with the external hand, one may usually succeed even in these unpromising cases. With the external hand one not only supports the uterus so as to prevent tension on and possible rupture of its vaginal attachment, but one may also locate a leg and direct it toward the hand within. Later, efficient assistance is rendered from the outside by displacing the head upward and pushing the breech downward. While I have seen many of these unfavorable cases, I do not remember one in which version was followed by rupture of the uterus. Nor have I seen one in which the fetus became so impacted that its extraction by the natural route was not feasible. I have knowledge of a case in which celiohysterectomy was done with disastrous results after an unsuccessful attempt to do version. The child became impacted in the pelvis, and was delivered by the abdominal route. The latter operation may be looked on as the climax of a series of operations belonging to another era of obstetric surgery.

On one occasion I was called because the second of twins presented transversely, but before my arrival spontaneous evolution occurred. There was ample pelvic room and abundant muscular power.

I feel that these cases of version under unfavorable conditions may be contrasted with a similar class in which forceps delivery has been attempted, and to the advantage of the former operation, for in the latter I have seen cases of rupture of the uterus.

In spite of delay, maltreatment, and even ergot, version is usually indicated in transverse presentations.

The next class is one in which the operation may often be done with the utmost satisfaction. I have called it the incipient transverse presentation, occurring usually in multiparas, in women much on their feet with relaxed abdominal walls, diastasis of the recti muscles, and consequent anterior obliquity of the uterus with or without pelvic contraction. If the compression of a well-applied bandage, the dorsal semireclining posture or the Walcher position, fails to secure such a fixation of the head with relation to the inlet as promises a speedy termination of the case, it would be best to etherize, introduce the hand, and if no counterindications exist, make version. The fact that a face, a brow, a shoulder, or a funic presentation may impend affords an additional reason for intervention. For lack of rational, perhaps radical treatment, many of these women are lost; or if they fortunately escape, their babies are born dead. In this class we find those remarkable cases of delay lasting 24, 48, sometimes 72 hours. All that is necessary to recognize their true nature is careful inspection and palpation. To demonstrate a nonengagement, slip the hand just above the symphysis and approximate the finger-tips to the sacral promontory. It is all done on the outside and in a moment.

The following case is typically illustrative:

CASE.—The patient, a married woman of 38, is short of stature and quite fat, abdomen very pendulous with a large umbilical hernia. She had been in labor under the constant observation of her physician for 36 hours when I was called. I found a soft dilatable but undilated os with the membranes unruptured, fetal heart tones audible to the left anteriorly. After waiting three hours longer, during which time she was bandaged and postured, the head was still unengaged; nor could it be fixed in the inlet by conjoined manipulation, using very forcible suprapubic pressure. We agreed to do version, and in a comparatively short time, a living boy baby was born. Although in asphyxia pallida it promised to do well, but died on the following day, having bled from the cord quite freely. It ought to be added that a slight degree of contraction of the anterior posterior diameter of the pelvis existed.

Concretely stated, anterior obliquity of the uterus affords an indication for version if all available means fail to secure engagement of the head in the inlet. In these cases the existence of socalled flattening of the pelvis affords an additional reason for resort to this operation.

The generally accepted teaching that version is not suitable when all the pelvic diameters are under the normal, deserves emphasis. The following case well illustrates this point:

The patient was a married woman of 24, a primipara of the better class, in labor at term. When I was called she had been in pain over 24 hours, the greater part of which time her physician had been in attendance. The woman looked exhausted, having neither slept nor taken any nourishment for over 24 hours; there was frequent vomiting, constant nausea, but no headache, edema, or disturbance of vision. Her temperature was 100°; fetal heart tones were audible, strong; amnion ruptured some hours; head high with dorsum of child to left; os undilated and not dilatable. She had received an anodyne, 16 mg. (¼ gr. morphin) hypodermically. I passed a large McLean bag into the uterus, held it there and moderately expanded both sides at once. Pains soon grew frequent and of the kind marking the first stage of labor. Toward morning they again flagged. I now allowed one side of the bag to collapse, drew it down so that the external os gripped the contracted part, and again slowly pumped it up with sterile water. For the next hour the expanded bag was drawn down and sufficient dilation secured in 10 hours from the time I first saw her. The pelvis had an intercristal of 27 cm., interspinal 25 cm., and external conjugate 17 cm. The head remained high up. Using both hands conjointly and pressing down firmly it was not possible to make it engage. The patient being under ether, a considerable prominence of the head could be noted over the inlet anteriorly. I felt it was not a case for the forceps and we therefore agreed to do version, with the understanding that the child would probably not be saved. Working with both hands, the turning itself was easily and quickly accomplished, but the extraction proved difficult beyond any previously experienced. Although the cord continued to pulsate and the fetal heart to beat until delivery of the breech, the child made the fatal gasp at this time. It was an eight-pound boy. The head measured 12 cm. in the occipitomental diameter and 9 cm. in the biparietal. The right parietal bone was depressed under the occipital and a groove indicated the point of contact with the sacral promontory (the head passing the pelvis with the occiput to the left). As has been stated, the woman was greatly exhausted by her ordeal, and at the conclusion of her labor her condition was one of profound shock, from which she slowly rallied and ultimately fully recovered. Although the result of our treatment is not ideal, I am convinced application of the forceps could have had no better result.

I shall add another and a unique case, in which version was quite successful. Epitomizing the patient's parturient life history, one can see illustrated the advantages of version. Mrs. D., German, wife of a baker, aged 32, was in labor with her seventh child and under care of a midwife. Her first six children were born dead, and after most difficult forceps extraction (not in my hands). On full dilation of os the membranes ruptured and a loop of cord was delivered. At this juncture I saw her. Pelvimetry showed a simple flat pelvis; crests 29; spines 27; D. B. 17, C. V. estimated under 9 cm. Head at brim unengaged. The attempt was first made to replace the cord, but failing in this, I made version two and a half hours after the rupture of the membranes, and in ten minutes extracted with moderate difficulty an eight-and-a-quarter-pound boy in asphyxia pallida. The head showed remarkable flattening in the bimastoid and biparietal diameters. This boy is now 10 years of age and well mentally and physically. A few years later this same woman was delivered of a living girl by forceps in the hands of another physician after very great difficulty. This child died of bronchopneumonia following measles at the age of 3. Four years ago I again delivered her by forceps of a nine-pound boy, which did not survive. Afterward she developed a fibroid tumor and had a hysterectomy done. Thus is concluded her obstetric life history.

This very interesting history teaches several things; the first, and most apropos to the subject under discussion, is illustrated in the seventh labor, showing the peculiar advantages of version when delay results from a simple flat pelvis, the flattening being not very great. Again, the superiority of version was illustrated in her ninth labor, although this child, also a boy, weighed three-quarters of a pound more, but was delivered dead by forceps. Between these two test cases stands the forceps delivery of a living girl baby to complicate the problem and render judgment difficult.

My main plea is for better, more aggressive, but above all, for a more rational method of treatment of these patients, and especially of that class in which delay results from relative contraction of the pelvis.

The occasional idiocy, the more frequent death, and the sound of that wailing feeble cry, which lasts a few hours and then ceases forever, or an occasional scalping, all afford but poor tributes to the efficiency of the forceps when they are, as is too often the case, the first resource of the obstetrician. Used under circumstances which preclude all indications for their successful employment, they spoil all chance for successful resort to that operation which may be really indicated in the given case, be this version, symphysiotomy, or cesarean section. On one occasion I saw a child—a splendid specimen—die at the age of 6 weeks of pressure sloughs, which finally laid bare the parietal and occipital bones. For many hours three physicians had taken turns at the forceps. Division of the symphysis resulted in the easiest possible extraction of the child and perfect recovery of the mother, but the damage to the infant had been wrought. It had literally been scalped.

Quite recently before another society we had the report of a case of generally and equally contracted pelvis, with an effort at forceps delivery of a good-sized baby, and finally, a porrocesarean section to deliver a maimed infant, whose chances for survival had been irretrievably sacrificed in the same way. Let us recognize and stamp this sort of practice as a species of medievalism belonging to another era. Our unsuccessful case of version belongs to the same class. A few words may, however, be said in extenuation.

When a physician offers to make an examination late in pregnancy and the woman objects because she thinks it unnecessary, such a case should be positively declined although it is quite rare that a patient will refuse to listen to reason. Only once in all my experience and that some years ago did I meet such a case and it taught me a lesson. The little woman with a pelvis under the normal size in all its diameters gave birth to a 10 pound boy but under what difficulty! Let us wash our hands of all responsibility unless we can have our way and let us remember, if we would attain results which will uniformly stand criticism we must follow our cases through pregnancy and have a definite and exact knowledge of the relation of the fetus to the canal on the advent of labor. So soon as we learn to watch its progress more from the outside and above rather than exclusively from below and within we shall have taken a second step toward the attainment of better results.

In conclusion I desire to express my conviction that version is not a rival of the forceps at all in the treatment in cases of relative narrowing of the pelvis but that its indications are found peculiarly in that class in which the conditions for successful use of the forceps are lacking, provided the contraction be of the anteroposterior diameter only and that this diameter be estimated as not under 7.5 cm. or 8 cm. at least, with a fetus not above the average size. The pelvis is only one of the factors entering into successful solution of the problem and every labor is such an individual matter involving so many considerations that it becomes exceedingly difficult to lay down rules. In one case a flattening to 3¼ in. may mean the gravest consequences while in another it may attract no attention. I have seen living babies of average size delivered by the woman's unaided efforts when I considered the degree of narrowing even a little greater. If you would know the indications for version study equally the indications for the forceps as well as the indications for every other method of operative delivery.

SPECIAL ARTICLES

THE IDEAL PHYSICIAN.

BY

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His teachers have given him a cordial welcome to the medical profession. But the plaudits of the cautious public, and the substantial tokens of their confidence, are slowly bestowed. These should be deserved rather than sought. Then, when they come, they will come to stay. The past efforts of the ideal physician, however faithful, however commendable, are but an earnest of the labors necessary to obtain merited and permanent success. They are valuable, chiefly, as gymnastic exercises to strengthen his mental sinews. His real lifework still lies before him.

To present to you a high standard of excellence, so that you may not fight uncertainly "as one that beateth the air," and that you may not prematurely count yourselves already to have attained, you will pardon me for indicating a few characteristics of

THE IDEAL PHYSICIAN.

He is a student. He knows that this is an age of search and research, and that an army of vigilant, thinking men, scattered over the entire world, are cultivating diligently the field of science; turning up precious subsoil truths, which must have remained hidden forever from those who merely scratch the surface of the ground; rooting out the stumps of old prejudices, cutting down and clearing away the rank, noxious growth of false facts and barren dogmas; and bringing forward to the harvest time a plenteous crop of golden ideas and healthful knowledge.

He loves books. He reads them to satisfy his thirst for knowledge, but principally that he may be better qualified to benefit his fellows. Human health and life are entrusted to his care, and he feels bound, by common honesty, to give his patients the benefit of all the discoveries and improvements which have been made in the healing art.

In the world of thought there is now great activity. Discovery follows discovery in rapid succession, and he must be industrious who would keep pace with the progress of his art. He must know the past; its theories, its efforts, its failures, its accomplishments. He must know contemporary views. He must know the intimate healthy structure of the human machine, as revealed by the scalpel and the microscope, that he may appreciate the changes wrought by disease. He must know the tactics employed by the thousand enemies that attack the citadel of life. He must be familiar with the multiform weapons of defense, not only the old and efficient, but the new and still more efficient; hygienic weapons to fortify the citadel, therapeutic weapons to attack the foe, weapons contributed by the various kingdoms of nature, weapons supplied by the four elements of the ancients, fire, air, earth, and the water; fire, which stands for sunshine, and warmth, and electricity; air, which is a symbol for oxygen, and the anesthetics; earth, which includes all the treasures of the mineral, animal, and vegetable worlds—from the iron which brings back to the pale cheek the ruddy glow of health—from the oil which makes the face of the tuberculous man to shine, to the leaves of the trees, which are for the healing of the nations; and water, which whether in thermal or medicinal springs, or at seaside resorts, whether as a beverage or a bath, is a bounteous blessing.

Books are the garner in which these results are stored; and here the ideal physician feasts his intellect and fattens his memory; while the mind of him, who, from want of appetite or industry, keeps away from the library, shrivels into leanness and starvation. But the ideal physician is not a mere bookworm. He has studied at the bedside, the phenomena of disease, the peculiarities of patients, and the action of remedies. Tact, experience, skill, have been thus acquired.

The ideal physician is a teacher, ready and willing to impart knowledge. He is not the noisy echo, which adopts, with easy credulity, and hastens to repeat, without consideration, the latest novelty which is uttered. He is not the sponge, which absorbs, without preference, the good and bad alike, and without improvement, disgorges them on pressure. He is not even the industrious bee, which, while "it gathers honey all the day from every opening flower"—from noxious nightshade as well as from fragrant apple blossom—gathers it for its own use. But he is the well-supplied and well-trimmed lamp, which, from crudest oil, liberates and diffuses the imprisoned sunshine. He attends the various associations of his medical brethren, whose object is mutual improvement in the glorious art of healing; and he is just as willing to impart as to receive information.

The ideal physician is honorable.

He engages to observe the rules of the society to which he belongs, and he adheres to his engagements. If he were to swear to his hurt, even, he would perform the vow. But the code of ethics, to which he subscribes, is not the code of Draco. It is not a collection of illiberal and senseless statutes, like the fabulous blue laws of Connecticut—which many people still believe to have been real enactments. It does not impose grievous burdens; it does not restrain any liberty of action which is unselfish and beneficent. It is not an effete collection of arbitrary rules; for, after full discussion, it was endorsed at the meeting of the American Medical Association, the highest medical authority in the land. It is a wise guide and faithful monitor to him who would guard the honor, uphold the dignity, and so increase the usefulness of the profession. It is broken and condemned, as a galling yoke, only by him who, to promote a narrow selfishness, would trample under his feet all sacred pledges, all moral obligations, all regard for the general welfare. Let us glance at some of its provisions.

In the first article—The Duties of Physicians to Their Patients—it enjoins attention, steadiness and humanity. It enforces the obligation to observe secrecy and delicacy, not only as regards peculiar diseases, but in the relation to the privacies of personal and domestic life, infirmities of disposition and flaws of character. It gives cogent reasons for frequent visits to the sick; and equally powerful ones for a discontinuance of attention, when it is no longer required. It denounces the inhuman practice of abandoning a patient or sending him off to die in a distant clime, because the case is deemed incurable. It recommends consultations in difficult cases. It advises physicians never to neglect the frequent opportunities, which they have, of warning patients against vicious courses, and of strengthening good resolutions.

Certainly these monitions imply no degrading servitude. Like the analogous moral precepts: "Corruption wins not more than honesty"; "Be virtuous and you will be happy"; "Do good as you have opportunity," they merit, as they receive, universal approbation.

Their observance is commendable, but their neglect or evasion calls for no discipline.

There are, however, sections of the code which have evoked much criticism, principally from those who find profit in their violation. This is one:

> 3. It is derogatory to the dignity of the profession to resort to public advertisements or private cards, or handbills inviting the attention of individuals affected with particular diseases—publicly offering advice and medicine to the poor, gratis—or promising radical cures, or publishing cases and operations in the newspapers, or suffering such publications to be made; or inviting laymen to be present at operations, or boasting of cures and remedies, adducing certificates of skill and success, or performing any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

The diploma of the physician is a notice to the public that he has completed a prescribed course of study and passed a satisfactory examination. Presumably he is qualified to practise every branch of his profession. If he has a taste or special fitness for certain departments of practice, the public will soon enough find it out. Transcendent abilities will not lack recognition.

It is eminently fit for the vainglorious mountebank to boast of his skill and parade his surgical exploits, and advertise the infallible remedies which he has invented for the cure of cancer, pulmonary tuberculosis, and other obstinate diseases. But the physician who is jealous for the honor of his profession, who regards it as something more than a mere trade, and who will preserve his self-respect and deserve the respect of his peers, is careful to avoid even the appearance of this advertising evil.

Ours is a learned profession. In usefulness it is not, in dignity it should not, be surpassed by any other human calling. The excellent, in any profession, do not advertise their superiority. Walt Whitman might brag, but Bryant and Longfellow wore modestly their unsought laurels. The better lawyers do not write commendations of their own adroitness and eloquence. The better clergymen shrink from sensational announcements of theatric religious services. Others need not be mentioned. Agassiz did not boast. Newton regarded his vast acquisitions as but a few pebbles cast up by the boundless ocean of truth.

"Equally derogatory," continues the code, "is it for a physician to hold a patent for any surgical instrument or medicine, or to dispense a secret nostrum." And no *ideal* physician ever patents an instrument or dispenses a secret nostrum.

Ours is a beneficent profession. The discoveries and inventions of all the wise and worthy are freely contributed to the common stock. Jenner procured no letters patent for vaccination. Simpson did not advertise chloroform as a secret discovery for which he should receive a financial reward. Nélaton's probe, Dieulafoy's aspirator, Marion Sim's speculum, chloral hydrate, the bromids, and hundreds of minor devices and remedies are unrestricted by concealment or royalty.

The physician who employs without cost the invaluable discoveries of his medical brethren and then seeks to secure to himself by a patent some petty invention or improvement is not worthy to belong to a generous and self-sacrificing fraternity. He should go out from it, because he is not of it. The ideal physician who is made welcome to the bounteous repasts furnished by the profession, never charges an admission fee to the paltry cold lunch which he may be able to spread.

The propriety of the sections of the code which condemn advertising and patents, is acknowledged, not only by the profession but by the well-informed portion of the community.

The ideal physician is both liberal and progressive. He tolerates diversity of opinion and practise. He invites discussion. He encourages experiment. He examines patiently every new theory in pathology and therapeutics, which does not ignore reason and shock common sense and contradict wise experience.

He gives a hearty welcome and subjects to a thousand unprejudiced tests every newly discovered medicine, and every new application of time-honored remedies. He eliminates every day some old errors of faith and practise. He aims to prove all things and to hold fast that which is good.

The irregular practitioner claims to have better methods and better results. He rejects the accumulated experience of the past as worthless. He condemns the established principles of the profession as false, and their practice as injurious. He swears allegiance to some exclusive dogma, or he nails his faith to some panacea. Whether he be right or wrong in his assumptions it is not necessary here to discuss. It is sufficient that, between him and the ideal physician, there is an irreconcilable difference. There is no middle ground on which the parties can agree to stand. Compromise is impossible. And the ideal physician never consents to barter his self-respect for a fraudulent consultation fee, and he is wholly worthy of membership in an honorable profession.

No disrespect is meant to be shown in these remarks toward any honest dissenters from the orthodox faith.

The ideal physician believes their views to be erroneous and their practice a fearful trifling with human life. He believes that the rigid scrutiny to which every tenet of his faith is being subjected, and the thorough and extensive experiments which he makes to ascertain the effect of administering, and also the effect of withholding medicines, will ultimately leave, for the exclusive systems, no valid reason for their existence.

But many of these irregular practitioners are intelligent and estimable men. Some of them are our neighbors and our personal friends. Deceived they may be, and illogical, and too credulous; but they are not necessarily quacks, and we should not stigmatize them as such.

The ideal physician stands fast in his integrity. He detests intensely the socalled tricks of the trade. He never misnames a disease, nor magnifies its danger, in order to gain plaudits for a skill which he does not possess.

He does not pander to popular prejudice. He does not claim to practise two contradictory systems of medicine. He does not manifest an exaggerated zeal and sympathy that he may win a patient or retain him.

Almost every patient regards his illness as one of extreme severity; and he has little respect for the judgment of the medical attendant who does not confirm this opinion.

Some physicians, of sensitive temperament, have a sympathy which is almost morbid. They bear the burdens, they suffer the anguish of all their patients. They are knights of the rueful countenance. They go mourning all their days. Now, these may not be the best type of physicians; but they are sure to be popular. Their weakness is so amiable, their tenderness so genuine, that, while we pity, we give them our hearty respect.

But there are doctors who take advantage of the craving for sympathy which all sick people have. They disguise their intense selfishness; they assume a benevolent look; they put on gentleness as a cloak; they "aggravate" their voices; and, in tremulous accents, talk soft words of kindness and pity. This practice, besides being a fraud, is a downright injury to the patient. It hinders his recovery. Sick people need encouragement; and the brightest side of their case should be exhibited.

The ideal physician at the bedside of his patient, thinks of naught except how he, best and soonest, can remove the disease. Any other doctor is not fit to take human life into his mercenary hands. The ideal physician takes little thought for his own reputation. If he cures his patients speedily, people will find it out and he will have employment; he never seeks to gain an undeserved notoriety. Patients need the bracing stimulus of hope, and not the enervating influence of solemn sympathy.

The ideal physician irradiates the sick chamber with the light of his cheerful presence. He may not be hilarious—he is not indifferent—but he has an irrepressible good nature, which lifts the patient out of the slough of despond, and places his feet on the firm land of health. In desperate cases, even a little harmless levity may be beneficial. Myrrh is good, but sometimes mirth is better. A well-timed jest may break up a congestion. A pun may add pungency to the sharpest stimulant. His patient may never know the extent of the danger from which he has been rescued; he may never half appreciate the skilful services; but, he is cured, and that is all about which the ideal physician feels any concern.

Had the doctor been gloomy and pathetic; adroitly exciting fears, and magnifying danger, the invalid and his friends would have been lavish of praise; but the depressing influence of the somber sympathy would have endangered the life, or prolonged the disease. But the ideal physician preserves his individuality. He does not tamely copy the manners of any one, however celebrated. Saul's armor, although admirable for Saul, was promptly rejected by David, as cumbersome and useless. The ponderous physician may challenge our respect, for his profound candor; but we smile at his awkward attempts to be sprightly and playful. The solemn doctor moves us to tears only when he tries to be facetious.

The ideal physician treats his professional brethren according to the injunction of the Golden Rule. He does not seek to exalt himself by dragging others down. Daniel Webster once said: "If I have little of that spirit which would exalt mortals to the skies, I thank God I have none of that which would drag angels down." The ideal physician does not publish the mistakes of his neighbor, for he knows that the broadest mantle of charity is often required to hide his own failings. Detraction, the sole weapon of little minds, has no place in his armor, He puts on no airs of patronizing condescension toward junior members of the fraternity. He affects no contempt for his competitors; he never stabs with an innuendo; he never damns with faint praise. He generously defends from unjust aspersion even his most formidable rival, and he always discourages those petty squabbles which so disgrace the profession.

The ideal physician must not be unduly sensitive; he is not easily astonished; but he is filled with wonder that any physician can hesitate to beg admission to the almshouse, rather than intrude or continue his attentions when he knows they are not welcome or required.

Four hundred and fifty years ago Guy de Chauliac, tracing the character of a physician, recommended "that he be learned, expert, ingenious; that he be bold when he is sure, and timid when in doubt; that he avoid bad cures and practices; be gracious to the sick, generous to his companions; wise in predictions; chaste, sober, pitiful, and merciful; not covetous, nor extortionate, but receive a moderate fee, according to his labor, the abilities of his patient, the character of the issue or event, and his own dignity."

Little need be added to this description by the French physician.

Your habits of study, your zeal, your respectful attention, your correct deportment, have furnished the faculty of your college, good ground for the belief that you will all strive to become ideal physicians. Obstacles may block up your path; surmount them. Temptations will assail you—temptations to indolence, to falsehood, to vice, to envy, to meanness, to impurity; resist them. Slander may becloud your reputation; wait; be concerned only to have your character invulnerable. Business may be dull; you will have more time for study. Your cash receipts may be small; the gratitude and love of your patients may be more precious than gold. To St. Luke, the practice may not have been lucrative; but for eighteen hundred years he has been the "beloved physician."

The ideal physician will be true to principle and loyal to his profession. He will reciprocate the love of his alma mater, and labor for her welfare; he should be a sincere follower of the Great Physician, who ever went about doing good.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 9, 1904. [Vol. XLIII, No. 2.]

1. The Field of the Section on Pathology and Physiology: Chairman's Address. JOSEPH MCFARLAND.
2. The Demands of the Child by Virtue of Right: Chairman's Address. CHARLES GILMORE KERLEY.
3. Appendicitis from the Standpoint of the Physician. S. G. BONNEY.
4. The Danger of Allowing Warts and Moles to Remain Lest They Become Malignant, with Twenty-five Illustrative Cases. W. W. KEEN.
5. Pathologic Irregularities. M. H. FLETCHER.
6. The Crisis and Treatment of Pneumonia. W. J. GALBRAITH.
7. Mesenteric Embolism and Thrombosis: A Study of 214 Cases. JAMES MARSH JACKSON, CHARLES ALLEN PORTER and WILLIAM CARTER QUINBY.
8. The Yellow Fever Epidemic of 1903 at Laredo, Texas. G. M. GUITERAS.
9. Suicide: With Some Illustrative Cases. JOHN L. DAVIS.

1.—See *American Medicine*, Vol. VII, No. 24, p. 926.

2.—See *American Medicine*, Vol. VII, No. 24, p. 924.

3, 4.—See *American Medicine*, Vol. VII, No. 24, p. 922.

5.—Pathologic Irregularities.—M. H. Fletcher discusses a class of irregularities not treated in works on orthodontia nor under dental orthopedics. These do not appear until mature years, are purely acquired, are the result of alveolar disease, and are only amenable to mechanical treatment by first removing the causes of the disease producing them, interstitial gingivitis. One termination of this inflammatory action is the tendency of the teeth to be expelled from their sockets, with the result that they become elongated, tilted to one side, or pushed in or out of the normal arch. The local causes of interstitial gingivitis are tartar, decayed teeth producing hypertrophy of the gums, unfinished fillings, gold crowns and bridge work, artificial dentures, rapid wedging of the teeth, collections of food or anything producing irritation of the gum margin. Constitutional causes probably do not act unless a lesion of the gum preexists. Degeneracy or faulty development may bring the etiologic moment at a very early stage of the local irritation, while in health the pyorrheal stage may be deferred indefinitely. All cases will heal by removal of deposits and the sequestrum they have caused or by the loss of the affected teeth. Ninety percent of cases of interstitial gingivitis are due to deposits about the teeth. Removal requires from three to ten sittings, washing out the socket with boracic acid and alcohol, and painting the gums with iodin or zinc iodid. [H.M.]

6.—Crises and Treatment of Pneumonia.—W. J. Galbraith reports a treatment which has given him most gratifying results. The primary effort should be to fortify the right heart for the crisis. In no infectious fever is tension so reduced as it is in pneumonia just prior to and during the crisis. Pneumonic cardiectasis describes the condition we have to deal with. Alcohol, nitroglycerin, and strychnin increase the mechanic conditions that are distressing our patients. The first attention rendered ordinary cases is a warm bath and saline cathartic. When the temperature has reached 105° F. or over, he gives 60 gr. (1 dr.) of quinin followed in an hour by 30 gr., and in another hour by 15 gr., then administering tincture of iron chlorid, 7 m. to 15 m. every four hours. If the temperature is 104° F., he gives 50 gr. of quinin the first hour, and lessens in the above proportion; if 103° F., he gives only 30 gr. or 40 gr. He alternates 10 gr. of quinin with the tincture of iron every four hours during the remainder of the day. During convalescence he gives elixir of iron, quinin, and strychnin, and sometimes guaiacol and codliver oil, depending mainly, however, on ventilation, sunlight, and nutritious food. [H.M.]

9.—See *American Medicine*, Vol. VII, No. 24, p. 922.

Boston Medical and Surgical Journal.

July 7, 1904. [Vol. CLI, No. 1.]

1. President's Address before the American Gynecological Society. EDWARD REYNOLDS.
2. Aciduria (Acetonuria) Associated with Death after Anesthesia. E. G. BRACKETT, J. S. STONE and H. C. LOW.

2.—Acetonuria Associated with Death after Anesthesia.—E. G. Brackett, J. S. Stone, and H. C. Low, in a lengthy article, report the cases. Some 13 patients, all children, were within a comparatively brief period treated within the Children's Hospital, Boston. Four died and nine recovered. In seven cases the symptoms followed operation, usually beginning about 12 hours after operation was terminated. In six instances no operation preceded. The cases present certain features in common: Vomiting associated with collapse; weak and rapid pulse; absence of fever until just before death; cyanosis, in the fatal cases, causing extreme dyspnea; apathy and stupor, alternating with periods of restlessness at first, but in the fatal cases gradually deepening into coma and death; and the presence of acetone in the breath and urine. The only marked anatomic lesion was extreme fatty degeneration of the liver and the muscles. This fact is interesting when associated with the knowledge that in the eight most severe cases there was either a paralysis or some disability resulting in the degeneration and atrophy of an extensive part of musculature. The occurrence of the cases gives a distinct clinical evidence of being a form of acute intoxication, due in some way to a disturbance of the metabolism, and which has, among its peculiar manifestations, the presence of acetone and its allied compounds in the excreta. They apparently occur under many conditions, but are particularly fatal when following the administration of an anesthetic, and under circumstances which give no reason to expect an untoward result. [A.B.C.]

Medical Record.

July 9, 1904. [Vol. 66, No. 2.]

1. Illuminating Gas Poisoning: A Clinical Study of 90 Cases. W. GILMAN THOMPSON.
2. The Diagnosis of Typhoid Perforation and Its Treatment by Operation. CHARLES A. ELSBERG.
3. A Method of Securing Fixation and Hardening of the Central Nervous System before the Autopsy. B. ONUF (ONUFROWICZ).
4. Occipitoposterior Positions. S. MARX.
5. Brief Note on the Management of Occipitoposterior Positions of the Vertex. JOHN O. POLAK.

1.—See *American Medicine*, Vol. VII, No. 22, p. 847.

2.—Typhoid Perforation.—C. A. Elsberg reports 4 cases in detail, and mentions 11 others which he has observed with other surgeons, making a total of 15. The only symptoms referable to the perforation, *per se*, are sudden abdominal pain and free gas in the peritoneal cavity. The latter is somewhat difficult to demonstrate, but was elicited before operation in 5 of the 15 cases. In the large majority of cases the diagnosis of perforation is made from the symptoms of an affection of the peritoneum which has been caused by the perforation and not from any symptoms concomitant with and caused by the perforative process. Collapse does not occur as often as one would expect. Thus of the 15 cases that form the basis of this paper, only 4 were in collapse when the diagnosis of perforation was considered sufficiently certain to indicate operative interference. When the symptoms have been of at least 12 hours duration and the signs and symptoms point more to a perforation than to anything else, the operation is a justifiable one. The conditions found at operation are given in detail. The author prefers a general anesthetic to a local one, believing the former produces less shock. Three of the four patients operated on recovered. Operation was performed in no instance in which the perforation was not found. [A.B.C.]

3.—Fixation and Hardening of the Central Nervous System before Autopsy.—B. Onuf details his method. It consists in injecting as soon as possible after death a strong solution (12%) of formalin, first by lumbar puncture, then through the foramen magnum. The former hardens the spinal cord, the latter the brain. The idea is first to fill the entire dural sac with fluid and after that the whole spinal canal, into which the fluid will naturally ooze when the dural sac has become entirely filled. One next proceeds to harden the brain. The needle, or the trocar, is introduced into the fourth ventricle, at least that is the aim. The skull is palpated to locate approximately the foramen magnum, then the needle is tentatively introduced in the neighborhood of the foramen magnum and in a direction presumably parallel to the floor of the fourth ventricle. The results are surprisingly good. [A.B.C.]

4.—Occipitoposterior Positions.—S. Marx believes that the occipitoposterior position is more frequently met with than is usually taught. It is absolutely essential for successful treatment to make an early diagnosis of the malposition, and this triad of symptoms ought always be associated with a possible vicious presentation of the occiput, *i. e.*, early rupture of the membranes, slow nagging and teasing pains, and abnormally slow and futile labors. Such evidence can always be clinched by a vaginal examination, or, if the least doubt exists, the introduction of the full hand into the canal. Early recognition and timely interference are important, for by such means we can, in the majority of cases, change the case from an almost impossible one to one of the greatest simplicity. It must be remembered that a firmly flexed head will almost always rotate spontaneously, and that the first step in the treatment of these cases is to insure a permanent and marked flexion; and this can be most readily done by pressing, throughout several pains, the sinciput against the chest of the child by two fingers, or the introduction of the full hand in its grasp, flexing the occiput and thus obtaining the same result. The permanency of this sustained flexion is assured by using the postural treatment, *i. e.*, placing the patient in that lateral prone position corresponding to the position of the occiput. Operative interference must be left to a later period and may be indicated by symptoms of exhaustion on the part of the mother or child, or by a tendency to posterior rotation. [W.K.]

5.—Management of Occipitoposterior Positions of the Vertex.—J. O. Polak says that before labor and during the early part of the first stage the diagnosis of occipitoposterior may be readily made by abdominal palpation. The dorsal plane is inaccessible, while the small parts are prominent and found in the middle section of the abdomen. The head is usually not engaged at the beginning of labor, which makes the cephalic prominence marked. The anterior shoulder is found remote from the median line and the heart is heard well around toward the flank or not heard at all. As to treatment, the majority of posterior cases rotate to the front unaided, when the passenger, powers and passages are normal or can be made to assume relative normality. With the head at or above the pelvic brim, flexion more or less imperfect, and the membranes unruptured, postural methods alone deserve our consideration. The woman should be placed on the side toward which the occiput points and directed to maintain this position, which favors anterior rotation and more perfect flexion of the vertex. Manual aid may be given during the pain by pushing the sinciput upward and backward, thus promoting flexion and anterior rotation. Every effort should be made to keep the membranes intact until complete dilation of the cervix is obtained. Should the head become arrested and remain stationary for two hours in the second stage, the forceps may be applied, either to the sides of the pelvis and taken off and reapplied as the head assumes its relation to the different pelvic planes or the axis traction forceps may be applied to the sides of the head and be used as rotators as well as tractors, guided by the relation of the sagittal suture. Posterior positions are apt to tire the woman and exhaust the child. The fetus often becomes asphyxiated while in the vagina. The judicious use of forceps will minimize these risks. [W.K.]

New York Medical Journal.

July 2, 1904. [Vol. LXXX, No. 1.]

1. Hermann Brehmer. S. A. KNOPF.
2. Röntgen Ray Therapeutics. G. H. STOVER.
3. The Results of Röntgen Ray Treatment. SAMUEL BERESFORD CHILDS.
4. The Carbohydrates as Etiologic Factors in Stomach Disorders. W. E. DEEKS.
5. The Fever of the Puerperium (Puerperal Infection). JAMES HAWLEY BURTENSHAW.

2.—Röntgen Ray Therapeutics.—G. H. Stover reports 51 cases which indicate the main features of the work that is being done with the röntgen ray. He says that so uniform has been his success and that of others in the treatment of epithelioma that he believes the röntgen ray is a specific for this condition. It is a better treatment than the knife or caustic in that it does not destroy healthy tissue, and the final cosmetic effect is infinitely better. In carcinoma the results are not so gratifying, particularly in those cases in which the disease is deep-seated. In cases of pain in nerves, due to pressure or encroachment of malignant growth, the röntgen ray does not seem to relieve, but it does relieve the specific pain of the growth itself. In the case of malignant disease, such as carcinoma of the breast of a certain size, and in carcinoma of the internal organs, if these cases are operable, he thinks surgery is the proper treatment, yet it will be well to ray these before and after operation. [C.A.O.]

3.—Röntgen Ray Treatment.—S. B. Childs says that the therapeutic field of greatest usefulness of the röntgen ray is with superficial epitheliomas, rodent ulcer, and lupus vulgaris, when the area involved is conspicuous, as on the face or neck, and where a cosmetic result is particularly to be desired. Healing leaves the smallest and least perceptible scar; for when properly applied, it destroys only diseased tissue, and particularly commends itself for use in those localities where it is undesirable to sacrifice the surrounding tissues. It is very efficacious in many obstinate cases which have resisted the ordinary methods of treatment, such as acne rosacea, chronic localized patches of eczema and psoriasis, lupus erythematosus, and kindred diseases. The results in tuberculous glands, when no suppurating focus is present, are encouraging, and the enlarged masses of glands in Hodgkin's disease appear to be susceptible to the treatment. The röntgen rays should not be employed in any operable, deep, malignant growth, with two exceptions: (1) As pointed out by Coley, when a surgical operation would sacrifice an extremity, and even in this case the value of the röntgen rays is uncertain, and is determined by a few weeks' trial; (2) as mentioned by Pusey, with a view to limiting the operation by checking the growth when immediate operation is inadvisable. It may be of service even in inoperable malignant growths, by relieving pain, diminishing discharges, and lessening their offensiveness, and in many cases life may be prolonged in comparative comfort for a considerable period of time. [C.A.O.]

5.—Fever of the Puerperium.—J. H. Burtenshaw gives a chronologic review of the doctrines of the etiology and of the methods of treatment from early times to the present. The review covers a period of more than 2,300 years, and should be read in the original. The treatment of today has for its aim: (1) The removal of the source of infection; (2) the neutralization of the effects of the septic germs or of their toxins; (3)

the support of the patient's vitality. In those cases in which the cavity contains much debris, the latter should be removed with a finger, or, exceptionally, with a dull wire curet, and the uterus then douched with a large quantity of normal salt solution. Frequent and copious infusions of normal salt solution are of great benefit. Ergot is always indicated. When the patient's temperature declines, brandy or whisky should be given liberally. Body temperature should always be controlled by cold water sponging, ice compresses, or an ice-water coil, and never by the administration of drugs. [C.A.O.]

Medical News.

July 9, 1904. [Vol. 85, No. 2.]

1. The Theory of Mutation in its Relation to Medicine. JONATHAN WRIGHT.
2. Race Suicide from the Gynecologic Standpoint. ROBERT H. GRANDIN.
3. Sterility Due to Abnormal Conditions of the Uterus. HIRAM N. VINEBERG.
4. Sterility from Vaginal Causes. JAMES N. WEST.
5. Yohimbin: Its Use in the Treatment of Eye, Ear, Nose, and Throat Diseases. J. H. CLAIBORNE and EDWARD B. COBURN.
6. Prognosis and Treatment of Urethral Stricture. EDWARD L. KEYES.
7. The Submerged Tonsil. THOMAS J. HARRIS.
8. Pseudobulbar (Glossopharyngolabial) Paralyses. LEONARD K. HIRSHBERG.
9. The Rational vs. the "Regular" Treatment for Typhoid Fever; Hanna's Case, and Some Others. CHARLES E. PAGE.

1.—Theory of Mutation in its Relation to Medicine.—J. Wright believes that if this theory is settled in the affirmative it will have a very important bearing on our knowledge of the etiology of disease. De Vries has observed changes in plants so sudden and profound that he believes all species exhibit at some time an excessive instability from which new and distinct forms arise at a rate of one or two to each 100 plants. Many of these multiply very rapidly when they are transported to a new region where the conditions are favorable. The majority perish from lack of adaptation to their environment. It has been a common belief that from time to time the character of certain diseases has changed in its clinical manifestations. The ancients had forms of throat disease other than we observe today. It is after the fall of ancient Rome that we seek the origin of smallpox, scarlet fever, measles, whoopingcough, influenza, possibly, even syphilis. Did smallpox or scarlet fever spring from some harmless protozoon of the pre-Renaissance? The problem is a mixed one. Change of food, climate, and habits must as surely modify human cells and their products as do these soils alter the bacteria which feed on them. We are becoming familiar with the minor variations in bacteria, not only of form but of function in the production of poisons to the animal cell. [H.M.]

2.—Race Suicide from a Gynecologic Standpoint.—R. H. Grandin says that to the layman race suicide means the unwillingness of man to procreate, or of women to bear children, either because the exigencies of life are so strenuous that it is of vital moment that no more mouths should be opened for food, or else because the demands of social life appeal more to man and to woman than the honor of being termed father and mother. But the race is suffering from the effects of suicide far more because of inaptitude for conception than from disinclination to assume the obligations of maternity. Disease of the reproductive organs is the medical side of the problem. Grandin considers that the chief cause of race suicide is the gonococcus, that 45% of sterile marriages are traceable directly to gonorrhea. He estimates that 60% of gynecologic work is due to gonorrhea, and should be exterminated by preventive medicine, that is by the education of men and women in a knowledge of the evils entailed by gonorrhea and syphilis. The young man should be informed as to the consequences resulting from misuse of the sexual impulse. As upon the woman lies the heaviest burden of the infection, so the young woman should be informed that the man she is about to mate with should be required to submit a clean bill of health. But this infringes upon the socalled professional secret, and here is another shackle to be broken. [W.K.]

3.—Sterility Due to Abnormal Conditions of the Uterus.—H. N. Vineberg classifies sterility due to uterine conditions as primary and secondary. The most frequent causes of primary sterility are arrested development of the uterus, which is as a rule hopeless; the infantile uterus with a long cervix and small body anteflexed upon the cervix, which condition is often amenable to treatment; congenital retroversion of the uterus in which both body and cervix are comparatively long and slender, and in the writer's experience no surgical procedure will cure the sterility in such cases. Other malformations are conical cervix and pinhole os, both of which are often remedied by surgical interference. Another cause of uterine sterility is endometritis of gonorrheal origin. The most frequent uterine conditions giving rise to secondary sterility are chronic metritis and very deep lacerations of the cervix; others are permanent hyperinvolution and atresia of the uterus. [W.K.]

4.—Sterility from Vaginal Causes.—J. N. West classifies the vaginal causes of sterility as congenital, pathologic, traumatic and psychic. Congenital causes are pseudohermaphroditism, congenital absence of vagina, vaginal septa and bands, congenital atresia, and other congenital malformations including imperforate hymen, many of which yield to judicious surgical interference. Pathologic causes are the most frequent and important of the vaginal causes of sterility and include newgrowths, carcinoma of the cervix, sarcoma, vaginal cysts, fibroids, syphilitic growths, and inflammatory conditions resulting in abnormal secretions inimical to the life of the spermatozoa. In the case of newgrowths they should be removed, but when of malignant character conception should be guarded against. If the growth is of syphilitic origin the use of the mixed treatment with mercurials and iodids will usually prove effective. If the sterility is due to an excessive and acrid secretion of acid mucus, it may be relieved by the judicious use of antiseptics and local applications, among which the very best is silver nitrate. Among the traumatic causes the vesicovaginal fistula is the most striking. Cystocele, rectocele and complete procidentia may also be causes. Atresia of the vagina due to disease or trauma also occurs and may be a bar to normal insemination. The relief of the traumatic causes of sterility offers a wide field of usefulness to the gynecologist, but when sterility is really due to psychic causes the physician can offer practically no relief, the means for this lying with the affected individuals. [W.K.]

5.—Yohimbin in Eye, Ear, Nose and Throat Disease.—J. H. Claiborne and E. B. Coburn have studied this drug with the following conclusions: A 2% solution, either alone or with the same of adrenalin chlorid, instilled 5 or 6 times in 10 or 15 minutes, will produce both corneal and conjunctival anesthesia. Marked anesthesia of the cornea lasts from 30 to 45 minutes. The conjunctival anesthesia is not so profound, and disappears several minutes earlier. The eye becomes immediately suffused, and continues red for more than an hour. There is no widening of the palpebral fissure. There is moderate dilation of the pupil, lasting 15 minutes. The light blurring of vision appears to be due to spheric aberration, rather than paresis of accommodation. Adrenalin in combination loses its constricting power. This suggests that yohimbin may be an antidote to adrenalin. The former cannot be considered an ideal anesthetic for operations involving the conjunctiva or muscles. It would probably be effective in cataract extractions and iridectomy. It is useful for removal of the turbinals and granulations, and of polypi from the ear, because of nontoxicity and because the tissues do not contract. Sensation is completely restored in one and a half hours. It does not act on cutaneous surfaces, except by direct injection. Applied to the tonsils, uvula, and fauces, it causes salivation, followed by a sense of dryness. It is only slightly bitter. [H.M.]

6.—Prognosis in Treating Urethral Stricture.—E. L. Keyes, Jr., states that proper treatment of the cause of stricture will prevent the latter. The causes are gonorrhea and trauma. The abortive treatment of gonorrhea, to prevent the inflammation, ardor, and chordee of the acute stage, will in nearly all cases prevent stricture. Traumatic stricture is either due to instrumentation or to perineal injury. If due to the former, usually occurring in catheter life for obstruction from enlarged prostate, the stricture is superficial and easily dilated. Perineal injury from trauma, on the contrary, results in an early, tight stricture which is difficult to treat successfully unless such treatment is instituted early; it consists of immediate external perineal urethrotomy. Any stricture may be undilatable for one of four reasons: It may be resilient, irritable, impassable, or complicated. These conditions are considered in detail. Gonorrheal resilient strictures are nearly always in the penile urethra. Deep resilient strictures are nearly always traumatic, and nothing short of external urethrotomy will effect a cure. [A.B.C.]

7.—**The Submerged Tonsil.**—The submerged tonsil is a term used by various writers to describe that form of faucial tonsil enlargement which is in whole or greater part hidden by occluding anterior pillars, so that at first sight no excess of growth may be recognized. The ordinary enlarged tonsil is noninflammatory and the growth is made up mainly of increase in the lymphoid element. The submerged tonsil, on the contrary, is the result of one or many previous tonsillar inflammations, and while there is an increase in all the histologic elements, the fibrous reticulum is especially involved. There has occurred here, or will take place in time, a secondary sclerosis or atrophy. Symptoms are: Frequently repeated attacks of nonsuppurative inflammation of the tonsil; tendency to peritonsillar abscess; pain; earache; cough, which at times is very annoying. Treatment is surgical, and consists in freeing the adherent anterior pillar, also, if necessary, the posterior, and removal of the tonsil in whole or in part. Previous to operation the tonsil is painted freely with a 10% solution of cocain and then a .5% to 1% of the same drug is injected into the tonsil, which is then ready for removal. [A.B.C.]

8.—**Pseudobulbar Paralysis.**—L. K. Hirshberg states that pseudobulbar paralysis is marked by apoplectic onset, absence (or asymmetry) of atrophy, hemiplegia, diplegia, or paraplegia. The disease is remittent, exhibits normal electric reaction, cerebral disturbances, dysphagia, aphasia, and at times trismus. The cerebrobulbar form shows marked arteriosclerosis, and many cases have a luetic history. Mental phenomena are always present. Facial paralysis, hemianopsia, lip, tongue, and oscular muscle paralyses occur. The extremities are involved, involuntary laughing and crying occur. The palate reflex is often lost. Dyspnea, dysphagia, and increased pulse-rate are at times present. It develops quite definitely after two distinct hemiplegic attacks often months apart. The pathologic findings are first and most frequently arteriosclerosis, especially of the basilar vessels, often accompanied by dilations and aneurysms. Diseased foci are constantly present in both hemispheres, the internal capsule, corona radiata, basal ganglia, and rarely in the cortex, especially over frontal lobes. Grossly the pons and medulla rarely show diseased areas. Microscopically, the pons and medulla will show somewhere areas of sclerosis or softening. A case is reported. [A.B.C.]

9.—**Rational vs. "Regular" Treatment for Typhoid Fever.**—C. E. Page advocates the Brand treatment, and gives no food of any sort, except water, until the patient is safely convalescent and actually hungry. He has never, even in the worst cases, found occasion for more than five or six full cold baths, and if the case is seen early, a more moderate hydrotherapy is sufficient. No end of fever patients have emaciated to skeletons during forced feeding, being both starved and poisoned. After convalescence is established, and the patient hungry enough to pronounce stale Graham bread delicious, this will be a good risk. Two or three times daily after a day or two he may have a moderate portion of such bread, and a few stewed prunes, but the bread must be chewed by itself and not moistened with any fluid but saliva. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Importance of Normal Intestinal Bacteria to Man.—Animals dependent upon food surrounded by cellulose membrane, cannot live without intestinal bacteria, as they are necessary to break up this cellulose membrane. They are not necessary for digestion in man, as proved by the fact that in the small intestine, the place where most of the digestion is carried on, there are the smallest number of bacteria. According to Strassburger,[1] however, they are necessary for the maintenance of a healthful state. Their combination in the small intestine with carbohydrates prevents putrefaction and allows fermentation. Did putrefaction exist in the small intestine primarily, most of us would be suffering with symptoms of autointoxication, as the albuminoids of the small intestine putrefy quickly, as proved in the cases where their absorption is impeded. In the large intestine putrefaction takes place, because the bacteria, unassisted by carbohydrates, are unable to prevent the development of organisms of putrefaction. Pathogenic bacteria are destroyed to an extent by the normal intestinal flora. The bacteria promote peristalsis, and in cases of habitual constipation he noted the absence to an extent of these bacteria. Too great a number of bacteria produces diarrhea, robs the organism of a good part of its nutriment, and gives rise to abnormal fermentation. The bacteria do not penetrate the normal intestinal coats, but their metabolic products do, and give rise to the wellknown symptoms of autointoxication, if absorbed in too large an amount. We see, therefore, that the normal intestinal bacteria have useful and noxious properties, the latter especially where they grow too luxuriantly; it should therefore not be our purpose to free the intestines of bacteria, but to maintain them in normal amount and composition. [E.L.]

Serodiagnostic Tests for Tuberculosis.—Opinions differ extremely among experimenters as to the utility of these tests. G. Angelici[2] recalls the first, made by Arloing, in 1898. Various methods of obtaining the serum have been employed. Efforts have been made to show not only the presence of tuberculosis, if it exists, but to arrive at a knowledge of how to determine a pretuberculous stage. The serum may give a positive, or agglutinative reaction, visible in mass to the naked eye. It may give an incomplete reaction, as when the solution does not settle, but continues turbid. Or, it may be negative, as when neither agglutination nor clarification occur. Personal idiosyncrasy in nontuberculous individuals may lead to positive reaction. Also, in apparently normal cases, former infections of lymph-nodes may persist, latent. This will militate against a proper diagnosis. However, Arloing and Courmont agree that some tuberculous process, active or latent, is responsible for positive reactions. There are those who deny the clinical value of the test, among whom are Knopf, Dieudonné, Neisser, and Gebhardt. Guyot and Maragliano use the sputum as a culture medium, and thereby reach results that show homogeneous cultures, which are best for the serum reaction, and confirming its value clinically. De Grazia reports a long series of experiments to show that normal blood will give positive reaction, and that staphylococcus, *B. typhosus*, and others, may give a positive reaction with the blood or serum of tuberculous individuals. But in Rome, Ascoli and De Gregorio have found positive reaction in 80%, while the reaction did not occur in other serum in over 3% of all tests, these being cases of exudative pleuritis, or croupous pneumonia. In April, 1904, Schwarzkopf published results from guineapigs. Their normal serum will not agglutinate *B. tuberculosis*. Further, if some slight and purely local tuberculous affection be induced, no positive reaction takes place. But when the guineapigs have extensive anatomic modifications due to tuberculosis, the positive reaction is found present. It is strange that German, Italian, and French observers come to widely different conclusions. But some final and practicable test is certain to be arrived at if control tests are continued. [T.H.E.]

The Origin of Cardiac Arhythmia.—There is no unity among authorities as to the mode of production of arhythmic heart action. Some look upon fatigue and exhaustion of the heart-muscle as the causative factor, while others speak of disproportion between work and obstacles to be overcome, etc. D. Pletnew[3] has made some experiments on dogs and considers the following propositions as justified: In the origin of arhythmia in the form of extrasystole the increase of intracardiac pressure plays an important causative part. When, in addition, we have irritation of the vagi, the arhythmia becomes more pronounced, but its extrasystolic character is less marked. The experiments were made on large dogs and consisted in compression of the aorta and in stimulation of the medulla or the vasomotor center. [L.J.]

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[1] Münchener medicinische Wochenschrift, Vol. l, No. 52.
[2] Il Policlinico (Rome), No. 27, 1904.
[3] Medizinskoe Obosrenie, lxi, No. 4.

Determination of the Stomach Boundaries by Inflation.—A. K. Sievert[1] finds that the boundaries of the stomach, obtained by inflation with small quantities of carbon dioxid, correspond closely with those obtained by other methods, such as percutory palpation and auscultatory percussion by means of the phonendoscope. This method is even better than the others because it reveals not only the lower boundary, but also the right, and also the upper border in cases of gastroptosis. Where the phonendoscope is used, it is often difficult to determine whether the instrument is over the stomach or the colon. The boundaries obtained with large quantities of gas, differ considerably from those obtained with small quantities. In the former case the boundaries obtained are not normal, but are those of an enlarged and partly displaced organ. This process is valuable, however, in the diagnosis of gastroptosis. [B.K.]

Atypical Scarlatina.—Piñeiro[2] reports three cases which have occurred in the recent epidemic in Cuba. The first began with acute bronchial irritation; negative physical signs. After a rise of temperature and rapid pulse, dyspnea became marked, the diagnosis of capillary bronchitis apparently sure, and not until after two days did the confusing symptoms give way to vomiting, and then the exanthem made its appearance upon the thorax. The second case was that in a child of ten years, who presented marked edema of the eyelids and some swelling in the lower extremities, slight temperature, desquamation of the skin of the palms of the hands, and albuminuria. Recovery in a few days, with no appearance of any exanthem. The third case was that of a child of two years, whose brother had just recovered from scarlet fever. The child complained when any motion of the right leg was attempted. Beside some swelling and distinct additional signs of inflammation of the muscles of the part, a general elevation of temperature and some rapidity of pulse was noted. A faint exanthem appeared on the back and abdomen. The diagnosis of scarlatina was not accepted by the family. A second physician being called in, pronounced the case "acute articular rheumatism." The child died in four days. The Sanitary Commission for Infectious Disease made a confirmatory, retrospective diagnosis of scarlet fever. [T.H.E.]

The Cause of Cancer in Man and the Suckling Animals.—Ludwig Feinberg[3] reviews this subject very carefully. He believes that the epithelium is attacked by an animal parasite, and that this explains the facts that only a small percentage of persons can be affected with cancer; that each cell in the human body where epithelial tissue is present can be changed into a cancerous one; that the cancer can assume a limitless, atypical and destructive proliferative process; that the tumor is incurable, and that metastasis occurs. He describes the structure and development of *Histosporidium carcinomatosum*, and its effect upon the epithelium. The illustrations show the presence of the parasite within the cell. The development of the tumor results from the entrance of *Histosporidium carcinomatosum* into the cell, which puts forth an inflammatory proliferation in the connective tissue. The resistance of the body against the parasite is called forth by the irritation which is caused by the histosporidium upon the epithelial cell. The cell containing the parasite, as well as the surrounding cells, begins to enlarge and proliferate. At the same time the nuclei also proliferate. The differentiation of the cancerous cell from the normal epithelium goes on hand-in-hand with this proliferation. This process is called "Anaplasie" (Hansemann) or "Kataplasie" (Bennecke). Feinberg concluded that the histosporidium in man is the same as the histosporidium in animals. He believes that the etiology and the histologic conditions are due to this animal parasite, and expresses a hope that a study of this parasite outside of the human and animal bodies may result in the discovery of curative agents. [J.H.W.R.]

Asystole of Pulmonary Origin.—M. Merklen[4] describes a case of this condition, which presented symptoms pointing to apoplexy. It is interesting because of the pulmonary origin and the satisfactory results from treatment. There was intense dyspnea, cyanosis, and enlargement and tenderness of the liver. The diagnosis of emphysematous bronchitis was made and energetic treatment adopted; leeches were applied to the mastoid, wet cups to the hepatic region and over the bases of the lungs, and 350 gm. (12 oz.) of blood withdrawn from a vein; small doses of digitalin and injections of Trüneček's serum were given, and massage of the lower extremities and trunk, as a measure against the edema, was instituted. In eight days the patient was convalescent. Merklen considers at length the significance of asystole, particularly that of pulmonary origin, as illustrated by the case reported. Two points are of importance in the diagnosis of this type—increased cyanosis and congestion of the liver, as evidenced by tenderness over the left lobe. Digitalis will give unexpected results in such cases, though the physician may hesitate to prescribe it as another characteristic of pulmonary asystole, is a pulse of low tension and of even diminished frequency. [A.G.E.]

Hemoglobinuria Due to Quinin.—Bindi[1] reports the occurrence in a case of quartan malaria. He states that hemoglobinuria is irregular in its occurrence both as to time and locality. Laveran, in Algeria, gives but a single case, while in New Guinea, Dempwolf believes all forms of pernicious malaria are distinguished by "black urine." Hemoglobinuria is said to be frequent in cases of malaria reported in Cuba, Venezuela and Senegal, as well as in Greece and Italy. A chart of the case in point is given and the writer concludes: 1. Hemoglobinuria may rarely occur in light forms of malaria. 2. In some cases quinin may provoke the hemoglobinuria. 3. That many cases in which this occurs are those which, though light, may have been long subjected to prophylactic treatment with quinin. 4. The action of quinin in causing hemoglobinuria is brought about through a morbid state of the body tissues, weakened by generations of parasites, so that small continued doses of the drug will more readily exercise the mechanical or chemic effects observed. [T.H.E.]

Tungstophosphoric Acid as Reagent for Differentiation of Carbohydrates.—J. Otori[2] uses tungstophosphoric acid to demonstrate and differentiate the carbohydrates in urine. The reagent is a 10% solution of the acid in 10% hydrochloric acid. Enough is added to the urine to completely precipate the nitrogenous substances. The solution is then filtered, and the filtrate is rubbed with calcium carbonate until a decided alkaline reaction is obtained. It is then shaken in an air-tight cylinder. If the urine contains sugar, the blue coloration of the precipitate does not disappear, even after prolonged shaking. This reaction demonstrates the presence of grape sugar, milk sugar, malt sugar, fruit sugar, and pentoses. The delicacy of the reaction is 0.1% for grape sugar, while the other sugars can only be demonstrated if present in quantities above 1%. This affords a means of differentiation. The reaction may be applied to other bodily fluids. Care must be taken not to make the alkalinity of the solution too marked. [B.K.]

Contributions to Social Hygiene.—Ascher[3] does not believe that the decrease of deaths from tuberculosis is due to hygienic measures instituted, since he has found statistics that show a decrease in the deathrate from tuberculosis before *Bacillus tuberculosis* was discovered, and a decrease is also seen in districts where no measures have been instituted against *Bacillus tuberculosis*. Ascher says people die younger from tuberculosis than formerly; this he believes is due to the increase of industry and the overcrowding of the inhabitants. He points out that the deathrate of acute lung diseases is on the increase; he attributes this condition to the increase of industry and overcrowding of the population. [J.F.]

Hematuria.—S. Albarran[4] says hematuria, as all other hemorrhages, may be due to one of three classes of causes: Angiopathic, hemopathic, and neuropathic. The angiopathic variety is due to vascular lesions; the vessels affected may have been entirely well up to then, or already diseased. In the first instance the cause is usually a direct one, such as trauma from without (an injury to the kidney region), or it may be an indirect one, such as a violent congestion, which may lead even to rupture of the bloodvessel walls (acute nephritis associated with congestion and terminating in diapedesis and laceration of bloodvessels). In hemopathic hematuria the bloodvessel walls are always diseased, as is seen in endarteritis or the spreading of an ulcerative process from the neighborhood. Hemopathic hemorrhages are also found in infections, such as purpura and variola, during pregnancy, in children, without noticeable cause, and in the latter instance they may persist throughout the life of the individual. In such instances they are characterized by sudden appearance and spontaneous disappearance, appear often in members of the same family, and are not to be considered among the hemophilias; they are probably due to abnormal brittleness of the renal vessels. Other causes are intoxications with lead, sandal wood, copaiba, cantharides, urotropin, guaiacol, etc.; also autointoxications traceable to digestive disturbances, diseases of the liver and other glands, gout; also infections with bacterial poisons acting directly upon the blood or bloodvessels. Neuropathic hemorrhages are usually small in amount, without known cause, and disappear spontaneously; sometimes they may be traced to a cold; into this class belong also the vicarious hemorrhages of menstruation. Among causes have been found simple neuroses as hysteria, during which hemorrhages into other organs occur also, or grave disturbances of the nervous system, as general paralysis of the insane, and tabes. The extent of the hematuria often bears no relation to the causal factor; grave hemorrhages have been produced by very small tumors, by tuberculosis in the earliest stage, or even after such a slight operation as cystoscopy. [E.L.]

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[1] Archiv für Verdauungs-krankheiten, Bd. x, Heft 2, p. 149.
[2] Revista Médica Cubana, Tomo iv, No. 1.
[3] Wiener klinische Wochenschrift, November, 1903, No. 45, p. 1235.
[4] La Medecine Moderne, April 15, 1904.

[1] Il Policlinico (Rome), No. 27, 1904.
[2] Zeit. für Heilkunde, Bd. xxv., Heft 5, p. 183.
[3] Berliner klin. Wochschrf., 1904, No. 17.
[4] Monatsbericht für Urologie, 1904, No. 1.

Exophthalmic Goiter Treated by Milk from Thyroidectomized Goats.—V. Christensen[1] and O. Lanz have worked out this treatment, and the former reports two cases. In both the pulse-beat was much lowered as to rate, and the patients recovered to an extent that was very encouraging. Tremors imperceptible. One patient who had become quite emaciated began to take on fat. However, the exophthalmos remains. [T.H.E.]

Lithiasis as a Cause of Hypertrophic Biliary Cirrhosis.—Debove[2] reports a case of Hanot's cirrhosis, exhibiting intense icterus with enlarged liver, without ascites, collateral venous circulation or decolorized feces. The interesting point in connection with the case is that the hypertrophic cirrhosis succeeded a series of attacks of hepatic colic. The author believes that the gallstone attacks gave rise to an ascending infection, which was the cause of the hypertrophic cirrhosis. The symptoms thus developed are indistinguishable from the group of symptoms occurring in true Hanot's cirrhosis. [B.K.]

Investigations of Some of the Newer Methods to Determine the Heart Boundaries and Some Notes on Sinusoidal Voltaism.—Victor-Lippert[3] concludes from his studies that the changes which the heart boundaries may assume are accurately enough determined by the ordinary methods, and that Smith's method to obtain this information is under certain conditions untrustworthy and its therapeutic effects are merely side issues. The therapeutic effects are principally the result of physical and dietetic precautions. Victor-Lippert's studies with sinusoidal voltaism embrace 149 observations; in each case the pulse frequency, respiration, relative heart dulness, and blood-pressure were taken before the electric application. After the sinusoidal baths he finds the blood-pressure raised, very often with a decrease in the pulse-frequency; assimilation stimulated and sleep induced, even in patients suffering with arteriosclerosis, but especially in those individuals suffering with neurasthenia. [J.F.]

Summer Diarrhea Caused by the Bacillus of Dysentery.—La Fetra and Howland[4] have studied 64 cases of diarrhea occurring during the months of July, August and September, for the purpose of determining its cause. This is the first large series in which the cases have been examined seriatim and the result, 62 positive cases, is striking. In these 62 cases the cause of the diarrhea was found to be the bacillus of dysentery (Shiga). Eight of the patients were under 3 months, 14 between 3 and 6 months; 15 between 6 and 9 months; 9 between 9 and 12 months; 15 over 1 year; 14 of the children were entirely and 2 partly breast fed; 11 were given grocery milk, 7 fair quality bottle milk, 8 condensed milk, 5 proprietary foods, 4 sterilized milk, 1 peptonized milk and 4 general diet. Of the patients 16 had mild attacks, 31 moderately severe and 14 very severe. In 2 cases the stools contained no mucus in 60 they contained mucus and in 17 blood. In 42 cases the acid type of the organism was found, in 15 the alkaline or true Shiga type, and in 5 both. They emphasize the fact that all types of diarrheas were examined by him, and that 20% of them were breastfed, but they all belonged to the mild cases. The serum treatment was used in a small number of the patients, but not in a sufficient number to warrant any conclusions; a few were benefited, others not. [E.L.]

Latent Tuberculosis and Tuberculin Diagnosis in the Light of Modern Investigation.—Cornet[1] finds from his experiments that tubercle bacilli which he cultivated from human beings, cattle, pigs and chickens did not possess an equal virulence in the same animal species. Some cultures produced a generalized tuberculosis, others produced a localized process in the lungs, bronchial and mesentery glands, while others gave rise to a lesion only at the point of the inoculation. But if the last mentioned cultures were introduced intravenously, a generalized tuberculosis resulted. The difference in virulence of the different cultures of the tubercle bacillus, Cornet says, is not uncertain and changeable, but remains constant, as the experiment showed, except the possibility of an increase in the virulence by passing them through animals many times. Cornet maintains that conclusions cannot be drawn from the pathologicoanatomic findings, the extension of the process depends upon the individual and the evolution of the morbid condition which to a certain extent is subservient to the individual disposition. The positive tuberculin reaction indicates that there is present somewhere in the body a tuberculous focus, but it gives no clue as to whether that focus is at present or in the future a menace to life. Cornet has seen decided reactions in individuals where the tuberculous condition was well healed in. [J.F.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Tuberculosis of the Pylorus.—H. Curschmann[2] reports the case of a woman of 40, who for some months had presented typical signs of gastric motor insufficiency. For nine months she had typical symptoms of gastric ulcer, as pain after eating, frequent vomiting after meals, and once there was blood in the vomitus; in time symptoms of stenosis and motor insufficiency appeared. About the same time the upper part of the right upper lobe was found to be the seat of a slowly progressing infiltrating tuberculosis; its chronicity was attested by the absence of fever and night-sweats. Physical examination revealed marked gastrectasia and atony, motor insufficiency, hypersecretion and hyperchlorhydria. A diagnosis of scar from gastric ulcer or carcinoma ventriculi was made, and on account of the increasing emaciation a gastroenterostomy performed. The diagnosis of carcinoma seemed confirmed by the operation. The gastric condition was overcome by the operation, but the tuberculous condition rapidly spread, invading the entire right lower lobe quickly, and death resulting 2½ months later from it. The autopsy revealed a tuberculous pneumonia of both lower lobes, due most likely to the ether, infiltration and cavities in the upper lobe; there was stenosis of the pylorus, due to the scar of a tuberculous ulcer and dilation of the stomach. He discusses the rarity of such ulcers and the reasons why they are so rare; the difficulty and even impossibility to make more than a probable diagnosis, and the best measures of treatment. [E.L.]

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[1] Il Policlinico (Rome), No. 26, 1904.
[2] La Semaine Médicale, May 11, 1904.
[3] Berliner klin. Wochschrf., 1904, No. 17.
[4] Archives of Pediatrics, 1904, xxi, 161.

[1] Berliner klin. Wochschrf., 1904, No. 15.
[2] Beiträge zur Klinik der Tuberculose, 1904, ii, 127.

Paraffin Injections in Surgery.—S. Paget[1] has used paraffin in more than 60 cases of sunken nose and 10 cases of prolapse of the vagina or rectum. It has been used with more zeal than discretion in padding the pharynx in cleft palate, filling up the chest wall after resection of the ribs, making a sham breast after removal, etc. It should not be employed cosmetically to conceal the advance of years. Scar tissue is an insuperable bar to good results. Hard paraffin is indicated in sunken noses and prolapses. What we want is an immovable foreign body. The result in nasal cases is permanent, although slight changes occur the first two or three weeks. The nose never looks quite so well as it does at the time of injection. The paraffin shrinks or broadens out a little. The secret of the method is not to try to do too much, but be content to conceal the absence of a bridge and prevent the patient being stared at. Old people are bad cases; the skin is nonelastic. Tertiary syphilitic cases, with scars, are the worst of all. Cases of inherited syphilis are most favorable, also cases of arrested development of the bones. If you cannot raise the skin between the thumb and finger, you cannot raise it with paraffin. In prolapse of the bowel, if the sphincters can be brought into working order, paraffin will cure the case, though more paraffin may have to be added at a later period. If the sphincters have been destroyed, the case is unfavorable. [H.M.]

Trephining under Local Anesthesia and Separation of the Scalp without Hemorrhage. — L. Heidenhain[2] injected for purposes of local anesthesia in cases of trephining a solution of cocain and adrenalin; 10 cc. (2½ dr.) of a .5% to 1% solution of cocain, to which 20 drops of a .1% solution of adrenalin have been added, are injected between scalp and bone, and within half an hour a portion of the scalp, bone, and dura the size of a silver dollar is made absolutely insensible. He reports two cases in which this method of anesthesia has been employed with perfect success. To prevent hemorrhage from the scalp during these operations, he uses a running suture of the skin flap while making the incision; the stitches are made to overlap each other. The skin flap is sewed into place after the operation without removal of these stitches. They are removed on the eighth to tenth day, the same time as the skin sutures. [E.L.]

Angiosarcoma of the Suprarenal with Fatal Embolism of the Pulmonary Artery.—Hödlmoser[3] reports the case of a patient who complained of pains in the right hypochondrium, which had existed with varying intensity for several months. At a later period the pains became worse, and high fever set in. Liver dulness seemed considerably increased, and palpation in the right hypochondrium was very painful. Exploratory puncture was negative, however, and laparotomy was decided upon. But in the very beginning of narcosis the patient suddenly died. Autopsy revealed an angiosarcoma of the right suprarenal body, which had proliferated through the principal vein of the organ into the inferior vena cava, and had given rise to a considerable tumor there. In the pulmonary artery was found a fresh embolus of the same composition as the tumor in the vena cava. This embolus was evidently the cause of the sudden exitus. [B.K.]

Alleviating Operations in Incurable Cancers.—Even in cases of abdominal carcinoma, in which a cure is absolutely impossible, Winselmann[4] recommends operative interference, if by so doing the patient's state can be improved even though life cannot be prolonged. He reports five such cases: 1. Total resection of the stomach because of intolerable pain in back; pain disappeared and patient recovered; she lived for five weeks. 2. Ilioinguinal enteroanastomosis because of fecal fistula, which remained after a prior operation; patient recovered and lived for six months. 3. Resection of a part of the right lobe of the liver with gallbladder because of horrible pain; patient died on second day of increasing cardiac weakness. 4. Ventrofixation in a woman of 80, because of uterine myomas, which compressed the rectum; she complained of violently painful peristalsis along the transverse and descending colon; this was removed completely and death did not occur until 10 weeks later of carcinoma of the stomach. 5. Rectovesical fistula due to uterine carcinoma; left inguinal colotomy on account of the fecal discharge through bladder; patient lived without discomfort for four more weeks. These five cases teach that grave operations may be performed in carcinoma patients as long as they are not too cachectic. All of these patients were suffering grave torture of some kind, which was removed through appropriate operations, and although the patients' deaths could not be prevented, life was at least made painless and therefore could be tolerated. [E.L.]

Bladder Symptoms in Appendicitis.—G. Baradulin[1] dwells on the disturbances of the urinary function in appendicitis. These symptoms are either reflex in character, or they are due to direct involvement of the bladder walls. The reflex symptoms consist in retention or increased frequency of micturition as the case may be, while the other kind of symptoms is caused by a pericystitis, which is distinguished from cystitis by the clear urine. If an abscess forms in appendicitis, the pus may break into the bladder and thus be discharged with the urine. The latter will, in such cases, emit a fecal odor. Occasionally the urine contains fecal masses. The prognosis of the original disease does not suffer from these bladder complications. In fact, the opening of an abscess into this viscus must be looked upon as a favorable emergency. [L.J.]

Acute Ascites as an Early Sign of Severe Appendicitis.—F. Lejars[2] considers as a valuable sign of severe appendicitis the appearance of a large quantity of fluid in the abdominal cavity. The liquid is at first serous or serofibrinous, but later may become purulent, if a general peritonitis sets in. The appearance of this exudate is to be regarded as the result of peritoneal irritation, caused by the toxins of the appendiceal infection. If the toxemia is mild, little fluid is produced, while a severe toxemia calls forth an abundant exudation. This sign is interesting and significant when present, but its absence does not prove anything. [B.K.]

Renal Decapsulation, Nephrocapsectomy and Nephrolysis.—Edebohls[3] describes his method of decapsulation of the kidneys, and compares it with Rovsing's procedure, which he calls nephrolysis. His reason for describing it is to prevent any misunderstanding which might arise from the apparent similarity of the operations. His operation is indicated in chronic nephritis, and for this has been performed by Edebohls himself 72 times. Rovsing's operation of nephrolysis is for the purpose of separating the inflamed kidney from its paranephritic adhesions, and therefore to liberate the organ from compressing influences. In his own operation the membrana propria of the kidney is separated from the fat capsule; it is loosened from the entire kidney surface and excised as a whole. The bared kidney is returned into its fatty envelope and the wound closed. Its intention is to form new blood paths between kidney and surrounding structures. Both kidneys are operated upon simultaneously. In nephrolysis the separation is between membrana propria and fat capsule, or between the layers of the latter. It is always performed unilaterally. As it is always associated with a certain amount of decapsulation, and sometimes with other operations, the results claimed for it by its sponser are not at all convincing as being due to nephrolysis itself. [E.L.]

Mauser Bullet Wounds of Nerves.—S. F. Freyer[4] speaks of the frequency of nerve lesions as a complication of Mauser bullet wounds in the South African war, a striking feature being the incomplete paralysis of the parts supplied by the injured trunk. Three cases reported by him explain this feature and are taken to indicate that complete severance of a nerve in a Mauser bullet track is a rare occurrence. In the cases cited, operation revealed nerves that had been perforated by bullets of much larger diameter than the nerve itself; in two the median, in one the musculospiral, was involved. That only partial sensory and motor paralysis followed the injury was evidently due to the fact that portions of the nerves were still intact. No attempt to repair the nerves was made and complete, or nearly complete, recovery from paralysis followed sooner or later. No more actual perforations were discovered, although they undoubtedly occurred, because of the conclusion being reached that partial lesion of a nerve trunk did not require operation in a wound that had healed by first intention. The nerve cases that require operation at a later stage are those that heal slowly, by granulation in a septic wound, or those with complications, as wounds of bone with implicating callus. There were no naked eye signs of inflammation of any of the nerves exposed, though operation was performed, from 10 to 12 days after the injury. Freyer believes there is no tendency to inflammation as a direct result of the bullet wound. A practical point deduced is the importance of obtaining primary union in the bullet track in cases of nerve wounds. [A.G.E.]

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[1] West London Medical Journal, April, 1904.
[2] Zentralblatt für Chirurgie, 1904, xxxi, 249, No. 9.
[3] Zeit. für Heilkunde, Bd. xxv, Heft. 5, p. 109.
[4] Münchener medicinische Wochenschrift, 1904, li, No. 5, p. 208.

[1] Medizinskoe Obosrenie, lxi, No 7.
[2] La Semaine Médicale, May 11, 1904.
[3] Zentralblatt für Chirurgie, 1904, xxxi, No. 7.
[4] Journal of the Royal Army Medical Corps, June, 1904.

Choked Disc after Contusion of Skull.—Individuals having suffered a slight injury to head, often complain for a long time of headache and dizziness; usually no objective signs to substantiate these claims can be discovered, and as such patients are often suing for damages, the possibility of simulation is bound to come up, especially if no notable injury was discovered at the time of accident. J. Bachauer[1] reports the cases of two patients in whom the injury to the cranium was not very severe and all outward signs were missing. In the first the concussion was followed by immediate violent headache and within a few days by a paralysis of the abducent nerve; the ophthalmoscope revealed a beginning choked disc which did not become complete until the twenty-fifth day; six months after the injury it was still existing in part. Headache and dizziness never left him entirely, although his appearance was that of a very healthy man. The injury had evidently produced a hemorrhage within the brain, and this in its turn the other symptoms, which, however, could never have been substantiated without the papillitis. In the second patient the headache, etc., were present yet after five years, the choked disc having lasted but a short time. From this it follows that ophthalmoscopic examinations should be performed after every head injury, no matter how slight, as it may show objective signs in explanation of subjective symptoms. [E.L.]

Lymph-gland Metastases in Carcinoma of the Stomach.—Renner's[2] conclusions are drawn from the autopsy findings in 15 cases, which are given in detail. No positive opinion as to the presence of cancerous involvement can be drawn from the size and consistency of the glands. Large glands may be entirely free from cancer. But it is only exceptionally that the regional glands in the neighborhood of a cancer are not involved. Glands in other regions may also be affected by anastomoses with the gastric glands. The disease may extend to neighboring glands by continuity, but this is comparatively seldom. The usual mode of extension is by the lymph channels; 60% of the subpyloric glands was found to be affected, 42% of the retropyloric glands, 45% of those on the smaller curvature, 26% of those of the cardia, 49% of the suprapancreatic glands, 22% of the mesenterial glands, 58% of the sacral, lumbar and mediastinal glands, and 41% of the bronchial glands. [B.K.]

Gonorrheal Prostatitis.—In view of the widespread favor accorded to urethral irrigations from the meatus (Janet's method), the report of two cases of prostatitis directly caused by this method is of interest. A. P. Jordan[3] reports the cases and considers them rarities, although others have had the same experience. In order to obviate the danger of such complications, he advises to cleanse thoroughly the anterior urethra before attempting to force the fluid from the meatus into the bladder. [L.J.]

Cardiac Operation Performed to the Right of the Sternum.—E. Rother[4] has collected 46 cases in which heart suture has been performed; 19 of the patients (41%) recovered. The statistics of recoveries in patients not operated upon show only 10%. As the operative technic will improve, the results will become even more favorable. In cases in which the injury to the heart lies to the right of the sternum, he recommends that the incision be made to the right with the usual flapdoor incision, the base over the median line. The cardiac interior can be inspected better through this incision than the left-sided one, especially if the right ventricle is to be inspected. The suture is made especially easy if the first suture is used as a pulling string. All in all the technic is so simple and the indications usually so urgent that the operation should be considered as one belonging to the domain of the ordinary practitioner. It is also useful in resuscitation in cases of sudden death. He recommends primary pericardial suture. [E.L.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

New Treatment of Renal and Cardiac Dropsy.—Renaut[1] reports great success from the use of macerated kidney. It opens the kidneys rapidly and surely, even when leeches have not been applied to the lumbar region, and its diuretic effects are intense when prolonged sufficiently. It also diminishes albumin and causes it to disappear for long periods. By prolonging functional rest it gives a chance for the restoration of the glandular epithelium. The only inconvenience is in some cases a slight pruritus, urticaria, or sweating. One or two fresh pork kidneys should be chopped fine, washed thoroughly to remove any stagnant urine they may contain, and then pounded in a mortar with 12 ounces of salt water (half a teaspoonful of salt) and the whole left to macerate four hours, and then decanted. This should be given in three or four doses through the day. A little warm soup (julienne) makes it more palatable. After 10 days the treatment should be discontinued for five days, and then resumed. Fresh kidneys should be procured every day. [H.M.]

FORMULAS, ORIGINAL AND SELECTED.

Lanceraux[2] advises the following against **asthma of infants**:

Powdered squill	of each 1 gm. (15 gr.)
Powdered scammony	
Powdered digitalis	

Make into 20 pills.

Give 4 pills daily for 4 days; then increase the dose to 6 or 8. Cease for several days to resume if diuresis and regularity of heart are insufficient. [E.L.]

Combemale and Ingelrans[2] advise the following mixture given in a glass of milk and some beef juice by rectum for **epilepsy**:

Potassium bromid	5 gm. (75 gr.)
Chloral	5 gm. (75 gr.)
Water	50 gm. (14 dr.)

They repeat these injections often and give morphin hypodermically occasionally. [E.L.]

The following syrup is recommended for **rachitic infants** by Combemale and Ingelrans:[2]

Iodin	1 gm. (15 gr.)
Extr. of Krameria	5 gm. (75 gr.)
Sodium glycerophosphate	10 gm. (2½ dr.)
Syrup of Prunus virginianus . . .	485 gm. (16 oz.)

A teaspoonful a half hour before meals. [E.L.]

Roicki[2] believes ergotin an excellent remedy in **chronic gonorrhea**; he gives it internally and by urethral injection according to the following formula:

Ergotin	0.3 gm. (5 gr.)
Distilled water	300 gm. (10 oz.)

He gives several injections daily. The treatment is also applicable for urethral hemorrhage. [E.L.]

For **hayfever** Roicki[2] prescribes:

Quinin sulfate	3 gm. (45 gr.)
Powdered benzoin	6 gm. (90 gr.)

To be used as inhalations through the nose several times daily. [E.L.]

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[1] Deutsche medicinische Wochenschrift, 1904, xxx, No. 9, p. 306.
[2] Mitth. a. d. Grenzgeb. d. Med. and Chirurg., Bd. xiii, Heft 2, p. 113.
[3] Medizinskoe Obosrenie, lxi, No. 4.
[4] Münchener medicinische Wochenschrift, 1904, li, 16.

[1] Medical Press and Circular, March 2, 1904.
[2] Bulletin Général de Thérapeutique, 1904, cxlvii, 239.

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Acquired Immunity to Disease the Controlling Factor in Sociology, National Expansion, Etc.—Dr. G. A. Archdall Reid, before the English Sociological Society, recently made some most important and illuminative suggestions as to their immunity to diseases acquired by races in evolutionary times and struggles. The best known illustration is of course the long acquirement of immunity to malaria by the African negro races. Even yet the children suffer from the disease, but those that have succumbed have made the weeding out process of tremendous value in evoluting a race almost practically resistant to the disease. Dr. Reid's contribution to the subject is that similar laws are at work as to the diseases of civilization, and he takes tuberculosis as an illustration. The northern European races, especially in the cities and slums, have been, he says, undergoing a weeding out and immunizing process, and are now preeminently strong against the disease. Stated in general terms Dr. Reid puts the law thus: Every race throughout the world is resistant to every disease precisely in proportion to its past experience of it, and only those races are capable of civilization which are resistant to the diseases of dense populations. In supposed accord with this clarifying thought Dr. Reid pours his scorn upon those who believe in the doctrine of the inheritance of acquired characteristics. He even says that country blood does not strengthen, but really weakens city blood. The slums are generating their own antitoxin to slum diseases. It is the fashion of the day this railing at the inheritance of acquired characteristics, and will pass as fashions do when facts are studied. The very fact of the acquirement of immunity proves the inheritance which is admitted. It did not come suddenly as a "sport."

A Query as to Methods of Venereal Infections.—In a public meeting a physician (*Ohio Sanitary Bulletin*) recently made the statement that in a short time he had seen seven or eight cases of gonorrhea in children who were under five years of age. They acquired the disease, of course, innocently enough, probably from older brothers and sisters, who were more or less conscious of their own condition and of its contagious nature. The question arises, and was alluded to by the speaker, first as to the method whereby the innocent became diseased, and second, as to means of preventing such infections. The construction of water-closets has been charged with the responsibility, and unpleasant as the subject is, there should be evidence for or against the theory. Does any such exist? Dr. McCallum rightly inveighs against the foolish "impression which is abroad" that these venereal diseases are not very harmful, and the horrible theory is disproved by the otherwise inexplainable deaths of many country boys and girls. Such tragedies, one may be sure, are much more frequent than has been supposed. No matter from what point of view the earnest physician looks at the question, the notification of these venereal diseases becomes a pressing public duty. Are they not highly "infectious" or "contagious"? Does the law make any exception of them when it demands the control by public health officers and by the medical profession of *all* infectious diseases? The women will have to get after us!

Women on the Advisory Boards of Public Institutions, at least wherever there are women inmates, will receive a great impetus from the Rhode Island thirty-third annual report of the Advisory Board of Visitors. The report deals especially with Oaklawn School, where things seem to have settled not only into ruts, but into injustices to the girls whom the State has in charge, for criminal conduct. In the corresponding school for boys there is an allotted outlay for amusements, military drill, musical training, etc., and nothing equivalent for the girls, who are trained or half-trained in occupations useless to them when they go out into the world at the age of 20. The Women Board of Visitors shows the bad condition of affairs in a charming way, but resolutely, and clearly. As to domestic training:

1. Some girls will not work, some cannot, and some no one will employ.
2. The market demands a better quality of work.
3. More girls can be interested in household industries by professional teachers.

The instruction is exclusively memorizing; it makes their minds dull, gives them uninterested and uninteresting faces, makes them passively obedient, their bodies soft and fat—in a word, makes them "institutional." Merited scorn is deftly poured over the ancient superstition that "it is admittedly more difficult to reclaim a wayward girl than a wayward boy," and it requires "the greatest fertility of resource;" to which the reply is prompt, "Why attempt it with less than half the technical training and less than four-fifths of the money?" Citing the experience of Massachusetts with her State Reform School, the report says that of an average annual population of 162 girls during the 7 years 1896–1902, 54⅓% were committed for unchaste conduct; of these, at 21 years of age, when they passed from custody, 64⅓% were leading respectable lives; 18%, bad or doubtful; nearly 18%, not known. Of the total number passing from custody at 21 years of age, including the above, 70% were living respectably; 14.6%, conduct bad or doubtful; 15.3%, not known. The courses of instruction compare favorably in several respects with those in the boys' reform school.

Morbid students of the morbid, or of the supposably morbid, are multiplying rapidly in these days of the psychopathic psychiatrists, and alien alienists. When they are physicians, as some of them class themselves, the matter becomes one of concern to the profession, and it is advisable to give the unsuspecting lay public a word of caution that medical men are not responsible for the pseudoscience which individual writers may represent as medical science. One of many illustrations has lately come up—that of a physician without preliminary knowledge of psychiatry, religion, or history, who would instruct the world as to "the mental condition and career of Jesus of Nazareth." The author, in brief, claims that Jesus was "a poor megalomaniac" who repeatedly hypnotized his disciples, imposing upon them a series of suggestions after he had put them into hypnotic sleep, etc. He was an unbalanced mind, subject to "episodes of frenzy," "sudden and extreme changes of temper," "religious mania," "religious insanity," "outbursts of passion," "aberrations of insanity," "morbid self-consciousness," and many other things well known of lofty "psychiatry" and toplofty ignorance. The author's own eccentricity and egoism appear in nearly every sentence, and he claims "quite sufficient familiarity" with all the literature of biblical criticism in three learned worlds, but especially with Huxley's incursion into that thorny wood with the poor Gadarene swine. One can at least be thankful that in the time of Jesus modern psychiatry and neurology were unknown, and that the New Testament writers were not aware of an astonishing knowledge of hypnosis and posthypnotic suggestion, megalomania, psychiatry, and all the rest, of the modern inexpert expert. Fortunately they also did not know how to produce such remarkable syntax as the omniscient modern critic.

False Diagnosis of "Hipped."—About three years ago an intelligent practitioner began to be troubled with indefinitely localized discomfort and pain about one side of the face. These symptoms soon became so severe that he sought the advice of several specialists who could give their colleague little or no help. Matters grew worse rather than better, and operations were undertaken in the hope of finding some explanation of the pain which seemed to be vaguely located about or behind the antrum of Highmore, the frontal sinuses, etc. Up to a recent date about 20 operations, some of them extensive, had been undertaken, the last upon the sphenoid, in the vain hope of discovering the cause of the disease. Finally the consultants came to the conclusion that the patient was "hipped" and implied this diagnosis in as polite terms as their consciences would permit to the sufferer. But this by no means lessened the sufferings, real or supposed, of the patient, and driven to desperation, perhaps half by accident, he finally consulted a dentist. A tooth that had been "treated" a number of years previously was extracted, although it presented no decided symptoms of sensitiveness or unsoundness. Protruding through a hole in the root which had been bored by the previous dentist was a pledget of cotton he had forgotten to extract. This had extended into the antrum and directly or indirectly had caused all the trouble. Immediately all pain disappeared, and there was an end of the "hysteria," etc. There are several lessons to be gleaned from the case. The dictionary makers, first, must hereafter set down the words, "hipped" and "hippy" as necessary, at least used words, for a condition indescribable in any other way. Second, the profession is a little prone to ignore the influence of the teeth and their diseases as causes of symptoms other than dental. Third, the diagnosis of "hippiness" may be a false one. Sometimes it is a mere excuse for inability to learn the true cause, and a more extensive search would do more credit to the good sense of patient and the physician. One should not too readily credit the patient suffering from atypic symptoms with a morbid imagination, which in fact may be in the diagnostician instead of in the complainant. Usually the latter is not a physician solicitous not to hurt the feelings of his brother physicians and not caring for the professional reputations.

Eugenics is the name given by Francis Galton to the study which American authors have called stirpiculture. In an interesting paper read May 16 before the newly formed English Sociological Society, Mr. Galton defined the term as the science which deals with all influences that improve the inborn qualities of a race, also with those that develop them to the utmost advantage. The aim is to disseminate the laws of heredity; to inquire into the rates with which the various classes of society have contributed to the population; to collect facts as to large and thriving families; to study the influences affecting marriage; the propagandism of eugenics, "what nature does blindly, slowly, and ruthlessly, man may do providently, quickly, and kindly." In this illuminative sentence is brought out all the impertinence, atheism, and illogicality of much that calls itself science. If one adds consciousness to the socalled "blind and ruthless forces of nature," are they any the more "kind?" any the less "ruthless?" Is the weeding out of the unfit, and the extinction of the diseased, etc., any the less cruel when done by man? And what proof is there that the forces of nature are "blind and ruthless?" Subsequent speakers had no hesitancy in pointing out the purely theoretic nature of Mr. Galton's proposals, and how little human consciousness can affect the real conditions and forces of the genesic instinct. Dr. Mackenzie astutely claimed that it is as yet impossible to tell in any given case what characteristics are due to inheritance and what to nurture. Most of the speakers made themselves ludicrous, with amusing efforts to avoid mention of the real problems and facts which lie behind all their pother of words. Not so, of course, with Mr. G. Bernard Shaw, who plumply and delightfully says:

> What we must fight for is freedom to breed the race without being hampered by the mass of irrelevant conditions implied in the institution of marriage. If our morality is attacked, we can carry the war into the enemy's country by reminding the public that the real objection to breeding by marriage is that marriage places no restraint on debauchery as long as it is monogamic, whereas eugenic breeding would effectually protect the mothers and fathers of the race from any abuse of their relations. As to the domestic and sympathetic function of marriage, or even its selfishly sexual function, we need not interfere with that. What we need is freedom for people who have never seen each other before and never intend to see one another again to produce children under certain definite public conditions, without loss of honor.

After that it needed only Mr. Robertson's word that nations do not acquire "a new heart," except by changing their houses, clothes, alimentation, economic position, and all other institutions—a somewhat big task! Mr. H. G. Wells finally ended the verbiage by saying:

> The real fact of the case is that in the all-round result the inferior usually perish, and the average of the species rises, but not that any exceptionally favorable variations get together and reproduce. I believe that now and always the conscious selection of the best for reproduction will be impossible, that to propose it is to display a fundamental misunderstanding of what individuality implies. The way of Nature has always been to slay the hindmost, and there is still no other way, unless we can prevent those who would become the hindmost being born. It is in the sterilization of failures and not in the selection of successes for breeding that the possibility of an improvement of the human stock lies.

The Composition of Scientific Papers.—The medical writings of Professor Clifford Allbutt are acknowledged scientific masterpieces, and withal charming literary productions. Not less instructive or entertaining proves his recently written little book, entitled "Notes on the Composition of Scientific Papers." [1] The Regius professor of physics at Cambridge has done well in thus writing and thereby has earned the thanks of all writers and readers of things medical. Called upon each year to read some 80 or 90 theses, Professor Allbut finds "the greater number are written badly, some very ill indeed." In the book mentioned he points out and corrects the more common errors thus met, first laying down general principles that should govern the composition of scientific essays. A feature of this excellent introductory chapter is the description of the author's own method of composing. In the second chapter the samples of writing culled from theses are often amusing, the criticisms thereon are always keen, thorough, and enlightening. Not every trained writer will agree entirely with these criticisms, but differing opinions will be largely a matter of individual preference. Were this book well studied by all medical writers, their productions would be infinitely easier to read and understand. Having thus expressed our appreciation of his "Notes," we hasten to assure Professor Allbutt that tribulations with essayists are not unknown this side the Atlantic. The following sentence, from the transactions of a county medical society, would sparkle even in his collection of gems: "To show its contagiousness or its infectious character is shown by the fact of a family where one of three sisters became infected, finally all three with an adopted sister, a cousin of the same had the disease."

Public Latrines.—A physician at a recent meeting of Ohio Health Officers (*Ohio Sanitary Bulletin*) had the courage to speak out plainly as to an unpleasant subject, and a needed reform of certain noteworthy abuses. American travelers bring back from their foreign visits, especially to Latin nations, sentiments of disgust as to public urinals, etc. But the abuses of a system do not always warrant the extinction of the principle. In every city there pour, daily, thousands, and in large cities many thousands, who are strangers, and who must call upon the charities or good-will of the proprietors of hotels, and even of private houses, in a way that is offensive and unjust to all concerned. The medical significance of the matter is, of course, evident to all physicians. Cannot Anglo-Saxon Boards of Health, legislative and administrative officers deal with this problem in a practical and seemly way?

Shall the tuberculous be excluded from public schools?—is a question which is perplexing many health officers and school boards. The following excerpt from a paper by Dr. C. O. Probst, secretary of the Ohio State Board of Health, is illustrative of what is perhaps more frequent than we realize:

> A resident of Dublin, a small village near Columbus, reported to me that 12 pupils who had attended high school there had died of tuberculosis within a few years. He said: "Four boys were allowed to go to school there when they were very sick. They had a high fever, and could hardly get up the steps. They went to school there almost until their death. It has been said that they spat on the floor so that the girls covered it over with newspapers to hide it. Strong, healthy girls have died from this disease whose parents never had anything of the kind. This schoolhouse has never been disinfected, or properly cleaned and ventilated." A list of the scholars who had died of tuberculosis was given. A letter of inquiry was sent to a physician of Dublin, who verified the above in every particular.

Dr. Probst thinks the tuberculous should not be legally excluded, but in the discussion other speakers were convinced that exclusion is necessary. It is indeed true that, properly controlled, the disease is not dangerous, but it will not, in fact, be controlled, nor will the sick pupils, in school. It may be hard, at first, to the child and its parents, but ways will be found, doubtless, to lessen the hardship. Duty to prevent the disease in other scholars must override the consideration of the individual affliction. How vital and great the danger, is shown by some figures given by Dr. Probst himself showing the deaths from tuberculosis in three States and two cities having an aggregate population of 8,411,419. During a five-year period ending with 1900 there were in this population 7,369 deaths from tuberculosis of persons under 20 years of age. This is at a rate of 1,474 deaths each year in a population something over twice that of Ohio. In how many States is the tuberculous teacher excluded? Indiana is one.

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[1] The Macmillan Co., London and New York, 1904.

The jargon of the psychiatrists is becoming almost as unintelligible as that of the ophthalmologists, and even of the bacteriologists. In a single recent article one will, for instance, find the following terms:

> Katatonic state, major psychosis, melancholia of involution, phrenasthenia, psychical tonus or contracture, dementia precox —(the scholar would spell it *præcox*), *forme fruste*, manic-depressive insanity, confusional psychosis, psychoneuroses, pseudo-neurasthenia, mysophobia, topoalgia, neurasthenical syndrome, and so on, and so again.

The evident pleasure in the repetition of such terms without explanation, and as if they were the simplest pennies and dimes of the psychiatrists' daily accounting, is also a charm of their writings—to some readers. And this is heightened by the superciliousness which crops out in occasional asides, as, for example, when a caution is hazarded that common neurology must not be confounded with this profound and deeper science, *e. g.*, "I doubt if neurologists, as a rule, know enough of psychiatrical (careful, of course, this scientifical psychiatrical one, as to all his *-als*, while spelling *precox !*) methods to make always the proper diagnosis of neurasthenia. This ignorance, however, will not last long," etc. And thus "the hysteria doctor," and his psychiatrical specialist "goes one better" the scorn of the neurologic expert over the humble general physician, and would deny both the right to treat the neurasthenical patients. And what is the pitiable and pitiful neurasthenical patient to do? If she is rich she can, of course, return again and again to the rest-cure and "forced sleep." But if not rich? Logomachy will hardly help her. One sympathizes with a recent correspondent in *The Journal of the American Medical Association*, who would abolish the word neurasthenia, and relegate the treatment of the afflicted patient to the gentler mercies of the old-fashioned general physician from whom she had been unwisely taken.

The "Royal Ten" of "New Thought."—As we have before emphasized, the most noteworthy fact about the new superstition of faith cure, eddyism, new thought, vibralogy, or whatever other name may be adopted, is the financial humbuggery that lies at the bottom or behind it. A noteworthy illustration has lately appeared. The get-rich-quick scheme of the ordinary criminal is stupid in comparison with that of the thousand percent profit maker, who uses the credulity of his dupes to motive their "investments." The publisher of *The New Thought Magazine* thus appeals to his readers:

> And I tell you now that this Royal Ten is the biggest thing I have tackled yet. It will take about $250,000 to float it, and your little $10 investments will make that quarter of a million in a week. If you'll please move things a little we shall float it in a week easy. Individually, neither you nor I amount to much, but collectively we amount to several millions of idle capital.
>
> I want you in this quick. You can have but one certificate for yourself—that costs $10. But you can invest about $40 or more for the members of your family, sending us their full names and addresses, and thus swelling your total investment up to $50; which calls for five names and addresses. I shall be in St. Louis until this Royal Ten is floated, but you will kindly send your cash in the form of Postal Order, Express Order, Cheque or Draft direct to Sydney Flower, 27 E. 22nd St., New York City.
>
> *New Thought* readers have complained that the closing of the Investment Fund prevented them from participating in the profits of that enterprise, while the cost of a single share of the North Shore Reduction Co., being One Hundred Dollars, put that also beyond their reach.
>
> Well here is something within the reach of every one, and it is the biggest of them all.

The post-office authorities should get after Mr. Flower.

EDITORIAL ECHOES

Regulate the Dispensary.—State regulation of the medical profession did away with many and serious abuses, and as the standards for admission to the profession are raised and safeguarded the problem of the dispensary will undoubtedly be lessened. Were it possible to expend a larger sum for the maintenance of our dispensaries, to provide them with the best equipment, and to give the dispensary physician a direct return for his services, requiring of him, as of all the other officers, a strict performance of duty, much could be accomplished. At the present time, the dispensary is too often considered to be merely the feeder of other departments of the hospital or college, and too little thought and care are devoted to its housing, equipment and the qualifications of the medical officers. It is just as important to keep the standard of all appointments high in dispensaries as it is in other hospital work, for even where the chief of clinic is all that he might be, an incompetent or unscrupulous assistant can do a deal of harm. While the dispensary undoubtedly is abused, and while its abuse is a favorite topic of discussion, it would seem that the benefit of these institutions to the community at large is far greater than their evil effects. Improvement must come through intelligent direction on the part of those responsible for their management, conscientious and unselfish work by the medical profession, and careful investigation of applicants for relief. The dispensary is here and is here to stay. The problem is simply so to direct our medical charities that the greatest amount of good may be accomplished with the least possible waste.

FRANKLIN B. KIRKBRIDE.

Philadelphia.

—[*Annals of the American Academy of Political and Social Science.*]

Borax in Food is Harmful.—As a result of the series of experiments carried out by Dr. Wiley, of Washington, D. C., the Agricultural Department has issued a series of bulletins showing that the drug is harmful. One says, in part, that when boric acid or borax equivalent thereto in small quantities not exceeding half a gram a day is given in food, no notable effects are produced immediately. If, however, these small doses be continued for a long while, as, for instance in one case 50 days, there are occasional periods of loss of appetite, bad feeling, fullness in the head, and distress in the stomach. When boric acid or borax in equivalent quantities is given in larger and increasing doses, there is a tendency to the development in a more accentuated form of the symptoms above described. The most common symptom developed is a persistent headache, a sense of fullness in head with a clouding, to a slight extent, of mental processes. When doses are increased to three grams a day these symptoms are established in the majority of cases, but not in every case. The effect of the administration of borax upon the weight of the body is well marked. Its continued use decreases the desire for food and interferes with the digestion of food already in the alimentary canal, and produces in certain cases a persistent headache and bad feeling and discomfort in the region of the stomach. Its final effect in diminishing the weight of the body is not doubtful. This tendency becomes so well fixed that it is not entirely eliminated for several days after the administration of the preservative ceases.

BOOK REVIEWS

International Clinics.—Vol. I. Fourteenth Series, 1904. Edited by A. O. J. KELLY, A.M., M.D., with the collaboration of noted American and foreign physicians. Philadelphia: J. B. Lippincott Company, 1904.

The first volume of this series is presented in the usual form, the contents being made up partly of original articles and partly of a summary of the progress of medicine during the past year. The former are grouped under the headings of Treatment, Medicine, Surgery, Gynecology, and Neurology; most of them deal with timely topics. Widal and Javal detail some remarkable experiments with the chlorid reduction treatment of nephritis; Edes and McCaskey contribute articles on the cure of neurasthenia; N. S. Davis seeks to explain the increased prevalence and mortality of pneumonia; Angioma and its Treatment, by Carl Beck; and a Critical Review of the Methods of Intestinal Suture, by J. G. Clark and J. W. Luther, are leading surgical articles; Davenport and Craig present papers on the nonoperative treatment of gynecologic affections. Under the head of Progress of Medicine during 1903, Medicine is reviewed by D. L. Edsall; Surgery, by J. C. Bloodgood; Treatment, by A. A. Stevens. Illustrations are numerous and instructive, particularly those accompanying the articles of Beck and Bloodgood. The latter writer emphasizes points in the treatment of tumors, especially congenital moles, that should be read, and impressed upon his patients by every physician. The editor and publishers are to be congratulated upon this first volume of a new series of the Clinics; it is highly creditable to both. It continues to be a publication that deserves the hearty support of the profession.

Röntgen Ray Diagnosis and Therapy.—By CARL BECK, M.D. New York and London: D. Appleton & Co. 1904.

This latest addition to the literature of the röntgen ray is a neatly printed book of 460 pages. The author states in his preface that none of the previously published standard works, while indispensable to the röntgen ray worker, treats the large field from a strictly clinical view-point; his endeavor has been to demonstrate how the röntgen rays can best be utilized in medical and surgical practice. As a consequence, technical points are not emphasized, although they are not neglected. Beck rightly states that they are so complicated that special study is required to master them. The large experience of the author has enabled him to write a book that will be of great value not only to those physicians who actually use the röntgen ray in diagnosis and treatment, but also to others who desire to know more regarding the possibilities and limitations of this remarkable agent. Many points in the treatment of fractures that do not bear directly on the use of the röntgen ray are also given. The book is divided into three parts: The first 60 pages deal with general, or technical, questions; the second part, 300 pages, with regional, or clinical, considerations; the remaining 100 pages with the effect of the röntgen rays on tissues and indications for their therapeutic employment. The numerous illustrations are a feature of the book; they are exceptionally good and aid greatly in the interpretation of the text. The work fills very satisfactorily a distinct place in the literature of the subject treated.

Treatise of Diseases of the Skin for the Use of the Advanced Students and Practitioners.—By HENRY W. STELWAGON. Third edition. W. B. Saunders & Co., Philadelphia, New York and London.

Somewhat more than a year ago we published an extensive review of a former edition of this valuable work, directing attention to its essentially practical character, and noting the importance which the author attaches to diagnosis and treatment. Both of these in the new edition are considered at length and in that detail which is of essential importance to the student and the general practitioner in medicine. There is, perhaps, no one important branch of medicine which is so poorly understood by the average practitioner as the subject of dermatology. Therefore, it is important that a work dealing with this branch of medicine should be explicit and clear with reference to diagnosis and to treatment, and in these particulars the author has met every expectation. The pathology and histology of the various affections are treated somewhat briefly, though sufficiently full. In the present edition the author still holds to the view that psoriasis is, in all probability, a parasitic disease, and that eczema is probably not parasitic. The abundance of splendid illustrations which are incorporated in the work, also adds a feature of special value. Reference to the literature of dermatology is very full and complete. That which is new in the present edition pertains, for the most part, to treatment of skin affections by means of the röntgen rays and Finsen light. The work as at present issued consists of more than 1,100 pages, all of which are replete with valuable information. Our former view, considering the worthiness of the publication, is only enhanced by the present edition, which brings the work fully up to date in every particular.

A Practical Treatise on Medical Diagnosis for Students and Physicians.—By JOHN H. MUSSER. Fifth Edition Revised and Enlarged. Lea Brothers & Co., Philadelphia and New York.

It would be presumptuous on the part of the reviewer to criticise, even though he were disposed to do so, a work emanating from a source considered authoritative in every respect. The author's wide experience as a practitioner, clinician and teacher in medicine has given him that splendid command of the subject which has enabled him to prepare a volume which meets every expectation of the profession. The present volume embodies a most thorough revision embracing not only every detail of the text but also a fundamental rearrangement planned with the object of explaining the subject in the most logical and natural sequence and facilitating thereby its comprehension. In the early editions greater stress was placed upon bacteriologic diagnosis and the principles that underlie it than was customary in similar works. That which was then a theory is now universally recognized, therefore in the present edition the principles of diagnosis have yielded space for greater elaboration of the practical features. The author considers in sequence, histologic diagnosis; subjective diagnosis; objective diagnosis; physical diagnosis, and laboratory diagnosis. The number of illustrations in the present edition has been greatly increased and 14 new colored plates have been added, making a total of 395 wood cuts and 63 colored plates. The publishers state that it is by far the most lavishly illustrated volume ever published on diagnosis. It only remains for the reviewer to announce through these columns that a new edition of "Musser" on diagnosis has appeared. The work meets every expectation, is fully up to date and is essentially practical.

The Streptococcus and Streptolytic Serum.—Published by the Scientific Department of Frederick Stearns & Co., Detroit Mich.

This brochure of 64 pages deals first with the preparation and indications for streptolytic serum, and second with testimonials from those who have employed it in practice. The book is for free distribution, and while intended primarily as an advertisement, it contains points that are of interest to all physicians.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Manual of Materia Medica and Pharmacy: Specially designed for the use of practitioners and medical, pharmaceutical, dental, and veterinary students.—By E. STANTON MUIR, Ph.G., V.M.D., Instructor in Comparative Materia Medica and Pharmacy in the University of Pennsylvania. Third edition, revised and enlarged. Crown octavo, 192 pages, interleaved throughout. Bound in extra cloth, $2.00 net. F. A. Davis Company, Publishers, 1914-16 Cherry street, Philadelphia, Pa.

Musser's Medical Diagnosis: A practical treatise on medical diagnosis for students and practitioners.—By JOHN H. MUSSER, M.D., Professor of Clinical Medicine in the University of Pennsylvania; Physician to the Philadelphia and Presbyterian Hospitals; Consulting Physician to the Woman's Hospital of Philadelphia and to the West Philadelphia Hospital for Women, to the Rush Hospital for Consumptives, and the Jewish Hospital of Philadelphia; Fellow of the College of Physicians of Philadelphia; Member of the Association of American Physicians; President of the American Medical Association, etc. New fifth edition, revised and enlarged. In one octavo volume of 1,218 pages, with 395 engravings, and 63 colored plates. Cloth, $6.50; leather, $7.50; half morocco, $8.00, net. Lea Brothers & Co., Philadelphia and New York.

AMERICAN NEWS AND NOTES

GENERAL.

The American Electro-Therapeutic Association will hold its fourteenth annual meeting at Inside Inn, St. Louis, Mo., September 13, 14, 15, 16, 1904.

Valuable Public Work.—An exchange states that when Dr. Justice Ohage became, a few years ago, health officer of St. Paul, he noticed a bit of shoal in the Mississippi, visible only when the river was low, but accessible within 10 minutes' rides from the City Hall. Securing possession, by gift, of as much as he could, and by purchase of what he could not beg, he had the city's clean waste dumped upon this little island, thus rapidly bringing it above high-water mark. On the four and one-half acres thus ingeniously wrested from the "Father of Waters" the city of St. Paul now maintains, within easy reach of a majority of its population, a children's playground, a small "Zoo," a vegetable garden (to support the 40 uniformed attendants), public baths, with modern sterilizing plants for the bathing suits, a day nursery, a boy's gymnasium, and a girl's gymnasium—and all united by a small but satisfactory park.

Women's Education and Race Suicide.—An exchange states that the discussion as to the comparative childlessness of college educated women has received a new turn. A graduate of only a few years standing writes that of her classmates none who married failed to become the mother of a healthy child within two years of marriage. She says the type of the average college girl has undergone an important change within a very few years, and that this change warrants a very much brighter outlook for the future. Formerly, the college girl was one whom some exceptional stress of circumstances forced to make the intellectual side of life predominant, to the sacrifice of other interests, from the grammar school up. This abnormal development tended to produce physical ill-health and consequent unfitness for motherhood, even if it did not result in actual sterility. But with the rapidly increasing tendency of the sex to seek the higher education apart from any special stress of circumstances, the type of the college girl is ceasing to be abnormal, and in marriage and motherhood, as in other things, we may expect in the future to see the average college graduate just an ordinary woman, plus somewhat more than the ordinary amount of formal education.

Army Medical Service.—The examination of applicants for commissions in the medical corps was materially modified recently, when the amended regulations governing the matter went into effect. Immediate appointment of applicants after successful physical and professional examination—the latter embracing all subjects of a medical education—has been discontinued. Applicants will be subjected to a preliminary examination and a final or qualifying examination, with a course of instruction at the Army Medical School in Washington intervening. The preliminary examinations will consist of a rigid inquiry into the physical qualifications of applicants and a written examination in the following subjects: Mathematics, geography, history, Latin, grammar, and reading of easy Latin prose, English grammar, orthography, composition, anatomy, physiology, chemistry and physics, materia medica and therapeutics, and normal histology. The subjects in general education above mentioned are an essential part of the examination and cannot under any circumstances be waived. The preliminary examination will be conducted concurrently throughout the country by boards of medical officers at most convenient points. The questions submitted to all applicants will be identical, thus assuring a thoroughly competitive feature, and all papers will be criticised and graded by an army medical board in Washington. Applicants who attain a general average of 80% and upward in this examination will be employed as contract surgeons and ordered to the Army Medical School for instruction as candidates for admission to the medical corps of the army.

EASTERN STATES.

Miscellaneous.—Eastern: The degree of doctor of laws was recently conferred upon Dr. William Osler by Harvard University and upon Dr. William Halsted by Yale University.

NEW YORK.

Pneumonia Contagious in New York.—Alarmed by the spread of pneumonia during these summer months the Board of Estimate of New York City has appropriated $10,000 to pay the expenses of an expert commission to investigate the subject and devise means for the checking of the disease. Since the beginning of this summer the increase in the deathrate from pneumonia has been alarming.

PHILADELPHIA, PENNSYLVANIA, ETC.

Plan New Hospital to Fight Cancer.—A number of Philadelphia citizens contemplate establishing a hospital for the study and treatment of malignant disease. Those interested in the project declare that such a hospital is necessary, statistics proving that cancer is spreading. Physicians have come to realize that if the disease is to be checked intelligent treatment must be applied. During the past year, it is pointed out, there have been 300 deaths in this city alone from cancer.

To Pay the Care of Insane Patients.—As a result of the investigation started recently of the number of patients in the Norristown Asylum who have relatives able to pay for their support, but who were being supported by the city, Assistant City Solicitor Scott yesterday obtained from Judge Audenried rules upon relatives or committees to show cause why orders should not be made upon them for the necessary support. The rules are returnable on July 26. Mr. Scott estimates the loss to the city from this source at $50,000 a year.

Impurities in Newark (N. J.) Water.—In his report to the Board of Health, Dr. R. N. Connelly, the city bacteriologist, shows that Newark's $6,000,000 water-supply is contaminated, and that the source of contamination is at the headwaters of the great system. So far, the water taken from faucets in various parts of the city has been found to be practically pure. But the fact that impurities were in evidence in the water taken at various points in the watersheds was sufficient to alarm the Health Board, and in consequence a trip will at once be made to the sheds and a thorough inspection will be made, with a view to locating the cause of the contamination.

Morphin Victims Must Pay.—Trustees of the Insane at a recent meeting decided to charge each person applying for treatment of the morphin and drug habit at the State Hospital at Farnhurst (Del.) $50. Heretofore no charge has been made for this treatment, but the number of persons addicted to the drug habit applying to the State Hospital for treatment has increased startingly of late, and the fee for treatment was fixed as a means of benefiting the hospital. The $50 must be paid in advance and no part of it will be returned, even if the patient does not remain at the hospital. Under a State law victims of the drink or morphin habit can have themselves voluntarily committed for 25 days to undergo treatment without being classified as insane.

SOUTHERN STATES.

Negro Census Statistics.—The Census Bureau has issued the final bulletin on the negro population of the United States. The number of negroes in the entire area covered by the twelfth census (continental United States, Alaska and Hawaii), and Porto Rico, is 9,204,531, perhaps a larger number than is found in any other country outside of Africa. The report indicates that between 11% and 16% of the negro population have, or are believed by the enumerators to have, some degree of white blood. The center of the negro population is in De Kalb county, Alabama, about four miles from the western boundary of Georgia, having moved thence from Dinwiddie county, Virginia, 476 miles northeast, since 1790. Over 77% of the negroes live in the country, against over 57% of the whites. Almost 90% of the negroes in Continental United States are in the Southern States, and three-tenths of them are in Georgia, Mississippi and Alabama. Negroes constitute about a fifteenth of the city population and about a seventh of the country population of Continental United States. There was an increase among the negroes of 1,345,318, or 18%, in Continental United States, but the rate of increase declined steadily through the nineteenth century. The negroes, unlike the Indians and the native whites, have a slight excess of females. Illiteracy among them is about seven times greater than among the whites. There are 3,992,337 negroes in the United States engaged in gainful occupations. Their deathrate approximates 30%, while that of whites under the same calculation is 17%.

WESTERN STATES.

Mortality of Michigan during June, 1904.—The total number of deaths reported to the Department of State for the month of June was 2,445, a decrease of 492 from the preceding month. The deathrate was 11.9 per 1,000 population. This number, while low, is still somewhat higher than the corresponding rate for June, 1903. By ages, there were 405 deaths of infants under 1 year, 169 deaths of children aged 1 to 4 years, and 688 deaths of persons aged 65 years and over. Important causes of deaths were as follows: Whoopingcough, 7; scarlet fever, 22; typhoid fever, 30; measles, 35; diphtheria and croup, 44; pneumonia, 130; cancer, 135; accidents and violence, 183; tuberculosis, 227, including 189 deaths returned from pulmonary tuberculosis, and 38 deaths from other forms of tuberculosis.

To Combat Tuberculosis.—The trustees of Western Reserve University have voted to establish an anti-tuberculous dispensary in connection with the medical school. This is the second dispensary of the kind to be opened in the United States. In France and Germany the dispensary has already come to represent a most effective instrument in the crusade against tuberculosis. Cooperating with the medical faculty in the work are the Association of Nurses and the Associated Charities of Cleveland. The function of the dispensary in the antituberculosis movement is chiefly preventive. It registers those who are infected with the disease, locates houses in which tuberculous people live, educates the people along fundamental hygienic lines; its agents also visit the homes of the sick, giving instruction in the care of those afflicted with disease.

FOREIGN NEWS AND NOTES

GENERAL.

The Hypnotic Cure for Drinkers.—The treatment of alcoholism by hypnotism, which began at Moscow in 1895, has been inaugurated in St. Petersburg by Dr. R. Z. Bakoff, who, after investigation, asserts that there have been 70% of radical cures for that system against 30% in the cases of other known cures.

French and German Mortality in the Army.—During the years from 1882 to 1901 the French army lost 67,000 men by illness, while in Germany the corresponding figure was only 25,000 men. The cause of this disparity lies largely in the effort to keep the army of France, whose population is 20,000,000 less than that of Germany, equal in size to Germany's, the consequence being that many recruits are accepted who are bound to succumb to the severity of military life and training.

Cancer Research Fund.—The British Royal College of Physicians and the Royal College of Surgeons in March, 1902, made public a scheme for systematic research regarding cancer, and an appeal for funds to carry out the project was made. About £100,000 ($500,000) was raised for the work. The Duke of Bedford promised an annual contribution of £1,000 for three years. The fund is known as the Cancer Research Fund. The Prince of Wales is the president. The executive committee consists of some of the most eminent British physicians and surgeons. The scheme embraced the provision and equipment of laboratories devoted exclusively to cancer research and the collection of statistical, dietetic, and topographic information. King Edward is greatly interested in the fund, and when it was started he expressed the most earnest hope that its work would be productive of good results.

Experiments in the Interest of Sickly Children.—An interesting experiment is to be made in the neighborhood of Berlin for the benefit of weak and sickly children, who, if not already the victims of any positive disease, are likely to become infected unless constitutionally strengthened. The authorities of Charlottenberg have determined to establish a school, large enough to accommodate from 120 to 125 children, at a chosen spot in the depths of the Junfernheide woods, near Berlin. It is intended that the pupils, delicate children, unfitted for ordinary school life, shall remain there the whole day, special arrangements being made to supply them with their meals. They are only to receive from two to three hours' instruction daily, and are to spend the rest of the day in taking healthy exercise in the forest. If the experiment proves successful—and on this point there can be very little doubt—it will be carried out upon a much larger scale, with a big building and a permanent endowment. The idea, clearly, is good, but it is not often that healthful woodland can be found near enough to the tenement districts of a big city to be within daily reach of the children. In most cases, at all events, it would be necessary to provide free transit.

OBITUARIES.

Jacob Fussell Martenet, of Baltimore, from typhoid fever at the Johns Hopkins Hospital, July 18; a graduate of the medical department of the University of Maryland, Baltimore, in 1881. He had been in charge of the children's department of the Johns Hopkins Hospital for a number of years. He was at one time State vaccine physician and was the first vaccine physician to produce his own virus. He was a prominent physician of Baltimore, well known in the masonic and other fraternal organizations.

Edward W. Lambert, at his home in New York, July 17, aged 73. He was a graduate of the College of Physicians and Surgeons in 1857, and from Bellevue Medical Hospital in 1859. He was a widely known physician in New York City, being chief medical officer of the Equitable Life Assurance Company since its organization in 1859. At the time of his death he was attending physician at St. Luke's Hospital and the Nursery and Child's Hospital.

David J. Fitzgerald, of Glens Falls, one of the leading physicians of Northern New York, July 17, of apoplexy, aged 46. He was graduated from the Fort Edward Collegiate Institute in 1876, the Albany Medical College in 1884, and after a course in the New York Post-Graduate School located in Glens Falls in 1886.

Mary D. Spackman, at her home in Washington, D. C., May 26. She was a graduate of Howard University Medical Department, Washington, D. C., in 1872, and was the first woman to obtain a degree in medicine from a college in the District of Columbia.

J. H. McCullough, at his home in Battleford, N. W. T. He formerly lived at Owen Sound, Ont., and was recently sent by the Government to the Northwest Territories to combat the smallpox among the Indians.

E. H. Hill, at his home in Lewiston, Me., July 17, aged 60; a graduate of the Harvard Medical School, and for thirty-five years a practitioner in Lewiston. He was the founder of the Central Maine General Hospital.

Ivo W. Buddeke, at his home in Memphis, Tenn., July 11, a graduate of the Pulte Medical College, Cincinnati, O., in 1875. He was a widely known physician of Memphis.

Peter H. Pursell, recently in St. Louis, aged 65. He was a graduate of the University of Pennsylvania in 1864, and surgeon in the Federal service during the Civil war.

Charles P. P. Cameron, at his home in Westville, N. S., May 27, from septicemia. He was a graduate of Dalhouse University Medical Faculty, Halifax, N. S., in 1901.

Nehemiah Caverly Twombley, at his home in Stratford Ridge, N. H., June 3, aged 69. He was a graduate of the University of Vermont, Burlington, in 1876.

Robert A. Dakin, at his home in Pugwash, N. S., June 15, from cancer of the stomach, aged 68. He was a graduate of Harvard Medical School in 1869.

Louis A. Aldridge, at his home in New Windsor, Md., June 27, aged 50. He was a graduate of the University of Maryland, Baltimore, in 1872.

Quincy A. Shuford, at his home in Tyler, Texas, June 26, aged 78. He was a graduate of the Jefferson Medical College, Philadelphia, in 1849.

Charles S. Woodward, of New York City, at Glen Falls, N. Y., from pulmonary tuberculosis, June 26, aged 34.

Chalmers Walker, from spinal disease at his home in Macomb, Ill., June 4, aged 50.

G. H. Hill, of Charlottesville, Va., in Spartansburg, S. C., July 14.

Henry Clay Wells, at his home in Tiffin, O., June 24, aged 59.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 15, 1904:

	Smallpox—United States.		Cases	Deaths
California:	San Francisco	June 26–July 3	1	
Florida:	General	July 2–9	8	1
Illinois:	Chicago	July 2–9	11	
	Danville	July 2–9	5	
Kentucky:	Covington	July 2–9	2	
Massachusetts:	Fitchburg	July 2–9	1	
	North Adams	July 2–9	1	
Michigan:	At 79 places	June 25–July 2	Present.	
Missouri:	St. Louis	July 2–9	3	
Nebraska:	Omaha	July 2–9	2	
	South Omaha	July 2–9	2	
New York:	New York	July 2–9	1	
	Niagara Falls	July 2–9		1
Ohio:	Cincinnati	June 23–July 8	6	1
	Zanesville	June 4–July 2	7	
Pennsylvania:	Philadelphia	July 2–9	1	
	Williamsport	July 2–9	1	
Wisconsin:	Milwaukee	June 25–July 8	9	

Smallpox—Foreign.

			Cases	Deaths
Brazil:	Rio de Janeiro	May 22–June 5	291	103
China:	Shanghai	May 14–June 14		10
Cuba:	Habana	June 18–25		1
	Source of infection probably imported to case.			
Great Britain:	Birmingham	June 18–25	1	
	Bristol	June 25–July 2	7	
	Glasgow	June 24–July 1	20	1
	London	June 18–25	16	1
	Manchester	June 18–25	2	
	Newcastle-on-Tyne	June 18–25	12	1
	Nottingham	June 11–18		6
India:	Calcutta	June 4–11		1
	Karachi	June 5–12	2	2
Java:	Batavia	May 14–28	6	
Mexico:	City of Mexico	June 12–26	12	5
Russia:	Moscow	June 11–18	18	4
	Odessa	June 18–25	1	
	Warsaw	June 11–18		22
Straits Settlements:	Singapore	May 7–14		1
Turkey:	Beirut	June 4–11	Present.	
	Constantinople	June 19–26		4

Yellow Fever.

			Cases	Deaths
Brazil:	Rio de Janeiro	May 22–June 5	6	2
Mexico:	Coatzacoalcos	June 11–25	2	
	Merida	June 19–25	7	2
	Tehuantepec	June 19–25	2	1
	Vera Cruz	June 25–July 2	5	1

Cholera.

			Cases	Deaths
India:	Bombay	June 7–14		2
	Calcutta	June 4–11		7
	Madras	June 4–10		1
Turkey in Asia:		June 6	361	210

Plague.

			Cases	Deaths
Africa:	Cape Colony	May 21–28	1	
	Natal	June 2	Present.	

Brazil:	Bahia	July 9	5	2
	Rio de Janeiro	May 22-June 5	[illegible]	1
Chile:	Africa	July 10		1
	Antofagasta	May 1-31		52
Egypt:		May 28-June 4	14	8
Including 4 cases, 1 death in Alexandria, and 1 case in Port Said.				
India:	Bombay	June 7-14		63
	Calcutta	June 4-11		36
	Karachi	June 5-12	21	22
Mauritius:		Apr. 8-May 5	3	3
Peru:	Trujillo	July 10		1

Changes in the Medical Corps of the U. S. Army for the week ended July 16, 1904:

Brown, H. D., contract surgeon, will proceed to Fort Casey on July 2 for temporary duty, to relieve First Lieutenant James I. Mabee, assistant surgeon, who will proceed to American Lake, Wash., for duty during the department maneuvers. Upon completion of this duty Assistant Surgeon Mabee will return to his proper station, relieving Contract Surgeon Brown, who, when thus relieved, will return to Fort Ward.

Carpenter, Alden, contract dental surgeon, is granted leave for one month, from August 10, with permission to apply for an extension of twenty-five days.

Mason, Major Charles F., surgeon, now on leave at Warrenton, Va., is relieved from further duty at Fort Sam Houston, and will repair to Washington, D. C., and report to the surgeon-general of the Army for duty in his office.

Arthur, Major Wm. H., surgeon, is granted leave for one month, from about August 27.

Feeney, John M., contract surgeon, now on leave, is relieved from further duty in the Philippines Division, and will proceed from Washington, D. C., to Fort Trumbull for duty, to relieve First Lieutenant George M. Ekwurzel, assistant surgeon, who will proceed to West Point, N. Y., and report to the superintendent, United States Military Academy, for duty, vice First Lieutenant Theodore C. Lyster, assistant surgeon, relieved. Lieutenant Ekwurzel will also assume the duties performed by Lieutenant Lyster in New York City pertaining to the examination of recruits.

Fisher, William C., contract dental surgeon, now at Fort Sheridan, is relieved from duty in the Department of the Lakes, and will proceed to his home at such time as will enable him to report for annulment of contract on July 20.

Conner, Michael E., contract surgeon, is relieved from further temporary duty at the infantry cantonment, Presidio, and will report at Fort Miley for duty, relieving First Lieutenant Edmund D. Shortlidge, assistant surgeon, who will report to the commanding officer, Third Squad, Ninth Cavalry, Presidio, for temporary duty therewith and with the field artillery during the maneuvers in the Department of California. Upon the completion of this duty, First Lieutenant Shortlidge will return to his proper station.

Birmingham, Major Henry P., surgeon, is detailed to attend the encampment of the National Guard of Pennsylvania, to be held at Gettysburg, Pa., from July 23 to 30.

Boards of medical officers as hereinafter constituted are appointed to meet on August 1 at the places designated for the purpose of conducting the preliminary examination of applicants for appointment in the medical corps of the Army: At Fort Sheridan, Major Francis J. Ives, surgeon; First Lieutenant Charles E. Marrow, assistant surgeon; First Lieutenant James Bourke, assistant surgeon. At Fort Thomas, Major William J. Wakeman, surgeon; First Lieutenant Robert M. Blanchard, assistant surgeon. At Fort McPherson, Major William W. Gray, surgeon; First Lieutenant Park Howell, assistant surgeon. At Fort Jay, Major John L. Phillips, surgeon; First Lieutenant George H. Crabtree, assistant surgeon; First Lieutenant Robert M. Culler, assistant surgeon. At Fort Crook, Major Adrian S. Polhemus, surgeon; First Lieutenant William W. Reno, assistant surgeon. At Fort Leavenworth, Captain Paul F. Straub, assistant surgeon; First Lieutenant James F. Edwards, assistant surgeon; First Lieutenant Jay R. Shook, assistant surgeon. At Fort Preble, Captain William F. Truby, assistant surgeon; First Lieutenant Clement C. Whitcomb, assistant surgeon. At Fort Porter, Captain Harry M. Hallock, assistant surgeon. At the United States Army General Hospital, Washington Barracks, Captain Deane C. Howard, assistant surgeon; First Lieutenant Frederick A. Dale, assistant surgeon; First Lieutenant Robert E. Noble, assistant surgeon. The boards will be governed by instructions to be communicated to them by the surgeon-general of the Army, to whom the reports of the boards will be rendered direct.

Pomeroy, William H., contract surgeon, is granted leave for one month, from about July 15.

Jones, John F., contract surgeon, is relieved from duty in the Department of the East, to take effect at such time as will enable him to comply with this order, and will proceed to his home and report to the surgeon-general of the Army August 31 for annulment of contract.

Jacobson, Benjamin L., sergeant first class, transport Logan, San Francisco, Cal., will be discharged from the Army, under the provisions of G. O. 48, W. D., March 15, 1904, by the commanding officer of his station.

Sorber, Ord M., contract dental surgeon, is granted leave for two weeks.

Davis, First Lieutenant William T., assistant surgeon, is relieved from duty as surgeon on the transport Logan, to take effect on the next arrival of that transport at Manila, P. I., and will then report to the commanding general, Philippines Division, for assignment to duty.

Bemtgen, August A., sergeant first class, now at the Army General Hospital, Presidio, is relieved from further duty in the Philippines Division, and will be sent to Fort McDowell for duty.

Hornung, Otto H., sergeant first class, now at Wytheville, Va., is relieved from further duty in the Philippines Division, and will report upon expiration of furlough at Fort McDowell to relieve Sergeant First Class Gustav Knapp. Sergeant First Class Knapp will be sent to San Francisco, Cal., reporting to the commanding officer, transport Logan, for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended July 16, 1904:

Wilson, H. D., passed assistant surgeon, detached from the Vicksburg and ordered home to await orders—July 8.

Angeny, G. L., passed assistant surgeon, orders of March 16 modified; ordered to duty at the Naval Station, Culebra, W. I., with additional duty with the marine attachment at that place—July 9.

Craig, T. C., surgeon, retired, relieved from duty as member of a committee for fixing a standard for diphtheria antitoxin, under orders of June 30, 1902—July 12.

Steele, J. M., surgeon, detached from the Naval Station, Port Royal, S. C., and ordered home to await orders—July 13.

Keene, W. P., acting assistant surgeon, detached from duty on board the second torpedo flotilla and ordered to the Naval Station, Port Royal, S. C.—July 13.

Campbell, R. A., acting assistant surgeon, ordered to duty on board the second torpedo flotilla—July 13.

Bishop, L. W., assistant surgeon, ordered to the Navy Yard, New York, N. Y.—July 14.

Backus, J. H., assistant surgeon, detached from the Annapolis and ordered home to await orders—July 14.

Changes in the Public Health and Marine-Hospital Service for the week ended July 14, 1904:

Stoner, J. B., surgeon, to proceed to Ocean City, Md.; Chincoteague and Wachapreague, Va., for the physical examination of certain keepers and surfmen of the Life Saving Service—July 9, 1904.

Guiteras, G. M., surgeon, granted leave of absence for seven days from July 14—July 11, 1904.

Grubbs, S. B., passed assistant surgeon, to proceed to Moss Point, Miss., for special temporary duty—July 12, 1904.

Billings, W. C., passed assistant surgeon, department letter of March 28, 1904, granting Passed Assistant Surgeon Billings leave of absence for two months and three days, amended to read one month and twenty-eight days—July 7, 1904.

Korn, W. A., assistant surgeon, relieved from duty at Philadelphia, Pa., and directed to proceed to Perth Amboy, N. J., for duty—July 12, 1904.

Amesse, J. W., assistant surgeon, department letter of March 26, 1904, granting Assistant Surgeon Amesse leave of absence for two months and fifteen days, amended to read two months and eleven days from May 1, 1904—July 9, 1904.

Glover, M. W., assistant surgeon, granted leave of absence, on account of sickness, for seven days—July 13, 1904.

Bahrenburg, L. P. H., assistant surgeon, relieved from duty at Chicago, Ill., and temporary duty at Evansville, Ind., and directed to proceed to Delaware Breakwater Quarantine and report to the medical officer in command for duty and assignment to quarters—July 9, 1904.

Stimson, A. M., assistant surgeon, upon being relieved at New Orleans, La., by Assistant Surgeon E. M. Steger, to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty—July 12, 1904.

Ward, W. K., assistant surgeon, upon being relieved at Reedy Island Quarantine by Assistant Surgeon G. L. Collins, to proceed to Washington, D. C., and report at the Bureau for instructions preliminary to assignment in the office of the United States Consul at Bridgeton, Barbadoes, British West Indies—July 12, 1904.

Roberts, Norman, assistant surgeon, relieved at New Orleans, La., and directed to proceed to Evansville, Ind., and assume temporary charge, relieving Assistant Surgeon L. P. H. Bahrenburg—July 9, 1904.

Collins, G. L., assistant surgeon, relieved from duty at Ellis Island, N. Y., and directed to proceed to Reedy Island Quarantine and report to the medical officer in command for duty and assignment to quarters, relieving Assistant Surgeon W. K. Ward—July 12, 1904.

Steger, E. M., assistant surgeon, relieved from duty at Ellis Island, N. Y., and directed to proceed to New Orleans, La., and report to medical officer in command for duty in connection with the examination of aliens, relieving Assistant Surgeon A. M. Stimson—July 12, 1904.

Brown, B. J., Jr., acting assistant surgeon, granted leave of absence for twenty-one days from July 8—July 9, 1904.

Cleaves, F. H., acting assistant surgeon, granted leave of absence for twenty-three days from July 8—July 7, 1904.

Goldsborough, B. W., acting assistant surgeon, granted leave of absence for three days from July 13—July 9, 1904.

Gregory, G. A., acting assistant surgeon, granted leave of absence for seven days from July 5—July 9, 1904.

Keatley, H. W., acting assistant surgeon, granted leave of absence for two days from July 8, 1904, under paragraph 210 of the regulations.

Savage, W. L., acting assistant surgeon, granted leave of absence for thirty days from August 1—July 8, 1904.

Stevenson, J. W., acting assistant surgeon, granted leave of absence for fourteen days from July 11—July 13, 1904.

Tappan, J. W., acting assistant surgeon, granted leave of absence for thirty days from July 10—July 6, 1904.

Weldon, W. A., acting assistant surgeon, granted leave of absence for thirty days from July 8—July 13, 1904.

Allen, G. C., pharmacist, granted leave of absence for thirty days from July 13—July 12, 1904.

Boards Convened.

Board convened to meet at Washington, D. C., July 11, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Board convened to meet at the Marine Hospital, Baltimore, Md., July 12, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon C. W. Wille, chairman; Acting Assistant Surgeon J. G. Evans, recorder.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J., June 7 to 10, 1904.

[Specially reported for *American Medicine*.]

(*Continued from p. 98.*)

Section on Practice of Medicine.

FOURTH SESSION (CONTINUED).

Treatment of Cholecystitis and Cholelithiasis.—LUCIUS W. HOTCHKISS (New York) mentioned the growing tendency on the part of the profession to class gallbladder disease as a surgical ailment. This is due partially to the good results attained by the surgeon in elucidating the pathology and consequently the diagnosis of the disease. Medical treatment may be justified in certain cases, however, even though in general it is undoubtedly surgical. Sodium glycocholate is theoretically of value but no solvent for gallstones has yet been discovered. Olive oil has not fulfilled the hope once felt regarding its efficacy. Diet is of importance in certain cases. The principal point to determine is what cases are to be treated expectantly and what surgically. Here is need of a better understanding between the physician and surgeon. The promise of better results from surgery in the future lies not so much in technic as in earlier diagnosis. The danger of operation is primarily in delay; early operation is simple and the mortality is very slight. Hotchkiss reviewed the various surgical procedures, in the progress of which American surgeons have played a not unimportant part. What shall the surgeon advise the patient? In simple cases waiting is allowable. In subsequent mild attacks waiting may also be adopted although cholecystectomy is very rational treatment. In repeated severe attacks nothing is gained by delay. If there is mild infection for a few days and then severe symptoms, prompt operation is demanded. In common duct obstruction by a calculus, expectant treatment may be adopted for a week or two; if this fails to dislodge the stone it is to be removed by operation. Chronic jaundice with its accompanying hemorrhage often defeats the best planned and executed operation; this condition is too often the result of senseless delay on the part of the physician or surgeon. A point to remember is that the treatment of gallbladder disease is ultimately surgical.

Discussion.—J. M. ANDERS (Philadelphia) stated that the mere presence of microorganisms in the gallbladder is not sufficient to cause the formation of gallstones. The predisposing cause is local irritation and the remote contributing causes are numerous. His view regarding the relation of cholecystitis to cholelithiasis is that it is one of cause and effect. The latter may not immediately follow, possibly coming after a subsequent infection. Anders is not ready to admit that ulcer of the stomach or intestine may have its origin in biliary disease. He has seen grave disease of the gastrointestinal tract follow gallbladder disease; in general, the motor is disturbed much more than the secretory function. A clear previous history is of the greatest importance in the diagnosis of gallbladder disease. Anders emphasized two important facts brought out by Sippy, namely, the treatment of acute pyloric obstruction by rest and rectal feeding and that the surgeon in such cases demanding operation should endeavor not so much to overcome the obstruction as to remove the causative condition. In the diagnosis of cholelithiasis he would make an addendum to the symptoms named; immediately preceding the attack there occurs pain in the back in the region of the tenth dorsal vertebra. This lasts only a few minutes or in some cases longer and is followed by the typical gallstone colic. This pain is not common in cholecystitis. W. J. MAYO (Rochester, Minn.) said that cholelithiasis is a surgical disease; gallstones are essentially foreign bodies and should be removed when they give trouble. Physicians should bear in mind the statistics of operation in simple cases and in those with complications. In the former, results are remarkably good; in cases of stone in the gallbladder and no inflammation present, the mortality is not over 3% and this is largely accidental and not inherent to the operation itself. Too many men are sending cases to the surgeon because of complications instead of simply gallstones. Simple cases should not be sent to Carlsbad and similar places when the mortality of such cases afterward coming to operation, in the hands of such an operator as Kehr, is 16%. The question of chronic pancreatitis and its relation to cholelithiasis is not yet settled. Mayo has seen several cases where the head of the pancreas was very large and practically prevented palpation of the bile ducts. Drainage was instituted and the patients apparently recovered. Later they returned with a reappearance of symptoms and second operations revealed stones that had been in situ during the first operation. This emphasizes the fact that in all such cases the common duct must be opened and explored to the papilla for stones. W. S. THAYER (Baltimore) mentioned a few points in the paper on "Relation of Cholelithiasis to Diseases of the Pancreas," which was to have been read by E. L. Opie, who was detained by sickness. One of these points was a reference to the work of Pawlow, who has recently shown that the admixture of bile and pancreatic juice increases the activity of the fat-splitting ferment of the latter. This is a possible cause of acute pancreatitis. Opie has shown that gallstones are in the majority of instances associated with pancreatitis and are causative. In one case, fat-splitting ferment was found in the urine; this may prove to be an important diagnostic aid in acute pancreatitis. Opie emphasizes the importance of careful search for gallstones when in any abdominal operation fat necrosis is found. Thayer, continuing, mentioned a symptom of stone in the cystic duct, namely, pain on taking food due to adhesions to the pylorus. A grave danger in delaying operation is the danger from hemorrhage due to developing jaundice. J. C. HEMMETER (Baltimore) cited a case in which resection of the gallbladder was done in October, numerous stones being found. The pain continued and a second operation in January revealed three small stones in the intrahepatic bile ducts. Hemmeter is not prepared to concede to the surgeon the entire management of gallbladder cases; he is indispensable, it is true, and can remove gallstones but he cannot remove the condition that leads up to their formation. The opposite aspect of the question discussed by Sippy, namely, gallbladder disease as caused by gastrointestinal disorders, is worthy of serious consideration; the physician must study the effect of treatment on the conditions that lead up to the formation of stones. A point in the diagnosis between gastric ulcer and gallstones is that in the presence of the former, pepsin is often found in the urine which should be studied in Mett tubes. Another point is that the pain of gastric ulcer can be stopped by orthoform, especially when that drug is combined with an alkali; gallstone pain is uninfluenced by this procedure. FRANK BILLINGS (Chicago) said that the secretion or excretion of the cells lining the biliary passages is the most important factor in the etiology. It is futile to attempt to dissolve gallstones. Medicinal treatment may lessen the danger of infection of the gallbladder and sojourn at mineral springs is useful in this way. Surgery is demanded when stones are formed. JAMES TYSON (Philadelphia) cited personal cases illustrating points in diagnosis and treatment. One was a case of frequently recurring pain in the region of the gallbladder; there was no jaundice. Operation revealed a normal gallbladder, but there were adhesions between the pyloric end of the stomach and the adjacent bowel. The patient made a rapid recovery. It is not known what relation cholecystitis bore to the condition in question. A second case was that of a woman who had attacks of biliary colic and was sent to Carlsbad where she was pronounced cured. Operation by Deaver after her return disclosed more than 100 stones in the gallbladder. ALLEN JONES (Buffalo) has found stones impacted in the gall ducts of a girl of 14. He has also seen cases where the differential diagnosis between a distended gallbladder and a floating kidney was called in question. In his experience, stomach trouble in gallstone cases occurs after eating. The stomach returns to normal or rather the symptoms disappear in many cases after the gallbladder is emptied. J. C. WILSON (Philadelphia), said that in regard to extending the knowledge that cholelithiasis is a surgical disease there are two classes not yet receptive of such teaching: (1) Persons who have had attacks of biliary colic which have subsided, and their friends; (2) physicians who have observed such cases. These two classes cannot be persuaded of the necessity of surgical intervention. Just as there are cases of latent gallstone disease so there is in certain cases a recurrence of latency after attacks and in some of these the latency may become permanent, if the individual has the proper hygienic and dietetic surroundings. These cases are few and the internist should bring all his persuasive powers to bear upon the two groups, especially the physicians.

Ergot in General Practice.—A. T. LIVINGSTON (Jamestown, N. Y.) read a paper with the object of demonstrating that inefficient tone of unstripped muscle fiber is a common and serious element in disease and the necessity of guarding against or correcting it. For the latter purpose he recommends the employment of ergot hypodermically. This equalizes blood distribution which is of more value than securing increased blood-pressure without this equalization. Socalled heart tonics and stimulants are indicated secondarily, to such distribution secured by ergot. They may be harmful if administered before. Disturbance of equalization of the circulation is the chief element in many diseases, inflammatory, infectious, and socalled nervous; of deficient glandular action; in vasomotor pareses; and in cardiac exhaustion and paralysis. Ergot restores vascular tone by inducing contraction of relaxed unstripped muscle fiber wherever they exist and thus accomplishes its beneficial effects.

[*To be continued.*]

Section on Surgery and Anatomy.

SIXTH SESSION.

Old Unreduced Dislocations.—DEFOREST WILLARD (Philadelphia) emphasized the difficulties of diagnosis, especially in cases complicated with fracture, and he insisted on the necessity for anesthesia in the case of severe injuries in the neighborhood of joints. In the first place, manipulation and traction should be carefully employed and modified according to the position of the bone. In shoulder dislocations, outward traction is less dangerous than upward tractions. Reduction in cases of over six months standing is rare. If these conservative methods fail, division of all resisting structures preventing reduction should be employed. In some cases arthrotomy and removal of deposits filling the bony sockets is necessary. In operating on the shoulder-joint, injury to the deltoid muscle should be avoided by going well forward. After operation passive motion should be begun early; electricity and massage may be used, and voluntary motion should be encouraged. The best method of treating old dislocations is to prevent them by reducing all dislocations immediately after injury. There is seldom any excuse for failure to reduce if care is used. In some cases when manipulation and traction fail, prolonged extension may be used to relax the muscles, and reduction will then be found possible. When operation is undertaken, all capsular, muscular and bony obstructions should be divided. When the condition has existed for over a year, resection will probably give best results, but it is not advisable unless there is much disability and pain. Extreme force should never be used as the open method is much safer.

Discussion.—BEVAN (Chicago) emphasized the importance of the use of the röntgen rays in diagnosis. In operating, if the dislocation be anterior, a posterior incision will usually be found most convenient, while in posterior dislocations the anterior incision should be used. BLAKE (New York City) prefers the open operation in difficult cases. In shoulder dislocations the incision should be made high up, just below the acromion to avoid the circumflex nerve. In very old dislocations, excision is advised. VAUGHN (U. S. Marine Hospital Service) believes that in difficult, recent dislocations, if we fail to reduce we should operate at once, thus preventing much subsequent disability. He reported a case in which the detached greater tuberosity of the humerus prevented reduction, and the condition was relieved by immediate operation. LORD (Omaha) emphasized the importance of the open operation instead of using force, of avoiding pressure on nerves by leverage, and of not operating too soon after violent manipulation.

Conservative Perineal Prostatectomy; Report of 50 Cases.—HUGH H. YOUNG (Baltimore) gave a brief review of the history of various operative methods for the treatment of prostatic hypertrophy. The trend of modern operations has been toward earlier and more radical procedures, thus avoiding the danger of late operation and the dangers and discomforts of catheter life. At first, when he began operating in these cases in 1896–1897, he used the suprapubic method, but it was followed by a number of unsatisfactory results and deaths from hemorrhage. He then tried the combined suprapubic and perineal method, but was not entirely satisfied with this. The Bottini method was then used in 85 cases, with good results in most of them, but with four deaths, and in some cases not as satisfactory results as might have been expected in such conditions. By the term conservative he refers not to conservatism in avoiding operation, but only to the preservation of sexual power by avoiding injury to the ejaculatory duct and urethra. The ducts are situated near the median line, and the lobes are removed in such a way that a bridge of tissue is left. In patients where there is already impotence, the entire gland is enucleated without special care to save this median bridge of tissue. He has operated upon 50 patients by this method, two of whom were over 80, and 7 between 75 and 80, with not a single death which can be justly attributed to the operation. One patient, 84 years old, died five weeks after operation, from inanition; one died two weeks after operation from pulmonary embolism. He has used spinal anesthesia in two patients over 80 years old. Thus far he has seen preservation of sexual power in a considerable number of cases.

Prostatic Obstruction.—PARKER SYMS (New York City) emphasized the importance of making a diagnosis with as simple methods as possible. A very careful history should be taken, and with this and rectal examination a diagnosis can always be made. Syms spoke strongly of the undesirability of cystoscopic examination or the introduction of metallic instruments for diagnosis. The necessity for catheter life is an indication for operation, for many patients never establish catheter life, and the normal duration of life under these conditions is not over four years. He believes that the Bottini operation is contrary to all the best principles of surgery. It is a laceration of the deep urethra, in which condition drainage through the perineum is always indicated. The suprapubic operation is irrational, because it is not the direct route of approach to the prostate, which is not situated above or in the bladder, but below it. The perineal operation is so safe that it may be said to have no dangers in suitable cases. Syms uses a small median incision. In order to remove obstruction, it is necessary to remove the entire prostate. Traction is not absolutely necessary, but it is useful, and Syms again called attention to the use of his rubber bag tractor, which he has found of great service in his experience. The operation should be planned so as to save life, and this means that first attention is given to save time and blood. The convalescence is usually simple, and in all his recent cases patients have been up in 48 hours, so as to avoid the danger of hypostatic pneumonia. They are usually able to void naturally in 10 days to four weeks at the maximum.

Prostatectomy in General, Especially by the Perineal Route.—GEORGE GOODFELLOW (San Francisco) emphasized the dangers of catheter life. He believes that the perineal operation is the operation of choice in all but very exceptional cases. Every means of diagnosis at hand should be employed, though he believes there is great danger in the use of instruments. His operation is practically the same as that described by Syms, except that no tractor is used. In his earlier operations, he simply perforated the membranous urethra with the knife as in median lithotomy, and at present he employs the same technic with the exception that he now begins to shell out the gland from behind instead of in front. He does not employ gauze or tube for drainage after the operation and finds no bad results from this. At first, he passed instruments at frequent intervals, but having several cases of epididymitis he gave this up for a time, but found that it made no difference and recently he begins instrumentation with almost a straight instrument on the ninth day. The wound usually closes readily and the patients are urged to get up as early as possible. He finds no interference with the function of the bladder or urethra, and in many patients over 67, full power has been retained. Incontinence sometimes exists for from two to four months, but complete control is eventually regained.

Is it Wise to Try to Make Any One Operative Method Apply to all Prostatectomies?—EUGENE FULLER (New York City) finds removal of the prostate readily possible by any of the three methods now in general use. The disadvantages of the suprapubic method are the possibility of rectovesical fistula and the necessity of tearing the membranous urethra in all cases. It has the advantage of accessibility, can be rapidly performed through a small median incision, and convalescence is short. In cases complicated with foul cystitis, large calculus, or hemorrhage, it is better to employ the suprapubic method. He mentions a case in which a blood-clot was forced up the ureter and into the pelvis of the kidney from vesical hemorrhage, necessitating nephrotomy some time after the prostatic operation. Fuller's first results were published in 1895, and since then he has operated in 300 cases without any mortality from the operation itself.

Discussion.—HORWITZ (Philadelphia). The time for radical operation is as soon as the necessity for catheter life occurs. Every case is a law unto itself, and no hard and fast rules can be laid down. He believes that the Bottini operation should not be entirely condemned. He has used it in 93 cases, with only three fatalities. He has also employed both the suprapubic and perineal methods. In two cases a rectal fistula has resulted. There is less hemorrhage and less extensive dissection with a median perineal incision. He finds complicated instruments unnecessary, and does not believe it is possible to save the ejaculatory ducts in most cases. Their removal has nothing to do with impotence, for in inflammatory diseases of the urethra they are often cut off without any loss of sexual power. He has used the cystoscope in many hundreds of cases with never any bad results, and it has been a source of much valuable information. MUNRO (Boston) emphasized the importance of employing preliminary suprapubic drainage in certain cases. TINKER (Ithaca) called attention to the possibility of performing perineal prostatectomy with the use of local anesthesia by the massive infiltration method suggested by Matas. The perineum is supplied from the pudic nerve mainly, and this can be infiltrated by injection just in front of and internal to the tuberosity of the ischium. This gives entirely satisfactory anesthesia, and will save the life of many patients who would die from the effect of a general anesthetic. EISENDRATH (Chicago) called attention to the dangers of operation in many cases complicated by ammoniacal cystitis, and emphasized the desirability of suprapubic drainage in these cases preliminary to a more radical procedure.

Kidney Stone, Diagnosis and Treatment.—ARTHUR DEAN BEVAN (Chicago) enumerated the most probable causes of kidney stone and believes that a mild colon infection is the most probable cause in most cases. The greatest variety of symptoms is seen in these cases and in many cases there are no symptoms at all for years. The typical symptoms of renal colic are frequently wanting; any form of colic may be simulated; digestive disturbances are frequent, as is also vesical irritation. Every means of diagnosis is necessary in many of these cases. Microscopic examinations of centrifuged specimens of urine as well as careful chemic analysis, the röntgen rays and cryoscopic examination were mentioned among the means of diagnosis. Exploratory operation may sometimes be called for. The röntgen ray is the most valuable means at our command for the diagnosis of this condition. The röntgen ray plate is best examined at a distance through an opera glass. Bevan was able to make a positive diagnosis in 15 out of 29 cases by the röntgen ray. The use of the ureteral catheter and the segregator has been of service in some cases and Bevan has not been impressed with the danger of their use. Cryoscopic examination is also of value and he refuses operation in patients with a freezing-point of the blood above 60. There is no reasonable argument against operation when the diagnosis of kidney stone has been made, for the condition is sure to lead to suppuration, renal colic or some other disastrous complication unless treated. When possible he removes stone in the pelvis of the kidney by incision and direct closure, not injuring the kidney substance. In case it is necessary to cut into the kidney he advises immediate closure without drainage.

Discussion.—LEONARD (Philadelphia) finds that errors in diagnosis with the use of the röntgen ray are made in less than 3% of all cases. It should always be used in combination with other methods. He has made errors in both positive and negative diagnosis in only nine cases out of a very large series that have been referred to him. Blake (New York City) called attention to the danger of latent calculus as a source of dangerous anuria. He believes that closure of the aseptic kidney should always be done. Deaver (Philadelphia) believes that a positive diagnosis can almost always be made by the röntgen ray. He usually finds it desirable to deliver the kidney and palpate, but he has ceased to make the exploratory incision from pole to pole as a means of diagnosis. Young (Baltimore) believes that much less extended exposure with the röntgen ray is needed than was formerly thought necessary and at present the dangers of röntgen ray burns have been greatly reduced. He considers the use of a cigaret drain for the first 24 hours very important. He mentioned a case in which he removed a calculus the size of a lemon in a patient who had had no previous symptoms which led trouble to be suspected.

[*To be continued.*]

Section on Ophthalmology.

THIRD SESSION.

Some Injuries of the Eye in Their Medicolegal Aspect.—John J. Kyle (Indianapolis) read this paper beginning with classification of the various injuries and considering the several dangers especially infection and sympathetic ophthalmia. A diagram was presented to illustrate these several points. He remarked the necessity of differential diagnosis between forms of blindness due to concussion of the brain, hysteria, and other similar conditions and gave several diagnostic signs of importance. Two cases of injury to the eyeball were then cited, one in which the traumatism was direct and the other indirect. In the first case the injury was due to a large particle of iron which penetrated the posterior chamber. A small magnet was used for its extraction. The reader then discussed the relative merits and advantages of the large and small magnets. The case of indirect injury was one of traumatic origin without evidence of any destruction of the ocular tissue, resulting in temporary blindness. A damage suit resulted. The various means of arriving at an estimation of the damages in such cases were then carefully gone over and the medicolegal aspect thoroughly discussed. He stated that the facts of the cases were often obscured by the attorneys on both sides and remarked of the necessity of having to frequently suppress a large part of the clinical histories in courts of law. His instructions to the expert witness under such circumstances would be to answer questions briefly without volunteering any unasked for information.

Discussion.—H. M. Starkey (Chicago) referred especially to function blindness, especially those cases of persons applying for pensions. When he saw no physical reason for blindness he gave the diagnosis accordingly. He then mentioned a few cases of injury in which sight was markedly affected from the indirect results of the traumatism, especially hemorrhage into the vitreous. J. L. Thompson (Indianapolis) also briefly discussed the question of traumatic blindness. H. V. Würdemann (Milwaukee) stated that the judge in damage suits for ocular injury should not be confined entirely to the cause of the particular lesion in any case, but to the effect it would have on the earning capacity of the individual. The expert should, if possible, plainly demonstrate the nature of the condition. He then referred to some decisions and awards in cases of this character to show the wide range that exists in awarding damages. He thought that the expert should testify as to the permanent results to the patient, and remarked the probability of the patient claiming damages from the attending physician. E. Jackson (Denver) contributed some valuable thoughts as regards simulated blindness after injury, and believed the prism test of Priestly Smith which took into consideration the movement of the eyes and not diplopia was perhaps the best. In the performance of this test in the presence of binocular vision there is movement of the eyes to overcome prisms, 8° to 10° bases out. In hysteric blindness the eye movements may be inhibited and nullify this test. Usually, he thought it was applicable however. In closing the discussion Kyle voiced Würdemann's remarks, and cited another case to illustrate the character of legal conclusions of a patient in whom deafness followed ear injury, and in whom there previously existed a ruptured tympanum to which in the trial the deafness was attributed by the defense.

Blindness and Oculomotor Palsies from Injuries Apparently not Involving the Optic or Oculomotor Nerves.—Alvin A. Hubbell (Buffalo, N. Y.) presented a paper with this title containing detailed reports of ten cases of injuries about the head and face apparently not implicating the optic or oculomotor nerves, in which blindness or palsy of the ocular muscles followed. He carefully discussed the subject of reflex blindness and reflex paralysis and referred to the theory of Berlin and his followers, who believe that in these cases there exists a fracture of the sphenoid bone at the optic foramen or other similar direct injury. The reader defended the reflex theory as the one that most reasonably with our present knowledge explained the loss of function of the nerves of special sense and of motion in certain cases of remote injury.

Discussion.—S. D. Risley (Philadelphia) did not accept the reflex origin of blindness in these cases and mentioned the histories of several cases in support of this belief. He was inclined to think that in many of these cases there was injury to the optic nerve produced by force transmitted along the bony walls of the orbit. G. E. DeSchweinitz rejected the reflex origin of the visual and motor effects of these injury cases, and thought they could be more easily explained by considering the possibility of hemorrhage into the sheath of the nerve, infection of the orbital tissues, and vasomotor changes affecting the ganglion cells of the retina, ultimately inducing ascending optic atrophy. In closing the discussion, Kyle still defended the reflex theory, and said he would accept the fracture theory if clinical observations warranted it particularly in involvement of the fifth nerve.

The Ocular Symptoms of Lesions of the Optic Chiasm.—G. E. DeSchweinitz and John T. Carpenter (Philadelphia) presented this paper, the principal features of which may be briefly summed up as follows: I. Review of present views of the structure and anatomic relations of the optic chiasm. II. Summary of the ocular symptoms of chiasm disease: 1. Anomalies of the visual field; (*a*) complete bitemporal hemianopsia; (*b*) temporal hemianopsia of one eye and complete blindness of the opposite eye; (*c*) bitemporal achromatopsia with central scotoma for colors; (*d*) central scotomas; (*e*) irregular losses in the visual field; (*f*) unilateral nasal hemianopsia followed by progressive loss of the visual field; (*g*) binasal hemianopsia. 2. Ophthalmoscopic changes: (*a*) optic neuritis; (*b*) optic nerve atrophy without preceding neuritis; (*c*) alterations in the general eyeground. 3. Anomalies of the external ocular muscles. 4. Alterations in the pupil reflexes with special reference to the hemiopic pupillary inaction. III. A consideration of the lesions which may produce alteration in the structure and function of the chiasm; for example: Newgrowths springing from the body of the sphenoid bone; fracture of the body of the sphenoid; basal, tuberculous, and syphilitic lesions; chronic thickening of the dura mater near the chiasm; vascular disease in the neighborhood of the chiasm; invasion of the chiasm by distention of the infundibulum of the third ventricle in internal hydrocephalus; tumors of the cerebellum and closure of the aqueduct of Sylvius; lesions of the chiasm in disseminated sclerosis. IV. Diseases of the pituitary body, especially akromegaly. V. Simulation of chiasm disease by other affections, as hysteria, locomotor ataxia, brain tumors, etc. VI. Lesions of the chiasm occurring under the influence of certain toxic agents.

Discussion.—Casey A. Wood (Chicago) briefly referred to congenital anomalies of the chiasm, and stated that it might be probable that they were the cause in some cases in which there was an aversion to binocular single vision, even after the muscle balance had been restored by muscle operations. He also made mention of the necessity of studying these cases postmortem. John D. Carpenter (Philadelphia) considered Wood's suggestions, and thought it could be best carried out in a general hospital. Clarence Veasey (Philadelphia) exhibited a skiagraph, showing the shadow of a neoplasm of the chiasm, and alluded to few other similar cases. L. J. Borsch (Philadelphia) spoke in reference to the uncertainty of prognosis, citing a case in which an unfavorable prognosis was given. Recovery, with marked improvement in vision, occurred after the employment of specific treatment. G. A. Aschmann (Wheeling, W. Va.) related the history of a case in which sarcoma of the chiasm and tobacco amblyopia existed at the same time, and urged the necessity of most careful differential diagnosis. F. B. Tiffany (Kansas City, Mo.) gave an account of a case with contracted fields and hemianopsia, the cause of which he believed to be located in the chiasm. C. R. Holmes (Cincinnati) related a case with loss of vision of obscure origin, which at autopsy revealed latent purulent inflammation, with necrosis of the sphenoid not evident by examination of the nasal cavities. A clot was found resting on the chiasm and sella turcica, and the bone was found eroded. The loss of vision was, no doubt, due to irritation of the optic nerve by the inflammation, and death was induced by the hemorrhage. J. Weeks (New York) inquired for an explanation why choked disc was not more frequently encountered in these cases. In closing the discussion, DeSchweinitz complimented his associate, Carpenter, for his untiring efforts in the preparation of the paper. He stated, in reply to Weeks, that only two cases of choked disc were observed in 100 collected cases, but gave no explanation. In considering differential diagnosis, he referred to functional visual disturbances simulating chiasm disease, and further stated that in no other affections than chiasm disease was it possible to have permanent bitemporal hemianopsia.

Contraction of the Visual Fields as a Symptom of Anesthesia of the Retina in Children.—L. Webster Fox (Philadelphia) read this paper, giving the histories of 24 cases of children between the ages of 8 and 16 years, in whom loss of vision with contraction of the visual fields occurred without other subjective or objective symptoms. The application of the constant electric current from three to five times served to bring about a restoration to normal. In only one case was there a recurrence. The eyegrounds were normal in every respect, and the patients were in good physical condition. The essayist was convinced that the affection was not hysteric in nature, since there were no scotomas, inversion of the color fields or any of the concomitant symptoms of hysteria. He did not consider eyestrain as the etiologic factor, as several of the patients recovered with the electric treatment without wearing the correcting lenses. The ametropia was determined in every case, but frequently the correction accepted, while the fields were small, was rejected when they again became full. He believed this observation to be original with him, but quoted two cases that closely approached his cases in their histories. The affection, in his opinion, was due to fatigue and exhaustion of the retina, brought on in all probability by mental overwork in school. He included it under the class of affections known as retinal anesthesia, for want of a better term.

Discussion.—W. L. PYLE (Philadelphia) stated he had often observed these cases of diminution of vision in children, but the contraction of the visual fields had escaped his attention. He attributed it to eyestrain. In young children nutritional and functional disorders were the causes while in elder children overwork was the factor. He referred to the cases of Fox, which he had observed and believed that the condition was one of reflex inhibition or perverted sensation from eyestrain. The benefit derived from the electric current was brought about by a redirection of the nerve impulses in his opinion. He also thought that a careful examination of the refraction especially a consideration of the astigmatic changes was most valuable. E. E. HOLT (Portland, Maine) had observed several somewhat similar cases. The electric treatment was curable and there were no relapses. He believed the cases to be due to overwork. G. E. DESCHWEINITZ objected to the term anesthesia and believed that Fox had satisfactorily eliminated the element of hysteria and that the affection was entitled to some other designation. He could not however see how the affection differed from neurasthenic asthenopia of Wilbrand's type and inquired whether he found abnormal contraction of color fields or scotoma. He mentioned that these fields differed from hysteric color fields which remained permanently contracted until the affection was relieved. In closing the discussion Fox again emphasized the lack of evidence to associate the condition he described with hysteria or eyestrain.

[*To be continued.*]

Section on Hygiene and Sanitary Science.

THIRD SESSION (CONTINUED).

Prevalence and Prophylaxis of Pneumonia.—EDWARD F. WELLS (Chicago). With wider and more exact knowledge of fundamental facts, we are now able to formulate reasonable rules for the prevention of pneumonia. Pneumonia is a very prevalent disease, and its presence is markedly increasing. Both the population, deathrates, and the mortality ratios show an increase of pneumonia. The pneumococcus has become more prevalent, and probably more virulent. The pneumococcus is now a common parasite of the upper respiratory passages. The author found it in the respiratory secretions of 61 out of 135 persons, 45%. At the request of the author, Biehn, of the Chicago Municipal Laboratory, reported upon 96 throat cultures examined in the laboratory during April, 1904. Pneumococci were present in large number in 6% of these. Special stains and careful hunts for pneumococci were not made in every instance. The author has observed that some families are entirely free from pneumococcus, while in other families every member, or nearly every member, harbors the pneumococcus. Instances are given. The following prophylactic suggestions are made: 1. For the individual: The nasal, pharyngeal, and oral cavities should be kept as clean as possible, and especially free from accumulations of mucus. When it has been demonstrated that such secretions contain the pneumococcus these efforts should be particularly well directed and maintained. In coughing and sneezing, a protective cloth, preferably moistened, should be held before the mouth and nose. This is especially necessary in the case of pneumonic patients and in those harboring the pneumococcus. The sputum and other secretions of the respiratory tract of such persons should be destroyed before they have become dried. Individuals should, as far as practicable, keep out of range of the extruded pneumococcus laden secretions of infected persons. 2. For the public: The above advice, properly formulated into plainly and succinctly stated rules, should be widely and persistently circulated by the communal health authorities, among the laity, and practising physicians should be furnished a supply of these rules, neatly printed and without imprint, with the request that they give it as their instructions to their patients and clientele. And further, that by every means the interest of physicians and humanitarians in this subject should be aroused and fostered. For this purpose special societies and committees might be formed for the purpose of studying the problem, and furthering the efforts of the various health bodies, as has so successfully been done in the case of tuberculosis.

Discussion.—STERNBERG (United States Army) said that he is inclined to doubt the results of search for pneumococcus in smears. He did not up to the present time recognize any very clear indications of a practical prophylaxis of pneumonia. When some 15 years ago he discovered that he was himself the host of virulent pneumococcus he was a good deal exercised. But he had never had pneumonia, nor had any one with whom he was closely associated had pneumonia. He is still the host of the pneumococcus, and it is virulent, but he is less concerned about it now since in the course of time it has been learned that the organism is very widely distributed. GEORGE M. KOBER (Washington) said that the increase of pneumonia seemed to him in part at least attributable to the increasing use of alcohol, and gave figures showing that the per capita consumption of alcoholics has greatly increased in this country. The District of Columbia does not show an increase of pneumonia, and this fact seems to fit the theory of alcoholic influence. Washington has a large negro population and the colored race is not as a rule addicted to alcoholism. FULTON (Maryland) said that if pneumonia has increased at all the increase has affected only children under 5 years of age. Between 15 and 60 pneumonia is diminishing, as Klebs has shown. These two considerations, if true, dispose of the relations ascribed to alcohol. The apparent exemption of the District of Columbia from an increased pneumonia mortality is explained by the age distribution of the population. There is no population in this country similar to that of Washington. Its political status maintains the population exceedingly strong at ages from 20 to 45, with relatively very small population above 60, and a small population again below 15. Washington need not expect an increased incidence of those diseases which misguided registrars have dumped into the pneumonia account. These diseases are important and must be combated, but their prophylaxis will not consist entirely nor in large part of hostile demonstrations against the pneumococcus. WELLS, concluding, said that he was aware before presenting his paper that his ideas would seem premature. He had called attention two or three years ago to the increasing mortality of pneumonia, and again more recently had made suggestions for its prophylaxis. The statistics unfortunately did not furnish proof of increasing morbidity, but he had been convinced by a study of hospital statistics that its fatality is increasing. The germ, he is confident, is becoming more widely distributed and, in places at least, more virulent.

The Economic Course of Pulmonary Tuberculosis in Wage Earners.—MARSHALL LANGTON PRICE (Baltimore). The economic course of a case of pulmonary tuberculosis falls naturally into three periods: 1. The period of unimpaired working capacity, including the period of health from the commencement of a gainful occupation, and the early period of tuberculosis from onset to the time of diminished earning capacity. 2. The period of partial disability or of irregular work or work at reduced wages. This period may last into advanced stages of the disease. 3. The period of complete disability with or without dependency. From the point of view of the State the usefulness of a citizen ceases with the cessation of his economic activities. Of the 10,000 tuberculous in Maryland, 8,000 are no longer economic factors, and the majority have no prospect of returning to economic efficiency. Moreover the State may have to provide for the maintenance of a majority of these derelicts, and for the State this burden is proportionately heavier than the maintenance of a standing army such as that of Germany. Of 177 tuberculous wage-earners whose histories were carefully studied, 72 or 40% became dependent upon charity during the course of their disease; 26 or 14% died in charitable institutions, and of the remainder a majority probably at some time received charitable aid. The influence of tuberculosis upon the ultimate history of the family is far more injurious than its direct injury to the State. No other disease has such a disintegrating influence upon the family. The male wage-earner offers a far more serious economic problem than the female, for the chief value of the female is in the conservatism of life capital, and this function is not very seriously impaired by the appearance of pulmonary tuberculosis in the family. It appears from a study of the subject by the Tuberculosis Commission of Maryland that the deficiency of birthrate of tuberculous females in the result of death, the procreative power being unimpaired by the disease. Tuberculous women in Maryland appear indeed to excel Italian and English women in fecundity. The loss consequent upon a case of tuberculosis must fall in one of two divisions: 1. Actual loss in the course of his disease and continuing to his death. 2. Potential loss beginning at the time of death and covering the period of expectancy, the contingency of tuberculosis being eliminated. The mean duration of the life of a tuberculous patient is in inverse proportion to his attained age at the time of onset. The actual economic loss of a given case is directly proportioned, and the potential loss is inversely proportioned to the age at onset. The average wage-earner dying in Maryland from chronic disease of the kidneys has worked 42 years and accumulated a life capital of $12,600. The average wage-earner dying in Maryland in the same year of pulmonary tuberculosis has worked 15 years and 6 months, and worked less effectively for a succeeding year and 7 months, accumulating in all a life capital of $4,925. In 71 wage-earning male tuberculous persons the longest period of unimpaired earning power after onset was 9 years and 8 months. In 23 of those cases complete disability was according to the history synchronous with the onset of tuberculosis. The longest period of partial disability in these 71 cases was eight years. In 36 cases there was no period of partial disability, complete disability dating from the attack. The longest period of total disability was 10 years. In 37 cases this period was less than one year. The greatest actual loss occurred in a man of 66, disabled for three years at an actual loss of $8,828, and a potential loss of $28,628. Reliable data were obtained for 258 males and 70 females, and the economic losses in these cases were shown in tabular form, and graphically by charts. The wage-earning males are divided into three classes: 1. Sixty-nine males, dead in 1903, having an average daily wage of $1.75 for an average period of 18 years and 6 months, an average daily income of 75 cents during 11 months and a week of partial disability, and a period of total disability, lasting 11 months and 3 weeks before death. 2. One hundred and twenty-three males, dead in 1903, who had no period of partial disability. These are lower in the economic scale, having an average daily wage of somewhat less than $1.00 during an average period of 19 years, and total incapacity for an average period of 1 year and 2 months. 3. Fifteen males surviving the year 1903, but totally disabled. These earned an average wage of $2.50 for an average period of 20 years, and in the period of partial disability lasting 10 months and 1 week, an average daily income of 75 cents. Eight female wage-earners dead in 1903 had, during unimpaired activity a daily income somewhat under $1.00 during an average period of 12 years, 4 weeks; during partial disability somewhat over 50 cents per day for 11 months, 1 week; and a period of total disability lasting 4 months, 1 week. Fifty-three females dead in 1903 had no period of partial disability. Their average working period was 9 years, 8 months, and their daily wage less than 50 cents. Their period of complete disability lasted 11 months and 3 weeks. Out of 67 female tuberculous persons, 59 had no period of partial disability.

How May Typhoid Fever be Eliminated?—A. ROBIN (Wilmington, Del.). After showing the general relations between typhoid fever and water-supplies, and calling attention to some prevalent fallacies concerning the choice of sources for drinking water, the author said that the prophylaxis of typhoid is of two sorts, individual or domestic, and collective or municipal. Domestic prophylaxis is generally limited to the boiling or filtration of drinking water. Boiling is resorted to only in times of general alarm, and domestic filtration is about as apt to favor infection as to prevent it. Even the best of the household filters do little more than remove the turbidity. In Providence, in 1888, many cases of typhoid occurred in homes where the drinking water was filtered in the house. Colon bacillus was found to pass quite readily through those filters. In short, individual prophylaxis, however simple and interesting to write about, is extremely difficult in practice. Collective or municipal prophylaxis is much simpler in practice, though the subjective is in a somewhat backward state in America. In this country it is impossible to secure a pure natural supply of drinking water. Practically all city supplies need to be purified. This question has long since been settled in Europe, where Zurich, Copenhagen, Stockholm, and Charlottenberg filter natural waters which in this country would be regarded in their natural state as of ideal purity. Ours is the only country where the question of the best method of purifying a water-supply is considered debatable. The experience of 50 years and of 20,000,000 people demonstrates slow sand filtration to be perfectly satisfactory, but we in America are still looking about for "something just as good." The passion of politicians for economy, and the fascination of the mechanical filters with their patents and royalties, keep American cities under tribute to typhoid fever. Great sums of money are wasted on makeshifts and expedients, making the people suspicious against rational expenditure. As an illustration, though not a conspicuous one, the author cites the experience of Wilmington, Del., where in 1893 an elaborate plan of mechanical sand filtration was installed, and was operated for 10 years, never at any time purifying the water, and within a year has been abandoned in favor of slow sand filtration. In the same year, 1893, the city of Lawrence, Mass., built a slow sand filter under the direction of the State Board of Health, at a cost of about a third of the amount expended by Wilmington on a mechanical filter. The Lawrence filter is still doing excellent work, having reduced the typhoid mortality of that city from 111 to 18, Wilmington in the meantime having experienced no reduction of typhoid mortality. All such enterprises should be conducted under the direction of Boards of Health, or, if this is not practical, physicians should influence public opinion against impractical plans of water purification, as was done in the District of Columbia, where an elaborate scheme of mechanical filtration recommended by the official engineer was abandoned as a result of protests by the medical society of the District, and the slow sand filtration method was adopted.

Some Typhoid Epidemics Studied by Laboratory Methods.—WM. R. STOKES (Baltimore) describes epidemics of typhoid fever. The first resembles the classic Hamburg-Altona cholera epidemic. A town of 12,000 inhabitants is situated on an interstate boundary line. A street separates the citizens of one State from the citizens of another. The populations on either side are about equal. In an outbreak of typhoid fever numbering several hundred cases, this street formed a definite boundary of the epidemic. There were two water-supplies, and the street was also the boundary of the areas supplied by the separate water systems. Bacteriologic examination confirmed the suspicion naturally directed by the circumstances against the water-supply of the infected area. In the second epidemic described, somewhat similar conditions existed. Two villages suburban to Baltimore form practically one community. They have, however, separate water-supplies. In the smaller of the two villages 33 cases of typhoid occurred among 750 inhabitants. The larger village of 2,000 inhabitants remained free from typhoid. Both drew their water-supplies from deep artesian wells, but top water in the infected community contained colon bacillus, and some samples differed in general bacterial character from deep ground water. The mystery was cleared up when it was discovered that the water company had a supplementary supply in a large spring whose water was not intended for distribution, but was used to flush out the artesian wells when these became clogged with sand and gravel. For this purpose a water tower was filled with spring water, which was then pumped into the artesian tubes. The water tower and pumps were disinfected with formalin, and then flushed out for 24 hours with the deep-ground water. A week later the supply was free from colon bacillus. The spring was abandoned. A convent school in the neighborhood used the same spring, and a typhoid outbreak among the pupils confirmed the view that the spring was infected, suggesting at the same time a probable source of its infection. Another epidemic described by Stokes occurred in a factory employing 1,900 hands, 1,500 young women and girls, and 400 boys and men. The number of cases was never exactly ascertained, but there were nearly 200. The water-supply was that of Baltimore City. Only females were affected. It was found that a light lunch, consisting of a sandwich and a glass of milk was furnished every day. The women took this lunch daily; the men went out to lunch. An examination of the milk showed colon bacillus in amounts as small as $\frac{1}{10000}$ cc. At the farm it was found that the milk was cooled in a house next to a privy, with easy access for flies and for poultry between the privy and the milk-house. Another outbreak was of interest as indicating a long period of incubation. At a suburban village the pumping machinery was disabled on the night of July 3. The supply for July 4 was drawn from a well in which colon bacillus was afterward found. This water was not used before nor after the Fourth of July. Five days later there was an outbreak of some gastrointestinal disturbances affecting 25 people. These all recovered in a few days. July 27, two young ladies, and on August 1 a third were attacked with typhoid fever.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Seventh Annual Meeting, Atlantic City, New Jersey, June 6 and 7, 1904.

[Specially reported for *American Medicine*.]

[*Concluded from page 100.*]

Concerning Heterochylia.—J. C. HEMMETER (Baltimore, Md.) referred to the fact that the chemistry of the gastric juice varied in the same individual after the same test-meal, discussing fully whether this was normal or abnormal, and cited the fact that it had been noted in apparently healthy individuals. While stating that there were no exactly accurate methods therefor, he stated that the quantitative determination of the amount of hydrochloric acid and pepsin in the gastric juice was of great value for comparative purposes. He also stated that experiments on dogs had revealed the character of variation in the gastric juice as noted above.

Discussion.—G. B. SAWYER felt that as many of the patients in whom this variation occurred were suffering from nervous dyspepsia, it was quite possible that it was due to nerve influence. F. H. MURDOCH (Pittsburg, Pa.) reported a case in which he had examined the stomach contents 84 times during the past three years, 76 times during the first two years; on 58 occasions hydrochloric acid being present in excess and 18 times absent; in the 8 examinations made during the past year it has always been present, usually in excess. This paper was further discussed by J. KAUFFMANN and MAX EINHORN (New York) and H. W. BETTMANN (Cincinnati, O.) and closed by J. C. HEMMETER.

A Case of Chronic Pancreatitis, Diagnosis, Operation, Recovery.—JULIUS FRIEDENWALD (Baltimore) stated that the condition is usually difficult to determine without operation or autopsy, and that it frequently accompanies other diseases of the digestive tract, and reviewed the work of Opie. Osler, W. Hale White (who does not believe in operation) Robson, Moynihan, and Mikulicz, dwelling particularly upon two operations recommended by the latter. The case reported occurred in a male 35 years of age, who had had measles and mumps in childhood and malaria at 12, but gave no specific history, and was a moderate user of alcohol. The present trouble began with severe pains in the epigastrium, more or less severe nausea, frequent vomiting, most at night, the vomitus containing undigested food and mucus, and occasionally blood. The patient was poorly nourished, having lost 40 pounds. At the operation the head of the pancreas was found to be very hard; drainage was established through the gall-bladder, and the patient made a good recovery.

Discussion.—H. W. BETTMANN stated that at present he had under his care a case in which the obstruction was not overcome at the first operation, and would probably necessitate a secondary one. This paper was also discussed by Drs. Fenton B. Turck (Chicago), and Joseph A. Blake (New York).

Officers Elected.—President, S. J. Meltzer, New York; first vice-president, H. W. Bettmann, Cincinnati, O.; second vice-president, F. H. Murdoch, Pittsburg, Pa.; secretary and treasurer, Charles D. Aaron, Detroit.

AMERICAN SURGICAL ASSOCIATION.

Twenty-fifth Annual Meeting, Held in St. Louis, June 14, 15, 16, and 17, 1904.

[Specially reported for *American Medicine*.]

[*Concluded from page 101.*]

The Evolution of Surgery.—J. EWING MEARS (Philadelphia) read a scholarly paper with this title. He divided this unfolding of surgery into three periods of time: 1. That which extended from the beginning to the time of Ambroise Paré, 1517-1519. 2. The use by John Collins Warren (1846) of ether as an anesthetic in surgical operations. 3. The discovery and introduction into general use by Sir Joseph Lister (1860-1875) of the antiseptic treatment of wounds. Each period was taken up and considered in a masterly manner.

A Mechanical Device for Gastric and Intestinal Anastomosis.—F. B. HARRINGTON (Boston) described a ring for the purpose of intestinal anastomosis. The advantages of this ring were stated as follows: 1. Safety and speed. A complete resection and suture can be easily done in 15 minutes, and with as great speed as by any more protracted method. 2. Cleanliness. Assisted by clamps, the purse-string sutures prevent even a mucous ooze, while the continuous stitch is being placed. 3. The intestinal suture is more easily done over the ring than without it. 4. It is safe to use a single layer of continuous stitches since the ring allows a perfect approximation to be made, and afterward protects the suture until adhesions have formed. 5. The handle is very useful for holding the intestines in convenient positions for sutures. 6. It is not necessary to sew up any of the layers, since a study of specimens from animals and human beings shows that the mucous membrane will slough in any case, and that repair is more rapid when the mucous membrane is not sutured. 7. The presence of the ring guarantees a free opening at the site of operation. 8. In case the continuous stitch should be improperly applied, the weak spots are protected by the ring itself, for at least three days, until the ring breaks down. This allows strong adhesions to form. 9. After operation, the ring holds the suture immovable, and acts like a splint. The weights of the individual segments of the ring vary, as most other appliances of a similar nature. The author drew the following conclusions: 1. The process of repair is as rapid after the use of the segmented ring as after a plain suture. 2. The time required for the operation is, on the whole, less than that required for a straight intestinal suture. 3. Certain objections, such as weight, ulcer, difficulty of passage, etc., inherent in other mechanical contrivances, are minimized by the ring. 4. The analogy between the experimental and human observations is so close as to show the propriety of the deductions made from animal experiments. 5. The employment of the ring in human beings is safe and satisfactory.

Discussion.—J. W. DRAPER MAURY (New York City) by invitation, stated that instead of using the elastic ligature at the laboratory of Columbia University, they had been employing twine. The specimen which he exhibited was made with the elastic ligature, put in by a square knot, thus differing from McGraw's technic; but for the last three months he had obtained as good results by using simple twine instead of the elastic ligature. The method of introducing the twine might follow the McGraw technic, although the triangular stitch possessed a very distinct advantage over it. This stitch punched out as much tissue as might have been included in the triangle. As to time, it would cut through in less than three and a half days. It must be very tightly tied. This was the sole requirement to success. Maury then demonstrated on a chart the technic of introducing the triangular stitch, and stated that he included about a third of the circumference of the gut in the stitch. The gastric triangle should, as a rule, be made larger than the intestinal. He then passed around photographs of specimens made by this method, and a preparation from the gut of a pig, which demonstrated how free an anastomosis might be established. He also showed a number of circular bits of twine which had been used in executing the technic. They had cut the triangle out and had been recovered after their passage through the rectum.

The Subtle Force of Radium.—ROBERT ABBÉ (New York City) narrated his experience with this new therapeutic agent, saying that radium had a powerful and seemingly beneficial effect upon cases of recurrent carcinoma. Cases were cited in point. He mentioned one case of virulent, typical carcinomas of the scirrhous type, in which the carcinomatous nodules were reduced to a third their original size by radiomization. The agent had been used in cases of lupus, superficial epitheliomas, carcinoma, rodent ulcer, superficial sarcomas, etc. In cases of superficial recurrent carcinoma of the breast, if radium was applied to the diseased area, for a considerable time—say an hour—then the patient permitted to go, and the agent reapplied at intervals of two or three days, the carcinomatous masses would melt away in some cases. In other instances these masses would disappear under the use of the röntgen ray; still others would resist the action of the röntgen ray, while radium would act beneficially. Radium had an extraordinary power in inhibiting the growth of malignant cells in some cases.

Discussion.—W. W. KEEN (Philadelphia) said that one positive fact was worth a dozen negative ones. One could not get away from the facts presented by Abbé and others in regard to the use of radium. On the other hand, members of the profession ought to report their negative as well as positive results. He had had an experience now covering 22 cases in which radium was used. Whether his results were due to the quality of radium, to a difference in the character of the growths, to the method of using it, or what not, he did not know. But to sum up his experience, in not one single case had there been the slightest benefit, except in one feature, and that was as to pain. Unquestionably, in cases of carcinoma, patients had suffered less, and in a large number pain had disappeared. In one case of tic douloureux of the lower jaw the man left the hospital at the end of a month practically well. In the course of six or eight weeks the patient wrote him that he had had a recurrence of the pain. Keen wrote him to return for treatment, but had heard nothing from him since, and whether the pain had disappeared or not, he did not know. He had used the German instead of the French radium. Some of his specimens had varied from 17,000 radioactivity up to a larger radioactivity, until finally he was able to obtain one specimen with 1,800,000 radioactivity. He regretted to say that his experience had not been satisfactory with the use of radium.

Gastrostomy in Esophageal Stricture.—JAMES H. DUNN (Minneapolis, Minn.) said that cicatricial stricture was the most serious benign affection of the esophagus. Retrograde and through-and-through treatment of certain esophageal strictures had been recognized since the operation of Loretta, in 1883; but discoveries and improvements in operative technic had finally completely changed the situation, leaving surgeons in a position to approach one of these cases with a very safe and certain technic, and to fill the following indications: 1. A gastric fistula which would not leak, and close spontaneously. 2. To get a reliable guide through the canal with perfect safety and certainty. 3. To divide the scar tissue sufficiently. 4. Relative asepsis and rest of the wounded surface, prevention of stagnation of food, and for a time the irritation of its passage. The value of the Stamm-Keder form of gastrostomy was generally understood, but it was only when one fully appreciated by experience that any esophageal stricture might be commanded perfectly and with precision by means now at hand, through very small gastric fistulas, even the size of a No. 20 French catheter or less, that all the advantages of the method appeared. The steps of the operation were described. A modification of Dunham's wire and spindle bougies was suggested as somewhat simpler and more handy. The writer had not found it necessary to use guards to protect the epiglottis and stomach fistula from chafing. By this plan but one anesthesia was necessary in each case. The fistulas had not leaked and had promptly healed spontaneously. A caliber admitting of free swallowing was reached in from one to three weeks, and an approximately normal caliber achieved in from two to four months, after which the tendency to relax had been imperceptible. The author reported 3 very severe cases, 1 in a girl aged 19, following typhoid ulceration, and 2 in children, aged 9 and 2 years, from the ingestion of concentrated lye. Repeated attempts had failed to reach the stomach through the mouth in all these cases.

Surgery of Nerves; The Bridging of Nerve Defects.—CHARLES A. POWERS (Denver, Colo.) said the difficulties in the way of preparing a satisfactory paper on this subject were due to the indefinite manner in which nerve suture was treated in medical literature, to the widely scattered and badly indexed material collected and published by Chipault, to the fact that much of the material in the literature of the subject described operations upon animals, that a large proportion of operative cases in men were reported before the establishment of a permanent result, and to the fact that in case of failure it was not easy to say that a given bad result was due to a faulty technic in the operation itself, as a similar result might have followed direct suture of the fragments. The author reported in detail a personal case of transplantation of four inches of the great sciatic of a dog to the external popliteal of a man. Union was prompt. The fragments stayed in place, and the immediate result seemed to be encouraging, but the ultimate result was a total failure. Examination and report were made eight years after operation. Cases of the bridging of nerve defects gathered from literature, showed the following number: Grafting, 22; flap operations, 11; implantations (anastomosis), 10; resection of bone, 7; *suture à distance*, 3; tubulization, 1. Analysis of these cases showed that grafting was a failure and should be discarded, while the results in flap operations and anastomosis were about the same, something over 50% of the cases being successful. While these last operations were not very promising, they seemed at present to be the methods of choice.

Final Results in Secondary Suture of Nerves.—EMMET RIXFORD (San Francisco, Cal.) reported three cases of secondary nerve suture, of the ulnar at the wrist, of the musculospiral, and the facial at the stylomastoid foramen, six, four, and two years respectively, after operation. In the first case the atrophic thenar, hypothenar, and interosseous muscles regained their normal volume and function, save insofar as motion of the fingers was limited by adhesions, the result of fixation and chronic arthritis. In the second case the musculospiral nerve was sutured eight weeks after rupture complicating a fracture of the humerus. A defect of three centimeters was overcome by shortening the humerus that amount, and the result after four years was complete motor and sensory restoration of function, with slight atrophy, one-half centimeter difference in circumference in the forearms. In the third case the facial nerve was severed by a narrow tooth beneath the mastoid process. Complete facial paralysis. Suture at eight weeks after the injury. In order to secure tissue for the sutures, the mastoid process was cut away with the surgical engine, and the external wall of the fallopian canal removed for five or six millimeters. Result after two years: Face symmetric, when in repose; eye closes in sleep, may be closed at will; angle of mouth, tip of nose and chin can be drawn to the paralyzed side. The prognosis in secondary suture was but little, if at all, inferior to the prognosis in primary suture. In the presence of infection, secondary suture was preferable to primary. All scar tissue should be removed, including the whole of terminal neuroma of central segment, the nerve ends united by absorbable suture with the least possible traumatism. Defects, if not too great, could be overcome by stretching, which should be done before section of the nerve ends, or by shortening of the bone in certain cases.

Primary Carcinoma of the Liver.—LEONARD FREEMAN (Denver, Colo.) reported a case of primary carcinoma of the liver on which he had operated with freedom from recurrence at the end of sixteen months. After dealing with the different methods of operating, he reported his case in detail.

Thyroidectomy for Exophthalmic Goiter, with Report of 40 Cases from 128 Operations upon the Thyroid.—CHAS. H. MAYO (Rochester, Minn.), in a paper with this title, said the subject of goiter was still unsettled, both as regards etiology and treatment, although hundreds of articles had been written upon it. Recent investigations concerning the lymphatic system and ductless glands rendered the subject very interesting at this time. Exophthalmic goiter was a distinct type, with many symptoms, involving the mental, muscular, digestive, and circulatory functions, the most common being the tachycardia without other cause. While the mortality was comparatively high, it was among those cases which had already run the gauntlet of most known remedies for the disease, and should not be entirely laid at the surgeon's door. The surgical methods were exothyropexy, ligation of the thyroid arteries, removal of the cervical sympathetic ganglia, thyroidectomy, and the physiologic effect of operations upon other regions. The author and his brother had operated upon 130 goiters; 40 were of the exophthalmic type, and of these 6 died as the result of the operation. In the first 15 there were 4 deaths, due to lack of judgment in accepting almost moribund cases. There were but 2 deaths in the last 25 cases. Very severe cases were subjected to röntgen ray exposures, and with belladonna given internally for a few days or weeks previous to operation. Their own cases showed marked improvement in all who survived the operation. Of these, 50% made a very early recovery, especially of the severe symptoms, such as tachycardia, nervousness and tremor; 25% did so after several months, and 25% were improved, yet suffered from irregular recurrence of some of the major symptoms.

Gallstones in the Common Bile Duct.—S. H. WEEKS (Portland, Me.) read a paper on this subject, in which he considered the diagnosis and prognosis, and said that impaction of a gallstone in the common duct rarely caused marked distention of the gallbladder; it caused dilation of the branches of the hepatic duct, and might result in pronounced and even fatal jaundice. Obstruction of the common duct was always accompanied by jaundice. The jaundice was intermittent or remittent where the calculus floated in an enlargement of the common duct, because the system would eliminate the coloring matter of the bile in the interval. The cystic duct might be occluded, and give rise to grave symptoms, without there being any trace of jaundice or any history of biliary colic. Jaundice with distended gallbladder not due to gallstones was presumptive evidence of malignant disease. Jaundice without distended gallbladder favored the diagnosis of cholelithiasis. As to treatment, it was necessarily surgical.

A. F. JONAS (Omaha, Neb.) read a paper on "Primary Splenomegaly, Accessory Spleens, Splenectomy," and reported an interesting case.

S. J. MIXTER (Boston) reported a case in which he removed the upper jaw for extensive osteosarcoma, with an excellent result, considering the formidability of the operation.

RUDOLPH MATAS (New Orleans, La.) exhibited and described a new interdental splint, which he had recently devised for the treatment of fractures of the jaw, particularly the lower jaw, without bandages.

ALEXANDER HUGH FERGUSON (Chicago) exhibited a patient upon whom he had performed renal decapsulation for chronic interstitial nephritis 3½ months ago, with an excellent result.

Officers Elected.—President, Geo. Ben. Johnston, of Richmond, Va.; vice-presidents, Emmet Rixford, of San Francisco, Cal., and James Bell, of Montreal; secretary, Dudley B. Allen, of Cleveland, Ohio; treasurer, Geo. R. Fowler, of Brooklyn, N. Y.; recorder, Richard H. Harte, of Philadelphia; councilor, N. P. Dandridge, of Cincinnati, Ohio.

San Francisco, Cal., was selected as the place for holding the next meeting, the date to be decided by the officers and committee of arrangements.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE MEDICAL DEPARTMENT OF THE CONGRESS OF ARTS AND SCIENCE AT ST. LOUIS.

BY

FRANCIS COOK,

of Washington, D. C.

The plan and purpose of this congress deviate so far from traditional lines that some explanation may be necessary to show how it should interest the medical profession. It is primarily a congress of scholars rather than of specialists. It is divided into 24 departments, one of the strongest of which is medicine. Yet, it is not intended to be a distinctly medical assemblage, but, as we have indicated, a congress of medical scholars.

The department of medicine is divided into 12 sections, embracing the principal fields covered by the subject. These do not include embryology, anatomy, physiology, or bacteriology, subjects which are embraced in the department of biology, but which, it may be expected, will be of equal interest to medical scholars. The order of proceedings will be most easily understood if set forth in detail.

The department of medicine will be opened on Tuesday, September 20, under the chairmanship of Dr. William Osler, with two general addresses by Dr. W. T. Councilman, of the Harvard Medical College, and Dr. Frank Billings, of the Rush Medical College. One of these speakers will review the progress of medicine during the past century, and the other will treat its fundamental conceptions.

On Wednesday morning, September 21, a section of public health will meet under the presidency of Dr. Walter Wyman, Surgeon-General of the United States Marine-Hospital Service. It will be addressed by Professor W. T. Sedgwick, of the Massachusetts Institute of Technology, and Dr. Ernst J. Lederle, formerly commissioner of health of New York City. Communications relating to the subject are also expected from several eminent members of the profession.

A section of otology and laryngology will meet at the same time: Chairman, Dr. Glasgow, of St. Louis; principal speakers, Sir Felix Semon, of London, Physician Extraordinary to the King; and Dr. J. Solis-Cohen, of Philadelphia.

In the afternoon a section of preventive medicine will meet under the chairmanship of Dr. Mathews, president of the Kentucky Board of Health. It will be addressed by Professors Ronald Ross, of Liverpool, and Celli, of Rome. Some question has been raised against the advisability of separating these two sections. This separation is, however, of no practical importance, as all interested may equally well attend both.

At the same time with preventive medicine, a section of pediatrics will meet under the chairmanship of Dr. Rotch, and will be addressed by Escherich, of Vienna; Jacobi, of New York, and others.

On Thursday morning there will be meetings of sections of pathology and psychiatry. The chairmen of these sections are Drs. Simon Flexner and Edward Cowles. Marchand, of Leipzig, and Orth, of Berlin, accepted invitations to address the section of pathology, but it is not certain whether both will be able to attend. Psychiatry will be treated by Ziehen, of Berlin, and Dana, of New York.

In the afternoon a section of neurology will meet, under the chairmanship of Professor L. F. Barker, of Chicago, and will be addressed by Kitasato, of Tokio, and Putnam, of Boston.

It seems hardly necessary to enter with like detail into the proceedings of the remaining sections on Friday and Saturday. It will suffice to copy the subjects, chairmen, and speakers, from the program, as follows:

THERAPEUTICS AND PHARMACOLOGY.

Chairman: Dr. Hobart A. Hare, Jefferson Medical College.
Speakers: Sir Lauder Brunton, F.R.S., London.
Professor Mathias E. O. Leibreich, University of Berlin.

INTERNAL MEDICINE (FRIDAY AFTERNOON).

Chairman: Professor F. C. Shattuck, Harvard University.
Speakers: Professor Clifford Allbutt, F.R.S., University of Cambridge.
Professor William S. Thayer, Johns Hopkins University.

SURGERY (FRIDAY MORNING).

Chairman: Professor Carl Beck, Postgraduate Medical School, New York.
Speakers: Professor Frederic S. Dennis, Cornell Medical College, New York.
Not finally selected.

GYNECOLOGY (SATURDAY MORNING).

Chairman: Professor Howard A. Kelly, Johns Hopkins University.
Speakers: Dr. L. Gustave Richelot, Member of the Academy of Medicine, Paris.
Professor J. C. Webster, Rush Medical College, Chicago.

OPHTHALMOLOGY (SATURDAY AFTERNOON).

Chairman: Dr. G. C. Harlan, Philadelphia, Pa.
Speakers: Dr. Edward Jackson, Denver, Col.
Dr. George M. Gould, Philadelphia, Pa.

On the general plan of the congress, one of the two principal speakers in each section will treat of the relation of the subject to other departments of knowledge; and the other, of its present problems. Beside the principal speakers, it is expected that each section will receive several brief communications from leading members of the profession in attendance at the meeting.

It will be seen that the division into sections is one of subjects rather than of men. The chairmen and speakers will be different in different sections, but the attendance will be the same, except in the sections holding their meetings at the same time.

It is hoped that this program will prove attractive to such leading members of the medical profession in America as may be able to visit St. Louis and take part in the proceedings of the congress.

MEDICAL NOTES FROM ASIA.

BY

H. L. UNDERWOOD, M.D.,

of Bitlis, Turkey in Asia.

To the Editor of American Medicine:—Readers of *American Medicine* will doubtless recall with interest the series of articles by Dr. Nicholas Senn which appeared in the year 1902. Among them was one entitled "Medical and Surgical Notes from Asia." It is in nowise depreciative of the article to remark that it deals with modern scientific medicine as introduced into Asia, and is concerned not at all with native methods. I believe that some observations upon the native practice here in Kurdistan (the home of madzoon) will be of some interest. Madzoon, it may be said in passing, is strictly an Armenian word, both Turks and Kurds calling it "yowourt." The madzoon familiar to the profession in America is generally made from cows' milk, and lacks the consistency and delicate flavor of that made from the milk of sheep. Dilution with water yields a refreshing beverage called chagh-la-ma, or in Armenian, "ton."

The region lying to the north of Lake Van experienced a severe earthquake one year ago, involving the loss of nearly 3,000 human lives and tens of thousands of animals. In the course of a tour of medical relief, I was struck by the occasional ingenuity displayed by the unlicensed doctors of the villages. Severe scalp wounds were commonly filled with a mixture of white of egg and copper sulfate. Rude suturing was occasionally found, but no amputations were done.

Fractures were commonly neatly dressed, the materials being heavy felt and a half dozen small wood splints, not more than 6 in. to 8 in. in length, even in case of fracture of the thigh. Carelessness regarding the proper position and alignment of the fractured limb was the rule. In a little Circassian village, upon a mountain top, I found a case of compound fracture of the leg, which had occurred five days previously, and had been dressed with a mixture of olive oil, soap, and white of egg. The temperature of the patient was normal, and the position of the limb good, and as the weather and environment generally were most abnormal, I left the patient to native care. White of egg appears to be wellnigh the sole menstruum for medicines of local application; thus, for example, powdered alum and white of egg is used for ophthalmia; quinin sulfate, and white of egg for wounds and burns (not bad according to recent French journals). Medical practice is largely in the hands of the barbers—they apply leeches and blisters, pull teeth, and even dress wounds. A curious and sometimes effective remedy for hemorrhoids is the application of a leech to the extruded mass. One application may result in a permanent cure. Enlarged spleen (ague cake) is treated by annointing the abdomen with honey and thoroughly rubbing it in, the honey, and not the massage receiving the credit of any good result. The national disease, if disease it can be called, affecting both old and young, is that due to ascaris lumbricoides. The natives combat this with khorasani—the seed of a native plant—and the santonin imported from Europe.

Some of my patients have reported passing the worms in astonishing numbers, one no less than 60. Vesical calculi are exceedingly common, perhaps because a soft limestone is abundant, and the springs, whether sulfur, iron, or fresh water, are highly charged with carbonic acid gas. Buggy and dirty are adjectives also particularly applicable to this region, and the latter condition doubtless accounts for 99% of the disease prevalent in a region a mile or more above sea-level, with superb natural drainage and good climate.

MEDICAL MISSIONARY PRACTICE IN INDIA.

[From a private letter we quote the following paragraphs. —*Editor American Medicine.*]

Jhelum is only about 30 miles from Gujral, where that disastrous inoculation for plague occurred about a year and a half ago, which was mentioned in *American Medicine.* Since then the natives refuse to be inoculated and the government does not insist on it, and has even ceased active quarantine measures except in connection with the military cantonments; and in the Punjab, where I am, people are dying by the hundreds every week. It crossed the Jhelum river on its deadly march northward last spring a year ago. As soon as the intense heat came, it was checked, but began again in the fall, and in this town of 10,000 inhabitants, there were frequently 10 deaths a day during December.

The people seldom come to dispensaries when they have it. I suppose they are afraid of being put in the sequestration camp. The ignorant people say the government just puts them in those camps so that they can give medicine to kill them off quick. They accuse the English of being the cause of the plague in some places. There are villages near here in which a third of the population has died within a few weeks from the disease. The carbolic cure has become popular in some places, and the assistant surgeon here told me that in the cases in which it had been administered from the first, the majority were saved by its use. It consists in giving 10 drops of pure carbolic acid every two hours (in an emulsion containing mucilage, spirits chloric ether, etc.) until 12 doses are taken and then the dose is diminished. There have been some patients showing symptoms of poisoning from its use, but these symptoms quickly disappeared on cutting down the dose or stopping the drug.

A great many of our dispensary patients come for acute diseases of the eye, due to lack of cleanliness, smoke, etc.

We had one case of Asiatic cholera in the hospital last year. The patient was brought to the hospital compound very early in the morning and deposited just inside the gate by the attendant, who went off without saying anything to anybody about her. She was in collapse then, and could tell nothing about herself, but there was no difficulty in making a diagnosis, as she had all the symptoms of the disease, and there was an epidemic of it here at the time, brought by a Hindu on his return from a religious festival, where people come from all parts of India and give and take all kinds of diseases.

ORIGINAL ARTICLES

THE DIAGNOSIS AND TREATMENT OF HEMORRHOIDS.*

BY

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In presenting a paper on hemorrhoids I might be accused of presumption in electing to travel a path which has been so well trodden before, but the importance of the subject and the great frequency of the trouble will have to be my excuse.

The terms hemorrhoids and piles are used interchangeably to denote a form of disease which owes its origin to a varicose or altered condition of the veins at the anal margin, but strictly speaking the terms refer to a symptom rather than a pathologic entity. The word hemorrhoid is derived from two Greek words meaning blood and flow, denoting a flow of blood, while the word pile comes from the Latin meaning a swelling. The words have been in use so long, however, that they are generally accepted.

Hemorrhoids were recognized in times of great antiquity, frequent mention of them having been made in the Bible, ten centuries before Hippocrates. Moses in Deuteronomy xxviii, 27, says "The Lord will smite thee with the . . . . *emerods.*"

The classification of hemorrhoids has not changed since the time of Hippocrates and according to location, is divided into external (covered by skin) and internal (covered by mucous membrane). The external may be divided into thrombotic, varicose, inflammatory (connective tissue or skin). Monroe[1] describes the external appearances in rectal gonorrhea as "gonorrheal hemorrhoids," but states the diagnosis can be made by the absence of blood in the tumors. The internal variety may be divided into capillary and varicose.

The etiology of hemorrhoids is such a large subject that it does not properly form part of a paper such as this, but practically the erect posture, muscular strain, disease of the genitourinary organs and constipation are the principal causes.

From the generally accepted definition of a hemorrhoid, it is a varicose tumor of the veins and capillaries of the lower rectum, yet from the investigations of Reinbach,[2] a hemorrhoid is a true angioma, whose development, which may begin in early childhood, depends on a new formation, and cavernous metamorphosis of the bloodvessels, and which may be quite independent of any obstruction to the blood flow.

The small branches of the superior hemorrhoidal veins anastomose with similar branches of the inferior hemorrhoidal vein in the lower inch and a half of the rectum, in and about Morgagni's columns. The portal and systemic systems here unite, and these radicles are usually the site of piles. The larger veins from this plexus pass upward beneath the mucosa for about three inches, where they pass through buttonholes in the muscular coat to form the superior hemorrhoidal, and then to the inferior mesenteric to the liver. None of these veins has valves and they are loosely supported by the surrounding tissue.

Before proceeding to the consideration of the various kinds of hemorrhoids, I will say a few words regarding the preliminary examination of a patient presenting himself for this trouble.

A careful review of the personal and family history is imperative, although it is tiresome to have a patient tell his own story; but it has its advantages in establishing confidence, and quieting nervousness. During this recital, the patient's habits, business, diet and previous rectal alimentation will be brought out, whether he has lost weight, and often important facts relating to heredity will be discovered. For instance, a case may present a history of long-continued alcoholism, with a bloody discharge. This at once suggests an examination of the liver, and if cirrhosis is present, any operative interference with a view of checking the flow should not be undertaken.[3]

Some of the symptoms suggesting rectal disease are: Loss of appetite, indigestion, with or without flatulence, irregularity of the bowels, spasmodic or periodic difficulty in micturition, the presence of mucus, blood or pus in the bowel movements. The subject of pain, its character and duration, should be noted. Whether there has been protrusion, and for how long, will establish the probable state of chronicity. If there is protrusion, whether this is found before or after stool, and whether reducible or irreducible. Hemorrhage should be carefully considered, the amount, how long ago first noticed, whether dark or bright red, which will show whether to look for venous or arterial disease.

Constipation is also an important factor, and it may produce rectal disease or simply be a symptom. It is probably the most frequent cause of hemorrhoids. Physicians having many cases of rectal disease would do well to have a form which could be followed in making examinations. In rectal examinations a good light is absolutely necessary, either direct or reflected, and after placing the patient in the Sim's position the perianal area is examined—any small elevation is carefully tried with a small probe to see if there is a fistula, temporarily closed. If there is a funnel-shaped anus, especially between the sphincter and sacrum, it indicates absorption of fat, and is often a precursor of lowered vitality, and the patient needs tonics, even if no disease is found. There may also be comedones which in some cases may form a sebaceous cyst. This should be corrected by proper medicated washes, bathing, etc. It should be borne in mind that while the patient presents himself for piles it is by no means certain that this is the trouble, or there may be one or more separate conditions, any one of which is sufficient to cause dissatisfaction if not corrected. The finger should be passed around the margin of the anus to see if there are any fibrous, cord-like remains of an old fistula.

If the thrombotic variety of external pile is found (one should not make a mistake in this variety, as it shows as a blue, hard nodule) there is only one proper thing to do and that is to asepticize and with a fine hypodermic needle and a weak solution of cocain or eucain, say ½%, infiltrate the integument in the line of incision and turn out the clot and pack loosely with gauze. This can easily be done without pain, if proper care is taken, and will prove a radical cure. One mistake is frequently made by patients and that is to suppose that the piles have come down from within the rectum, and to attempt to return them, while on careful inspection they are found purely external.

In the varicose variety of external piles, establish a free action of the bowels by giving an enema at a convenient time for the bowels to be moved, and after the stool, apply cold, locally. The skin tabs which are left from previous attacks of external piles sometimes become inflamed and are the source of much pain. The pain may be relieved with a 25% solution of boroglycerid, and a hot water bottle, and rest in bed, with the hips elevated, or locally:[5]

Unguent composed of tannic acid
Unguent belladonna . . . . } of each 32 gm. (1 oz.)
Unguent stramonium . . . . . .

After the inflammation has subsided any folds or irritating tabs can be readily removed by infiltration anesthesia. The injection of any irritating solution such as carbolic acid should never be used in this variety.

Martin's[6] method for the removal of external piles, lipomas, etc., near the anus, consists in using two hypodermics, having the finest needles, a $\frac{1}{10}$ of 1% solution of eucain prepared in normal salt solution, given at 98° F. By using two syringes, infiltration is more rapidly acquired and diffusion prevented before the operation is done. The line of incision is made edematous, by putting the needle point *in* the integument. The sutures should be passed before the growth is removed.

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* Read before the Academy of Medicine, Atlantic City, N. J., March, 1904.

The anal margin may now be examined for fissures, and by applying the thumbs on each side and telling the patient to bear down, a half inch of the mucosa may be everted. If there is excessive moisture or a mucopurulent discharge, a blind internal fistula may be suspected. Also several, or only one enlarged papilla may be everted. As these papillas contain numerous nerve filaments, they may be the cause of pain, and if no other cause is found, may be removed.

There are practically four kinds of internal hemorrhoids, although a great many varieties have been described. There are the thrombotic, varicose, capillary, and mixed.

The varicose variety is the one most usually encountered, and originates in the small venous pools which connect the venous and arterial circulations. With the finger well lubricated, an internal examination may be made, and if sufficient experience has been had, a soft, doughy mass, somewhat similar to a mass of earthworms, may be felt just within the anus. The finger should be swept entirely around the bowel, care being taken to note any nodule, as this will locate the internal opening of a blind fistula, or mayhap the beginning of malignant change. As the finger is introduced, the force which the external sphincter exerts should be noted, as well as any irritability of the internal sphincter. By following this slowly, using no force, the muscle will gradually relax and allow considerable degree of dilation. As it takes long experience to make a thorough examination of the lower bowel with the finger alone, it is advisable when possible, to use a speculum. The Pratt bivalve, with a fixed electric lamp, is very satisfactory, although the De Vilbiss, with reflected light, has the advantage of being self-retaining. With the blades well lubricated with lubrichondrin, or similar material, the anal margin is examined both for piles and fissures, the speculum being withdrawn and reintroduced for different segments. The illuminated proctoscopes and sigmoidoscopes with pneumatic attachment are very satisfactory, after some skill has been acquired; for, with the patient in exaggerated genupectoral position, every portion of the rectum and sigmoid, including the valves of Houston, may be seen with great certainty.

The thrombotic variety of internal piles is not very common and differs from the external variety only in location. The treatment is incision, turning out the clot, and packing.

The varicose internal pile is the one most usually seen, and it is often multiple, appearing as a reddish-blue mass of rounded extremity, extending upward in the rectum for from one to two inches. The veins are often varicose between the tumors, or the entire anal margin is covered with a roset of pile tissue.

The treatment of varicose internal piles is both palliative and curative. In the palliative, every effort should be made to prevent prolapse and control bleeding. Rest in bed with astringent applications, or pressure with cold applications, will stop the bleeding. To prevent recurrence, the diet should be regulated and regular exercise taken, the skin kept active, the liver and portal system free from congestion; coffee and tobacco used very moderately, and the bowels kept soft. The following pill is of benefit:

Compound extract of colocynth Compound extract of cascara	of each . .	.78 gm. (12 gr.)
Extract of belladonna Extract of nux vomica	of each	.2 gm. (3 gr.)

Make in 12 pills.
One or two at bedtime.

The use of cold water, or even ice water, taken as an enema and retained for a considerable time is useful. An astringent, such as glycerol of tannin .32 gm. (5 gr.), will assist in retaining the pile.

The suprarenal extract may be used as a suppository on retiring. The following containing ichthyol is said[7] to be of benefit.

Ichthyol Tannic acid	of each	.32 gm. (5 gr.)
Ext. belladonna " stramonium	of each	.02 gm. (⅓ gr.)
" hamamelis		.65 gm. (10 gr.)

Make in suppositories.

In cases in which there are three, four or more large internal piles which have existed for a long time, the diagnosis is, of course, not hard, as the picture will be a relaxed sphincter with perianal edema, and strangulation of the pile mass, with great pain and irreducibility. In cases of this kind when operation is declined, adrenalin may be used.

R. Lépine[8] (Professor of the Faculté de Medécine of Lyons) in his paper on "The Action of the Suprarenal Capsules" quotes M. Le Noir, who proposed the use of adrenalin in piles. M. Bouchard uses a tampon with 1 to 1000 solution of adrenalin followed in less than an hour by "décongestion." In one case, strangulation and irreducibility were overcome. M. Mossi (de Toulouse) has also used this procedure. M. D. Devilliers[9] tried adrenalin on a woman of 46 who refused to have an operation or to allow reduction of prolapsed hemorrhoids. He began by using ½% to 1% solution of adrenalin chlorhydrate on tampons. An hour after, ischemia was marked, pain lessened and on the following day after renewed application reduction was possible and from this time there was no return. "*Et a partir de ce moment la tumeur ne se reproduisit plus.*"

The operative treatment for internal hemorrhoids may be either by injection, ligation, or the clamp and cautery. Various formulas have been used for the injection of hemorrhoids. Nearly all writers agree that the internal noninflamed variety is the only proper one in which to use it. Terry[10] uses the following method: "Rub together 4 gm. (1 dr.) of salicylic acid, and 6 gm. (1.5 dr.) of glycerin, and 8 gm. (2 dr.) of carbolic acid. To this add 4 gm. (1 dr.) of borax and 6 gm. (1.5 dr.) of glycerin. Let stand until clear, and inject 3 to 5 drops into small piles and 5 to 8 into large ones. Repeat every 10 days." He never uses more than .12 cc. (2 m.) at any one point, but often injects several points at one visit.

Gant's[11] formula is:

Carbolic acid Glycerin Distilled water	of each	3.75 cc. (1 dr.)

Inject from 5 to 20 drops.

Tuttle[12] uses Shuford's:

Carbolic acid (Calvert's)	7.5 cc.	(2 dr.)
Salicylic acid	2 gm.	(½ dr.)
Sodium biborate	4 gm.	(1 dr.)
Glycerin (sterile) sufficient to make.	30 cc.	(1 oz.)

Never inject more than .6 cc. (10 m.).

My experience with injection has been satisfactory in a number of cases, but the method requires much longer time than by operation and frequently the subsequent removal under local anesthesia of leaf-like tabs. In selected cases of noninflamed internal piles, when an anesthetic is counterindicated or an operation is refused, it has a distinct field.

Cook, of Indianapolis, has called attention[13] to the dangers of the method in an excellent descriptive and statistical article. Kelsey, of New York, was once strongly in favor of the method, but now uses it only as a last resort. Adler's[14] experience in Philadelphia has been favorable. Bullard,[15] of New York, thinks it should be selected only when an anesthetic cannot be used. The method of Cook,[16] who uses a speculum, and pushes the pile up as far as possible, working out the blood, and then injecting, is excellent. Strict aseptic precautions should be taken, and any excess of acid should be neutralized with alcohol.

Lofton[17] uses as an injection in the treatment of piles a hot decinormal salt solution, and reports 17 cases. Dickinson[18] treats external piles by injecting a 5% solution of nirvanin and removing by scissors and uniting with catgut.

A strong criticism against the use of carbolic acid injections is the liability of recurrence in about four years. "All of the patients he had supposed cured were now returning for treatment," is the comment of Cook[19] in stating his experience.

The ligation method for the treatment of internal hemorrhoids has long been deservedly popular. Allingham, formerly of St. Mark's Hospital, London; and Mathews, of Louisville, are strong advocates of the method. The patient should be prepared two days before the operation by a saline, a gentle purgative pill the evening before, and a high enema early in the morning of the day of operation. At the time of operation I use irrigations of hot, sterile salt, or boric acid solution, in the lower bowel, although Mathews[20] and Tuttle[21] use irrigations of mercuric chlorid 1 to 3,000. This drug should not be used in the bowel, as it is irritant, and inert as a germicide, producing an insoluble sulfid with the hydrogen sulfid gas present.

After the sphincters are slowly dilated with the fingers, taking considerable time to do this, so as not to injure the sphincter fibers (Jelks, of Nashville, Tenn.), the pile tumors are brought down with forceps, and transfixed with strong silk (Mathews) or an incision made at the white line of Hilton and the pile separated from its muscular and submucous attachment (Allingham) and the pile ligated and then removed. Each tumor is treated in this way, sufficient stump being left to retain the ligature. This method is effectual and safe. Liquid diet, and opium to bind the bowels for three or four days, with antiseptic dressing, complete the treatment.

Merrill Ricketts,[22] of Cincinnati, advises the submucous ligature. Ehrich[23] considers the ligature far superior to excision or cauterization. Landstrom[24] describes "ecrasement" as practised by Perman in the Sabbatsberg Hospital, in Stockholm, while Stembo[25] favors arsonvalization, or the passage of electric currents of high tension through the pile tumor. A method for the removal of internal hemorrhoids under local anesthesia is described by Martin, of Cleveland,[26] who uses a special conical clamp and speculum combined. Great care, patience, and skill are necessary to infiltrate thoroughly the pile tumors with $\frac{1}{10}$ of 1% solution of eucain, as the base as well as the surrounding walls must be thoroughly infiltrated. The "method is not applicable to the inflamed or thrombotic variety."

In an effort to preserve the normal contour of the anus, Pennington, of Chicago,[27] has devised a method which consists in removing an elliptic portion of each hemorrhoidal mass, and dissecting out the angiomatous material, allowing the walls to collapse, and leaving only a small area of denuded surface. In a report of 22 cases by this method, by Evans,[28] he states the operation was satisfactory in all but two cases. Perfect control of bleeding cannot always be had when paresis of the bowel is present, as it was in one of his cases, with the uncertainty of the plug remaining in position to insure against infection; but if the varicose areas are easily reached this operation is to be recommended.

Pennington[29] criticises Earl's and Marcy's, and the submucous ligature of Rickett's as being liable to suture infection, painful swelling, and hemorrhage, with the formation of a blood clot at the site of the original pile. Among those who favor the excision method are Ries,[30] and Davis,[31] who feel insecure after the clamp operation, about infection and bleeding. In an article by Metcalf,[32] who reports 700 cases, he states that he denudes the mucous membrane in uncomplicated cases, and clips off the extremity of the dilated vein. If there is much fibrous tissue he removes this from the sphincter, being careful to suture any damaged fibers of this muscle. Suture ligatures are used to catch spurting vessels. Hot sterile gauze is pressed firmly against the anus every few minutes, when a larger compress is secured, after dusting the parts with an antiseptic powder. This method leaves strips of mucous membrane from which new cells are thrown out, and renders stricture impossible. In 5% of his cases a modification of the Whitehead operation is done.

The method devised by Vercesco, and reported by Potarca (Crajova, Roumania), briefly described at the Paris International Medical Congress,[33] consists of a cylinder of cork 8 cm. or 9 cm. long, by 3 cm. to 3.5 cm. in diameter, made with a wire handle; this is inserted in the dilated anus until level. The dilator is removed and the anal tissue is pinned to the edge of the cylinder by a row of Carlsbad pins, about 1 cm. apart, passing through mucosa and integument at their junction. The latter is cut with a bistoury just outside the row of pins, the cork cylinder serving as a support for the incision, which separates the skin from the pinned part. The mucosa containing the hemorrhoidal nodules is left pinned to the cork, and the detached skin and muscle are pushed back. The cylinder is then drawn out and the piles removed or the diseased area ablated; the incision proceeding slowly as the suture follows. The stump is then sutured to the raw edge of the skin encircling the anus where the first incision was made.

The operation by Whitehead, of Manchester, which consists in removal of the entire pile-bearing area, and suturing the mucosa to the anal margin, is rather a formidable operation, even in the hands of the best surgeon, and should not be attempted except by one with large surgical experience. It is not an absolutely necessary operation, as Goodsall and Miles,[34] of St. Mark's Hospital, for Diseases of the Rectum, London, say: "We always make use of the *ligature*, and have no hesitation in urging other surgeons to adopt it as the best operation for all cases of internal piles."

The clamp and cautery method of operation for hemorrhoids was first suggested by Cussack about 1846, who simply clamped the pile, cut off the protrusion and cauterized with nitric acid. It was not until 1861 that Henry Smith, of England, was led to use it through the influence of Lee. He improved on the nitric acid cauterization by using the actual cautery. The clamps in use today are made so that absolute asepsis can be obtained, and by having serrated edges, combine the benefits of the crushing operation, and as the stump is seared with the actual cautery the absorption of any septic organisms is prevented.

A great many operators have devised clamps based on their own views; the clamps of Gant, Cook, of Indianapolis, and Smith, being the ones most in use. I have been using one for some time, which combines the good features of all and which has proved ideal.

The preliminary preparation of a patient for the clamp and cautery operation is similar to that of any of those for the removal of internal piles and consists in a careful examination of the heart and urine, with an estimation of urea, for an anesthetic should not be given to a patient with a very low percentage, unless strong reasons exist. Preferably two days before the operation a saline should be given and the patient put on liquid diet excluding milk; the night before, a gentle purgative pill, and early in the morning of the day of operation a high enema of hot soapsuds; the parts need not be shaved, but simply clipped with scissors to avoid annoyance during convalescence, and a weak mercuric chlorid dressing applied.

In regard to the choice of an anesthetic, the best for general use, especially at the altitude of Philadelphia, which is practically at sea-level, is ether, given by the open method, with an Allis inhaler. Nitrous oxid gas as a preliminary to ether is undoubtedly safe in skilled hands, and quick; but for prolonged narcosis it requires one accustomed to its use. Ethyl bromid and ethyl chlorid have their advocates. The latter is very efficient and quick for short operations, but the expense is considerable, and in long cases has nothing to recommend it. The experience of Montgomery and Bland[35] with this agent at the Jefferson Hospital shows that its principal uses are in short and quick production of narcosis, and as a preliminary to ether or chloroform. A danger in its use which has not been published, so far as I know, was pointed out to me by Dr. Jackson, of New York, of the Polyclinic Hospital, viz., the sudden fixation of the masseter muscles, requiring instant tracheotomy. The type of case in which this may occur is not ascertainable, and its frequency is about 1 in 500 cases.

The anesthetic selected, the patient is placed in the lithotomy position, and retained by a Clover crutch or held by two assistants, although I prefer the former, to prevent spasmodic extensions of the legs interfering with the operator. A thorough irrigation of the rectum is now made with hot sterile salt, boric acid or weak creolin solution, the rubber tube without any tip is used, and gentle dilation by two or three fingers is carried on at the same time. It is the custom at Mt. Sinai Hospital, New York,[36] to introduce a good-sized sponge, wrung out of mercuric chlorid (this drug is counterindicated in rectal use, as before stated) high up in the rectum, and the operation field by this means is kept dry, and by traction on a string, the piles are easily protruded.

The rectal calibrator of Kelly is not necessary, the fingers making the best divulsor. Considerable time should be taken to overcome the resistance of the sphincter muscles. The piles will now begin to present themselves at the anal margin, looking much larger, and engorged with blood, due to the lithotomy position, the anesthetic and the loss of support of the dilated sphincters. Any thickening of the internal sphincter, or of the levator ani muscles can now be determined. By attaching a long-handled, curved hemostat to each of the pile tumors it has been decided to remove, the clamp is attached and closed, care being taken not to encroach on the mucocutaneous margin. No dissection of the pile is necessary at all, as useless bleeding is caused thereby. The clamp is applied in the long axis of the bowel; in every instance the protruding tumor is cut off with scissors, leaving a small stump for cauterization.

The Paquelin cautery heated to a cherry-red heat is now used to sear thoroughly the entire stump, until it is dry and parchment-like. Each pile is treated in the same way, care being taken to leave a ribbon of mucosa between each stump, as new cells are thrown out from this, and stenosis is then impossible, as pointed out by Metcalf.[37] If there are redundant or inflamed tabs of skin, they should be removed and sutured with silk or catgut. The pile included between the blades of the clamp should be from ½ in. to 1½ in., depending on the amount of varicosity, extending upward in the longitudinal axis of the bowel. The arteries supplying each internal pile extend from above, parallel with the gut, and when cut, tend to retract in the areolar tissue above the tumor. After each tumor has been removed, three or four ribbon-like pedicles will be seen extending into the bowel, and the loss of blood will only be a few drops. At this stage, my practice has been to introduce the trivalve speculum of Cook of Indianapolis, which when dilated, will open each of these ribbon-like pedicles, and occasionally an artery will spurt (which in some cases of very large piles, will be as large as the radial), and is then secured by a suture ligature applied with a small curved needle and needle holder. No reactionary or secondary hemorrhage has ever been experienced. In some cases, especially for the first two days, a rectal tampon, constructed after the plan of Pennington[38] is introduced. This consists of a piece of rubber tubing ½ in. to ¾ in. in diameter, covered with sterile gauze to the size desired, and a sterile rubber covering over all. This is introduced through a speculum. The advantages of this are that it allows the escape of intestinal gas, does not abrade tender granulations, and makes the first bowel movement painless. In other cases a piece of iodoform gauze, covered with sterile petrolatum is lightly introduced and left unchanged for two days.

Anesthesin may be dusted over the denuded surface for subsequent comfort. My practice is to give a hypodermic of morphin, 16 mg. (¼ gr.), and atropin, .4 mg. ($\frac{1}{150}$ gr.), as soon as the patient comes out from the ether and begins to feel pain. This is continued in 8 mg. (⅛ gr.) doses, when required for the relief of pain. The opium tends to keep the bowels locked and the patient comfortable. Liquid diet, excluding milk is continued for three days. The first dressing is changed in 48 hours, and a smaller quantity reintroduced. On the fourth day full diet is given, with an oil and soapsuds enema.

Granulations may soon be seen, and if they are not of the proper pink color, but rather pale, potassium iodid is given .13 gm. to .32 gm. (2 gr. to 5 gr.) three times a day after meals, and triple elixir 3.75 cc. (1 dr.) before meals. I have noticed some remarkable changes take place in the quality of granulations very quickly following the use of this method. In some of my early cases healing was not obtained until this drug was given, the granulations tending to soften and break down into fissures.

The patient is allowed to walk in from three to five days, depending on the personal equation, and no bad result has been noted. In from five to seven days the patient may return to his occupation unless it is a very laborious one, when a few days more will be necessary.

Eliot[39] uses a combination of the clamp and suture methods, by means of a clamp somewhat similar to that of Gant, except that there are perforations for ligatures to be applied as soon as the pile is removed.

In conclusion, I would say that the method selected should be the one best suited to the individual case, although no case of internal piles I have yet seen has been too bad for the clamp and cautery method. There is a double protection against hemorrhage, both by the crushing action of the clamp on the tunica intima and by the cauterization, the thermic action of the cautery destroying all septic germs which may be present on the operative field; all capillaries and lymphatics are sealed, which prevents absorption of septic agents; there are no ligatures to cut through; the operation is finished at one time; no protracted pain from inflamed nerves; no sutures to be removed; and there is a gain of about one week in healing.

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EDEMA.

A Consideration of the Physiologic and Pathologic Factors Concerned in its Formation.[1]

BY

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(D. W. Harrington Lectureship, First.)

THIRD LECTURE.

In the previous lectures I have repeatedly made the statement that the pathology of edema is based upon the physiology of lymph, and that this again consists in the physiology of the production of lymph and the physiology of its absorption. In our last lecture we completed the review of our present knowledge of the process of the formation of lymph.

We shall now turn our attention to the process of absorption of the lymph from the tissue spaces.

Until some ten years ago the conception seemed to prevail that after the tissues had taken out from the surrounding fluid the nutritive material and deposited there the waste products, this fluid, the lymph, was taken up by the lymph vessels and returned through the thoracic and cervical ducts to the circulation. It is true that already Magendie has shown by experiment that soluble poisons can be taken up into the circulation directly through the walls of the bloodvessels. He introduced solutions of poisons, strychnin for instance, into an animal's leg which was connected with the body only by means of bloodvessels, and saw, nevertheless, the rapid onset of a characteristic intoxication. But during the new era of physiology the experiment was not repeated again until some ten years ago, when Asher made similar studies with the absorption of potassium iodid and arrived at similar conclusions. The question of absorption, however, received a new stimulus two years later and again by the initiative of Heidenhain. Orlow studied, under his direction, the question of absorption of fluids injected into the peritoneal cavities of animals, and found that they disappeared with more or less rapidity even when the thoracic duct emptied the lymph outside of the body. Moreover, during the absorption of fluid from the peritoneal cavity, there was no perceptible increase of lymph flow from the duct. This seemed to demonstrate clearly that the solution which disappeared from the abdominal cavity entered the circulation directly through the bloodvessels and apparently no attempt was even made to drain it off by the lymphatics. Furthermore, it was found that serum as well as hypertonic salt solutions were absorbed, but solutions of all concentrations had to become first isotonic with the serum of the animal before proper absorption could take place. From this as well as from the behavior of the absorption of hypertonic salt solutions, and also from the effect of sodium fluorid upon the absorption, Orlow and Heidenhain drew the conclusion that the absorption is accomplished by the aid of vital activity of the endothelial cells of the blood capillaries, as well as the endothelial cells of the peritoneum. This was in harmony with the views of Heidenhain, set forth some time before, regarding the absorption from the intestinal canal. The absorption, in the latter place, of serum as well as of salt solutions, could not be explained, Heidenhain stated, by the laws of osmosis; and, furthermore, the addition of sodium fluorid to any of the solutions disturbed or destroyed the absorption, hence the theory of the *physiologic activity of the cells* in the intestinal absorption.

The results were somewhat different in similar experiments carried out by Cohnstein. The exclusion of the lymphatics from the participation in absorption of this fluid was by no means so evident as in the experiments by Orlow.

Starling and Tubby have introduced indigo-carmin or methylene-blue in the pleural or in the peritoneal cavities of animals, and noted the time when these dyestuffs reappeared in the urine and in the lymph from the thoracic duct. In nearly all of their experiments the urine was colored blue or green long before there was any discoloration of the lymph from the thoracic duct. The authors drew the conclusion that the absorption by the bloodvessels was not only far better than by the lymphatics, but that it was even an open question in these experiments whether the lymphatics absorbed anything at all, since the late moderate discoloration of the lymph might have come from the blood after the coloring matter had been absorbed directly by the bloodvessels. In a series of experiments by Hamburger, serum and salt solutions were introduced into the peritoneal and the pericardial cavities of animals, in some of which the flow from the thoracic duct was obstructed by tying the left innominate vein. It was found, according to Hamburger's statement, that obstruction of the duct had not influenced the rate of absorption from the cavities. In agreement with these views of Heidenhain, Hamburger concluded that absorption is carried on by the bloodvessels, and not by the lymphatics. Hamburger made, however, the discovery that absorption took place even in dead animals. From this fact he drew conclusions that absorption in these cases is carried on by the aid of physical and not vital forces. In two series of experiments, Adler and myself have also studied the paths of absorption from the peritoneal cavity. In one series of experiments equal doses of strychnin or of potassium ferrocyanid were injected into the peritoneal cavities of two rabbits of equal weight, in one of which both innominate veins were tied. In the latter animal the effect of strychnin, or the reappearance of the potassium ferrocyanid in the urine occurred much later than in the normal animal. In the second series of experiments we have injected solutions of sodium chlorid of variable tonicity into the peritoneal cavities of normal rabbits as well as rabbits in which one or both innominate veins were ligated, and we studied the amounts which were absorbed in a given time. A greater number of experiments had to be made, as the rate of absorption varies considerably even in normal animals. But on the whole, it was quite evident that in animals with obstructed thoracic ducts, the absorption was distinctly retarded. We objected to the conclusions drawn by Hamburger from his experiments, as he actually had only one experiment for each solution tested, and beside, his method of introduction and removal of fluid is very unreliable. From our experiments we drew the conclusion that the lymphatics apparently do have some share in the absorption of fluid from the peritoneal cavity. But we argued that results which are obtained when the lymphatic ducts are obstructed cannot throw proper light upon the actual processes in normal animals. The obstruction of the thoracic ducts and the prevention of the draining of the tissue fluid by the lymphatics soon lead to an increase of the extracapillary pressure, and the failure to remove the waste products will lead to an increase of the osmotic pressure within the tissue spaces. There will then be enough new physical forces in the extracapillary spaces to drive the surplus of fluid indeed into the capillaries. But such conditions might not prevail in normal animals. Besides, we argued further, the disappearance of fluid from the peritoneal cavity does not yet mean that all the fluid entered into the circulation, at least nobody proved it. The disappeared fluid entered through the endothelium of the peritoneum into the tissue spaces. These represent a well-connected system of crevices extending over large areas. This system of spaces might harbor some of the fluid taken up from the peritoneal cavity for some time, giving it up only gradually to the lymphatics or to the bloodvessels. Hence the slow and moderate increase of the flow of lymph, observed by Cohnstein and noted even in some of the experiments of Orlow and Heidenhain.

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[1] Lectures delivered at the University of Buffalo, Buffalo, N. Y., on November 30, December 1, 2 and 3, 1903.

We shall add that in our experiments we confirmed the observation of Hamburger, that absorption takes place also in dead animals. We suggested that pressure exerted within the abdominal cavity by the gases in the intestines might be a new factor for filtration in the dead body.

Starling and Leathes studied the absorption from the pleural cavity again, this time after tying both innominate veins. They found that the tying of the veins did not prevent absorption. In the above quoted paper by Starling and Tubby the suggestion was made that the absorption was perhaps an active one, *i. e.*, a vital one, by the intervention of the cells of the pleura. Starling was then still under the influence of Heidenhain's teachings. In the paper with Leathes, the positive stand was taken that there was no need for the adduction of a vital force to explain the phenomena of absorption, the more so, as the addition of sodium fluorid, which affects the vitality of cells, did not seem to influence its course, at least not in the pleural cavity.

In a study by Leathes with intravenous injections of crystalloids, it was established that large quantities of fluid enter from the tissues through the blood capillaries into the circulation with great rapidity and leave it again very soon. The exchange of fluid between the circulation and the surrounding tissues can be enormous and is accomplished with extreme rapidity. The lymphatics have no share in this process. The same occurs, as Starling pointed out, also in hemorrhage. It was known long ago that in bleeding an animal the last portions of the blood are more dilute than the portions of blood coming first, for the reason that tissue fluid enters rapidly into the circulation to replace the loss of blood.

Some apparent inconsistencies in the above cited report of Starling and Tubby induced me to repeat their experiments. Fearing that coloring material within the abdominal cavity might enter directly into the circulation through accidentally injured bloodvessels when the canulas are tied into the ureters, I tried to obtain urine by introducing a catheter into the bladder. The results which I have obtained were just the reverse of those reported by Starling and Tubby. The color of the introduced solution appeared in the lymph before it had shown up in the urine. In a repetition of these experiments Starling confirms his former results, and he was later upheld in this by Mendel. Both authors attribute my failure to find the color first in the urine to my method of obtaining it from the bladder. In experiments which I have made at different intervals, I have obtained the urine from the ureters. I have, as yet, not published these experiments, and I wish to avail myself of this opportunity to state that in the majority of these experiments the color of the injected solutions appeared, indeed, in the urine before it appeared in the lymph. I found at the same time the reason for my former failure to obtain the result. It was not due to the fact that the urine remained in the bladder, but because the urine was too scanty, on account of the too deep anesthesia which I employed then in these experiments, as was correctly suggested by Lazarus-Barlow. In watching the ureters in the later experiments, while the animal was under deep anesthesia, I was surprised to observe the blue color already moving down to the end of the column of urine in the canula of the ureter, while the column of the urine itself either did not move at all or progressed very slowly. The indigo-carmin permeated kidney and urine by diffusion, though the kidney secreted urine only scantily.

In a few cases I have now again found that the lymph was colored before the urine. I do not care to discuss these exceptions. The subject is not yet entirely cleared up. Starling and Tubby, for instance, state that in an intravenous injection of a coloring solution a stain appeared in the lymph half a minute after the injection, and, of course, then long before it appeared in the urine. Mendel, however, found in such experiments that the indigo-carmin appeared in the lymph as late as 23 minutes after the injection, and always after its appearance in the urine.

Regarding the value of the evidence to be derived from experiments with obstructed thoracic ducts, Starling states later that, in his opinion, it is not conclusive at all. In experiments, in which both the thoracic duct and the left innominate vein were ligated, he could trace carmin granula, injected previously into the abdominal cavity, in the anterior mediastinal lymph glands, which fact, Starling took as a proof that a stream of lymph was still going on upward within the lymphatics in spite of all the ligations.

As a further evidence that the bloodvessels are taking up fluid directly from the surrounding tissues we may quote the following instructive experiment of Starling. Through two amputated legs, defibrinated blood was led a number of times. One of the legs was previously made edematous by subcutaneous injection of an isotonic solution of sodium chlorid. The defibrinated blood was tested before and after transfusion for the percentage of solids and hemoglobin. It was found that whereas the blood used for the normal leg became slightly concentrated the percentages of solids and hemoglobin in the blood used in the edematous leg were distinctly decreased, strong evidence that isotonic fluid of the edematous tissue was taken up by the bloodvessels and here surely not by vital but by physical forces.

The fact that absorption is going on in dead tissues and in dead animals was not accepted by the vitalists as a conclusive proof that in the process of absorption going on in the living animal the vital forces are not at work. Already Heidenhain, in his last article, before his premature death, promised to bring proof that both kinds of absorption differ in essential points. This evidence was brought forward recently by O. Cohnheim. In studies of absorption of sugars from the intestines as well as from the peritoneal cavity this author found that the absorption in the living body differs in some essential points from the absorption in the dead body, and that this difference can be removed by poisoning the endothelial cells with sodium fluorid.

Theories of Absorption by the Bloodvessels.—By the numerous special investigations it was fairly safely established that fluid can be and probably is absorbed from the lymph spaces and from the serous cavities directly into the blood. It was nearly a new fact and it certainly seemed to be nearly a perfectly new problem. By what force is this accomplished? The vitalists had no difficulties to overcome; the more surprising the absorption seemed to be, the greater the evidence for the participation of a vital force. But the followers of the physical theories had to explain by what physical force any fluid, and especially an isotonic one, could be absorbed from the peritoneal cavity into the bloodvessels. It surely could not be by filtration back into the vessels due to any extracapillary pressure, since such a pressure would, as Klemensiewicz has pointed out, tend to compress the small veins and thus again increase the intracapillary pressure which would gradually neutralize the outside pressure. Cohnstein as well as Starling have, in answer to this, referred to the proteids of the bloodserum as an osmotic factor for the attraction of water from the tissue fluid. It has always been thought that the albuminous materials, on account of the large size of their molecules, exert no osmotic influence. Starling has shown that the osmotic pressure of albumin was equal to about 40 mg. of mercury. Now the crystalloid constituents within the lymph are normally nearly of the same concentration as in the blood plasma, whereas the lymph is in all cases poorer in proteids than the blood plasma. This concentration of the proteids in the blood-serum is the cause, Starling and Cohnstein say, of the attraction of water into the bloodvessels, or, as Starling puts it, the intracapillary pressure determines transudation into the tissue spaces, and the osmotic pressure of the proteids of the serum determines absorption from them.

The relations of osmosis and diffusion in the animal membrane have been studied especially by Roth. His conclusions are about as follows: The living animal membrane, especially the epithelial and endothelial layers, are neither perfectly permeable or perfectly impermeable. They are permeable, in a small degree, even for albuminous solutions, for which, however, they are in general the least permeable. The permeability for crystalloids is, in general, distinctly greater than for albuminous substances, but it differs, too, with the different substances. Each of the constituents of the serum, as well as of the lymph, may diffuse through the wall of the blood capillaries in either direction, if, on the other side of the wall, the same substance is present in a lesser concentration, but the rate with which this might take place differs perceptibly according to the nature of the substance. Under these circumstances, even if the solutions on both sides are isotonic with regard to the sum of all dissolved substances, water and salt will continue to exchange through the wall of the vessel until all partial difference between the several constituents will be equalized. For instance, if in the peritoneal cavity of a rabbit a solution of sodium chlorid of 0.92 is introduced, which, with regard to osmosis is isotonic with the general osmotic pressure of the rabbit's serum, nevertheless an exchange of water and dissolved substances will be started between the solution of sodium chlorid in the peritoneal cavity and the blood plasma, inasmuch as there is on one hand more sodium chlorid in the peritoneal cavity than in the blood plasma, and on the other hand there is none of the other constituents of the blood plasma present in the solution within the peritoneal cavity.

Besides these complex relations of diffusion and osmosis, Roth enlists further for the process of absorption the aid of the high osmotic pressure of the waste products within the tissue fluid. As already stated before, the large proteid molecules are broken down in the tissues into substances with small molecules possessing a high osmotic pressure. These waste products, with their high osmotic pressure, get into the fluid around the blood capillaries and cause attraction of water from the blood. But, as many of the waste products are entirely absent in the blood or are there in a lesser concentration than in the tissue fluid, and as the capillary wall is more or less permeable in a variable manner for the different constituents of these products, a diffusion stream will carry them into the blood. This part of the process, Roth believes, is carried out at the arterial end of the capillaries, whereas at the venous end, where the tissue fluid already got rid of some of the waste products, and received in exchange water, the high osmotic pressure of the proteids within the blood causes, as assumed by Cohnstein and Starling, the absorption of water into the bloodvessels.

Thus Roth finds no difficulty in explaining the absorption, through the bloodvessels, of isotonic fluid as well as of serum by fewer physical forces.

Starling, however, seems rather inclined to assume that the absorption of albuminous solutions is carried on entirely by the lymphatics.

Hamburger explains absorption through the bloodvessels by the aid of imbibition. He believes that the tissue-fluid is entering into the pores of the endothelial wall by the physical process of imbibition, from where it is removed again by the blood stream on the outside of the capillary wall. How this could be effective to any extent, and especially in dead animals, is not very clear.

To complete my report on absorption, I shall add one more brief note. In an investigation which I have carried out on the changes in the hemolytic properties of serum of one animal kept within the peritoneal cavity of another animal, I have obtained the following results: Bullock's serum, which is normally hemolytic for the red cells of rabbits, when kept for some time within the peritoneal cavity of a rabbit; or serum from rabbits immunized by blood from guineapigs, when kept for some time in the peritoneal cavity of guineapigs, lose thereby their hemolytic power. The loss is due to the absorption, by the peritoneum, of the complement; the intermediary body, or as Ehrlich terms it now, the amboceptor, is not absorbed; the addition of normal rabbits', or guineapigs' serum reactivated the peritoneal serum. The agglutinating power of the serums did not suffer by the stay in the peritoneal cavity. The deprivation of the hemolytic power of the serums by the stay in the peritoneal cavity is not due to some vital act of the endothelium; a stay within the peritoneal cavity of dead animals has the same effect.

The numerous series of investigations, which we have just reported, were made chiefly for the purpose of determining what forces are operative in the transudation of lymph through the walls of the bloodvessels, and in the reabsorption of the lymph by the bloodvessels. How about the lymphatics? There could be a question whether bloodvessels reabsorb lymph. But there can be no question that the lymphatics contain lymph. How does it get there? and by the aid of what forces? I am not aware that there was any investigation or even a serious discussion on that point. And it is a problem, nevertheless. W. G. MacCallum has shown lately that the lymphatics do not possess any open communication with the tissue spaces of the body. And in a recent study upon the mode of entrance of corpuscular elements, like carmin granules, into the lymphatics, MacCallum arrived at the conclusion that they are carried thither by phagocytes, assisted by the phagocytic activity of the peritoneal endothelium, and the endothelium of the lymphatics. But by the aid of what force does the fluid lymph get into the closed lymphatics? The lymph contains water and various crystalloids and proteids. By what force do these constituents get into the lymphatics—by filtration, diffusion, osmosis, or by something which, for lack of knowledge, we call vital force? MacCallum says: "As to the mechanism of the entrance of the fluid into any of these channels by direct filtration, under the laws of osmosis and mechanical pressure, there is no great difficulty." To me it does not seem to be such an easy problem to solve. For instance, if the mechanical pressure outside of the lymphatics would be so much greater than inside of them, as to be sufficient to drive the fluid from the tissue spaces into the lymphatics, why should this pressure not be sufficient also to compress the lymphatics entirely, just as it is assumed that an extracapillary pressure, which is greater than the pressure within the small veins or blood capillaries, is sufficient to compress these channels? Or, are there perhaps some histologic structures around the lymphatics to keep them open in spite of any external pressure? As to osmosis, we would have to explain first the entrance of the crystalloids and proteids into the lymphatics before there will be an osmotic pressure to attract the water later into it. Furthermore, the question is much more complicated. Some of the tissue fluid is entering the bloodvessels and some enters into the lymphatics. The question is then not only by the aid of what force does the fluid enter the lymphatics, but also, why does this fluid enter here and not into the blood capillaries, or why does one fluid enter into one and some other fluid enter into another system of capillaries? Both processes are, in a certain sense, antagonistic to one another. Now, if the same physical forces are operative in both processes, what is then the determining factor in the distribution of these fluids between the two antagonistic systems? I do not intend to discuss here that problem, but I wish to show that it is a problem indeed, and not an easy one to solve, and that practically nothing has yet been done toward the solution of it.

Review.—We have thus finished our report on the work done in the last dozen years on the problems of lymph formation and lymph absorption. Let us recapitulate some of the essential features. Ludwig believed that lymph is formed with the aid of blood-pressure, by filtration, and is removed again by the lymphatics. Heidenhain's theory is, that lymph is secreted by the endothelial cells of the capillary walls, and is reabsorbed also by the aid of a vital force of these cells. This force is stimulated to activity in every tissue or organ by the specific katabolic products reaching the cells from the extracapillary side. Heidenhain admits filtration as a subsidiary factor in the increase of lymph by venous congestion. Hamburger also believes that the formation of lymph is carried on by a vital force residing within the endothelial cells, which is stimulated to activity by the katabolic products, but only after getting into the blood, *i. e.*, from the intracapillary side. There is no room for any physical aid in this theory of lymph formation. For absorption, he dispenses with the service of a vital force, and replaces it by the physical force of imbibition. Cohnstein, Starling, and Roth adhere to the physical theory of lymph formation and absorption. All believe in filtration; but Cohnstein adds diffusion; Starling adds differences and variability in the permeability of the endothelial membrane. (Both believe in the osmotic pressure of the serum proteids as an aid in the absorption of water.) Roth adds osmotic pressure derived from the katabolic products, which acts in favor of absorption, according to him, on the arterial end of the capillaries, whereas, the osmotic pressure of the proteids within blood exerts its attraction on the extracapillary water on the venous end of the capillaries. Lazarus-Barlow and Asher believe in the aid of a vital force, which is located not in the endothelial cells, but in the cells of the organ. Lazarus-Barlow believes it is the desire of the cell for nutrition and the presence of the waste products, which attract fluid from the blood; whereas Asher believes, that the production of lymph is connected in some way with the work of the cells. We have actually only two leading theories of lymph formation and lymph absorption; a mechanistic and a vitalistic theory. Ludwig, Cohnstein, Starling, and Roth adhere to the mechanistic theory; Heidenhain, Hamburger, Lazarus-Barlow and Asher are adherents of the vitalistic theory. Both sides have brought out new important facts. Whereas the vitalists brought out essentially physiologic facts, the adherents of the mechanistic theory have done more to develop the knowledge of the physical factors in the physiologic facts. It is perhaps best to have two parties even in science, the progress of our knowledge profits by it.

Of the results which were obtained we may mention in the first place that all experiments demonstrated that increased venous pressure with the aid of normal arterial pressure, leads to a proportional increase in the flow of lymph, whether collected from the thoracic duct or from the smaller lymphatics of only a part of the body. (The negative result of Lazarus-Barlow with constriction of an entire limb is not an exception to the rule, as it presents only an increased venous pressure with a diminished arterial flow.) Nearly all investigators agree that the physical influence of the pressure is a more or less essential factor in the increase of lymph flow. The only exception we meet is the theoretic view of Hamburger to the effect that, even in this case, the increase is due solely to the stimulation of the endothelium by the increased amount of the waste products in the stagnated area. Some of the present day writers on our subject are apparently fond of stating that the filtration theory is now definitely disposed of. The statement is erroneous; it surely cannot be applied to the effect of venous congestion.

The increase of arterial pressure led only, in the majority of observations, to an increase of lymph; the subject is not yet cleared up.

Osmosis is surely operative in the increase of lymph by the intravenous injection of crystalloids. Whether the place of action is in the blood or in the tissues is a matter of dispute.

It is quite safely established that the proteids of the blood plasma can exert an osmotic pressure, and may cause the attraction of water from the lymph spaces into the blood. The view is further unchallenged that the katabolic products can exert a considerable osmotic pressure, which is capable of greatly influencing the exchange of fluid between the tissues and the blood. That these osmotic pressures are actual factors in the formation and absorption of lymph has not yet been proved by any experiment.

It is quite safely established that the living animal membranes possess a different degree of permeability for different substances. This fact is capable indeed of elucidating many phases of lymph production and lymph absorption. The present views, however, as to the actual manner of these processes are only more or less plausible conjectures.

It is established that the bloodvessels can take up isotonic fluid, and that under provocation, they exchange with great rapidity enormous quantities of fluid with the tissue lymph, and it is highly probable, that, even in normal conditions, an exchange, on a moderate scale, is going on all the time. It is further established by numerous experiments that fairly large quantities of serum, or solutions of any tonicity, can be absorbed from the serous cavities, even when most of the lymphatics are obstructed, and that there is no noticeable increase of lymph flowing from the thoracic duct during the process of absorption. But, it was proved that the disappeared fluid, at least the solvent medium, the water, actually entered into the bloodvessels; it might have remained within the interstitial spaces, there temporarily preventing and replacing the output of water from the bloodvessels.

The only facts which were brought out against the possibility of physical explanation of the processes of production and absorption of lymph, were the observations that sodium fluorid, or temporary anemia affect the lymph flow or the mode of absorption of fluid. This is interpreted that the cells are poisoned by sodium fluorid or killed by anemia, and "only that which is living can be poisoned or killed." But sodium fluorid as well as prolonged temporary anemia can produce structural changes in the cell which might interfere, temporarily or permanently, with certain parts of its physical properties. These observations can hardly be considered as sufficient evidence against a mechanical theory.

On the other hand, it is an established fact that lymph flows from the thoracic duct for a long time after death, and also that absorption in dead animals takes place. Again, neither of these facts can be considered as proofs against a vitalistic theory. What looks alike need not be alike.

It was an important discovery that there are two classes of substances which increase the flow of lymph. The lymph brought on by one class is richer in proteids, that brought on by the other class is poorer in proteids than the normal lymph. But this knowledge brings no decision to the question as to the nature of the mechanism of lymph production. These facts can be explained in many ways.

Have we learned by the numerous investigations all that we ought to know about the production and absorption of lymph? Far from it. We know now that we know only a small fraction of it. And that is a better knowledge than the one we had a dozen years ago, when we believed we knew all about it.

The difficulty which the investigators on lymph have to contend with is, that we wish to know one thing and have to study another. What we wish to know and ought to know is the relations which exist between the blood and the tissue fluid on one hand, and the relations between tissue fluid and the lymph in the lymphatics on the other hand. But what we study all the time is the relations of the blood to the lymph, and not even to the lymph of the lymphatics, but to the lymph of the thoracic duct. Whatever the lymph in the lymphatics may be, and however it might get there, it is obvious that the lymphatics from the different organs contain lymph of different characters, as each different organ uses up special constituents and receives special katabolic products. But in the large trunks, especially in the thoracic duct, all these variously constituted lymphs come together and neutralize, complement and supplement one another, so as to produce a fluid which approaches in its composition that of the blood. This mutual neutralization might curtail the toxicity of the lymph of the lymphatics, even without the aid of the lymph-nodes. Can the knowledge of this lymph throw full light upon the composition of the free fluid within the tissues? Certainly not. Adler and myself called attention some years ago to the confusion which comes from throwing together the system of tissue spaces with the system of lymphatics. The latter are only the waste tubes, whereas the real processes of life take place essentially in the tissue spaces. Even the bloodvessels are only feeding tubes to the actual mill.

The tissue spaces have to be studied as an independent system in every organ and in every part of the body. Ways will have to be found to obtain fluid from these tissue spaces. A comparison of the specific compositions of these fluids from each organ with the compositions of the blood and that of the lymph from the lymphatics will bring us nearer the proper understanding of the formation and absorption of both socalled lymphs, the lymph of the tissue spaces and the lymph of the lymphatics. Then we will comprehend better than now the relations of the system of the tissue spaces—the seat of the intermediary metabolism—to its feeding tubes, as well as to the tubes which carry off the waste.

METABOLIC CHANGES CAUSED BY EXTERNAL HEMORRHAGE.[1]

BY

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INTRODUCTION.

For centuries general blood-letting was a therapeutic measure of almost universal use and of the widest application. For a long time, also, cupping, leeching and scarification were as frequently employed for the production of local results as venesection was resorted to for systemic effects. In the earlier decades of its general practice, and for many years thereafter, phlebotomy was a procedure carried out in ignorance and superstition, and governed largely by incorrect interpretations of observed phenomena and by deductions of the most absurd character. Centuries passed before the light of experiment and research was turned upon the "universal remedy." When, however, the assumptions of many generations were laid bare, one by one, by more accurate observation, blood-letting at length was almost entirely abandoned in the fear that it not only could serve no useful purpose at all, but that it always did more harm than good. This position at the opposite extreme was soon found to be untenable, also, and during the last quarter century venesection has been justly regarded as an important and a valuable remedial adjuvant. It is now clearly recognized, however, that the usefulness of blood-letting is restricted to relatively few disorders. Its employment is now seemingly based on rational conceptions. It is resorted to for only fairly definite and specific purposes.

Apart from a consideration of the influence of venesection as a therapeutic measure, is the question of the effects on the organism of undesigned hemorrhage of various types, such as the striking losses of blood in hemophilia; also *internal* hemorrhea, caused by other pathologic conditions and trauma, or associated with surgical operations; and external blood-flow brought about by outside forces, such as injury.

The importance of hemorrhagic effects has been so obvious to all observers that numerous studies have been made of the local and general influences of blood-letting. Most of these investigations have pertained to changes in the residual blood and in that withdrawn from the body, or to effects on the structure and functions of various parts of the system. Unfortunately, however, many of these studies have been made by very defective methods, from our present viewpoints, and have also afforded contradictory data. The chief facts in our information in this connection are briefly summarized below. The results of the experiments by the author and his coworkers are given in the concluding portions of this paper.

HISTORIC REVIEW.

BILE.—According to Ranke, the formation and flow of bile is markedly diminished after hemorrhage.

BLOOD. *Alkalinity.*—Viola and Jona observed decreased alkalinity of the blood of dogs after hemorrhage. The decrease of alkalinity was ascribed to the neutralizing influence of an increased production of acid katabolic products. There was a return to normal alkalinity in a few hours, after which the alkalinity went above normal for a time. De Haan and Zeehuisen found that the alkalinity of the blood of rabbits was lowered by bleeding, but that it was either raised or unchanged in the blood of dogs and raised in the blood of cats.

Amount.—Buntzen was among the first to learn that when only small losses occur the normal volume of blood is soon restored after hemorrhage. Restoration of volume is fairly prompt in such cases, even in fasting animals. Lymph is hurried from the tissue spaces into the bloodvessels. At first the remaining blood is diluted by inflowing lymph, afterward there is concentration by increased production of solid constituents. The osmotic studies of Fano and Bottazzi have lately verified these observations of earlier workers. After excessive though nonfatal losses, restoration of volume may not take place for several days.

Ash.—Meyer and Gies have lately shown that the proportion of ash from both the blood and the serum remains practically unchanged after hemorrhage. Hösslin has observed minor osmotic differences in this connection, and Coenen has stated that the ash is diminished somewhat in secondary anemia. (See osmotic properties.)

Coagulation.—Jürgensen, Vierordt, Baumann, and others agree that the tendency to coagulate increases with each successive hemorrhage. (See fibrin.)

Corpuscles.—Many observers agree with Antokonenko in the statement that the erythrocytes are at once diminished in number by hemorrhage, and that the leukocytes are increased. The length of time required for return to normal corpuscular conditions varies mainly with the amount of blood withdrawn, and may be prolonged to three weeks or more. Hulot and Raymond state that regeneration of erythrocytes is slower after internal than after external hemorrhage. Von Noorden was the first to notice that in some instances nucleated red cells appear in large number for a short time after bleeding The increase in the number of leukocytes is independent of the surgical procedure accompanying venesection as Melassez and others have demonstrated, although Hayem attributes the posthemorrhagic leukocytosis to inflammation. According to Rieder, Baumann, and Dawson, the increase is chiefly in the polymorphonuclear variety. The blood-making organs are at once stimulated to special activity by bleeding, as the work of Antokonenko, Luzet, Howell, Dawson, and many others has clearly shown. Bottazzi and Capelli state that repeated losses of blood cause decreased content of sodium and potassium in the erythrocytes.

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[1] Contribution from the Department of Physiologic Chemistry of Columbia University, at the College of Physicians and Surgeons.

Fat.—Calves, in England, according to Lister, have been made so fat by frequent bleedings that at last their blood became milky. (See body-weight.)

Fibrin.—Jürgensen, Nasse, Baumann, and others have found that fibrin is increased by bleeding. This increase of fibrin, obtainable from the withdrawn blood, depends not only on the quantity of blood taken, but on the length of the intervals between hemorrhages. Intervals of a few days particularly favor such increase. (See coagulation.)

Flow.—Volkmann and Gatzuck found that hemorrhage causes slowing of the flow of the remaining blood, but that the rate of movement soon returns to normal with the increasing pressure. After hemorrhage there is initial dilation of the capillaries, followed by compensatory constriction.

Gases.—Jürgensen, and Matthieu and Urbain are among those who have noted that the oxygen content of the blood decreases after hemorrhage. Uniform results for carbon dioxid content under similar conditions are wanting. Finkler states that the proportion of carbon dioxid is diminished after bleeding. (See respiration.)

Hemoglobin.—The content of hemoglobin diminishes with the decrease in the number of red cells. Baumann and several others have found that the decrease in the proportion of hemoglobin is greater than the fall in the number of red cells. The extent of the decrease depends largely on the degree of the hemorrhage.

Lactic Acid.—Irisawa noted an increased content of lactate in the blood after hemorrhage.

Osmotic Properties.—The molecular concentration slightly diminishes immediately after bleeding, according to Fano and Bottazzi, but soon rises to or may go somewhat above normal.

Pressure sinks at first, but soon returns to normal in nonfatal cases of hemorrhage, by reason of vasomotor accommodations and increased ingress of lymph.

Proteids.—The relative proteid content of the remaining blood is immediately decreased after hemorrhage, mainly because of the loss of corpuscles and the influx of lymph. But the content of corpuscles, albumins, globulins, and fibrinogen soon begins to rise, both relatively and absolutely even in fasting animals, as Torup has shown. Mariotti and Eger have found that the proteids of the serum rapidly diminish after bleeding, and the time required for full restoration of normal proportions depends on the degree of anemia. According to these observers, globulins appear to be returned more rapidly than the serins. Baumann, states, however, that the serum albumins increase at the expense of the globulins. Favilli has also observed a relatively prompt restoration of serum globulin after hemorrhage. (See hemoglobin, fibrin.)

Solids.—Sherrington and Copeman, Meyer and Gies, and other observers have noted a fall in the solids of the blood after hemorrhage. The decrease continues for some time after bleeding. It is especially marked after several losses. Restoration of the normal proportions is prompt when the hemorrhage has been slight; it is slow when the loss has been relatively large. Even during a continuous hemorrhage the later portions of blood contain less solid matter than the earlier samples. The serum is less affected than the blood. The loss of corpuscles and the increased flow of lymph into the blood account for these facts. The effect of hemorrhage in this connection is greater in fasting animals than in well-nourished ones, as might be expected. The fall in percentage of solids occurs, as Lesser found, even after the thoracic duct has been ligated.

Specific Gravity.—Sherrington and Copeman, Buntzen, Hünerfauth, and others have observed that specific gravity, of both blood and serum, immediately decreases in various animals after hemorrhage, and may continue to fall for some time. (See solids.)

Sugar.—Bernard, von Mering, and Schenck are chief among those who have observed an increased sugar content of the blood after hemorrhage. This increase seems to be more marked when the hemorrhage is repeated several times, at short intervals. After extirpation of the liver, hemorrhage causes decreased sugar content. Posthemorrhagic hyperglycemia is only very slight in fasting animals.

Water.—The proportion of water, in both blood and serum, invariably increases after hemorrhage, just as the solids decrease. Jürgensen states that this increase is especially conspicuous in fasting animals. (See solids.)

BODY TEMPERATURE.—Venesection was long regarded as an antipyretic measure, but its lowering influence on temperature during fever or normally is only temporary, as Traube and others long since ascertained. The fall in temperature in dogs is not more than about a degree (centigrade). According to Wunderlich, Dogiel, and others, the temperature at first rises, then falls a degree or two below normal, and soon returns to normal.

BODY-WEIGHT.—Many observers, including Talmatscheff, Buntzen, Quincke, and Jürgensen, make the statement that the weight of an animal is gradually increased by moderate bleedings at frequent intervals. Van Swieten states that a woman gained 150 pounds by means of 60 bleedings in a few months. (See fat, under blood; fatty degeneration, below.)

DEGENERATION, FATTY.—Fatty degeneration has been seen repeatedly after hemorrhage. Dogiel observed it in the liver, kidneys, and muscles. (See body-weight.)

DIGESTION.—Monassein found that gastric juice secreted shortly after hemorrhage was deficient in hydrochloric acid. London and Sokolow have recently observed that bleeding interferes markedly with the normal secretion and activity of gastric juice. (See bile.)

HEART.—Heart-beat is generally increased after nonfatal hemorrhage. Moderate loss quickens, excessive loss slows. Dogiel found that the rhythm becomes irregular after repeated losses of blood. Palpitation resulted. Tonicity diminished. Degeneration ensued. (See fatty degeneration.)

LYMPH.—Most observers agree that the flow of lymph *into the bloodvessels* is increased after hemorrhage. The dilution of the blood after bleeding is due in great part to this fact. Hoche noted an increased flow from the thoracic duct after bleeding. Tscherewkow obtained uncertain results in this connection. Posner and Gies have lately noted a *decreased* flow under such conditions in all of about two dozen elaborate experiments on as many dogs.

METABOLISM.—Proteid katabolism is quickened by hemorrhage. (See the concluding sections of this paper.) Fat katabolism is diminished. There is little or no evidence on the rate of carbohydrate metabolism after bleeding. Bauer, Gürber, and others have shown that moderate hemorrhage has little or no effect on respiratory exchange, although a slight initial decrease, followed later by increase, has been indicated. Lukjanow has noted a considerable initial increase in the consumption of oxygen after bleeding, Fredericq a brief decrease.

Valerio observed a diminished utilization of oxygen and decreased output of carbon dioxid under the same conditions. (See respiration.)

MUSCULAR SYSTEM.—It is a matter of common observation that, after hemorrhage, muscular power is somewhat reduced, it may be seriously for a time. Jürgensen states that the stronger the muscle normally, the greater the relative depressant effect of hemorrhage on its energy-transforming power.

NERVOUS SYSTEM.—Various pronounced effects, such as fainting, asphyxia, convulsions, coma, etc., may result when hemorrhage is excessive or fatal.

RESPIRATION.—Numerous clinical observations by Gürber, Hanover, Bahland and Geppert, Kraus and Chvostek, Voit and Pettenkofer indicate that the consumption of oxygen is about the same after hemorrhage as before. After moderate hemorrhage respiration is quickened at first but it shortly returns to the normal. Excessive bleeding results in impaired respiration. Considerable variation has been observed by Dawson and others, and also in this laboratory. Leichtenstern states that immediately after hemorrhage the total volume of respired air diminishes for a time.

URINE. *Constituents.*—Jürgensen, and Bauer, have shown that urea is somewhat increased in the urine a short time after hemorrhage, because of increased proteid katabolism. This is denied by others. The excretion of chlorid was diminished in Araki's bleeding experiments. Phosphate was increased in the experiments of Jürgensen, and Flavard. After excessive losses of blood, Araki noted the presence of albumin in the urine, and in such experiments, sugar and lactate were also eliminated. In Schenck's experiments, however, sugar was absent from the urine after hemorrhage even during the periods of greatest hyperglycemia. Naunyn and Riess state that hemorrhage is without effect on uric acid excretion.

Solids.—The total quantity of urinary solids is temporarily increased by bleeding, as was shown by Bauer. This increase is due to stimulated katabolism.

Specific gravity.—Bauer observed that the specific gravity of the urine rises immediately after hemorrhage even when volume is also increased. The increased elimination of katabolic products explains this fact.

Volume.—In Bauer's experiments and in those by Goll, hemorrhage caused immediate stoppage of the flow. The volume of the first 24 hours' urine after hemorrhage may, however, be greater than usual, even in fasting animals, although, as Jürgensen has shown, the temporary increase of flow is usually more conspicuous a day or two after the loss of blood.

PROTEID METABOLISM—REVIEW.

We have lately been making in this laboratory a number of experiments to ascertain the chemic influences of posthemorrhagic anemia. One of these investigations, which Dr. Hawk and I recently completed, was directed to a further study of the effects of blood-letting on *proteid* changes in the organism. We were attracted to this particular phase of the general problem by important contradictions in the observations of Bauer, Jürgensen, and Ascoli and Draghi.

Thus far three investigations have given us our chief information on the special metabolic changes in which *proteid* is involved, after external hemorrhage.

Bauer's paper was the first important contribution. This observer had two experiments, on dogs weighing about 20 kilos. One experiment was carried out on a well-fed animal, the second on one that had fasted. In the first experiment the well-nourished dog was brought into nitrogenous equilibrium and blood was removed from the femoral vein in a quantity equal to about 2% of body-weight. The average daily nitrogen elimination during *four* days immediately preceding the hemorrhage was 16.6 gm. During the *two* days immediately following the hemorrhage, 20.2 gm. were eliminated each day. The average for the first *three* days after the hemorrhage was 19.9 gm.; for *five* days it was 18.9 gm. From the *sixth* to *ninth* days, inclusive, after the bleeding, the average nitrogen excretion in the urine was 16.1 gm.—less than before the loss of blood. The urinary volumes and solids were increased after bleeding. These results indicate decided, though only temporary, stimulation of proteid katabolism.

From the results of some control experiments, Bauer concluded that the surgical procedure accompanying the bleedings had no appreciable effect in this connection.

In his second experiment, on a *fasting* dog, essentially the same results were obtained. *Three* days before a loss of blood equal to 1.3% of body-weight, the daily average amount of nitrogen in the urine was 3.27 gm. The average quantity for *three* days after hemorrhage was 4.75 gm. On the *fourth* day after hemorrhage a second bleeding was made. This was equal to nearly 3% of body-weight and raised the average urinary nitrogen excretion for the *four* succeeding days to 5.05 gm. Although the dog did not receive any water during the periods recorded above, hemorrhage caused an increased flow of urine and an increased elimination of urinary solids.

Bauer concluded that external hemorrhage temporarily increases proteid katabolism and that the effect is relatively greater in fasting animals than in well-nourished ones.

Next in importance to Bauer's results were the observations and conclusions of Jürgensen. The latter investigator worked with fasting dogs varying in weight from 3.3 kilos to 11.4 kilos. After 72 hours of fasting, blood was taken. The urines collected during the 24 hours preceding hemorrhage and during the 24 hours following it were directly compared, the urine having been obtained with a catheter. Hemorrhage of 0.6% of body-weight was followed by a slight *decrease* of urea elimination. Losses of blood equivalent to from 1.2% to 3.4% were found to *increase* the quantity of urea in the urine. Thus in an experiment to show the effect of a 1.2% hemorrhage, the urea in the 24 hours' urine before bleeding was 4.8 gm.; in the 24 hours' urine after hemorrhage it was 6.1 gm. Before a 3.4% hemorrhage the quantity of urea in the urine of 24 hours was 2.5 gm.; after bleeding the amount for the same length of time rose to 5.6 gm.

Bauer had found that a second loss of blood from a fasting dog failed to show a cumulative effect. Jürgensen came to practically the same conclusion in two experiments on fasting dogs. The increase of urea in the urine was less after the second hemorrhage (1.1%) than after the first (1.5%), although both amounts of urea were above normal. The same was found to be true of the excretion of phosphate in one experiment. In another experiment, however, the amount of phosphate after the *second* hemorrhage was subnormal. The relative variation in urinary volume ran parallel with the fluctuations in phosphate excretion.

The results of Jürgensen's experiments on dogs in nitrogenous equilibrium coincide in the main with those of Bauer's. The urinary volumes were raised, as in Bauer's experiments. Jürgensen likewise found that the surgical operations attending the hemorrhage were without appreciable influence on metabolic events.

The views of Bauer and Jürgensen were dependent upon experiments on dogs. Von Noorden was among the first to doubt their validity and their value, therefore, in interpreting posthemorrhagic effects in man. Von Noorden's doubts were caused by opposite results obtained in experiments on *unhealthy* people in various anemic conditions. But von Noorden's experimental results, and those obtained by a large number of other investigators in similar experiments, are open to the general objection that they were the outcome of rather crude chemic experimentation on *abnormal* subjects, and that, therefore, they offer no more reliable data than the previous experiments on the lower mammalia.

Arcoli and Draghi recently joined those who consider that acute primary anemia is characterized by decreased rather than increased proteid katabolism. They carried out five experiments on *diseased* people. From 200 cc. to 500 cc. of blood was drawn in each case. In one experiment proteid katabolism appeared to be *increased* after bleeding, in three it seemed to be *decreased*, in one there was *no appreciable effect.* From these discordant results they conclude that Bauer and Jürgensen were in error, but Ascoli and Draghi made the mistake of laying stress upon results obtained not only with people who were abnormal to begin with, but also during periods that were entirely too short for accurate observation.

Ascoli and Draghi conclude that possibly the results obtained by them in the experiments referred to were different from those of Bauer's and Jürgensen's experiments because the subjects in the latter were dogs.

They accordingly studied this question in experiments on dogs also. In their first experiment, carried out on a plan similar to the one adopted by Bauer and Jürgensen, they concluded that hemorrhage had no influence, but the irregular feeding conditions which prevailed did not warrant such a deduction. They regarded the results of their second experiment as being negative, although their *tabulated* data suggest slightly increased katabolism.

In spite of the lack of conclusiveness in their results, the general deduction of Ascoli and Draghi in this connection was that posthemorrhagic changes in proteid metabolism are essentially the same in man and dogs, and that differences between their results and those obtained by Bauer, Jürgensen, and others, are not due to the differences in the species of the subjects under observation.

The general impression one receives on reading the papers by the above named and other authors is that in few if any of the experiments were the conditions favorable for showing exactly the metabolic changes under investigation. The periods were usually far too short. In a number of cases there was no knowledge of the amount and composition of the food; in others there was no regularity in its character or ingestion, or in the quantities of water allowed the subject. In some the analytic methods were crudely applied or poorly selected. Most of the deductions are drawn only from urinary analyses, chiefly from urea determinations, by methods long since superseded by more accurate ones. The feces were usually ignored. In the experiments on diseased people there was little or no knowledge of the influence of the pathologic condition itself before and after hemorrhage, to say nothing of very uncertain factors in other connections.

The need of more definite information on this subject is very obvious. The desirability of more careful experimental inquiry has been so clear also, that our own work, so far as we have been able to carry it, has been conducted with more than the usual attention to matters of mechanical and chemic detail.

THE AUTHOR'S EXPERIMENTS.

Our experiments were carried out on dogs. These were confined in cages suitable for the collection and separation, not only of urine but also of feces, and even of cast-off hair and dandruff. As our work thus far has been concerned chiefly with *proteid* metabolism, respiratory products were not retained. The food consisted of prepared hashed meat, cracker meal, lard, bone ash, and water. This mixture was given daily in uniform quantities of constant composition, and at regular intervals. Each dog was brought into nitrogenous equilibrium at the beginning of each experiment, and after remaining in this condition a week or more, was subjected to repeated hemorrhages at intervals of one to three weeks. The quantities of blood withdrawn were usually 3% to 3.5% of body-weight. Blood was always taken from the femoral artery or a branch of it while the animal was in light ether anesthesia. The influence of the surgical procedure and of the anesthesia was carefully controlled in each experiment. One experiment was continued for 85 days, during which time the animal was subjected to five bleedings, the last of which proved fatal. The total amount of blood withdrawn in the four nonfatal bleedings of that experiment was equal to 11.5% of body-weight (1,954 gm. from a dog weighing originally 17 kilos). Nitrogen, sulfur, and phosphorus were determined, by the best methods, not only in the food, but also in the urine, feces, cast-off hair, and dandruff.

The following general conclusions were drawn from many concordant results:

In well-nourished animals, in weight and nitrogen equilibrium, and fed continuously on a diet of constant composition, there was a temporarily increased output of nitrogenous and sulfur-containing products in the urine, and a variable effect on the elimination of phosphorized substances, although mainly a decreased excretion of the latter. Proteid katabolism was somewhat stimulated therefore. (See Tables I and II.) Total solids in the urine were increased with the nitrogen and sulfur katabolism. These effects were relatively slight after one bleeding of moderate amount, but became

TABLE I.—SUMMARY OF NITROGEN TOTALS FOR DAYS IMMEDIATELY PRECEDING AND FOLLOWING THE BEGINNING OF EACH PERIOD (FIRST EXPERIMENT).

Periods					Nitrogen[1]			
No.	Days	Conditions	Fractions—numbers of days		Total.		Balance	
			Beginning	End	Ingested	Excreted	Total	Daily av'r'ge
I.	1-12	Normal	....	8-12	gm. 51.36	gm. 50.15	gm. +1.21	gm. +0.25
II.	13-28	Anesthesia, operation, and first hem'rrhage (2.93%.)	13-17	....	51.36	56.39	—5.03	—1.01
			....	24-28	51.36	52.17	—0.81	—0.16
III.	29-38	Anesthesia, alone.	29-32	....	41.08	37.98	+3.10	+0.78
			....	35-38	41.08	40 45	+0.63	+0.16
IV.	39-51	Anesthesia, and operation combined.	39-43	....	51.36	54.39	—3.03	—0.61
			....	48-51	41.08	41.65	—0.57	—0.14
V.	52-72	Second hemorrhage (3.22%.)	52-58	....	71.90	85.50	—13.60	—1.94
			....	68-72	51.36	52.12	—0.76	—0.15
VI.	73-79	Third hemorrhage (3.51%.)	73-75	....	30.81	35.01	—4.20	—1.40
			....	76-79	41.08	42.14	—1.06	—0.27
VII.	80-83	Fourth hemorrhage (3.26%.)	Entire period		41.08	55 25	—14.17	—3.54

[1] The horizontal lines under nitrogen divide the figures in such a manner as to bring the results at the beginning of a period in immediate contrast with the similar results at the end of the previous period. The pairs of figures separated in this way in each column show at a glance the effects before and after introduction of the new condition.

more marked and lasted longer with repeated losses of blood. Healing of the necessary wounds in the operations, material lapped from these slight wounds, disturbance of circulation in the part fed by the artery from which blood was taken, and associated influences, combined to produce a part, though only a minor share of the observed katabolic effects.

The increased elimination of the katabolic products referred to above occurred only in the urine. (See Table III for a few of our results in this connection.) The amount, consistency, and composition of the feces were apparently unaffected by the hemorrhage. Digestion did not appear to be materially disturbed at any time, even after several severe hemorrhages at short intervals. There was little or no effect on intestinal putrefaction.

TABLE II.—SUMMARY OF ANALYTIC DATA FOR TOTAL SULFUR AND PHOSPHORUS METABOLISM (FIRST EXPERIMENT).

No.	Periods	Sulfur				Phosphorus			
		Total		Balance		Total		Balance	
	Conditions	Ingested	Excreted	Total	Daily average	Ingested	Excreted	Total	Daily average
		gm.	gm.	gm.	gm.	gm	gm.	gm.	gm.
I.	Normal	9.66	8.05	+1.61	+0.135	29.47	28.92	+0.55	+0.045
II.	Anesthesia, operation, and first hemorrhage (2.93%)	12.88	13.27	—0.39	—0.023	39.30	37.36	+1.94	+0.123
III.	Anesthesia alone.	8.44	7.39	+1.05	+0.105	24.57	24.42	+0.15	+0.015
IV.	Anesthesia and operation combined	11.47	11.63	—0.18	—0.014	31.94	29.84	+2.10	+0.163
V.	Second hemorrhage (3.22%)	16.83	20.64	—3.81	—0.180	51.29	50.86	+0.43	+0.022
VI.	Third hemorrhage (3.51%)	4.99	6.59	—1.60	—0.229	16.98	16.53	+0.45	+0.065
VII.	Fourth hemorrhage (3.26%)	2.85	4.24	—1.39	—0.348	9.70	10.43	—0.73	—0.180

TABLE III.—SUMMARY OF ANALYTIC DATA FOR TOTAL NITROGEN IN THE EXCRETIONS (FIRST EXPERIMENT).

Urine and cage-washings	106.67	155.07	91.54	131.25	223.35	72.18	52.27
Feces	7.09	8.96	5.81	7.55	12.32	3.94	2.43
Hair	2.29	3.27	1.75	1.91	3.36	1.01	0 55
Total	116.05	167.30	99.10	140.71	239.03	77.13	55.25

AVERAGE DAILY NITROGEN IN THE EXCRETIONS.

Urine and cage-washings	8.89	9.69	9.15	10.09	10.63	10.32	13.06
Feces	0.59	0.56	0.58	0.58	0.59	0.56	0.61
Hair	0.19	0.20	0.18	0.15	0.16	0.14	0.14
Total	9.67	10.45	9.91	10.82	11.38	11.02	13.81

The average daily nitrogen of the food was 10.27 grams in each period.

Body-weight steadily declined on the original equilibrium diet after each bleeding. When the animal was allowed to eat freely, however, hemorrhages were followed by gradually increased weight. Moderate loss of blood markedly increased the appetite and caused thirst, even during periods when the animal was receiving an excess of food. Excessive losses of blood had temporarily an opposite effect.

Volume of the urine and its specific gravity fell at first after hemorrhage, then rose far above the average for several days, returning shortly to the normal quantity. With each succeeding hemorrhage the low volume for the first 24 hours was slightly increased, but the cumulative rise after the first 24 hours became more decided and was longer continued. (See Table IV.) Hemorrhage caused an immediate stoppage of the *formation* of urine, a subsequent retardation of flow lasting a few hours, and finally a decided stimulation. On returning the blood (defibrinated), urine immediately began to form, and flowed under specially stimulating influences. Hemorrhage inhibited the hypersecretion of saliva during the periods of ether anesthesia connected with the surgical procedures.

TABLE IV.—TOTAL URINE VOLUMES ON THE OPENING DAYS OF THE PERIODS (FIRST EXPERIMENT).

Conditions	Period	Volume of urine			
	No.	First day	Second day	Third day	Fourth day
		cc.	cc.	cc.	cc.
First hemorrhage[1]	II.	377	556	501	370
Second hemorrhage	V.	428	590	579	620
Third hemorrhage	VI.	460	475	624	394
Fourth hemorrhage	VII.	463	518	770	464
Anesthesia alone.	III.	654	495	467	388
Anesthesia and operation	IV.	754	572	330	520

The urine was always decidedly acid in reaction before hemorrhage; slightly amphoteric occasionally. *After* hemorrhage, however, it was *strongly* amphoteric for several days. The only observed abnormality of the urines was a transient glycosuria. This appeared to be due solely to the anesthetic administered at the time of the surgical operation.

Effects on respiration, heart-beat, blood-pressure, and on the qualities of the blood, such as number of erythrocytes, leukocytosis, and clotting tendency, were essentially the same as those repeatedly observed by others. After successive hemorrhages the percentage of proteid and nitrogenous products in the blood gradually fell; that of phosphorized and sulfur-containing substances, and the ash, remained practically stationary. Specific gravity fell and water-content rose in each successive sample of blood, even when they were taken at wide intervals.

[Light ether anesthesia, such as prevailed during the surgical procedures in these experiments, caused *decreased* elimination of nitrogen and sulfur, but *increased* output of phosphorus, chlorid, and total solids in the urine, with no special effect on specific gravity. For about 24 hours after light ether anesthesia, urinary volume was markedly increased. After 24 hours there was a corresponding temporary fall below the average daily volume. (See Table IV.) Ether caused transient glycosuria.]

DISCUSSION OF RESULTS.

Our results seem to indicate that the organism contains more blood at all times normally than is usually needed, and that some of this excess may be lost without particular detriment. ("Luxus blood" of Maragliano). That this excess is in the nature of a reserve supply is indicated, after hemorrhage, by the prompt regeneration of volume, corpuscles, and soluble constituents. During special periods of hard labor and the like, however, the body probably needs all of the oxygen resources of the whole supply of blood.

Each of our metabolism experiments has given results indicating a relatively slight and only temporary increase in nitrogenous elimination after hemorrhage even when large volumes of blood were withdrawn and when the losses of blood occurred at short intervals. The katabolic effects became cumulative with each successive hemorrhage. This result was observed in spite of the fact that in the particular dogs under observation the anesthesia itself appeared to exert an opposite effect. Under the very carefully controlled conditions of these experiments the katabolic effects were less striking, however, than those referred to by Bauer and Jürgensen.

It is hardly necessary to remind the reader that our results in these connections are to be regarded as balances of effects produced by a variety of antagonistic forces. Loss of blood, if considerable, at once affects the higher nerve centers by diminishing the supply of material available for their nutrition. Such a changed condition of these nerve centers naturally disturbs various important chemic and physical functions. Immediately after hemorrhage the blood-making organs, chiefly the bone marrow, are stimulated to exceptional activity. Increased activity of these parts after loss of blood results in unusual production of their normal katabolic products. These waste products soon appear in the urine, just as in the case of other groups of cells when stimulated to perform special labor. [An example of this may be cited in the observations of Riazantseff, among others, that nitrogen-elimination in the urine is increased during "sham" feeding of dogs because of the increased secretory activity of the digestive glands resulting therefrom.] Old erythrocytes disintegrate more quickly at first, but new ones are rapidly produced until the normal number is restored. New hemoglobin is made. Fluid from the tissue spaces and leukocytes from the lymphatic tissues rapidly enter the bloodvessels until the volume is again normal and the colorless cells far exceed those usually present. The thirst and increased appetite of the animal under such circumstances show how much the organism needs new material for constructive purposes. Circulating and organized protoplasmic substances have been lost or decomposed. The supply of each kind is gradually renewed. Anabolism and katabolism are apparently increased in some parts of the body and decreased in others, in response to the sudden call for a new supply of normal constituents. Sugar and other substances are present in the blood above the normal proportions for a while. That metabolism is also unusual in other respects, after hemorrhage, is evidenced by the fact that substances like albumin and lactic acid appear in the urine. In the anabolic tendencies to replace constructive material cellular matter appears to be worked over and a slight amount of nitrogenous and other waste matter is eliminated. All these changes take place on a plane of diminished resources and a small absolute increase of any constituent in the urine after hemorrhage is in fact a relatively large increase under the conditions then prevailing.

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[1] With each succeeding hemorrhage the low initial volume rose slightly, but the cumulative increase afterward became more decided and was longer continued. The same was true of the effect of anesthesia.

The more rapid influx of lymph into the blood after hemorrhage may have something to do with the katabolic effects we have noted. That such abstraction of fluid from the tissue spaces does occur after hemorrhage has been shown repeatedly in various studies of blood-regeneration. Immediately after hemorrhage the currents of diffusion from the tissue spaces are increased in speed and volume, specific gravity of the blood falls and waste products, such as ammonia compounds, creatin, purin bases and the like, may appear for a time in the blood in larger *proportion* than under normal circumstances, and may be excreted in the urine as a result of such quantitative abnormality. This appears to be true, also, of even the water of the blood.

In this connection, also, we are reminded of other influences upon nitrogenous excretion of increased elimination of fluid from the tissue spaces. The results obtained by Landauer and by Straub lead to the conclusion that the immediate withdrawal of fluid from the tissues after hemorrhage, to replace the volume of the blood, serves in itself to stimulate somewhat proteid katabolism, beside "washing out" the katabolic products already in and about the cells. The feeding conditions of our experiments were, however, against a striking effect in this direction, for more than enough water to replace the losses was received shortly after hemorrhage.

We observed that after hemorrhage, urinary volume was at first diminished, then increased, and that after a few days it fell to approximately the normal again. The increase in nitrogenous elimination accompained the increase in volume of urine. The condition of the animal shortly after hemorrhage is similar in many respects to that after fasting. It is not improbable, therefore, that the quantity of water given uniformly in each period of the experiments was, for a time after each hemorrhage, actually in excess of the amount the animal could at once make use of. This seems to have been indicated by a steady increase in the average daily volume of urine in each hemorrhage period, as body-weight and plane of equilibrium fell. Consequently part of the observed cumulative increase in excreted nitrogenous compounds after each hemorrhage may have been due to the action of such relatively increasing excesses of water in the food.

It is not improbable that during the first few hours after a hemorrhage there may be subnormal metabolism followed by a greatly stimulated metabolism. The fall in blood-pressure and in temperature immediately after hemorrhage, and the rapid return to the normal, with even a higher temperature than usual, and a somewhat greater consumption of oxygen, facts observed by various investigators, tend to support such a view. That moderate hemorrhage has a stimulating influence has been asserted recently by Robin after many years' observation of the effects of blood-letting on man. But that the effects of even a "moderate" hemorrhage are *at first* somewhat depressant has also been frequently observed.

In all probability, as Jürgensen and others have stated, the increase of eliminated nitrogen is relatively much greater after hemorrhage in fasting animals than in well-nourished ones. In the latter, each new supply of food aids the cells in the increased anabolic changes at once set up after the bleeding. In the former instance the cells themselves must furnish much of the new material needed to restore the blood and keep its composition constant, and after such enforced and unusual intracellular modifications, the waste of material is probably greater than when extracellular sources are chiefly drawn upon in the usual manner. It is probable, as we have already suggested, that immediately after hemorrhage the animal, even if previously well nourished, is in a condition similar to that of the fasting animal, and that, in spite of its immediate requirements, a large part of the proteid nitrogen of the food (if the dog had been previously in equilibrium) may be quickly eliminated before all the needs are supplied. In our experiments it is possible that the diet, which was just sufficient to maintain equilibrium before hemorrhage, was more than enough to do so just after the loss of blood, and that it remained so until equilibrium was established on a lower level of body-weight, etc. The steady increase in daily average volume of water eliminated by the kidneys lends support to such a conclusion. Under such conditions the temporary excesses of proteid in the diet would themselves stimulate katabolic processes.

The work of Bauer, Voit and Rauber, Pembrey and Gürber, and others, makes it probable that there was little, if any, interference with general oxidation after hemorrhage in these experiments, and that our results are not to be viewed from the standpoint of particularly abnormal internal respiration. Stimulated heart action and quickened lymph currents after moderate hemorrhage result in maintaining the normal gaseous exchange. We are unable to accept Fränkel's deduction, that oxidation after moderate hemorrhage is necessarily greatly reduced for some time, nor to attribute to such assumed reduction, as he does, a posthemorrhagic increase in proteid katabolic products in the urine. That total muscular power is lessened immediately after hemorrhage stands to reason and has been shown by Jürgensen and others, but there is as much evidence of quickened gas metabolism in the *resting* animal after hemorrhage as the reverse—observations in harmony with the fact that oxidation occurs almost entirely in the tissues and only slightly in the blood itself. That oxidation was at first lessened somewhat in the limb operated on was, of course, always the case, especially when the blood was drawn from the femoral artery itself, and its main trunk permanently closed. This was shown in the immediate fall of temperature in the leg from which blood was withdrawn. But the normal temperature was soon restored, there was little interference with the use of the limb, and there is no reason to believe that the metabolic effects of this interruption of circulation were appreciable.

The sulfur elimination ran parallel with the nitrogenous as is usually the case when proteid katabolism is increased. But hemorrhage seemed to cause a variable effect on the excretion of phosphorus compounds—mainly a slight decrease. We are inclined to attribute this decrease to the stimulated nuclear anabolism following loss of blood (increased number of leukocytes and production of nucleated red cells), with the consequent retention of phosphorus because of nucleoproteid formation. Possibly in this special utilization of phosphorus in nuclear anabolism, nitrogen and sulfur radicles are broken away from the proteid elements transformed in the process.

It has been stated by several writers that acute anemia interferes decidedly with digestion, and Jürgensen quotes Ranke to the effect that the flow of bile is markedly diminished after loss of blood. Manassein stated that after hemorrhage the gastric glands secreted less acid than normally and also a less active juice. Recently it was observed by London and Sokolow that loss of blood effects a decided inhibition of the total secretion of gastric juice. This decided effect was noted by them even when the ordinary stimuli were in operation, and for periods as long as six hours after the beginning of acute anemia. The character and amount of the feces, the apparent relish with which the food was eaten after each hemorrhage, and the entire lack of vomiting indicate that in these experiments there was no appreciable effect on the process of digestion as a whole.

In these experiments the wounds connected with the hemorrhages were not bandaged. The animals were permitted to lick them. Although a small amount of proteid matter was carried in this way from the wound to the stomach, and there digested, no appreciable effect could have been exerted by such a trifling variation. The increase of eliminated nitrogen was always highest immediately after the operation. By the time the lips of the wounds parted, and the dogs could lap the little exudate then forming, the nitrogen balance was restored.

Bauer and Jürgensen both state that the surgical procedure in their experiments had no observable metabolic effects. Our own data indicate that the operation or the healing process or some associated factor connected with each hemorrhage had an appreciable, though only slight stimulating influence on the output of katabolic products. The wounds were always small and superficial, healing rapidly with only slight inflammation and scarcely any exudation. The attendant leukocytosis may have been a contributing katabolic as well as anabolic factor. But by the time the healing process might have been supposed to exert *special* influence on metabolism, the observed posthemorrhagic effects had practically worn off and the dog was again in equilibrium.

What effect was exerted by interference with local circulation (resulting from ligature of the bloodvessels) we did not determine directly. The ease with which the animals always used their limbs (to which fact we have already alluded), even when each femoral artery had been ligatured, suggests that, even if interfered with to a certain extent at first, metabolism must shortly have been essentially the same in the affected limbs, because of sufficient collateral circulation to maintain approximately normal conditions of oxidation, lymph flow, etc.

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TWO CASES OF VINCENT'S ANGINA, AND ONE OF NOMA, IN WHICH THE ORGANISMS CHARACTERISTIC OF THE FORMER AFFECTION WERE FOUND.

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In certain anginas of an ulcerative type Vincent[1] observed spirilla and fusiform bacilli associated. In every one of 30 cases of angina and stomatitis, Bernheim[2] found these organisms, and later Vincent,[3] reported 14 other cases. In this communication the latter describes the condition as a diphtheroid angina, characterized by a grayish or whitish pseudomembrane, and accompanied by fever, at times with a pronounced adenitis. This condition may be very easily confounded with true diphtheria. It usually attacks one tonsil, or the neighboring pillars. At the height of the affection the tonsil is covered by a grayish or whitish plaque, is soft in consistency, and easily detached by scraping. The bacillus which causes the affection is 10 to 12 microns in length, thicker in its central portion and thinned at both ends. It does not stain by Gram's method, and is often, though not constantly, associated with a fine spirillum.

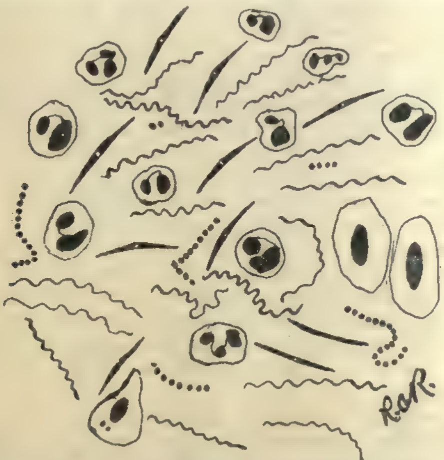
In an article bearing upon this subject, Mayer[4] claims that Tarassiewicz[5] gives the credit of priority to Rauchfus, who presented cases of ulceromembranous angina with sharpened bacilli and spirilla, the photographs of which prove that they are identical with those of Vincent.

According to Vincent and Freyche the affection is termed diphtheroid angina; by Panoff and Marian as chancriform angina; by Bonnus and Degny as ulceromembranous angina and by Athanasiu, ulcerous angina. When the bacillus of Vincent is found, the diphtheria bacillus is generally absent. The areas may occur anywhere in the mouth, upon the tonsils, uvula or even upon the lips.

Hess[6] claims that Vincent's angina is easily recognized by finding, in the most characteristic cases, a symbiosis of a bacillus and a spirillum. On the first day the tonsil shows an easily detachable exudate; on the second, it rests on an elevated surface, while upon the third and fourth days it becomes thicker and softer. In some instances, the membrane becomes detached at its edges, and this is then either coughed up or swallowed. A new membrane forms which disappears in a few days. Moderate fever and glandular enlargement may accompany it. These cases are termed croupous, and only the fusiform bacillus is found. The bacillus (*Bacillus fusiformis*) varies from 6 to 12 microns in length, is pointed at its ends and somewhat bulging at its center. It occurs in bundles, frequently in pairs, as diplobacilli, radiating at an acute angle to one another, or at times irregularly grouped. It forms vacuoles and other degeneration forms, does not generate spores; stains by Gram's method and possesses long flagella, one at each end and two on each side. Pure cultures have not been obtained. The spirillum (*Spirochœtis denticola*) is thin and long; does not stain by Gram's method, and stains faintly with all dyes and has not been cultivated in pure culture. It is generally looked upon as a saprophyte of the buccal cavity but can overcome its saprophytic existence and become pathogenic in the presence of other microorganisms.

A. Gross[7] examined the infiltrated tissues in cases of Vincent's angina, and found the peculiar spindle-shaped bacilli in almost pure culture in the fibrinous layer. Spirilla were also observed. Conrad[8] says that the angina usually affects but one tonsil, is commonly without fever; first stage exudative, second stage ulcerative. Royster[9] reports a case in a colored girl aged 7, stating that the ulcer may occur in any part of the mouth or throat.

In reviewing the bacteriology, Nicolot and Marotte[10] claim, that in superficial lesions the bacillus may be associated with the streptococcus, *B. coli*, *B. diphtheriæ*, etc., but in the deeper lesions only the fusiform bacillus and the spirillum occur. Cultivation and inoculation experiments are generally negative. Fisher[11] reports a case of ulcerative angina and stomatitis associated with the fusiform bacillus and the spirillum of Vincent, and Costa[12] thinks that Vincent's angina is communicable only within very narrow limits, and can be communicated directly from mouth to mouth by pipes, pencils, or penholders. Hallopeau and Apert[13] mention under the heading *B. fusiformis*, the occurrence of this organism in association with the spirillum in cases of ulcerative angina of Vincent. *B. fusiformis* is found in large numbers, is attenuated or thinned at the ends, and stains by Gram's method. The spirillum does not stain by Gram's technic. The lesion cannot be produced by these organisms upon healthy mucous membrane or skin; there must be some preexisting wound, for example, it may occur after tonsillotomy, or through the bleeding gums of scorbutics, or the buccal lesions in syphilitics; it may complicate mercurial stomatitis, or transform a pseudomembrane (due to *B. diphtheriæ* or streptococcus) into an ulceromembranous chancre. The bacillus has not been successfully cultivated, and inoculation into animals has proved negative.



Fusiform bacilli and spirilla observed in Vincent's angina. Few streptococci are also present. The cellular elements are a few squamous epithelial cells and polynuclear leukocytes.

Simonin[14] reports several cases of the affection, one of which was complicated with albuminuria, while Lemoine and Stocklin each cite one, Bernheim and Pospischill four, Abel and Dopter three each, Raoult, Thiry and Rispal each two cases. It is said the number of reported cases is in the neighborhood of 60.

G. Angelici[15] finds in man and lower animals *B. fusiformis* (Vincent-Miller). According to this observer the organism does not grow well upon culture media, unless cocci are added. Acetic acid favorably influences the growth, while sugars inhibit. In various gastric lesions and other morbid processes throughout the alimentary canal, the organism is present. It is claimed that the organism is identical with *B. hostilis* of Seitz.

Vincent,[16] in a later communication, reports 21 cases of ulceromembranous stomatitis, 10 of which were due to the fusiform bacillus and the spirillum, seven to pyogenic bacteria, and four were polymicrobic. In this report he says the fusospirillary stomatitis is characterized by initial fever, grayish fetid exudate, and adenitis. It often appears during the evolution of the teeth in the infant, or of the wisdom teeth in the adult.

Mayer[17] reports a case in a male, aged 23, who had been suffering with sore throat. The right tonsil contained three separate spots of white deposits, irregular in shape, reddened about the edges, easily detached, leaving an ulcerated and bleeding surface underneath. Between the membranous deposits normal tonsillar tissue was present. Two similar deposits existed on the left tonsil. Although the membrane was readily detached (crumbling when touched), it reformed very promptly. A few days later a few spots showed to the left of the uvula, and subsequently all the spots coalesced into a single mass of pearly white color, and there was a line of deposit over the gums of both upper and lower teeth. Examination of tissue removed from the affected area (by Dr. Libman) showed "masses of fusiform bacilli, apparently the same later found in spreads from the affected areas." In the spreads were found numerous bacilli and spirochæte and a few short chains of streptococci. The bacilli varied in length; some were decolorized by the Gram procedure, and others were not. Often clear spaces could be seen in the bacilli, but no spores could be found The most constant arrangement was a diplobacillus.

Inoculations upon various media, exposed to anaerobic as well as aerobic conditions, failed to demonstrate the presence of the organisms, only streptococci making their appearance.

The writer wishes to report three cases, in all of which the associated organisms were very clearly predominant.

The first case occurred in a female, A. M., aged 22, who complained of slight soreness of the throat for three days, attended by pain upon swallowing. On examination, slight swelling and edema of the right tonsil and pillars of the fauces which extended almost to the uvula were noticed. The tissues about the tonsil were dark red. An exudate of a dirty gray color upon the pillars of the fauces and upon several tonsillar crypts, was removed with difficulty and left a bleeding surface. Two days later, the symptoms complained of were disappearing rapidly, and in four days the exudate was almost gone and the patient seemed entirely well. At no time was there a rise of temperature, nor were symptoms present that were systemic in nature.

The second case occurred in a child aged 9 months. A grayish-white adherent membrane upon the gums and posterior fauces was observed, and when removed exposed a bleeding surface. Temperature was 101°. In several days the child was entirely well.

The third case occurred in a child aged 3, suffering from noma, and in whom the whole left cheek was gangrenous. Spreads were made from the margin of the process nearest the mouth.

Spreads made from the affected areas in these three cases contained numerous cellular elements, mostly polymorphonuclear leukocytes, few lymphocytes, together with squamous epithelial cells, and a few shreds of fibrin. As stated before, the spirilla and bacilli were by far the most abundant organisms found. The bacilli seemed to be arranged in pairs, end to end; a clear circular space separating the organisms. These separated ends were more or less sharply cut, while the opposite poles were distinctly pointed. While staining regularly with all dyes, some seemed to stain less readily than others. The spirilla were very delicate and wavy, and decolorized by Gram's method. Several short chains of streptococci were also present.

Inoculations made upon various culture media were negative as regards the spirilla and bacilli; while an abundant growth of *Streptococcus pyogenes* was obtained.

The duration of the affection is variable, some patients recovering in four or five days, while in others the condition may persist for several weeks. The prognosis is generally favorable, although one fatal case is recorded in which there was an ulceromembranous stomatitis, complicated by infectious purpura. In diagnosing the condition, one must be careful not to overlook the fact that mucous patches may resemble the affection, or the process may be engrafted upon a syphilitic one.

From diphtheria the lesion can most readily be differentiated by making spreads from the affected area, which will show the two associated organisms.

It has been claimed by some that the spirilla observed in the condition, naturally and constantly inhabit the buccal cavity. According to my experience, spreads of sputum, or spreads made from the buccal secretion, very rarely contain spirilla resembling those observed in this form of angina. The organisms that are encountered are shorter and thicker and do not contain so many convolutions. It might be mentioned that in a great number of specimens of sputum examined, spirilla were only encountered 12 or 15 times.

In examining the vaginal discharge, both of adults and children suspected of having gonorrhea, in six cases spirilla were observed which very closely resembled those found in Vincent's angina. They were delicate and very wavy, stained faintly and were decolorized by Gram's method. No fusiform bacilli, however, were encountered.

There seems to be no doubt that the disease here reported upon, Vincent's angina, is a distinct, clinical and pathologic entity, and due to infection by the symbiotic fusiform bacillus and spirillum of Vincent. That it is not more often described and diagnosed seems to be due to the fact that only inoculations upon culture media, and no spreads from the affected area or areas are made. On account of the organisms not being obtainable in pure culture, and that other bacterial flora of the mouth may rapidly overgrow the bacteria in question, spreads should always be made, as well as inoculations, upon culture media.

For the history of the first case reported I am indebted to Dr. Duhigg, ex-Resident Physician at the Philadelphia General Hospital; for the second and third, to Dr. Fred. C. Johnson, Assistant Chief Resident Physician, Philadelphia General Hospital.

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Mosquitos and Disease.—An exchange commenting editorially on this subject says: Lord Cromer, in a report to the British Government, tells how malarial fever has been reduced in Ismailia, on the Suez Canal. In 1902 there were 2,105 cases and in 1903 only 213 cases. Steps were taken to prevent the accumulation of stagnant water, and thus to get rid of mosquitos. The result is shown in the records of the disease. Life was made much more agreeable, while disease was greatly lessened. Even if there were no mosquitos the draining of stagnant pools would be of great benefit. It should be the imperative duty of the authorities in every village, town and city to see that all stagnant pools are drained at the expense of the owners of the property, where such pools exist on private land and at the public expense in other cases. Not enough attention is paid to such matters. It concerns the public health, and, like vaccination, should be made compulsory. Thousands of lives have been sacrificed in this State by smallpox simply because vaccination is not compulsory, as is the case in New York and in other States, where the disease causes little trouble.

PRIMARY ULCERATION OF THE TONSIL, TOGETHER WITH SOME REMARKS ON TONSILLAR ULCERATION IN GENERAL.[1]

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Our fellow-member and ex-president, Dr. Charles H. Knight, in his recent textbook on "Diseases of the Nose and Throat," remarks: "It must have fallen to the lot of every practitioner of wide experience, to be puzzled by a form of sore throat resembling diphtheria, but free from violent constitutional disturbance. A true ulceration goes on involving a limited area or all the tonsil, either superficial or deep."

It is because of the puzzling character of this tonsillar affection, together with its infrequency and the question of differential diagnosis suggested, that I presume to raise once more the oft-discussed subject of tonsil disease. It is safe to say, that no single area of the upper respiratory tract has received half the consideration from clinician and specialist alike as the faucial tonsil. The literature on its anatomy, physiology, pathology, and treatment is wellnigh illimitable, and yet, because of its importance it will continue to receive the attention of our best observers for years to come. Curious enough, amid all this mass of recorded observations, little or nothing is to be found until very recently concerning primary ulceration of the tonsil. Vincent, 1898; Raoult and Thiry, 1898 and 1900; Mayer, 1902; and Conrad, 1903, are among the few contributors to one or another phase of the subject. Moure was, in 1897 (so far as we know), the first to treat it comprehensively. This was followed by the classic and very complete article of Brindel and Raoult in 1900, which we have not hesitated to consult and use freely.

Primary ulceration of the tonsil may be defined as including all forms of tonsillar ulceration in which the ulcerative process has its origin in the tonsil and represents the entire cycle of the disease. It should be distinguished from the secondary ulcerations in which the ulcer develops in the course of some general disease, such as typhoid, diphtheria, etc. Primary ulcerations of the tonsil are of several different causes and varieties as regards their mode of development and natural history. Of greatest interest and probably of most frequent occurrence is:

Membrano-ulcerative Tonsillitis—the Socalled Angina of Vincent.—In 1897 Vincent reported his first case and since then numerous observers have confirmed his results. In brief, the clinical picture is as follows: An otherwise healthy young adult presents himself complaining of slight discomfort in the throat. There is a slight elevation of temperature, a coated tongue, some dryness in the throat, moderate dysphagia, loss of appetite, etc. At times any or all of these symptoms may be lacking. One tonsil alone is usually involved, occasionally both. On the side of the affected tonsil there is a moderate degree of adenopathy. Examination of the tonsil at the beginning of the disease reveals a grayish-white membrane resembling diphtheria. This discrete membrane is surrounded by a red zone of infiltration. Any attempt at removal causes bleeding with reformation the next day. The membrane gradually extends over the entire tonsil, which shares in the inflammatory process, becoming much swollen. This stage of membrane is followed in a short time (one to three days) by the second or ulcerative stage. The ulcer at times has a flat appearance, with a hardened base. The edges often slope in as a crater. After cleansing the surface an eroded area is seen covered "with blood points as if in a sieve." The cause of the disease has been usually ascribed to an unhealthy condition of the mouth and teeth, as well as occasionally to cold.

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[1] Read at the annual meeting of the American Laryngological Association, held at Atlantic City, June 2-4, 1904.

As an exciting cause Vincent discovered in the smear from the tonsil two forms of bacteria—one or both are constantly present and are characteristic of the disease.

(*a*) The fusiform or rod-shaped bacillus. This is from 10 millimeters to 12 millimeters long and 0.5 millimeters broad, thickened in the center and narrowed at the ends—thus resembling a spindle. At times it is short and comma like. This form is most numerous at the beginning of the disease and may not be found if sought for at an advanced stage. There are often several forms observed in one field, varying from the straight to those sickle-shaped or even of an obtuse angle. Vincent recommends for staining them, thionem and carbol fuchsin.

(*b*) The second microbe is a spirillum. It has a wide curve and is hard to stain. Gentian-violet seems to act most satisfactorily. Pure cultures have never been obtained.

The chief interest in the disease rests in the differential diagnosis from diphtheria and syphilis. While clinically it may prove difficult, the microscope will remove all doubt. It is not too much to say that in the past many such a case has been misunderstood, and the patient treated for one or the other of these diseases. In the case of diphtheria the error can do no harm. A false diagnosis of syphilis, however, may be capable of serious harm to the patient.

The disease in question has a definite course, terminating of itself in a few days with no sequels. The ulcer heals, the glandular involvment subsides, and in the course of a week, under some simple application, the patient is ready to be discharged. If now he has been told he has a grave blood disorder and is placed on specific treatment, the throat trouble, it is true, disappears, but both patient and physician will be the subject of much needless anxiety and doubt, which possibly never can be fully cleared up.

The following case, seen by me last summer, illustrates the disease under discussion:

CASE I.—Annie G., aged 7, was brought on July 31 to the Manhattan Eye, Ear, and Throat Hospital. The child complained of pain in swallowing, on the left side of the throat. This had existed several days. There was no evidence of severe prostration. Temperature 101.6°. On examination the left tonsil showed no membrane, but a superficial ulcer in its upper portion, extending from one pillar to the other. On the affected side there was considerable glandular swelling and induration. The bacteriologic examination showed numerous fusiform bacilli. The course of the disease was uneventful and recovery took place in a few days.

Acute Lacunar Ulcerative Tonsillitis.—Not all cases of ulceration of the tonsil, with or without membrane, will reveal these characteristic bacilli discovered by Vincent. Among other conditions which may produce them is that which Moure, in 1897, described as acute lacunar ulcerative tonsillitis. This has been well defined by Brindel and Raoult as "an ulcerative inflammation, benign and isolated, producing in the acute stage a latent encysted lacunar tonsillitis and resulting in destruction of more or less of the tonsil." The clinical picture presents three stages: (1) The preulcerative; (2) ulcerative; (3) cicatricial.

It seems to occur most frequently in young subjects suffering from enlarged tonsils. The etiologic factors are the same as those for Vincent's angina—an unhealthy condition of the mouth and throat undoubtedly serving as a predisposing cause—as well as reduced general health. The symptoms lack anything characteristic—nor are they wont to be pronounced; rather discomfort referred to the throat than any real suffering. There is usually little or no fever, no adenopathy. Examination of the throat shows on the affected tonsil, a smooth, rounded elevation, surrounded by a zone of inflammation—the rest of the gland is to all appearances normal.

This preulcerative stage must be seen early in order to be recognized. Soon this elevation breaks down and the stage of ulceration is reached. It is interesting to note that with the ulcer comes no increase of the symptoms. It is equally true that while adenopathy ordinarily is not present, it does occasionally occur, as in Case II, to be reported below. The ulcer is round or oval, variable in size, and at times is multiple. It is covered with a brownish detritus. In three or four days it can invade the entire tonsil, but never passes this limit.

The cicatricial stage comes on gently. No specific microbe has as yet been discovered. A great variety of bacteria have been found, including at times even the fusiform bacillus. Fourteen cases examined by Brindel bacteriologically established this fact. Wingrave has found streptococci, staphylococci, and slender rods in his cases. The following case belongs to this class:

CASE II.—G. G., aged 28, consulted me August 20, 1903, for a slight soreness on the left side of the throat. This had existed three days. The patient was a healthy subject, with no previous history of sore throat; all specific history was emphatically denied. He had frequently exposed himself, however, to such contagion, so the presence of a possible chancre had to be continually borne in mind. There were at no time any signs of the disease. Examination of the left tonsil revealed a small oval ulcer on its upper inner surface, of moderate depth. There was also a distinct though not marked swelling of the submaxillary glands on the same side. Temperature 99.5°, tongue clean, no headache, slight discomfort in swallowing. A culture for Klebs-Löffler bacillus was negative. A smear showed no fusiform bacillus, but many streptococci. Under the application of chromic acid the ulcer was healed in one week. In this case there was no extension to the limits of the tonsil. The glandular swelling also soon disappeared.

As in the case of Vincent's angina, the chief interest to the clinician lies in the differential diagnosis. Reference has been made to the possibility of confusing it with syphilis. Shurley, in his recent textbook on Diseases of the Nose and Throat, speaks of such a resemblance both to syphilis and tuberculosis. He refers also very properly to other possible causes, especially herpes or trauma. His observations are, however, at variance with most others, in that he states the ulceration may be found elsewhere than on the tonsil; as, for example, on the posterior pharyngeal wall. As has been just stated, the ulcer is usually limited to the tonsil surface; while according to Moure, the appearance of the tonsil area affected is suggestive strikingly of the effect of a thermocauterization; he agrees that the greatest danger is in mistaking it for the ulcerating gumma. Like the ulcer of syphilis, the edges are clean cut. It differs from it in its location on the tonsil—always near the center, while the syphilitic gumma is found near the periphery, soon invading adjacent structures, including the anterior or posterior pillar, pharynx, etc. Moure states, further, he has never seen the disease in children, or in persons over 40. Finally, a possible confusion with the ulcer of the socalled acute lacunar tonsillitis is to be guarded against. Numerous observers, among whom are Moure and D. Braden Kyle, refer to the occasional occurrence of very small ulcers, cup-shaped in character, in the course of a case of lacunar or follicular tonsillitis. I have recently seen such a condition in a case of moderate severity. The ulcer was shallow and of small extent. The development of such ulcers while not common, seems very reasonable, depending on the degree of microbic infection, together with poor resisting power on the part of the patient.

Pseudodiphtheric Ulceration.—A still greater source of anxiety, indeed of positive worry to us all, because of the close resemblance to diphtheria, is that form of ulceration known variously as pseudodiphtheria, false diphtheria, streptococcus diphtheria, or croupous tonsillitis.

Bacteriology and the recognition of the Klebs-Löffler bacillus have done much to remove doubt and to render clear the diagnosis of diphtheria. While certain points in this dread disease remain to be cleared up, authorities are now generally agreed to regard as true diphtheria only such cases as under proper conditions show the specific bacillus discovered by Klebs; 25% to 30% of cases formerly diagnosed as diphtheria were, beyond question, cases of pseudodiptheria. This does not mean for a moment that one is innocent and the other not. Diphtheria may be a trifling affair, soon recovered from; pseudodiphtheria may be very grave. The false membrane may be due to the fusiform bacillus, to the colon bacillus and others, but is, according to Prudden, usually due to streptococcus infection. Pseudodiphtheria may be primary or secondary. The primary form may be benign, with no loss of mucous membrane under the false membrane—occasionally the symptoms are very severe. There is high fever, adenopathy and dysphagia, suggesting a polymicrobic diphtheria. The false membrane is thick, friable, grayish-bloody in appearance, resembles diphtheria, and may involve the pharynx and nasal fossæ. It persists three days. After removal we find irregular ulcers of varying depth. The diagnosis from diphtheria can only be made positive by means of the bacteriologic examination.

The secondary form is most often seen in connection with scarlet fever, occurring at the eruption period. It is of all degrees of severity, varying from the (*a*) benign form, healing in 8 to 10 days, to the (*b*) grave form producing constitutional infection, suppurations, etc., (*c*) and the septic form, causing septicemia and death.

Gangrene of the Tonsil.—Gangrene of the tonsil may very rarely produce a primary ulcer of the tonsil. This may or may not begin with general constitutional symptoms. At times its onset is marked by high fever, involvement of the cervical glands, even cyanosis, profuse salivation, etc. The lesion may be circumscribed or diffuse. When circumscribed a purple spot is seen on the tonsil, which soon turns dark and causes ulceration. The ulcer spreads rapidly, soon eating away all the tonsil.

In the diffuse form many plaques are seen which soon unite to form one large ulcer. This ulcer extends in all directions, larynx, nose, etc., rapidly causing a fatal termination.

Syphilis.—Frequent reference has been made to the great liability of mistaking the various forms just enumerated for syphilis. This concerns chiefly the advanced processes of this disease. The tonsil is, however, not rarely the site of primary chancre, which may be passed over unless looked for. The general enlargement of the tonsil, the constant glandular involvement of the affected side, with the marked degree of induration, should make clear any existing doubts. The ulcer is not wont to be extensive, and is confined to the tonsil.

The appearance of the secondary eruption and ulcerations in the course of the chancre will tend to remove all remaining difficulty.

Tuberculosis.—Primary tuberculous ulcer of the tonsil is extremely rare. In a discussion of this subject recently before the New York Academy of Medicine, only one gentleman could report a single case in his own practice. The appearance of the ulcer is similar to the much more common secondary form. It is liable to be multiple and to involve the tonsillar pillars or pharynx. Beginning in miliary tubercles which soon break down, there develops a small ulcer of irregular shape, serpiginous in character with a congested, enlarged tonsil. The ulcers soon coalesce and extend in all directions, often causing great distress in swallowing.

The particular purpose of this paper is to call attention to the primary forms of tonsillar ulceration. That such forms may be properly recognized, the various and much better known secondary forms must be constantly borne in mind.

We do not purpose to dwell at much length on these, as they have all been written on extensively and are generally well known. Some slight reference is, however, in order. We have defined secondary ulceration as any ulceration developing in the tonsil in the course of any general systemic disease.

Diphtheria.—Ulceration of the tonsil is among the possible manifestations of the more severe forms of diphtheria. The ulcer is not limited to the tonsil as in acute ulcerative lacunar tonsillitis; is wont to invade the anterior and posterior pillars, soft palate, uvula and pharynx. A false membrane covers it, on removal of which an irregularly shaped ulcer of varying depth is seen. In extreme cases the ravages may be so extensive as to include the entire tonsil or tonsils—as deep as the great vessels of the neck. In such cases, a fatal termination is to be expected in a few days.

Typhoid.—As in the case of scarlet fever, all the exanthematous diseases in their severer forms may have ulcerative manifestations in the throat. Typhoid fever, smallpox, typhus, are among the diseases in which occasionally such ulcerations are reported.

The ulcer of typhoid is multiple, round or oval, found at times on the tonsil, but oftener on the palate or pharynx wall. It is 4 mm. to 20 mm. in size, and may be found on both tonsils. There is as a result, intense dysphagia and heightened gravity of the case.

Tuberculosis.—Secondary tuberculosis of the tonsil is, while not very common, much more so than the primary form, the existence of which is even denied by some. The ulcer which results, resembles in all points the primary ulcer previously described. The tonsil, it may be said, is not the only site of the ulceration in the throat. Ulcers in connection with those on the tonsil are wont to be found on the pharynx wall or soft palate.

Lupus.—Closely allied to the tuberculous ulcer is lupus of the tonsil. Primary lupus has never been reported. The secondary lesion, in the shallow, serpiginous character, resembles the tuberculous ulcer. The tonsil when alone involved is liable to be increased in size. There is no adenopathy. The presence of certain areas of cicatrization in the adjacent tissues or of lupus lesions elsewhere on the body will tend to make the diagnosis clear.

Syphilis.—Syphilis in all its varying stages may cause ulceration of the tonsil. Reference has already been made to the chancroid ulcer. The later secondary ulcer is distinguished by being multiple, with clean, regular border and smooth base, of a grayish-red color. Numerous mucous patches are wont to be seen on the tonsil, or on both tonsils, at the same time. An interesting variety reported by the French writers is the "diphtheroid mucous patch," in which the ulcer is covered by false membrane. When numerous, they cause much dysphagia. They are rarely, however, confined to the tonsil. Adenopathy is always present. Gumma of the tonsil is by all observers acknowledged to be exceedingly rare. The ulcerative stage which follows the infiltration and softening is a rapid one. The dimensions of the ulcer are variable. There is a clean cut border, with a red base. The center of the ulcer is filled by white or brownish-white debris, which suggests a false membrane. This gradually sloughs off, leaving a deep cavity which, unchecked, can make fatal extensions.

Tertiary Ulcer.—Much more common than the gumma is the tertiary ulcer. This occurs from the third to the fifth year of the disease. It is to be distinguished from the mucous patch by its late appearance, and from the gumma by the slow course of its development. The nasopharynx, or soft palate, is a more common site than the tonsil. The ulcers are grayish or brownish, with the base covered with a more or less thick and adherent false membrane.

Scrofulosyphilitic Ulcer.—One additional form is rarely met, the socalled scrofulosyphilitic ulcer. During the past year such a case has been under our care and proved most baffling in its treatment. At first blush it suggests an extensive diphtheric deposit, involving not merely tonsil, but pharynx and soft palate. It occurs in the advanced stages of the disease—in our patient five years after the initial lesion. On removal of the false membrane, which quickly reforms, a flat ulcer of serpiginous shape is seen. The mucous membrane surrounding is very red. The ulcer gives surprisingly little discomfort. The general health is always poor. In the case just cited mercury was borne very poorly.

Malignant Disease.—The appearance of the ulcer of epithelioma and sarcoma of the tonsil, coming as it does in the more advanced stage of a chronic disease, is so characteristic as to render any possibility of confusion with the various forms of primary ulcerations unlikely.

In conclusion, we would venture to lay emphasis on the following points brought out in the preceding pages:

1. The great value of a bacteriologic examination in all membranous or ulcerative conditions of the tonsil.

2. The occurrence of several primary forms of ulceration of the tonsil, bacterial in origin, which can be, and doubtless have been, mistaken for the graver conditions due to diphtheria or syphilis.

3. The almost irreparable harm which may result to the patient from a false diagnosis of the latter disease.

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BRAIN INJURY.

1. Loss of one quarter of brain substance with consciousness and ability to talk retained until death. 2. Fracture of the skull with porencephalia.

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The following cases were under my care at the Presbyterian Hospital during the service of Dr. De Forest Willard, and are reported with his kind permission. They are each of a different type, but each presents sufficient peculiarity to make it noteworthy.

The first case, which appeals to me as particularly exceptional and instructive, is as follows:

Case I.—W. G., aged about 30, white, was brought into the hospital by the patrol at 9 a. m., January 21, 1904, with the history that while working on a scaffold at the Belmont filter plant, he fell 20 feet, landing upon his head. On admission he lay apparently unconscious; breathing stertorous, pulse slow and full, and temperature normal. The left side of his face and body were at first partially and later completely paralyzed.[1] Examination revealed an H-shaped fracture of the vault of the skull going down into the base, nose, and right eye. Brains were scattered all over his scalp, and a considerable portion of the brain tissue lying outside was still attached to the brain beneath. It was while removing this brain-tissue and cleaning up the site of the wound that I was astounded to see the man deliberately put his right hand (which was later found to have a Colles' fracture of the radius) into his hip-pocket, pull out a handkerchief, leisurely wipe the blood from his face, and then replace the handkerchief.

This was the first suspicion we had that the man was conscious, and we interrogated him forthwith. He told us his name, address, that he was married, and even asked us not to notify his family of his injury, as he thought he was not badly hurt and he did not want to worry his mother who was sick at home. The whole time he was losing considerable blood and brain-tissue.

As the opening into the cranial cavity was so large that there was no possibility of pressure upon the brain beneath, no operative interference was required. His wound was dressed and his nose tightly packed with gauze, but nevertheless he continued to bleed freely from his nose and mouth. Later his pulse became weak, temperature went up, he became restless, and eventually died the same day at 2 p. m., remaining conscious and talking until about an hour before his death.

Several interesting facts are brought out in this case:

1. In spite of the severity of the injury, the height of the fall, and the evident injury to a large portion of brain-tissue, the patient did not lose consciousness.

2. He retained his mental faculties and reasoning powers, although a large portion of the cortex of the right hemisphere of the brain quite far forward and including the frontal lobe was removed, in addition to a considerable quantity lost at the time of the accident, according to the statements of the officers of the patrol. This was proved by the fact that at first he refused to give his address, but later did so, on being told the seriousness of his injury, and that he answered questions until very shortly before he died.

3. The localization of the speech center is well shown to have been on the left side of his brain, as demonstrated by the fact that his speech was not impaired beyond the physical disability due to paralysis of the facial muscles.

4. The evident absence of pain or sensation in the cerebral matter. This fact, while well known, was very forcibly illustrated in this case, for rarely in the human being does the surgeon have an opportunity to find a subject conscious while he is removing brain tissue.

The following case is one about which there was considerable doubt as to diagnosis. The patient presented a complex set of symptoms which pointed to several conditions, but to none with certainty. The main peculiarity about the case was the strange condition found on reopening the trephine opening on the right side.

Case II.—J. L., aged about 35, white, was brought into the hospital on December 12, 1903, about 6 p.m., with the history of having been thrown from the high seat of a brewery wagon as the result of a collision with a trolley car.

On admission, the patient was unconscious; breathing was stertorous; he had a contusion of the left eye, with periorbital ecchymosis, but no subconjunctival hemorrhage. There was a fracture of the zygomatic process of the malar bone just below the orbit and a lacerated wound external to and above the orbit. The left pupil was dilated and immobile, the right was contracted and responded slightly to light. His left side was apparently paralyzed and limp, although there was slight reflex movement at the knee on tickling the sole of the foot. The right arm was rigid and did not move on irritation. The right leg was rigid and there was ankle and patellar clonus and Babinski reflex. There was no distinct paralysis on either side of the face.

The diagnosis made was fracture of the skull through the base and across the middle, but the paralysis of the left side pointed to a possible right meningeal hemorrhage by contrecoup, and owing to the spastic symptoms of the right side, there was also a possibility of a slightly depressed fracture at the site of injury, not sufficient to cause paralysis, but just enough to irritate the brain. Accordingly, Dr. McReynolds, who saw the patient for Dr. Willard, opened the wound down to the skull to look for fracture, but finding none, sutured the temporal muscle with catgut and the skin with silkwormgut, leaving in a piece of gauze for drainage.

The site of the right meningeal artery was then mapped out, a horseshoe incision was made, base downward, and the skull trephined over the middle meningeal artery. No hemorrhage was found. The dura appeared normal but there was no pulsation of the brain. A needle thrust into the dura allowed the escape of a little straw colored fluid but no blood. As nothing appeared to warrant further investigation, drainage was introduced, the temporal muscle sutured with catgut, the skin with silkwormgut and the patient returned to his bed. The patient required no ether, resisted but little and stood the operation quite well. It seems to have borne out the original diagnosis of fracture of the base of the skull.

The following ward notes will show the further progress and termination of the case:

December 14.—Patient still living and improving. He is moving his left leg and hand quite well now, his movements are more coordinated and he resists when stuck with a pin. His pupils are regaining the power of reaction especially the left one. Nevertheless, he is still unconscious, his breathing is still stertorous and he can be fed by enemas only.

December 15.—Patient apparently continues to improve. His pupils are reacting fairly well although still unequal. He made a motion to stroke his face today. His temperature is a little increased but otherwise there is no change.

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[1] There is a possibility of error in making the original notes, so that probably the right side of his face and the left side of his body were the parts that were paralyzed.

December 17.—Patient started to mutter today, used both hands, and later became restless and began to talk in a rambling manner. He is taking his nourishment by mouth His temperature is between 97° and 99.6°.

December 18.—Patient a little more stupid, otherwise condition the same.

December 19.—Last night the patient's temperature and respirations began to rise. Temperature was 104°, and respirations 40 at midnight, and he became stupid. He moved his hand this morning, but not since. There is considerable congestion of both lungs, but no consolidation.

The patient was seen by Dr. Willard, who decided to operate and search for pus. Accordingly he reopened the trephine opening on the right side and made an incision into the dura. As soon as he did this a couple of ounces of straw-colored, clear, odorless fluid spurted out in a stream about two inches in height, as if it had been retained under considerable pressure. No pus was found, nor were there any brains visible, but instead there was a cavity two or three inches in diameter, as determined by the introduction of the finger. The wound was packed with gauze, and the incision on the other side reopened. The skull was trephined, but there was no pus or hemorrhage found to cause any trouble. The pulsation of the brain was plainly visible on this side, and there was no accumulation of fluid. It was packed and the wound closed. The patient sank rapidly, and died at 5 p.m.

The point to which I would particularly like to direct attention is the absence of cerebral substance, in place of which was found a localized accumulation of fluid, on opening the dura on the right side. It appears to me improbable that this condition was resultant upon the accident, but I think it was rather a condition of old porencephalia accidentally encountered. Little of the man's previous history is known except that he was a very heavy drinker. Owing to inability to obtain permission for an autopsy, this case will have to be filed away with hundreds of other valuable cases, unexplained, and the medical profession will continue to miss much instructive information, until it succeeds in educating the public and eradicating the old time prejudice against autopsies.

Car for Doctors on South African Railroad.—There has just been constructed at Preston, England, for the exclusive use of the medical officer of the Rhodesia Railway, in Africa, a unique car, which provides for comfortable accommodation by day and night, and suitably arranged for the climatic conditions of South Africa. Each window opening provides for a glass frame, a louvre frame and a gauze dust-proof frame, each of these acting independently in separate runs. The glass frame is provided with spring sash balances, and the louvre and gauze frames furnished with springs and lifts. The independent gauze frame is entirely an innovation, and one which is absolutely essential, if comfort is to be considered, owing to the sand and dust storms so prevalent in South Africa. The body of the carriage is divided into four compartments—namely, living room, surgery, lavatory and kitchen, with a balcony at one end for the cook's use. The living room is fitted up complete with a woven rattan spring couch, two revolving armchairs, flap tables, wardrobe with mirror front, writing desk with cupboards and drawers, and two basket racks over side windows. The surgery table is fitted up with hooks and rings in the roof, and also with a guard's valve to the vacuum brake. The kitchen is fitted with an open and closed coal stove, having two ovens and water boiler complete.

Mental Degeneration.—There are 113,964 persons of unsound mind in England and Wales. Doctor Forbes Winslow draws attention to this fact in a short essay in the London *Weekly Dispatch*. He suggests the following rules for checking the development of mental degeneration: 1. Those who have been insane once should not be allowed to marry. 2. Immediate legislation for compulsory confinement of habitual drunkards, who are the greatest propagators of lunatics and degenerates, and who should therefore be legally restrained from inflicting their own vice on other human beings. 3. Prohibition of marriage by habitual drunkards. 4. To make it illegal for marriage where hereditary insanity exists on both sides. 5. Paralytics, epileptics, the tuberculous, and those affected with cancer should not be allowed to marry. 6. To be careful in the administration of alcohol to women, as this very often makes the offspring a drunkard or a lunatic. 7. General reformation of the marriage system, with certain health requirements. 8. Restriction of the liquor trade. 9. The establishment of half-way houses so to speak, where those suffering from acute but curable insanity could be placed, instead of being incarcerated in lunatic asylums. 10. All children born of nervous or neurotic parents should be removed from their influence as soon as possible, and from all their home associations.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 16, 1904. [Vol. XLIII, No. 3.]

1. The Surgeon's Heritage: Chairman's Address before the Section on Surgery and Anatomy. CHAS. A. POWERS.
2. Will the Long-continued Administration of Digitalis Induce Cardiac Hypertrophy? FRANK B. WYNN.
3. Pernicious Anemia and Its Relation to Gastric Digestion, Based on Twenty-five Cases. CHARLES G. STOCKTON.
4. Falling of the Hair. R. A. MCDONALD.
5. Radium and Its Therapeutic Possibilities. WM. ALLEN PUSEY.
6. Acne Keratosa. WM. S. GOTTHEIL.
7. Mesenteric Embolism and Thrombosis: A Study of 214 Cases. (Concluded.) JAMES MARSH JACKSON, CHARLES ALLEN PORTER and WM. CARTER QUINBY.
8. Does Gonorrhea Cause Prostatic Hypertrophy? EDW. L. KEYES, JR.
9. An Analysis of 1,000 Consecutive Celiotomies for Diseased Conditions in the Female Pelvis: A Preliminary Report. J. CLARENCE WEBSTER.
10. Median Perineal Prostatectomy. GEORGE GOODFELLOW.

1.—See *American Medicine*, Vol. VII, No. 24, p. 922.

2.—See *American Medicine*, Vol. VII, No. 24, p. 926.

3.—See *American Medicine*, Vol. VII, No. 24, p. 921.

4.—See *American Medicine*, Vol. VII, No. 24, p. 928.

5.—See *American Medicine*, Vol. VII, No. 24, p. 929.

6.—See *American Medicine*, Vol. VII, No. 24, p. 976.

7.—Mesenteric Embolism and Thrombosis.—J. M. Jackson, C. A. Porter, and W. C. Quinby present a study of 214 cases, giving in detail 30 new to literature. The results of such blood stoppage are neurosis, gangrene, hemorrhagic infarction, abscess formation. Closure of vessels does not, as a rule, develop a collateral circulation. The writers discuss the various theories explaining this. The clinical picture from closure of veins and arteries is nearly identical. The causes are endocarditis, arteriosclerosis (sometimes limited to the mesenteric arteries), multiple neuritis, conditions compelling stasis in the portal circulation, penetration of bacteria into the vessels, etc. Cases are acute and chronic, the first the most numerous by far. In these there is sudden onset of abdominal pain followed by nausea, vomiting (often bloody), diarrhea (also often bloody); or there is obstinate intestinal obstruction of the paralytic type. In chronic forms the onset is insidious, symptoms sometimes remitting and sometimes there is none referable to the abdomen. In three-fifths of the cases the demarcation of the infarcted area was well marked. The area may show simple hyperemia, gangrene, perforation, and there may be local or general peritonitis. There is usually free fluid. Pain is due to intestinal contractions and ileus in some cases to peritonitis. There is leukocytosis with iodophilia. The temperature is usually subnormal, sometimes increased. Sometimes purpuric spots are seen. Diagnosis is extremely difficult. Granting the diagnosis to be correct in all reported cases the mortality is about 94%. No treatment is rational except exploratory laparotomy, and resection, fixing the open ends in the wound, while the intestine is watched for signs of further gangrene. This can be done with 15 to 20 minutes' anesthesia. [H.M.]

8.—Does Gonorrhea Cause Prostatic Hypertrophy?—E. L. Keyes, Jr., discusses the theories of various pathologists particularly that of Ciechanowsky which is not supported by clinical facts. Among 433 cases suffering from prostatic hypertrophy only 18 show clinical evidence of previous prostatitis. These 18 present no marked difference in point of size of the prostate, or of beginning of the disease, to differentiate them from the remaining 415. Comparison of these 18 cases with 54 cases of chronic prostatitis without hypertrophy shows that the proportion of such cases suffering from prostatic hypertrophy varies little from the normal. Prostatitis lasting more than 10 years probably tends to produce atrophy rather than hypertrophy. Therefore if it is true that hypertrophy of the prostate is pathologically referable to inflammation the clinical data suggest that this inflammation is either early gonorrhea of relatively brief duration or some obscure sclerotic process associated with advancing years. The late date at which hypertrophy begins and its infrequency compared with that of early gonorrhea make it seem clinically most improbable that early gonorrhea is the cause. [H.M.]

9.—Celiotomy for Pelvic Disease.—J. C. Webster reports an analysis of 807 abdominal, 190 vaginal, and 3 combined vaginal and abdominal operations. In about 90% of the cases preliminary curetage was performed. In 70% various subsidiary operations were carried out at the same time, such as dilation or amputation of the cervix, colporrhaphy, repair of the perineum, etc. There were 19 deaths, a percentage of 1.9. In 5 patients death resulted from shock or loss of blood; in 2 from pulmonary nonseptic complications, and in 10 patients from septic peritonitis; 5 had septic peritonitis at the time of operation. This reduces the mortality from infection during operation to .5%. Stitch abscesses developed in 6%, the largest percentage occurring with buried chromic gut. In more than 98% the abdominal incision was mesial; in less than 2% it was made vertically through a rectus muscle. Drainage was carried out after vaginal operation in 4% of cases, chiefly those in which removal of the affected adnexa was performed with difficulty, complicated with the escape of pus, regarding whose sterility there was doubt. After abdominal section, drainage through the abdominal incision was employed in about 1.3% of cases, and vaginal drainage in about 6%. In about 90% of abdominal operations normal saline solution was left in the peritoneal cavity. In 5 cases pelvic suppuration following abdominal operation necessitated the removal of pus through the vagina. Only 3 patients have reported the development of hernia in the line of incision, these occurring after suppuration in the parietes during healing. The bladder was accidentally opened twice. There never was injury of ureter or iliac vessels. In 35 cases the separation of adherent intestine caused injury to the bowel requiring catgut suturing. [H.M.]

10.—Median Perineal Prostatectomy.—G. Goodfellow reviews the history of operation through the perineum, and describes the method devised and practised by himself for 13 years. The technic followed is that of a median lithotomy. If required, a few days before operation, urotropin, 7 gr. to 10 gr., is given two or three times daily. No preliminary irrigation of the bladder is made. With the patient in the lithotomy position, a lithotomy staff is introduced, the legs then elevated somewhat, a median incision from the base of the scrotum to the margin of the anus is made, and carried to the membranous urethra, which is entered with a straight lithotomy knife and the opening extended into the bladder. The finger is then introduced into the bladder, the staff removed and the moderate flexion of the legs and thighs on the abdomen and thorax increased to as great an extent as possible; then, with the opposing hand over the hypogastrium, the bladder is depressed, and the enucleation beginning at the leak of the prostate below and working upward next to the bladder, or from above on either side downward, is carried on, the time consumed for complete enucleation being rarely over 5 or 10 minutes. Part or all of the prostatic urethra is removed with the gland, but this does not seem to affect the power of the bladder. [H.M.]

Boston Medical and Surgical Journal.

July 14, 1904. [Vol. CLI, No. 2.]

1. Animal Experimentation. HAROLD C. ERNST.
2. A Study of Amputations of the Lower Extremity. FRED T. MURPHY.
3. Experimental Decapsulation of the Kidneys. N. H. GIFFORD.
4. Functional Albuminuria, with a Report of a Case. J. BERGEN OGDEN.
5. Coagulation-time of the Blood: A Comparison between the Wright and the Brodie-Russell Instruments, Based upon 600 Observations. F. T. MURPHY and A. H. GOULD.

2.—Amputations of the Lower Extremity.—Fred T. Murphy states that when artificial appliances were in the crude state we were taught to conserve as much as possible of the member; this view is still largely held. Observation of numerous failures to secure a serviceable stump led him to investigate the relative values of the various methods of amputation of the lower extremities, as regards the securing of a useful stump. His conclusions are: Anterior and posterior muscle flaps when obtainable are to be preferred to the circular cuff of skin. The fibula should be cut off at a higher level than the tibia in leg amputations, and care should be taken to bevel off bony prominences such as the sharp anterior tibial edge. Suture of the periosteum and approximation of the muscles and fascias are desirable. Drainage of the stump is advised, unless the dead space is obliterated by means of buried sutures. Partial amputations of the foot or amputations at the ankle-joint, except under unusual conditions, are not as satisfactory as those above the ankle-joint. Tibial stumps between six and eight inches long are the most serviceable. Amputations through the knee-joint are inferior to those just above the condyles. The longer the thigh stump the better, provided the condyles have been removed. In general, in tibial amputations down to four inches and in thigh amputations down to five inches, sacrifice bone in order to obtain good muscle flaps. [A.B.C.]

3.—Experimental Decapsulation of the Kidneys.—N. H. Gifford's article gives the results of a year's work performed on animals in the surgical laboratory of the Harvard Medical School. Following the decapsulation of kidneys in rabbits, in normal dogs, in dogs with induced nephritis, in dogs with infarcted kidneys, and in dogs with normal kidneys but with additional work thrown upon them, he found the following conditions: 1. In all cases of two days and under and in controls the entire thickness of the capsule had been removed over two-thirds of the surface by the operation of decapsulation. 2. There is a certain amount of intracapsular tension in undecapsulated kidneys, normal or with nephritis, as shown on removal of capsule. 3. There is an immediate increase in size of decapsulated kidneys persisting up to a month at least; afterward, a decrease to approximately normal size complete at end of 6 months. 4. There is congestion, moderate in degree, most marked in the intertubular bloodvessels in cortex, lasting 3 to 5 days after the operation. 5. No histologic change in the renal epithelium follows the operation of decapsulation of kidneys. 6. A new capsule, very vascular, at first, 2 to 4 times thickness of old, is well marked at end of 8 days. At end of 6 months it returns to approximately the normal thickness and vascularity. The new capsule arises chiefly from the connective tissue-cells of the intertubular connective tissue, but in part from the retroperitoneal connective tissue, which is present in the new bed of the kidney. 7. No new vessels are formed which anastomose with those of the kidney. 8. The increase in size is due primarily to the increase in blood supply, possibly resulting from the removal of the capsule. [A.B.C.]

4.—Functional Albuminuria.—This, according to J. B. Ogden, is a condition in which albumin is generally absent from the urine on rising in the morning. After breakfast, or before, depending upon the activity of the individual, albumin appears, and the quantity usually increases as the day advances, up to a point where the amount remains fairly constant for the remainder of the day or to the time of retiring at night. The condition is most common among boys under the age of 20. Two important elements apparently are causative: (1) Muscular exercise, and (2) ingestion of food. It is probably dependent in some manner upon derangement in the circulatory system. Prognosis is generally good. Treatment is the reverse of that usually ordered for renal disease. It is: Simple food, fresh air and vigorous exercise. Tonics, such as quinin, iron and strychnin, are useful. Broadbent has noticed that treatment as for ordinary renal disease—milk diet, protection from cold, and forbidden exercise—may lead to a true renal disease. Ogden reports a case in detail. [A.B.C.]

5.—Coagulation-time of the Blood.—Murphy and Gould carried out their investigations for the division of surgery in the Harvard Medical School. Their findings are based upon 600 observations, and their conclusions are as follows: The Brodie-Russell is more reliable than the Wright instrument. The average coagulation-time is between three and six minutes. The proof of a delayed coagulation must be based upon several observations. The coagulation-time is not affected by the ordinary changes in room temperature. Blood obtained simultaneously from different points on the surface of the body shows no marked variation in the coagulation-time. A delayed coagulation is not constantly associated with jaundice due either to benign or to malignant obstruction. [A.B.C.]

Medical Record.

July 16, 1904. [Vol. 66, No. 3.]

1. Pyelitis Complicating Pregnancy. EDWIN B. CRAGIN.
2. The True Education of Mind and Body. RICHARD COLE NEWTON.
3. A Study of Intestinal Perforation and Peritonitis in Typhoid Fever, with a Report of Three Successful Operations, and a Statistical Investigation of 295 Operative Cases. WILLIAM D. HAGGARD.
4. Improvements in Anesthetic Apparatus and Technic. JAMES T. GWATHMEY.
5. Hay Fever: Some Practical Suggestions as to Its Management and Treatment. RALPH WAIT PARSONS.

1.—Pyelitis Complicating Pregnancy.—Edwin B. Cragin states that the occurrence during pregnancy of a marked rise of temperature with pain and tenderness on the right side of the abdomen, is always a source of anxiety to the obstetrician, and its diagnosis and prognosis are matters of deep concern. The condition was first accurately described by Reblaud, in 1892. Cragin has seen 10 cases since 1900. The etiology of the condition, according to Vinay, depends upon two factors: (1) Compression of the ureter by the pregnant uterus; (2) infection of the urinary tract above the point of compression. These are discussed at length by Cragin. That the trouble is generally confined to the right side is explained by the greater prominence of the right iliac artery at the pelvic brim—hence greater pressure on the right ureter; the position which the pregnant uterus most frequently assumes; and the greater frequency of the fetal head in the right oblique diameter of the pelvis. From the fifth to the eighth month is the susceptible period. Treatment consists in rest in bed; fluid diet, especially milk; large draughts of water; urinary antiseptics; ice-bag over the kidney, and if this fails to relieve the pain, an occasional opiate. If, in spite of this treatment, there is evidence of extension to the kidney substance, surgical interference is indicated. Interruption of the pregnancy is seldom, if ever, necessary. [A.B.C.]

3.—Intestinal Perforation during Typhoid Fever.—William D. Haggard reports 3 cases successfully operated upon, and a statistical study of 295 operative cases. Far too many patients annually die from this affection. On the basis of 30% recovery rate for operative cases, Taylor estimates that 7,500 patients needlessly die annually in the United States from perforation. The main stumbling block is difficulty of early diagnosis. In a careful study of the 295 cases, Haggard deduces the following facts: 1. It occurs more often in men than women—80.9% vs. 19.1%. It is, like hemorrhage, rare in children. 2. It occurs in about 2.5% of all cases of typhoid fever. 3. 3.31% occur in the first week; 20.19% in second week; 38.94% in third week; 14.90% in fourth week; 9.13% in fifth week; 5.75% in sixth week; 7.21% from seventh to eleventh week, and has been observed as late as the one hundredth day (Curschmann). Holmes operated on one case after 4 months. 4. It naturally occurs more frequently in severe attacks, but may occur in mild attacks, and it may be the first real symptom of socalled walking typhoid. 5. It occurs in the ileum in 95.5%, usually within 18 inches of the cecum (Osler), always within 3 feet (Loison); in the large intestine in 12.9%, and is most often situated in the ascending, transverse, and descending colon, sigmoid and rectum, in the order named. It may occur, also, in the appendix, Meckel's diverticulum, and jejunum. 6. The perforation is single in 84%. There may be 2 or more, and in one case there were 25 (postmortem). Cases with diarrhea and tympany are more likely to have perforation. Six out of 30 cases occurred with hemorrhage (Osler). 7. The deathrate given by Murchison is 90% to 95%. Osler says he could not recall a single patient in his experience that had recovered after perforation had occurred. Among the 295 patients operated upon, 80 recovered (27.11%). [A.B.C.]

5.—Hay-fever.—R. W. Parsons divides treatment into constitutional, local, and treatment of the exacerbation. A cold plunge lasting not more than a half minute and followed by vigorous rubbing should be taken daily for several weeks before the hay-fever season. On account of the tendency to perspire and take cold easily, suitable clothing should be worn. General hygiene and tonics are indicated. Any chronic inflammatory condition or obstructive lesion in nose or nasopharynx should be attended to, and all sensitive points should be touched with caustic. This preliminary treatment should be repeated for several years. The uric acid factor should be given due weight and acid producing foods avoided, such as meat, glandular organs, strawberries, coffee, tea, meat extracts, vinegar, sour pickles, preserves, sugar, potatoes, and other starchy food; beer, wine, cider, lemonade, etc. Water should be drunk freely. Aromatic, sulfuric, or phosphoric acid may be taken for a time, followed by sodium salicylate, 3 gr. three times daily. Douglas gives suprarenal gland 5 gr. every two hours, day and night, until giddiness or palpitation is observed, or the remedy seems to be controlling the nasal vasomotor paralysis. Then the intervals may be increased. Adrenalin 1 to 5,000 may be used as a spray. For the asthma, stramonium leaves soaked in potassium nitrate give relief when burned. Hoffman's anodyne is also of service. Camphor by inhalation or internally relieves the nasal symptoms. These are also alleviated by the cold spinal douche at 60° F. for 15 to 30 seconds at a pressure of 20 or 30 pounds to the square inch. Another excellent remedy is an ice-bag to the back of the neck and upper fourth of the spine. Tinted glasses relieve the ocular symptoms. [H.M.]

New York Medical Journal.

July 9, 1904. [Vol. LXXX, No. 2.]

1. A Contribution to the Pathology of the Elastic Tissue of the Aorta. FRITZ SCHWYZER.
2. The Home Treatment of Pulmonary Tuberculosis. E. FLETCHER INGALS.
3. Effects of the Dry Carbonic Acid Gas Bath on the Circulation and on the Diseased Heart. ACHILLES ROSE.
4. Two Cases of Uncinariasis. J. NORMAN HENRY.
5. The Unhealthfulness of Noise. J. A. GUTHRIE.

1.—Pathology of Aortic Elastic Tissue.—Fritz Schwyzer in his second paper discusses arteriosclerosis and lues of the aorta. He says that aortic lues begins with infiltration along the vasa vasorum, often with endarteritis of the same, and leads to a strictly circumscribed pathologic process, starting with the formation of the most minute gummas. These soon and extensively interrupt the elastic tissue, and rapidly weaken the elastic layers, especially the elastica externa. Aortic arteriosclerosis soon attacks the elastica interna, it rarifies the elastic spongy tissue, widens its meshes, but does not lead to the interruptions and extreme destruction of lues. In badly sclerotic aortas rarified places are always shown. In cases in which the sclerotic or luetic process is very far advanced, almost nothing remains of the media, in which case calcification indicates arteriosclerosis and not lues. He does not consider luetic aortitis as an essentially diffused process. On the contrary, it leads to the formation of very small necrotic spots, for which the name miliary gummas seems fully justified. [C.A.O.]

3.—Effects of Dry Carbonic Acid Baths.—Achilles Rose reports some cases to show the effect of dry carbonic acid gas baths on the circulation and on the diseased heart. The whole blood circulation in the superficial vessels increases during the bath. The pulse of the bather, within a few minutes after having entered the bath, resembles a pulse stimulated by alcoholic drinks. After the bath it was noted that there was heightened arterial tension, improvement in the rhythm of the pulse—the change as a rule from an irregular, poor volume pulse to a regular pulse of good volume. [C.A.O.]

4.—Uncinariasis.—J. N. Henry reports two cases. The first is that of an Italian of 24, who was admitted to the hospital with a history of 10 days' illness, with vomiting, nausea, frequent loose watery stools, and pain in the abdomen. He was anemic and poorly nourished, the tongue was dry-coated and tremulous, the teeth and gums covered with sordes. Examination of organs showed nothing abnormal. Temperature was normal or subnormal. Widal reaction was positive. Leukocytes, 10,000; hemoglobin, 85%; red blood corpuscles, 5,900,000. A few days after admission the patient passed two round worms, and as the diarrhea persisted it was thought advisable to have the stools examined. Several ascarides, ovums of uncinaria, *Trichocephalus dispar*, *Oxyuris vermicularis*; no adult uncinaria found. The patient was starved and purged. Thymol was administered in hourly doses of 10 gr. for four hours, and in a few days no ovums could be found in the stools. The second case presented symptoms of anemia and leukocytosis, which resulted in a differential blood count being made, when the high percentage of eosinophile cells led to the suspicion and detection of the ovums. [C.A.O.]

Medical News.

July 16, 1904. [Vol. 85, No. 3.]

1. The Relations of Surgery to the Recent Advances in the Knowledge of the Pancreas. GEORGE WOOLSEY.
2. The Application of Conservative and Radical Surgery to Chronic Nasal Accessory Sinus Disease. R. B. CANFIELD.
3. Treatment of Lobar Pneumonia in the Adult. WILLIAM H. DUKEMAN.
4. Gastroptosia. A. ROSE.
5. The Treatment of Tuberculous Testicle. JOSEPH B. BISSELL.
6. Cocainism. CHARLES J. DOUGLAS.
7. The Extraperitoneal Relations of the Appendix Vermiformis to the Posterior Surface of the Cecum, with the Report of a Form Hitherto Undescribed. C. E. BRIGGS.
8. A Modified Scissors. CHARLES MILLER and J. H. LANGSTAFF.

1.—Surgery of the Pancreas.—George Woolsey states that: 1. Owing to the physiologic importance of the pancreas we cannot remove it as we can the gallbladder and the appendix. 2. The topography of the pancreas, situated deeply in the upper part of the abdomen, hinders diagnosis and operative treatment. 3. The severity and often rapidly fatal nature of the lesion is an impediment to successful operative treatment. 4. Owing to the rarity of acute or subacute pancreatitis, no surgeon has had a large personal experience with these affections. 5. It is the difficulty of diagnosis which prevents the more rapid development of the surgery of this organ. All these propositions are discussed at length. In conclusion he urges: 1. The more general use of Hahn's method of operating for acute pancreatitis in the early stages, by evacuation, irrigation and drainage. 2. He emphasizes the fact that as several serious lesions of the pancreas may be due directly or indirectly to cholelithiasis, we are provided with another indication for more frequently operating on the latter condition. 3. He suggests that as an exploratory operation is the only way of making a diagnosis in many cases, and as these, as well as the conditions they resemble, also demand prompt operative treatment, we should not hesitate to advise early operation. [A.B.C.]

2.—Conservative and Radical Surgical Treatment of Chronic Nasal Accessory Sinus Disease.—R. B. Canfield discusses this subject at length, and states that conservative methods are successful in 90% of uncombined cases, and should always be given a thorough trial. Uncombined empyemas are not uncommon. Difficulty in healing is not always in direct proportion to the duration of the disease. Drainage of the antrum is most satisfactorily secured through the nose. The ethmoid is the chief cause of the chronicity of obstinate combined cases. The sphenoid is readily accessible through the nose in a large percentage of cases. It can be probed in 90% of cases. The establishing of free nasal respiration is an important factor in securing permanent results. The best radical antrum operation is the modified Luc-Caldwell. The best frontal operation is that of Killian. Frontal sinus operations not closed at the time of operation cause deformity. Great care must be taken of the eye at the time of the frontal operation. Accidents to the eye are: (1) Loosening of the pulley of the superior oblique causing diplopia; and (2) dimness of vision due to (*a*) extraocular causes—lacrimation, conjunctivitis; (*b*) intraocular causes—iritis, neuroretinitis. [A.B.C.]

3.—Treatment of Lobar Pneumonia in the Adult.—W. H. Dukeman begins by combating the toxemia by elimination through skin and bowels. He orders a sponge bath with hot water and soap followed by a mustard footbath and hot lemonade. After sweating for a half hour the patient should be rubbed with coarse towels and be encased in a cotton jacket. A mustard plaster may be applied if there is pain. Calomel and salts must be given with plenty of water for the kidneys. Stimulating expectorants and diuretics are injurious. Dry cups may be applied over the kidneys. All food should be liquid. Overfeeding must be avoided. To ward off heart weakness strychnin, gr. $\frac{1}{60}$, may be given every 4 to 6 hours increasing to $\frac{1}{30}$ or $\frac{1}{20}$ according to indications. By pushing it too hard however engorgement of the lungs may be increased. It is better to supplement it with alcohol and digitalis, or aromatic spirits of ammonia if quick action is needed. Cyanosis calls for the latter or for champagne with a mustard plaster over the heart and continuous inhalation of oxygen. The oxygen should be given from the beginning of the disease, 5 gallons every 3 to 6 hours. This holds in check the increasing toxemia, thus assisting the heart. [H.M.]

4.—Gastroptosia.—A. Rose calls special attention to relaxation of the abdominal muscles as a factor in descent of the abdominal organs, the first factor to be considered in treatment. Dilation of the stomach always accompanies gastroptosia (abdominal ptosis). Many cases formerly classified as nervous dyspepsia are now recognized as gastroptosia, and the symptoms are relieved by strapping, the secretory and motor functions thus returning to a normal state. Gastroptosia may play an important part in diseases of the heart and lungs, reduction in the size and weight of the belly giving material relief. [H.M.]

5.—Tuberculosis of the Testicle.—J. B. Bissell reviews the literature on the subject, reports eight cases, and outlines the treatment. Authorities differ very much as to whether tuberculous disease is usually primary or secondary; the majority quoted believe it secondary in most cases. The relative poor blood-supply of the epididymis causes it to be the primary seat of attack in most cases. From a study of nearly 120 cases, and the suggestions derived from various writers as to treatment, he concludes as follows: Epididymectomy is the operation of election; it should be done early; it can be done with the best expectation of relief, even if there are higher foci; it is not always necessary to remove the higher foci to obtain relief from their symptoms. Orchiectomy is to be performed when the testicle is markedly or alone involved (rare), or when it has broken down, and is a menace to the health of the patient, or where its removal will relieve him of a drain upon his system, and only where epididymectomy is contraindicated. Whichever operative procedure is chosen special attention must be paid to the modern hygienic dietetic treatment for general tuberculous disease. [A.B.C.]

6.—Cocainism.—C. J. Douglas refers to the less tenacious grip of cocain in comparison with morphin addiction. The habitue always insists on taking it by the route he originally hit upon. It is particularly injurious to the skin, causing abscesses and other sores. Hallucinations are often present, and emaciation almost always. Victims are greatly distressed by insomnia. Although the results of addiction are often appaling, yet patients usually return promptly to a normal state after withdrawal of the drug under proper medical care. [H.M.]

7.—Appendix Partially Extraperitoneal.—C. E. Briggs reports the case. A girl of 20 had suffered from several attacks of appendicitis. Operation showed the appendix curved upon itself backward and downward, and what appeared to be the tip seemed attached to the cecum. The end of the cecum was drawn upward, and on careful inspection it was seen that what appeared to be the adherent tip of the appendix was a constriction narrowing the appendix to about a fourth of its proximal diameter. From this constriction the remainder of the appendix was seen in outline to lie extraperitoneally along the cecum, and imbedded in the retrocecal connective tissue. The extraperitoneal portion was 1 cm. long, the entire appendix 4.5 cm. in length. The organ was readily removed. The mucous membrane of the portion distal to the constriction was slightly congested, but this, together with the slight general thickening of the wall of the same portion, was the only gross evidence of inflammation. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN . A. O. J. KELLY

REVIEW OF LITERATURE

Pathology and Bacteriology of Whoopingcough.—G. Arnheim[1] has been able to study eight cases of whoopingcough from the standpoint of their pathology and bacteriology. In all of them he was able to isolate the organisms first described by Czaplewski as polybacteria. He comes to the following conclusions regarding the disease: It is an infectious catarrh of the mucous membrane of the respiratory tract, and especially of the trachea; the characteristic organisms are to be found in the bronchial secretions and the mucous membrane; their arrangement is characteristic. Desquamative catarrh is very frequent. In inflammations of the lungs, moderate quantities of the bacteria are to be found within the bronchopneumonic foci. The production of the cough paroxysms is due to the position of the colonies in the typical cough situations. The paroxysms are to be looked upon as curative processes, as with the sputum secreted, numerous bacteria are thrown off. The secretion becomes viscid during the course of the disease probably because of the influence of pus organisms which give rise to an increase of chemotaxis of leukocytes. After all the colonies of bacteria are thrown off, complete recovery follows. [E.L.]

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[1] Archiv für Pathologische Anatomie, etc., 1904, clxxiv, 530.

Insects as Carriers of Malaria and Yellow Fever.—L. Chenisse[1] combats the idea that mosquitos should be regarded as the only basis for the etiology of malaria and yellow fever. First of all, the geographic distribution of the anopheles does not always correspond with the distribution of malaria. The disease has even completely disappeared in localities where the mosquitos still remain numerous. On the other hand, there are regions profoundly infected with malaria, where it is impossible to discover any anopheles. Epidemics of malaria have occurred under the influence of late and abundant rains, without the intervention of mosquitos. German army statistics show that the malarial curve is highest in the early spring, and descends abruptly in July and August, showing an utter lack of concordance with the prevalence of mosquitos. The prevalence of malaria can be more readily explained by meteorologic and telluric conditions. The author claims that the mosquito theory has been transferred to yellow fever by analogy only, since the presence and life history of the "hematozoa," causing the latter disease, has not yet been demonstrated. The condition presented by patients inoculated by infected mosquitos is probably the "inflammatory bilious fever of the Antilles." Concerning the extermination of yellow fever in Havana, the author says that the disease disappears spontaneously after a course of two to four years, and that the sanitary measures carried out on the soil have not diminished the number of mosquitos. Moreover, the war on mosquitos, carried on in certain other regions, has had no influence on the prevalence of yellow fever there. [B.K.]

Feeding and Care of Children after the First Year.—R. G. Freeman[2] insists on the necessity of examining children for physical defects; of 90 pupils in a private school patronized by wealthy parents, 48% had slight curvature of the spine, 34% defective vision, 2% defective hearing. Family physicians who allow such things to go unnoticed are not worthy the confidence of parents who place their children under charge of the former. In caring for children, one must control (1) the feeding; (2) the rest; (3) the exercise; (4) the ventilation and exposure to fresh air. The three best exponents of well-being in children are a healthy complexion, a clean tongue, and well-digested stools. As a rule, children after the first year are fed too often, on too great a variety of food, and with too little milk. During the second year a child should be fed five times a day; at first with only milk, gruel, and orange juice, to which may be added later an egg, soup, bread and butter, and at the end of the year meat. During the third year, three meals should be given, with an extra bottle of milk at 10 a.m. After the third year but three meals a day should be given. Throughout childhood a quart of milk ought to be taken daily. Freeman's entire paper is replete with practical statements. [A.G.E.]

Case of Pancreatic Infantilism.—B. Bramwell[3] reports a case. The patient was 18 years and 9 months old, but looked about 11 years of age. He was perfectly formed, with no suggestion of cretinism, and was bright and intelligent. Before pancreatic treatment was begun, his height was 4 ft. 4⅛ in., and his weight 4 st. 7½ lbs. For nine years he had suffered from chronic diarrhea; the abdomen was swollen and tympanitic. The urine was free from sugar. The stools contained much undigested fat. This lessened after taking pancreatic extract and the phosphoric acid of the urine, which was greatly below normal, increased. After administration of a capsule containing iodoform, surrounded by a glutoid substance insoluble in gastric and intestinal secretions, but soluble in pancreatic juice, no iodin could be detected in the saliva, showing the pancreatic secretion deficient or absent. Treatment began December, 1901, and since then the diarrhea has disappeared and he has grown 5⅜ in. and increased 1 st. 8 lbs. in weight; sexual development is progressing normally, and the voice is changing. A glycerin extract of pancreas was used. [H.M.]

The Behavior of the Nitrogen Containing Substances of the Urine during the Various Acute Infections.—F. Erben[1] has made extensive researches with the urine of patients suffering from measles, scarlet fever, chickenpox, typhoid fever and streptococcic sore throat for the purpose of noting the amount of the substance containing nitrogen. In all these conditions the results were the same and his findings and conclusions are: 1. During the height of the fever all the patients excreted increased quantities of nitrogenous substances, mainly urea. The higher the temperature the greater the increase and in the fevers of short duration (measles, scarlet fever) it was also more marked than in the fevers of slower course (typhoid fever). 2. The increase of urea was not divided equally between the groups of precipitable (phosphor wolframic acid test) and nonprecipitable urea, but regularly during the fever and into the beginning of convalescence he noted a greater increase of precipitable and a lesser increase of nonprecipitable urea. 3. Ammonia increased parallel with the increase of urea, taking part especially in the increase of the precipitable urea. 4. Uric acid and other nitrogenous substances increase also; the extent of this increase and the variety which increases depends upon the disease existing. 5. The same increase in the nitrogenous substânces of the urine as noted in fevers is produced by a pus focus in the organism; the amido acid nitrogen (nonprecipitable) is increased more than in the case of fevers. 6. The absorption of lymphoid tissue produces the same changes. He points to the fact that v. Jaksch found the same nitrogen arrangement in diabetes, and Halpern in inanition and carcinoma, processes leading like fevers to autophagy. Erben, therefore, concludes that wherever a condition exists, which like fevers leads to a destruction of body albumins, whether this be local (suppuration or absorption—histolysis) or general (autophagy) a relative increase of the intermediary products of destruction of proteids will be found in the urine. Depending upon the nature of the process the one or the other group of these substances will be affected. [E.L.]

Is Urobilin a Normal Urinary Constituent?—This problem has been investigated by M. G. Shchegolew,[2] and he answers the question as follows: 1. Urobilin undoubtedly occurs in normal urine, but in such minute quantities that the ordinary laboratory methods are insufficient for its detection. 2. If the test with zinc acetate shows, under ordinary light conditions, some fluorescence, then we must conclude that somewhere in the system an increased destruction of red blood-corpuscles is going on. [L.J.]

Source of Lead-poisoning in Children.—J. L. Gibson[3] presents certain facts to show that a frequent source of lead-poisoning in children is painted railings or the painted walls of rooms. Analyses of cloths rubbed on such areas and also of the dust collecting in the rooms showed the presence of appreciable quantities of lead. Poisoning occurs more frequently among children who bite their nails and suck their fingers and cases are most numerous during the warm months when the paint is most sticky. Hereafter paint instead of drinking water will be blamed as the source of lead poisoning. [A.G.E.]

A Scarlet Fever Epidemic Traced to the Milk Supply.—K. BG. Tingvall[4] reports a scarlet fever epidemic from a small place in Sweden. In a very short time 28 cases were noted in 18 different houses in the same neighborhood. All of the families bought their milk of the same dealer. The milk was furnished by a farmer, in whose family three individuals had just recovered from attacks of scarlet fever; they were all assisting him in his stable work. The milk was used in uncooked form by most of the families. Of the 27 patients none died, but 4 developed hemorrhagic nephritis, and 5 others had to be characterized as grave cases. [E.L.)

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[1] La Semaine Médicale, June 8, 1904.
[2] Archives of Pediatrics, June, 1904.
[3] Scottish Medical and Surgical Journal, April, 1904.

[1] Zeit. für Heilkunde, 1904, xxv, 33. Innere Medicin.
[2] Medizinskoe Obosrenie, lxi, No. 9.
[3] Australasian Medical Gazette, April 20, 1904.
[4] Hygienische Rundschau, 1904, xiv, 109.

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Shall the Gallbladder be Treated as the Appendix?—R. W. Westbrook[1] believes our knowledge does not warrant an unqualified affirmative to this question. He compares the organs anatomically, and finds differences in the structure and functions and then discusses the formation of gallstones and their treatment. Extirpation of the gallbladder is a more serious operation than is drainage, and the latter is followed by almost as good immediate healing. The tendency toward extirpation is gradually growing, and cholecystectomy will be more often performed, for at least a time, but we may be going too fast. Very few bad results have as yet been reported from this operation, but Westbrook believes that future years will see fatal secondary operations where cystectomy was done primarily. Cases of strictured common duct, resulting from hepatic drainage, and of pancreatitis, will also result. The gallbladder is a natural drainage channel to infected bile ducts, and should be so utilized when possible; when no longer useful in this way, as when the cystic duct is closed, it should be extirpated. In the light of our present knowledge, cholecystostomy is the operation of choice. [A.G.E.]

Cancer of the Prostate.—George W. Hawley[2] states that the disease is frequently unrecognized, being mistaken for hypertrophy of the organ. Cancer of the prostate is distinctly operable before metastasis has taken place, but of course is inoperable after secondary vesical, glandular or scleral invasion. The radical operation requires liberal perineal exposure of the gland, with preliminary exploration of the bladder and periprostatic structures, and total intracapsular enucleation—urethroprostatectomy. There is room for further pathologic investigation and careful postmortem examination of all senile prostates for clinical observation and for operative treatment. Early diagnosis is possible and the osseous and blood phenomena incident upon such a change should be carefully studied. [A.B.C.]

The Blood in Appendicitis.—S. Jamieson and H. S. Stacy[3] tabulate the results in 24 cases, many with more than one count. They find in catarrhal cases the leukocyte count normal or slightly raised; in suppuration or gangrene, especially the latter, there is usually a most marked leukocytosis. A localized appendiceal abscess often gives a higher count than does peritonitis secondary to appendicitis. Walled-off abscesses may give no leukocytosis. One case of gangrenous appendix and peritonitis presented a normal count; such cases always terminate fatally. The counts in this series varied from 5,700 to 41,500. [A.G.E.]

Is Appendicitis More Frequent Today than Formerly?—To determine this Villaret[4] has studied the army statistics for the last 30 years, and answers the question in the negative. The disease is diagnosed much more frequently than formerly, but the increase is only an apparent one, indicating improvement in our methods of diagnosis and our knowledge. Appendicitis diagnoses have increased 70%, liver diseases diminished 64.2%, peritonitis 70.2%, and chronic gastritis 79.9%. Abdominal diseases have therefore diminished 44.5%. [E.L.]

Chronic Serous Vaginalitis.—De Vlaccos[5] maintains that there are cases of hydrocele not accompanied by lesion of the testicle or epididymis; these must be considered as purely vaginalitis, though most writers have dropped this term from their nosologic lists. He reports two cases of primary tuberculous vaginalitis. In neither was the testicle diseased. One patient died nine months later of tuberculous meningitis, the other is alive and well. The treatment in simple cases is essentially that of Bloch: A long incision is made, the serous membrane everted, rubbed energetically, and painted with zinc chlorid, 20%. The wound is then closed without drainage, this differing from Bloch, who packs with gauze and sutures later. When the serosa is much changed and thickened it is removed entire. Results from this method have been very satisfactory. [A.G.E.]

Experiments to Determine the Relative Efficacy of Surgical Dressing Materials.—A. N. McGregor and R. Ramsey[1] carried out the experiments. Some six experiments were carried out; one showed the amount by weight of water which a given weight of material of various kinds would hold; another experiment determined the rate of conveyance by capillary attraction; another was to determine whether pus cells, fibrin and debris are removed by capillary attraction; another was to determine if fluid is continuously removed by capillary attraction, or whether so soon as the wick is saturated drainage ceased; another was to determine the relative length of time it requires to remove a given amount of fluid by capillary drainage. Their conclusions are as follows: (1) That the most suitable dressing material for the conveyance of fluids, with solids in suspension, is dry boracic lint. Cellulose wadding (Tillman's paper) is the most efficient, but its friability renders it unsuitable for drainage purposes until inclosed in gauze envelope; (2) that the best covering materials for the fluid removal of the discharge from the distal end of the drain are cellulose wadding and gauze; (3) that the covering material should be sufficient in amount to continue in action as long as the drain and prevent saturation of the material; (4) that as the blocking of the drain takes place in four to eight hours, a more frequent dressing than usual is indicated. It is obvious that the influence of temperature relieves fibrin, coagulation of fibrin and drugs will all modify the results. [A.B.C.]

Facial Hemiatrophy Successfully Treated by the Method of Gersuny-Eckstein.—Labarre[2] reports a case of facial hemiatrophy which he treated successfully by means of the prothetic method suggested by Gersuny in 1900. This method consists of the interstitial injection of vaselin. Labarre believes that the syringe of Viollet, in which the temperature is kept at the proper degree by means of an electric current, is the preferable one to be used. In the case reported the immediate result of the first injections was most satisfactory, and the photographs which are published show that the results were perfect. [J.H.W.R.]

Retrothyroid Pharyngotomy.—E. Quénu and P. Sebileau[3] have employed this means of access in two cases of foreign body in the pharynx; the operation is simple, the exposure of the parts is thorough, and the after-effects in both cases reported were more satisfactory. While this lateral-vertical method could not be substituted for subhyoid or transhyoid pharyngotomy for certain other purposes, the writers consider it to be the one of choice for extracting foreign bodies from the pharynx, and it would also seem applicable to many cases of foreign body in the esophagus. The technic of the operation is described in detail. In brief, it consists of an incision 8 cm. long at the anterior margin of the sternomastoid muscle. The fascia and muscles are easily retracted, the superior pedicle of the thyroid is ligated and sectioned and the thyroid drawn strongly forward. The wall of the pharynx may then be reached and opened. [A.G.E.]

Revival of Suprapubic Prostatectomy.—Frank D. Gray[4] advocates the suprapubic method, and states that rational surgical treatment of the enlarged prostate is based on the recognition of a distinct capsule with an easy line of cleavage in a well-defined class of cases, which permits rapid and safe enucleation by means of the finger only within the bladder. He recounts the 46 cases reported by Frayer in 1893, after this method, in patients ranging from 55 to 80 years of age with three deaths, only one of which could be directly attributed to the operation. In the surviving 43, restoration of bladder function was prompt and complete. If American and English surgeons recognize the availability of both the upper and lower routes, and choose the operation adapted to the special type of case, prostatic surgery will be placed on a higher plane. [A.B.C.]

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[1] Brooklyn Medical Journal, July, 1904.
[2] Annals of Surgery, June, 1904.
[3] Australasian Medical Gazette, April 20, 1904.
[4] Deutsche medicinische Wochenschrift, 1904, xxx, 16.
[5] Revue de Chirurgie, June 10, 1904.

[1] British Medical Journal, June 11, 1904.
[2] Journal Med. de Bruxelles, March, 1904, p. 149.
[3] Revue de Chirurgie, June 10, 1904.
[4] Annals of Surgery, June, 1904.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Fetal Mummification.—The mother gave a history of biliary lithiasis together with symptoms of arthritis. Gestation advanced normally to the third month. Abortion being threatened, but prevented by usual treatment; from then on no signs of progressing fetal development appeared, and quickening did not manifest itself. For a time the diagnosis of pregnancy seemed doubtful. But intermittent cramplike pains occurred between the sixth and seventh months, when a vaginal injection dislodged the amniotic sac, breaking it, the fetus was expelled as a rigid petrified mass. The placenta remained 48 hours in adherence, requiring artificial extraction. Metritis and phlegmasia alba dolens soon were noted. A. Betancourt[1] reports the case and says: The endometritis, if arthritic, could be included among the etiologic factors largely predisposing. [T.H.E.]

Diminishing Birthrate.—J. W. Taylor[2] gives statistics showing the decreasing birthrate in Great Britain and Ireland; also in the countries of Western Europe, notably France, while in Russia and Japan it is increasing. Some have ascribed this decreasing birthrate to the elevation of the age of marriage, but Taylor thinks this touches only the fringe of the loss, and that the main cause is the deliberate prevention of conception. But he says there is no method of artificial prevention that can be regarded as innocuous, and that the artificial production of modern times, the relatively sterile marriage, is an evil thing even to those primarily concerned, injurious both physically and morally, not only to the race, but also to those who accept it. While occasional abstinence in married life is perfectly allowable, and may have a high moral and hereditary value, no artificial prevention is admissable save that which is produced by operation when deformity or disease demands it. He claims that the prevention of pregnancy is not the gain to the woman that so many imagine. During the period of pregnancy and lactation there is a time of rest and comparative inactivity for the ovaries and ample opportunity for the nervous supply of the ovary to recover from any undue stimulus, and if this natural cycle has been artificially prevented, the ovaries suffer, and the woman suffers with them. [W.K.]

Ovarian Cyst in a Girl of 10 Years.—A. Karczewski[3] reports the case of a young girl of 10. All the symptoms of ileus were present, and intestinal occlusion was the final diagnosis. But when the abdomen was opened, the real difficulty was found to be an ovarian cyst with torsion of the pedicle. Ovarian cysts in children are not rare, the majority being dermoid like the one reported which contained hair and a tooth. This cyst doubtless existed from birth, and caused interference with stools for the first seven years, but no pain. During the last three years it gave rise to pain, obstruction, and extended above the small pelvis into the abdominal cavity. The torsion was about 90°, and this was complicated by volvulus, of the sigmoid flexure. [W.K.]

Castration after Hysterectomy on Account of Menstrual Disturbances.—A. Bluhm[4] reports the case of a virgin of 40, who had always menstruated without pain or other difficulties until two years ago, since which time she always suffered severe pain about her menstrual period, which pain she always referred to the neighborhood of the rectum. Examination revealed a fibromyosarcoma of the vagina without noticeable implication of the uterus, adnexa, and inguinal glands. The vagina and uterus were removed; the ovaries left behind. For some time after the operation she felt perfectly well, but after about two years the same symptoms began to return; the pain recurred after every four weeks and was always referred to the lower part of the rectum. A small nodule could be felt in the upper part of the scar. Fifteen months later, the symptoms having become unbearable and the mass larger, a double oophorectomy was performed; the recurrent growth could not be removed on account of its size and attachments. The pain did not return after the second operation, in spite of the mass having been left behind. The ovaries were found to contain numerous ripening follicles, also a corpus luteum, thus showing them to have been actively functionating, even though the uterus was extirpated. The author remarks that this case has taught him to remove the ovaries in cases of malignant growths, as the congestion pain of ovulation has the tendency to produce recurrences and to increase the rapidity of their growth. [E.L.]

Diagnosis of Hereditary Syphilis at the Time of Birth.—Gailleton[1] says that the early diagnosis of syphilis is important, if the child is to be nursed by a wet-nurse. The congenital signs of syphilis are divided into two classes, the pathognomonic, belonging to no other disease, and the nonspecific, found also in other maladies. The diagnosis is easy, if the former symptoms are present. Among the nonspecific signs are diminution in the weight of the newborn child; steady downward trend of the weight curve for 8 to 10 days, with a subsequent rise much slower than normal; a somewhat characteristic external appearance of the infant; alterations in the blood; and changes in the placenta. Considerable stress has been laid on this last sign, the principal change in the placenta being an increase in size. Gailleton, however, found from his investigations that this sign cannot be considered as a certain symptom of syphilis, as it was wanting in almost half his cases, and occurred in cases which were not syphilitic. The sign is of value, however, when considered in connection with all the other symptoms. [B.K.]

Pregnancy and General Paresis.—The observations of recent years testify to the frequency of general paresis in women, contrary to the older opinions. It may seem, therefore, that pregnancy should more frequently be met with in such cases, but as a matter of fact this coincidence is extremely rare, according to G. A. Dedow.[2] His own original series comprises 176 paretic women with 10 pregnancies, or 5.7%. Probably the disease has some direct bearing on this comparative sterility. When conception does occur, however, the course taken by the pregnancy is entirely normal. Moreover, labor is perfectly normal, as shown by the author's cases, and the same applies to the puerperal state. Often the original disease remains uninfluenced by this intercurrent condition; some cases are made worse while others react with a more or less prolonged remission of symptoms. The child was in almost all instances perfectly well developed and apparently healthy. [L.J.]

Primary Acute Pyelitis in Pregnancy.—The etiology of this disease, of which Haeberlin[3] reports eight cases, includes, according to Stadtfeld, in particular mechanical pressure, such as is exerted upon the ureters by the pregnant uterus; this inhibits the flow of urine, and produces dilation and inflammation of the ureters and pelvis. All the symptoms disappear very quickly, if the organs of the true pelvis are relieved of the pressure of the fetal skull; other factors pointing to a transient and mechanical cause are the absence of a history of preceding inflammatory lesions of the uropoietic organs and the sudden disappearance of all the symptoms after the pressure is removed. The symptom-complex is characterized by high fever, in most of the cases by chills, and violent lumbar pain, signs of vesical irritation, such as increased and painful micturition, and cloudy urine. The diagnosis is made positive by the presence in the urine of pus, which varies in amount but is always evenly divided throughout the urine, which speaks for its admixture in the upper urinary tract. The pain is usually intense, and is localized to kidney and bladder regions. It passes along the ureters and sometimes radiates from there. The prognosis is favorable, all of Haeberlin's cases having recovered within one to two weeks. The treatment should be expectant; no indication exists for the induction of premature labor. If the pressure is very great the child's head may be lifted by means of a pessary; or a suitable position in bed may produce ease. The patient should drink plenty of water; salol and urotropin should be given, and morphin if the pain is very violent. [E.L.]

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[1] Revista de Med. y. Cir. de la Habana, February 10, 1904.
[2] Brit. Gynec. Jour., May, 1904.
[3] Zentralblatt für Gynäkologie, April 30, 1904.
[4] Monatschrift für Geburtshülfe und Gynecologie, 1904, xix, 192.

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[1] Lyon Médical, May 22, 1904.
[2] Obosrenie Pychiatrii, February, 1904.
[3] Münchener medicinische Wochenschrift, 1904, li, 198, No. 5.

TREATMENT

Solomon Solis Cohen
L. F. Appleman E. Lindauer

REVIEW OF LITERATURE

Treatment of Subacute Gastritis.—H. C. Wood, Jr.,[1] treats subacute gastritis in the following manner: He regulates the time of eating, and insists upon thorough mastication. The latter subdivides the mass of food finely and insures thorough salivation. He forbids water during the meal, as it dilutes the gastric secretions and enables the food to glide into the stomach without thorough mastication; ice-water is never to be used. Fats and starches are given sparingly; fresh bread, hot biscuits, griddle cakes are prohibited; pulled bread toast and zwieback are suitable starches. Fried and greasy foods and sugars are splendid culture mediums for bacteria and are tabooed. Of albuminous foods, the best are cooked mutton and beef, fish and oysters; pork, veal, and rich game are prohibited. Of drugs, he disapproves of the bitter tonics and stimulating aromatics, as they irritate the mucous membrane. Pepsin in doses of from .65 gm. to 2 gm. (10 gr. to 30 gr.) may be of some use, but it rarely is absent from the gastric secretion. If hydrochloric acid is absent, either it or nitrohydrochloric acid is indicated; the latter should be given undiluted in doses of 5 to 10 drops in a tumbler of water after meals. Pancreatin and vegetable ferments are of no service. Malts containing diastase convert starches into sugar, and are therefore very useful. Sodium bicarbonate is probably the best drug of all. It lessens irritation by neutralizing lactic acid, and being an alkali it is a powerful aid for the secretion of hydrochloric acid. It therefore relieves the symptoms, stimulates digestion, and lessens fermentation. Salts of bismuth act as sedatives to the gastric mucous membrane. The following is a very good prescription:

Bismuth subnitrate	1 dr.	(4 gm.)
Sodium bicarbonate	3 dr.	(12 gm.)
Carbolic acid	15 gr.	(1 gm.)
Spirit of peppermint	20 m.	(1.3 gm.)
Mucilage of acacia, sufficient to make 2 oz		(60 cc.)

A teaspoonful before each meal.

Lavage, alkaline drinks, and a pill of silver nitrate, 16 cg. (¼ gr.), and extract of hyoscyamus 32 cg. (½ gr.) one hour before meals have assisted in producing cures. [E.L.]

Incompatibility of Calomel and Cocain.—Guyot,[2] in an examination of the familiar mixture calomel and cocain with olive oil, found that the cocain salt reduces the calomel to corrosive sublimate. [T.H.E.]

The Use of Scopolamin.—Liepelt[3] finds scopolamin superior to chloral hydrate and morphin, especially in delirium tremens. He says there are no after-effects, that it can be used hypodermically, and that its effects continue for four or five hours. He employs it in doses of .4 mg. to .8 mg. Solutions must be made up as they are used and must be clear. He obtained good results in the delirium of fevers, such as typhoid and pneumonia, and in nervous diseases in which there were severe motor irritations. [J.F.]

The Injection of Antipyrin in Sciatica.—V. Scheuer[4] claims to have obtained good results in the treatment of sciatica by intramuscular injection of antipyrin. The dose is .75 gm. to a grain injected into the buttocks, not into the sciatic nerve, but in its neighborhood. An interval of three to five days should elapse between the injections. He has not seen any unpleasant consequences follow these injections, but, on the contrary, has witnessed the disappearance of the pain in rare cases after one injection. [J.H.W.R.]

Sodium Cinnamate Treatment of Tuberculosis.—G. Brasch[5] has employed sodium cinnamate injections in 52 individuals afflicted with tuberculosis of the lungs; he gave in all over 6,000 injections without the patients experiencing the slightest discomfort from them. He divides his patients into four groups, depending on the stage of the disease. Of the first group, patients without fever, with slight lung changes and good general health, he treated 28; 9 were cured, 8 were restored to their work, the others are still under treatment. The second group, patients without fever, but advanced lung lesions and deficient health, furnished him 7 patients; 1 was cured, 4 restored to their work. The third group, patients with fever, advanced lung lesions, and cachexia, contained 8 members; 1 was cured, and 1 was able to return to work. The fourth group, acute tuberculosis (galloping consumption), is not suitable for this treatment, but even here patients may be helped considerably. Brasch employs solutions of the sodium cinnamate varying in strength from 1% to 5%, and injects them into a vein in the neighborhood of the elbow, under rigid antiseptic precautions. The injections are given three times weekly, beginning with .1 cc. of a 1% solution, and increasing gradually until the maximum dose, 10 mg., is reached. After a few weeks the symptoms begin to abate, and cure is usually complete after six months. Brasch considers sodium cinnamate the best agent at our command in the fight against tuberculosis. One of its great advantages is that it soon puts the patient into a condition to return to his work, so that he may be treated as an office patient, and avoid the heavy expenses of sanatorium treatment. [E.L.]

The Influence of Local Cold upon the Heart's Action.—Krebs[1] from his experiments, concludes that in a certain number of cases the application of cold does good in heart insufficiency, either nervous or organic; this benefit is recognized by a strengthened pulse and reduction in frequency, and by a rise in blood-pressure. The benefit these patients derive is, to a large extent, due to the rest the patient gets while the treatment is being instituted. A certain number of patients is not benefited by this treatment. Krebs does not believe that the cold applications are of equal value to digitalis. He has seen the same good results in these cases follow the application of Leiter's coil, in which was water of indifferent temperature. [J.F.]

Treatment of Leukemia by the Röntgen Ray.—E. J. Brown[2] reports a case of splenomedullary leukemia that appears to have been cured by the röntgen ray. The patient was a male of 30. At first he was given iron and arsenic internally and röntgen ray exposures over the spleen twice weekly; later the iron and arsenic were discontinued and daily exposures of the spleen, ends of the long bones, and the sternum instituted. Improvement was steady and after a time the applications were reduced to every other day. The man is now in robust health and the blood picture is normal, although treatment has been discontinued for 11 weeks. In all, 106 exposures were given during eight months. Brown states that the time is yet too short to report these patients cured, but when we consider the former hopelessness of the disease the results are at least encouraging. [A.G.E.] [Personal experience with röntgen ray treatment in a number of cases of blood disease associated with splenomegaly—of leukemic and other types—confirms the opinion of its usefulness in some instances. It fails, however, in others. As yet it is impossible to predict success or failure in a given case, and its use in all is to be encouraged. S.S.C.]

Extract of Pumpkin Seed for the Removal of Tapeworm.—Ritter[3] makes an extract from pumpkin seeds by removing the fats, albumins and magnesium phosphate. The extract is of acid reaction and of fairly pleasant taste; when cold it is thick but dissolves readily upon the application of heat. For children it is an excellent remedy because of its pleasant taste and the absence of unpleasant after-effects. It is given in the following manner: The evening before, supper should be of only thin soup or coffee; later an enema or slight purgative should be given. The next morning sufficient of the extract to correspond to 300 pumpkin seeds is administered in either tea or cocoa; two hours later the patient is given a teaspoonful of castor-oil. If no stool results within 4 hours an enema is given and repeated if necessary. In 11 cases he removed the head in one treatment; in 3 cases treatment had to be repeated, and in only 3 did it fail to remove the head. [E.L.]

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[1] Therapeutic Review. 1904, i, 3.
[2] El Observador Médico, Mexico, April 15, 1904.
[3] Berliner klin. Wochschrf., 1904, No. 15.
[4] Journal Médecine de Bruxelles. January, 1904, p. 37.
[5] Deutsche medicinische Wochenschrift, 1904, xxx, No. 9, p. 330.

[1] Berliner klin. Wochschrf., 1904, No. 17.
[2] Medicine, July, 1904.
[3] Prager medicinische Wochenschrift, 1904, No 5.

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Number and Distribution of Laboratories for Vaccine Production.—In Europe there are a large number of vaccine establishments, so that the area covered by each is small and there is thus a relatively lessened cost for shipment, and a shorter time transpires from the calf to the vaccinated person. In the United States there are but eight, for a territory as large as Europe, with its vastly greater number. In Germany alone there are 22. Not only so, but seven of the eight American laboratories are in the extreme eastern portion of the States, the eighth being no further west than Detroit, Mich. The south, southwest, and the entire western part must therefore have its virus shipped from points 500 to 3,000 miles distant. It has been a matter of common knowledge that shipment in a too high temperature renders the virus inert or unreliable. Professor Leoni, of the Italian Vaccine Institute, many times has tried in vain to send vaccine to Africa. The fact has made it necessary to intermit the production itself of vaccine in the European establishments during the summer months. This works no evil result in countries where, as in Germany and Japan, vaccination is compulsory, as the inoculations can be made during the colder months, when vaccine is fresh and passes quickly from the laboratory to the local physician. But in our country the vogue of the antivaccination heresy, the few laboratories, and the great distances of shipment undoubtedly have a great effect in increasing the incidence of the disease. The manufacturers should be urged, and see the commercial advantages of scattering branch laboratories throughout the United States. Why not also encourage the successful plan of calf-to-arm vaccination? An added argument is that in the United States our manufacturers have proceeded upon the plan of insuring greater bacteriologic purity. This, with the action of the glycerin, probably tends to make a larger proportion of viruses inert.

Inspection of European vaccine establishments, at the instance of Dr. Benjamin Lee, Secretary of the Pennsylvania State Board of Health, was made by Dr. W. F. Elgin. Ten representative institutions were examined, and the general results formulated. In Paris, "calf-to-arm" methods of vaccination are somewhat common, but in all there is no use of dried vaccine in any form. The glycerinated virus has, in fact, established itself everywhere, and is held to be so good that bacteriologic examination is, with few exceptions, omitted. Almost every propagator has some peculiar method or special feature emphasized as of the highest importance in the production of a trustworthy vaccine. In one place this takes the form of retrovaccination; in another, vaccine is passed through the rabbit; another has a special way of vaccinating; while still another uses for seed especially selected vesicles; and so on. Thus, while certain wellknown principles are generally accepted by investigators abroad, yet the question of producing vaccine according to known laws and absolute methods is still a long way from being solved. This unfortunate condition, while not affecting the fundamental truth, or, materially the clinical practice, should be met by the profession. It undoubtedly arises from the nonunion and independence, with the admixture of commercial, governmental and professional agencies in control of the different establishments. Some methods should be devised of uniting all into some common body, or on some common ground for settling the doubtful points, and bringing about an understanding of the laws, and an agreement as to the best methods of producing the virus and effecting a trustworthy method of vaccination.

Trypanosomes in Leishman-Donovan Bodies.—A remarkable discovery is announced by cable from Dr. Leonard Rogers, captain in the Indian Medical Service, and for a time, if not still, acting professor of pathology in the medical college at Calcutta. The cablegram announced simply that trypanosomes have developed in cultures of the Leishman-Donovan bodies, and was addressed to Dr. Dawson Williams, editor of the *British Medical Journal*, through whose courtesy we are acquainted with the fact. These bodies were discovered early in the past year independently by Majors Leishman and Donovan, of the British Medical Service, in the spleens of patients suffering from chronic cachexial fevers. Smears of the fluid obtained by puncture of the spleens of such patients show small, pear-shaped or oval bodies, 2.5 microns to 3 microns long and 1.5 microns broad, in part free and in part inclosed in red blood cells. Stained with the Romanowsky method, the bodies show in their larger end a mass of chromatin, and often beside it a smaller mass, united with the first by a fine stem. The larger mass of chromatin frequently shows evidence of fission, which seems to be the manner of reproduction of the parasite. The bodies contain no pigment. Some red cells contain numerous parasites; a few are found in leukocytes, though this is probably a phagocytic process. The bodies are not found in the circulating blood. An authority, such as Laveran, considered the new parasite to belong to the order of Pyroplasma or Pyrosoma. The best example of this class of parasites is the organism, which causes the epidemic hemoglobinuria of cattle, known as Texas fever. One form of this class is supposed to be pathogenic for man, that which produces the "tick" fever of the Rocky Mountains. Later observers have found these bodies constantly in the spleen of patients suffering from "kala-azar," a chronic cachexial fever, with splenomegaly, epidemic in Assam, a province of upper Burmah. The parasites have also been found in Omdurman, Egypt, showing that they are not limited to India. Beside occurring in the spleen, they have been found in the ulcers known as "Delhi sores," and in intestinal ulcers; they have been found at postmortem examination in the spleen, liver, bone marrow, the lymph-glands of the mesentery, and, as just stated, in ulcerating surfaces. An excellent description of what are probably the same bodies may be found in a paper entitled "Protozoa in a Case of Tropical Ulcer (Delhi Sore),"[1] by Dr. J. H. Wright, of Boston. The trypanosomes have been studied very widely of recent years. Five species of this flagellated animal parasite have been found, which are pathogenic for the higher vertebrates. One species, *T. brucei*, is pathogenic for man, causing a disease similar to the "nagana" of cattle when it invades the blood, and the famous "sleeping sickness," when the parasite occurs only in the cerebrospinal fluid. The parasites are inoculated into animals by the tsetse fly. The trypanosomes are also noteworthy as the first of the animal parasites to be successfully cultivated in artificial culture media. Novy and McNeal were the first to cultivate the organisms.[2] They found that the parasites would increase in the water of condensation of an agar-agar tube, to which a certain amount of rabbit's blood had been added. It is this fact of the artificial cultivation of the trypanosome which makes us ready to accept the meager news from India as a most important scientific discovery, even before the details of the method used reach us. The Leishman-Donovan body is evidently a tissue parasite, and as such the members of the new group may play a role in the causation of the exanthems. If this discovery proves true, it will mean that man is the secondary host of a parasite, the host in which the asexual cycle is completed, the definite host being some one of the lower animals. Trypanosomes are commonly found in the gray rats of our cities.

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The Control of Diphtheria.—How best to control and prevent diphtheria is a problem perplexing alike to clinician and bacteriologist. The varying virulence of the diphtheria bacillus, its significance in contacts, its presence in the throats of healthy people not recently in contact with cases of clinical diphtheria, the pathogenicity of pseudodiphtheria bacilli—all these are discussed with anything but unanimity of opinion. An instructive recent contribution throwing much light on some of the above questions is that of Dr. G. S. Graham-Smith,[1] who describes an epidemic of diphtheria among the school children of Cambridge in 1903. The principal means employed to control the outbreak were, first, the isolation, until after three consecutive negative examinations, of all notified persons in whose throats diphtheria bacilli were found, and second, the isolation under similar conditions of all known or suspected contacts in whom the bacilli were found. The results from the latter expedient were very encouraging. That the discovery and isolation of infected persons is a practical possibility is believed by Graham-Smith who bases this assumption largely on the fact that of 1,511 healthy persons, noncontacts, examined by different observers, only two harbored virulent diphtheria bacilli, making this an almost negligible factor. To this view there will be some dissenting voices. Of the 113 samples of bacilli obtained during the epidemic, 87 were fully virulent and 27 were entirely devoid of virulency. One virulent organism did not kill the inoculated animal until the twelfth day. A significant fact is that no partially attenuated bacilli were found. Nonvirulent bacilli were found in one to two of every 100 persons examined, whether contacts or noncontacts. This emphasizes the necessity of inoculation tests to make an absolute diagnosis. Regarding the vexed question of when to liberate isolated patients and contacts, Graham-Smith cites statistics to show that two consecutive negatives, and in some instances even three, are not a complete safeguard. He rightly states, however, that it is occasionally difficult to enforce isolation until three negatives are obtained and to insist on more would be impossible; a minimum of three should be enforced whenever practicable. Of interest in this connection is the statement of Health Officer Richards in his annual report for Croydon that in some cases diphtheria bacilli were very persistent, being present at 10 or more examinations at intervals of a week. Such patients usually possess enlarged tonsils, adenoids, and suffer from chronic pharyngitis. Removed tonsils were in some instances found to contain in their depths myriads of typical, virulent diphtheria bacilli where they had not been reached by local applications and had resisted large doses of antitoxin. Which is another potent argument for the early removal of superfluous lymphadenoid tissue from the oral, nasal and pharyngeal cavities.

Röntgen Ray Litigation in London.—Every one who has had a certain amount of experience of life has observed that rare incidents of all kinds—rare diseases, rare instances of ill fortune, and the much rarer ones of good luck—tend to occur in groups. Even röntgen ray litigation appears to furnish a new example of the rule. But a few weeks ago we noticed the great Dublin law suit, which first introduced to the British public all the scientific mysteries and legal liabilities associated with the production of a röntgen ray burn. That case was threshed out with the most thoroughly representative Hibernian eloquence and wit—as well as science—during a period of seven days. And now from the sister island comes the news of another röntgen ray suit for damages, which has just been tried in the King's Bench, London. But this latter lawsuit presented certain Saxon complications which tend somewhat toward the formation of the opinion that the medical conscience and the social civility of London practice are by no means so far superior to those of Ireland as the average Englishman usually believes. In this case of Smith v. Pare, the physician, Dr. Cloete Smith was the plaintiff; the defendant was the husband of Mrs. Pare, on whom a röntgen ray burn had been inflicted. Dr. Smith brought an action for the recovery of fees for professional services, and of damages for an assault by Mr. Pare. The latter brought a counter-claim for the infliction of a röntgen ray burn. It appeared that Mrs. Pare had been under the care of a surgeon (Mr. Huxley) for some eight or nine years before, and that Sir Victor Horsley performed a serious surgical operation on her about four years ago. Last year, when she was in a low state of health, Mr. Huxley advised the open-air cure. Mr. Pare, however, had seen a circular issued by (or on behalf of) Dr. Cloete Smith, and sought Sir Victor Horsley's opinion with regard to the advisability of trying the "high frequency" treatment. Röntgen ray treatment was not then mentioned. However, Mrs. Pare was placed under the treatment of Dr. Smith, and extensive röntgen ray dermatitis ensued. Subsequently Mr. Pare obtained a personal interview with Dr. Smith, and an (admitted) assault upon the latter ensued. The next development was, of course, a duplex law suit—claim for fees plus claim for bodily violence inflicted, versus counter-claim for röntgen ray dermatitis. The jury found that Dr. Smith's treatment was improper, negligent, and unskilful, and offered him the aggravating sum of £2 sterling for solace of his bodily grievances, while they gave Mr. Pare £100 for the dermatitis inflicted on his wife. Sir Victor Horsley's evidence was most unfavorable to Dr. Smith's pretentions. Anyway we feel pretty confident that the latter gentleman "won't do it again."

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[1] The Journal of Medical Research, December, 1903.

[2] Contributions to Medical Research, dedicated to V. C. Vaughan, June, 1903.

[1] Journal of Hygiene, April, 1904.

Conservatism in Advising Operations.—At the meeting in Atlantic City, the question of over-much operating was uppermost in many minds. While some recklessly demanded early and exceptionless operation, others more correctly represented true professional opinion in urging greater conservatism. One excellent authority said: "We have been living in an age of operations, and we have lost sight, in a large measure, of the importance of less violent methods. I find that many of my cases that appear at first to indicate the need of surgical treatment yield to medicinal treatment, so that an operation may be finally obviated." Most noteworthy was the statement made in the Chairman's address, in the Section on Surgery. Dr. Powers said:

> In our choice of operation or no operation, we should, as Billroth suggested, ask the question, whether we would be willing to undergo the operation ourselves. In the early career the surgeon is inclined to look at the ready results of operation, while in later years, he is more careful in his selection of cases, and in a third period of his career, is likely to limit himself to certain special conditions in which he has gained special skill. The responsibility of surgery is not equaled by any other calling, and men of the highest character are needed.

The last sentence hits upon the heart of the matter. In the willingness of the public to pay larger fees than for greater and more difficult service of the family physician, the modern surgeon is liable to be deceived, or to deceive himself as to the necessity of operation, and only a scrupulous conscience can prevent the growth of the evil. The general physician should not hesitate to have his own opinion, and to give his advice accordingly in cases of doubt.

Forty percent of defective eyes, on the average, in the 1,200 pupils examined in the Columbus, Ohio, High Schools—such is the report of Dr. Timberman, in the *Ohio Sanitary Bulletin.* In one school of 184 pupils, 103 had defective eyes, a percentage of 56. Three things concerning this report must be remembered: 1. The test was one of simple vision, without a mydriatic, and "if there was any doubt, we gave the benefit of the doubt to the normal eye always." 2. The reflexes and morbid results of eyestrain are often worse when the accommodation can temporarily overcome the visual defect in ametropia. 3. No attention was given in the tests, either to local ocular disease or to the more important reflexes of eyestrain to the nervous and assimilative systems. Taking these facts into consideration, there should be careful weighing of the lessons to be derived from Dr. Timberman's statistics. And still more serious thinking over the testimony of Dr. Chapman, who in the discussion said:

> The school children are being crowded until they are sick—they become sick from worry and overwork. I have had many children come to my office. They have had headaches all the time. Their parents say they get up with headaches. They go to bed with headaches. And they conclude that the stomach of the child is out of order, and they send it to me and ask me to give it something that will relieve it from this stomach trouble. There are a number of physicians here, and I need but call your attention to the fact and ask you how many times have you looked at that child and said, "There is something the matter with your eyes."

Those who sneer at and belittle the role of eyestrain, are callous dullards, and either ignorance or cruelty in a medical man are inexcusable. When combined, politeness hesitates to use the proper word in speaking of them.

A Rule as to Sewage Pollution of Streams.—There has been a great deal of vagueness as to the purifying action of running water, and the amount of sewage which a given stream could receive without endangering the health and lives of the inhabitants using the water. In the latest number of the Ohio Sanitary Bulletin, Dr. Chapman calls attention to a report on the subject by Mr. Allen Hazen, made to the State Board of Health, which seeks to formulate a more accurate rule. It is as follows:

> The quantity of water required to dilute the sewage from a given population so that no nuisance will be created is com-

monly stated at from one and a half to four cubic feet of water per second per 1,000 of population. In the case of sluggish streams, or of streams the waters of which are already somewhat polluted, the quantity required for proper dilution may be increased to six, eight, or even ten cubic feet per second per 1,000 population.

The flow of water from streams like those in Ohio in time of drought is frequently as low as a tenth of a cubic foot per second per square mile of drainage area, and may occasionally be much less. With this quantity of run-off, and with the smallest suitable amount of dilution, a stream would be required, having a drainage area of from 15 to 40 square miles for every 1,000 inhabitants, to properly dilute the sewage without creating a local nuisance.

A Little Illustration as to Carelessness in Filtration.—The cases of Hamburg, Butler, Ithaca, etc., are striking as to the obligation of local Boards of Health to see to it sharply that the protection against typhoid fever once established by a pure water-supply shall not be abolished by carelessness. In Lorain, Ohio, a modern and effective filtration plant was established in 1896, and only 57 cases of typhoid fever had been reported in the five years prior to August 1, 1903. The plant was shut down for repairs on July 24, 1903, and in the month of August there were 67 cases of typhoid fever. The plant was again put in operation in September and the cases have been gradually lessening since. Plainly, where there is one "plant" there must be another.

The Life Insurance Companies and "New Thought."—A prominent life insurance examiner has received the following letter from the publisher of a book "dedicated to life insurance companies":

> Cleveland, O., February 10, 1904.
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> Dear Doctor:—You being at the head of an insurance company will be interested in a new book that clearly points out how each person can gain 60 to 70 years of life. The life principles incorporated in food has been destroyed for ages by cookery, hence average of life is 38 years. Life average should be 125 years. This book is the first of its kind which gives a practical recipe for placing food upon our tables in a palatable form, and still retain the life-principles. It is an encyclopedia for preparing food and retain its full value. The chapter on nuts as food is more elaborate than any other written up to date. You need it now. It explains in one chapter the results of the mind over the bodily functions. There are recipes of making nut butters at your own home, making them inexpensive. The information upon fruits and grains is concise and practical. It is the best book of the century. Read the inclosed circular carefully and let us receive an order at once. You will notice it is dedicated to life insurance companies. Copy will be sent you for $1, and they will be furnished to your examiners at your request for the same amount.
>
> Yours for 100 years of life,
>
> Suggestive New Thought Pub. Co.

In these days, when it is generally confessed that the great majority of people eat too much "life-giving" food, and when the average length of life is being extended, it seems odd to find a plea like this for the use of raw foods. One of the reasons for the fad is found to be that the medical profession generally advocates the cooking of food; the faddist in general, and this one in particular, is opposed to us. "If the druggists and the doctors of medicine," says this discoverer of raw foods, "could disappear from the community the people would be everlastingly benefited by the absence of this parasitic class." The author is also most harsh upon the use of "antitoxins," "vaccine," or "virus of any kind;" and he is sure that all crime, degeneracy, etc., are due to "cooked and unnatural foods." And thus for the one thousand and first time is discovered the secret of all our woes!

The Socialist and the Abuse of Medical Charity.—The Annals of the American Academy of Political and Social Science is endowed with a sounding name, and therefore sometimes runs a thin rivulet of text through very wide margins of good white paper. Sometimes, too, the rivulet might be much smaller without loss to its readers—as *e. g.*, in G. A. Kleene's article on "The Problem of Medical Charity," in the May number. "Trinity College, Hartford, Cann.," according to the proofreader, is the sponsor for Mr. Kleene's treatment of the problem, which for the self-satisfied author, is no problem at all. There is no pauperization at all due to or following the abuse—in fact, the more indiscriminate the abuse, the greater is the prevention of the degrading tendency of getting something, especially medical aid, for nothing. Investigation cannot check the abuse, the writer says, and the efforts to prevent sickness on the part of the profession are called "the commercial rivalry of individuals." The specialists are repeatedly "lambasted" for their high charges, to which there are apparently no exceptions. How this enlightened writer views the profession may be gathered from this excerpt:

> The physician derives his income from the misfortunes of others. The more sickness, the wider his market and the larger his income, provided, of course, sickness does not proceed to the point of diminishing the average purchasing power of the community. Preventive measures for meeting sickness are opposed to the interests of the profession. Public sanitation appeals to the physician only insofar as he and his family are protected by it. Still greater, it appears, must be his indifference to the work of educating the public in hygiene and sanitation. Too much intelligence on the part of the public might be fatal to his practice.

Mr. Kleene's article sounds much as if he had been very unfortunate in the choice of his medical advisers. Perhaps his especial reactionary "drift of things" is due to the services of some quack, or to some dispensary doctor dealing in a peculiarly obnoxious brand of selfish charity. At least we might be helped to rid ourselves of the pest instead of attempting to make it more "generous" and more "indiscriminating." A sorry socialism, this of Mr. Kleene!

The Question of Doctors' Fees.—According to the *Boston Medical and Surgical Journal*, a judge in St. Louis has recently given expression to the opinion that the financial condition of the patient should not be considered by the physician in his charge for professional services. The statement was that the character of the service, the seriousness of the complaint, the skill and time required, and the result reached, are elements to be considered, but not the wealth or poverty of the patient. This decision was handed down in a case against a physician for an alleged exorbitant fee. However just such a decision may be theoretically, it is clear that its practical consequences would not conduce to complete justice. It would, for example, be an exceeding hardship to the poor, if only such considerations as those suggested by the presiding judge were taken into account. Doctors' fees, like lawyers' fees, must no doubt in general be determined by all the circumstances of the given case, among which the poverty or wealth of the patient must be given due weight.

AMERICAN NEWS AND NOTES

GENERAL.

Human Perspiration.—Some physicians have been studying the part human perspiration plays in throwing off the poisonous products developed in the body by pathologic conditions or the effects of drugs. Sweating was induced by hot-air baths, and the perspiration collected by enveloping the subjects in sterile gauze covered with oilcloth. The conclusion reached is, that in the elimination of normal and abnormal substances the skin is comparatively unimportant compared with the kidneys.

Summary of Work at Laredo and New Laredo.—According to *Public Health Reports* under date of July 18, a summary of work accomplished is reported by Dr. Richardson as follows: During week ended July 16 fumigated at Laredo 33 houses, containing 150 rooms; also 4 wells and 2 tanks. Inspected 7,885 premises. Oiled 2,382 water containers. Cock and outfit have reached Roma. Maximum temperature, 101°. No rainfall. New Laredo reports for period July 9 to 15, 3,598 domiciliary visits; 94 water containers found with larvas; 131 containers emptied and 62 oiled.

Hawaii Asks Governmental Aid to Care for Lepers.—News from San Francisco under date of July 19 says: Hawaii wants the Government to help it provide for the leper colony and the scientific study of the disease. The territory's Board of Health has written to the San Francisco Board of Health asking for this city's assistance in appeals to Washington for funds needed in the work of caring for a large settlement. In Hawaii's leper settlement, at Molokai, there are 951 native Hawaiians, 34 Chinese, 10 Portuguese, 10 English and Germans, 5 Americans, and 4 negroes and Malays.

Miscellaneous.—**The International Congress of Arts and Sciences** will hold its Universal Exposition in St. Louis, September 19 to 25, 1904. A department of medicine will be a feature of this Congress with sections in therapeutics and pharmacology, internal medicine, neurology, psychiatry, surgery, gynecology pathology, otology and laryngology, and pediatrics. **The American Association of Obstetricians and Gynecologists**, will hold its seventeenth annual session at the Hotel Monticello, St. Louis, September 13 to 16. Particulars may be had by addressing the president, Walter Blackburn Dorsett, St. Louis. **Philadelphia:** At a recent meeting of the Board of Trustees of the Philadelphia Polyclinic and College for Graduates in Medicine, Dr. W. Sweet was elected professor of diseases of the eye vice Dr. Howard Hansell resigned, and Dr. John B. Deaver was elected consulting surgeon to the Polyclinic Hospital.—For the first time in three years a week has passed without a single new case of smallpox being reported. Officials of the Board of Health attribute this condition to the vigor with which the vaccination campaign has been waged throughout the city.

Comparative Mortality in Three Large Cities.—The Bulletin of Chicago's Health Department for the week ended July 16, says: Following is a summary for last year, 1903, of the three principal—not necessarily the largest—cities of the world, with respect to child mortality:

	Population.	Total deaths.	Deaths under 5.
London	4,613,812	72,109	25,727
New York	3,732,903	67,864	22,044
Chicago	1,873,880	28,914	7,817

Deathrates per 1,000 of all ages: London, 15.62; New York, 18.18; Chicago, 15.34. Deathrates of under 5, per 10,000 of population: London, 55.7; New York, 59.0; Chicago, 44.1. It is to be noted that the Department's estimated population figures are from 4% to 5% lower than that accorded to it by other vital statisticians; that, while Chicago's general deathrate—that is, the number of deaths at all ages in every 1,000 of the population—is only 1.8% less than London's, it is 15.6% less than New York's. And most important in this connection—that Chicago's under-5 deathrate is 20.8% less than London's and 25.2% less than New York's.

Professor Hoffa's Opinion of America.—In a letter to the editor of the *Deutsche med. Wochenschrift*, dated Atlantic City, June 5, 1904, Professor Hoffa gives an interesting account of the early days of his American tour. Like all his colleagues that have recently visited this country, Hoffa is very effusive in his praises of American medicine. He was much impressed with our hospitals, but remarks that the high price of real estate prevents their being constructed according to the German model, in the form of separate low buildings; they have to be built up into the air. Of orthopedic surgery in America, he has formed a very high estimate—especially from the technical and mechanical points of view. In New York he visited the St. Luke's, Mt. Sinai, Presbyterian, German, and Bellevue Hospitals. He was astonished at the luxuriousness with which the first two are furnished. A most favorable impression was made upon him by our system of nursing in hospitals, which is far in advance of that in vogue in Germany. The difference is due, he believes, to the fact that the trained nurses here are recruited from better social classes than in his home. The principal hospital buildings in Philadelphia he found to be much older than those in New York. He is apparently much pleased with the doctor's degree conferred upon him by Jefferson Medical College—a distinction that, he says, no other German except Geheimrath v. Mikulicz shares with him. Further letters are promised.

Ventilation of Street Cars.—News from Washington states that reports received on the investigations into the success of ventilation and its relation to the public health, now in progress under the auspices of the Boards of Health of various cities, are to the effect that the Boards are following the same lines pursued in sanitation; in that general movement expectorating in the street cars and all public conveyances was first attacked. Now attention is directed to the ventilation of these public utilities. and for precisely similar reasons, namely, that in no other public place of such limited dimensions are so many people so often and so long confined, and nowhere else is the danger of contagion to the multitude so pronounced. To what extent contagious diseases can be communicated by the inhalation of the respirations of affected persons has never been satisfactorily determined. The object sought by all scientists is the introduction of fresh air simultaneously with the exhaustion of the vitiated air, but without causing a draft, which might be more dangerous than the foul air itself. It would seem that on street cars the forward motion would create a sufficient current to allow an easy solution, but here the investigator is confronted with the necessity of excluding cinders, smoke, and dust, while admitting pure air. The Boards of Health of the larger cities, especially Brooklyn, New York, and Boston, are apparently determined to prepare early for the coming winter, when muggy weather makes riding in the cars so disagreeable, and rain, snow, sleet or frigidity prevents the opening of the windows.

EASTERN STATES.

Child Labor.—According to the Massachusetts Bureau of Labor Statistics, four years ago there were employed in the productive industries in the State, children under 16 years of age to the number of 1,752,187, of which, however, only 60% were employed in agricultural, and 16% were employed in domestic and personal service. The total number employed in manufacturing and mercantile industries was 284,330, or 16.23%. Of the total number employed only 24,217, or 1.38%, were employed in mines, while 44,427, or 2.54%, were employed in cotton mills. In Massachusetts 11 industries employed children to the number of more than 5% of all their employes, and the average for the 11 was only 6.57%. The Massachusetts report does not give any comparisons with earlier years, but the census gives the whole number of children employed in factories as 181,921 in 1880, and 168,623 in 1900. In the earlier year 6.7% of the wage earners were children, and in 1900 only 3.2%. The employment of children decreased rapidly from 1880 to 1890, since which time there has been some increase. For the country the number was less in 1900 than in 1880. In this State the number in 1900 was 33,135, against 29,667 twenty years earlier, but the percentage of child wage earners had declined from 7.7% in 1880 to 4.5% in 1900.

PHILADELPHIA, PENNSYLVANIA, ETC.

Fines and Pure Food Law.—Dr. B. H. Warren, State Dairy and Food Commissioner, in his annual report, declares that 1,800 prosecutions were ordered, and $93,458.71 was collected as fines and costs in the last 12 months. The commissioner states that the Pennsylvania pure food law of 1895 is recognized as the most effective in the United States, but he argues that it can be improved so as to assure speedy and proper termination of prosecutions brought thereunder. He says the condition of the milk and cream sold in some towns was of an alarming nature, the use of harmful drugs having reached proportions hitherto unknown. It is claimed that the use of excessive amounts of such preservatives was directly responsible for the increased mortality among small children in western Pennsylvania towns, while in other cases infants were made ill and narrowly escaped death before the cause was discovered.

SOUTHERN STATES.

Comparison of Race Mortality in Four Southern Cities.—From *Public Health Reports* are gleaned the facts for the following comparisons: During the month of June the mortality in New Orleans, with a population of 317,000; white 233,000, colored 84,000, was 533, of which 233 were white and 300 colored; or a respective mortality of 14.4 and 24 per 10,000. During the corresponding month in Knoxville, Tenn., with a population of 40,000—white 30,000, colored 10,000, the mortality was 62; white 34, colored 28, or a respective mortality of 11.3 and 28 per 10,000. Similarly, in Nashville, Tenn., with a population of 82,000—white 52,000, colored 30,000, the mortality was 164, white 82, colored 82, or a respective mortality of 15.8 and 27.3 per 10,000. During the same month in Richmond, Va., with a population of 100.000—white 62,000, colored 38,000, with a mortality of 187, white 73, colored 114, or a respective mortality of 12 and 30.8 per 10,000.

WESTERN STATES.

Dairy Inspection for Chicago.—The Bulletin of the Chicago Health Department says: During the working days of the last 3 weeks 355 dairy farms, with 6,288 cows, have been inspected and the milk from 72 dairies, or about 20% has been excluded from sale in Chicago, until the owners comply with the sanitary requirements of the department based upon the city ordinances. The educational effect of this exclusion is shown in the following figures: During the first week 88 dairies were inspected, out of which number it was found necessary to exclude the milk of 32, or more than a third, 36.3%; during the second week 135 were inspected, and 29, or 21.4%, were excluded; last week, with only 4½ working days, there were 132 dairy farms and 2,871 milch cows inspected, and the milk from only 11, or 8.3%, was excluded.

Washington State has a Good Medical Library.—According to a western exchange, the Washington State Library is to have a department of medical works second to none west of the Mississippi river. The initial installment of over 1,000 volumes has already begun to arrive, representing an outlay of $2,500. The medical library will ultimately be as efficient and as valuable to the medical profession of the State as the law library is now to the legal profession. The volumes have an exceedingly wide range, and many of them are importations. As a result of the installing of this new department, it is expected that not only will physicians from other parts of the State visit Olympia to take advantage of the facilities offered, but that the addition will be very valuable to lawyers as a reference library in the many cases in which expert medical testimony is required.

Ravages of Tuberculosis in Illinois.—In a circular recently issued by the State Board of Health, entitled, "The Cause and Prevention of Consumption," it is shown that in Illinois the disease is responsible for more deaths than typhoid fever, scarlet fever, diphtheria, all forms of bronchitis, influenza, measles, and smallpox combined. It is further found that those dying from pulmonary tuberculosis were usually in the prime of life. Of the 7,000 persons who died from this disease in Illinois in 1903, half were between the ages of 20 and 50, while the estimated loss each year to the State because of the disease is about $36,000,000. The investigations of the Board have demonstrated that a special climate is not essential to the cure of tuberculosis, but that the disease is curable in Illinois. Suggestions are made to the tuberculous on methods of life calculated to lead to physical improvement, and it also announces that the Board has established a laboratory in which the sputum in suspected tuberculosis cases will be examined without cost. An appeal is made for the establishment of a State hospital for the treatment of the disease.

FOREIGN NEWS AND NOTES

GENERAL.

Cholera and Plague in Calcutta.—Passed Assistant Surgeon Sprague reports, June 2, as follows: During the week ended May 28, 1904, the deathrate from plague in this city fell off about a third, to 90, and that from cholera dropped over half, to 51. For the Presidency of Bengal, the deaths from plague for the week ended May 21 were 349. In India, for the week ended May 7, the deaths from plague were 35,413 out of 41,492 cases. This excessive mortality is owing to the epidemic in the Punjab, where, although there is an apparent beginning of an improvement, the deaths numbered 30,723. No transactions at the port.—[*Public Health Reports.*]

No Death Sentences in Belgium.—Death sentences are never executed in Belgium because King Leopold promised his mother as she was dying that he would never sign his name to a death warrant. Consequently, although the statute prescribes the extreme penalty, it is only carried out constructively. The condemned person is regarded as dead in the eyes of the law. In place of his personal appearance on the scaffold the headsman substitutes a broadside bearing his name and sentence, posts this where it may be read by the people, and so leaves it, while the criminal is put in prison to stay there for the term of his life. Imprisonment for life, on the other hand, is a sentence subject to commutation after 15 or 20 years, as in other countries. There have been efforts to persuade King Leopold to make an exception in the case of the three Liege anarchists—petitions signed by thousands have been presented to him—but he will not yield. The practice of capital punishment is more and more going out of use in civilized countries.

Sickness in the Russian Army.—An official statement of the number of sick and wounded belonging to the Manchurian army shows a great increase in sickness after a few days' rain, and also a large proportion of sick and wounded officers compared with men. These figures are according to the listed strength of the army. Before the rains, up to June 26, the total was 71 officers and 39 men per 1,000, of whom wounded officers numbered 10 per 1,000, and men 6 per 1,000; suffering from contagious diseases, 2 per 1,000, of whom half were suffering from dysentery and a tenth from typhus. There was one case of plague, and not a case of smallpox. After the rains, July 9, the figures were: Officers 94 per 1,000, men 46 per 1,000, of whom the wounded officers numbered 29 per 1,000, and the men 9 per 1,000. Contagious diseases had risen to 9 per 1,000, including in equal proportions dysentery and typhus, and introducing scurvy and smallpox, of which there were 3 cases, and bringing up the plague to 7 cases; 22 cases of horse and cattle plague were also reported.

OBITUARIES.

John N. Woodruff, at his home in Sherman, Conn., July 20, aged 69; a graduate of the College of Physicians and Surgeons and of Bellevue Medical College, New York. He was at one time a member of the State Senate, and at the time of his death was chairman of the Committee on Public Health and Sanitation and a member of the State Sewage Commission.

George V. Venner, at his home in Milford, N. J., July 20, aged 40. Death was supposed to be due to an overdose of cocain, hypodermically administered for experimental observation; a graduate of the Medico-Chirurgical College of Philadelphia.

Helen W. Webster, at her home in New Bedford, Mass., July 19, aged 67. She was one of the best known women physicians in New York State, and was at one time professor of anatomy and hygiene at Vassar.

Richard S. Trowbridge, of Milton, Pa., at Rockledge, Pa., July 11, at an advanced age; a graduate of the Philadelphia College of Medicine and Surgery in 1852. He retired from practice some 15 years ago.

Victor Steinberger, of New York City, was drowned in Jamaica Bay July 17, aged 30; a graduate of the College of Physicians and Surgeons, New York, in 1876.

Gideon D. Hobart, of Brooklyn, N. Y., in Elizabethville, N. Y., July 15, aged 59; a graduate of Bellevue Hospital Medical College in 1873.

Eli J. Zook, at his home in Newville, Pa., from heart disease, July 11, aged 60; a graduate of the Jefferson Medical College in 1878.

Hamilton Fish, at his home in Denver, from gastroenteritis, July 12; a graduate of the Denver College of Medicine in 1893.

Albert E. Ahlstrom, at his home in Cokato, Minn., July 3; a graduate of the University of Minnesota in 1900.

Foreign.—Sir John Simon, the great English sanitary reformer, in London, July 22. Early in life he established a reputation by his writings on pathology and therapeutics, and later devoted his work to sanitary reform. He was appointed health officer of the city of London, and instituted radical measures for the improvement of the sanitary condition of that city. Early in his career he waged a successful battle in defense of vaccination, against which at that time there was much prejudice. For 50 years he had been prominent in the health affairs of the city of London. Foreign and English universities honored him with degrees, and he was a member of numerous medical and scientific associations. In spite of his professional work, he published volumes on miscellaneous subjects and devoted much study to art, metaphysical literature, and oriental languages. Queen Victoria made him a K. C. B. on the occasion of her first jubilee in 1887.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 22, 1904:

	Smallpox—United States.		Cases	Deaths
Colorado:	Denver	May 28–July 9	3	
District of Columbia:	Washington	July 9–16	1	
Florida:	Jacksonville	July 9–16	1	
Georgia:	Macon	July 2–9	2	
Illinois:	Chicago	July 9–16	10	
	Springfield	July 11–18	5	
Iowa:	Clinton	July 2–9	1	
		Imported from St. Louis.		
Louisiana:	New Orleans	July 9–16	3	
		Traceable to importation.		
Michigan:	Detroit	July 9–16	1	
	At 71 localities	July 2–9	Present.	
Missouri:	St. Louis	July 9–16	3	
New Hampshire:	Manchester	July 9–16	3	
New York:	Buffalo	July 9–16	1	
	Niagara Falls	July 9–16	1	
Pennsylvania:	Philadelphia	July 9–16	1	
	Steelton	July 9–16	1	
Tennessee:	Memphis	July 9–16	1	
Wisconsin:	Milwaukee	July 9–16	2	
	Smallpox—Foreign.			
Austria:	Prague	June 18–July 2	7	
China:	Shanghai	June 11–18		8

Great Britain:	Birmingham	July 2-9	1	
	Bradford	June 18-July 2	7	
	Edinburgh	June 25-July 2	2	
	Glasgow	July 1-8	19	2
	Liverpool	July 2-9	1	
	London	June 25-July 2	10	1
	Manchester	June 25-July 2	1	
	Newcastle-on-Tyne	June 25-July 2	8	2
	Nottingham	June 18-July 2	22	
India:	Bombay	June 14-21		13
	Calcutta	June 11-18		2
Italy:	Palermo	June 18-July 2	2	1
Japan:	Kobe	June 11-25	2	
Mexico:	City of Mexico	June 26-July 10	5	6
Russia:	Moscow	June 18-25	10	7
	St. Petersburg	June 25-July 2	13	4
Turkey:	Alexandretta	June 18-25		1
	Beirut	June 18-July 2	Present.	

Yellow Fever.

Colombia:	Barranquilla	June 23-29		1
Costa Rica:	Limon	July 2-9	1	
Ecuador:	Guayaquil	June 8-29		21
Mexico:	Coatzacoalcos	July 2-9	1	
	Vera Cruz	July 2-9	2	1

Cholera.

China:	Shanghai	June 11-18	Reported.	
India:	Calcutta	June 11-18		9
	Madras	June 11-17		1
Persia:	Koom	June 18	Present.	
Turkey in Asia:		June 13	342	230

Plague.

Africa:	Cape Colony	June 4-11	1	
	Transvaal.	To June 26	146	96
Australia:	Brisbane	May 23-June 1	4	
	Sydney	May 27	1	
Chile:	Antofagasta	May 24-31		12
China:	Amoy	June 4	Present.	
Egypt:		June 11-18	30	10
	Including 5 cases, 1 death in Alexandria, and 1 case in Port Said.			
India:	Bombay	June 14-21		55
	Calcutta	June 11-18		31
	Karachi	June 12-19	8	8

Changes in the Medical Corps of the U. S. Army for the week ended July 23, 1904:

Artaud, Frank E., contract surgeon, will proceed to Dasmarinas' Cavite, for duty.

Bloombergh, First Lieutenant **Horace D.**, and **Brooke**, First Lieutenant **Roger, Jr.**, assistant surgeons, are relieved from duty at Camp Bumpus, Tacloban, Leyte, and Mariquina, Rizal, respectively, and will proceed to Manila, reporting to the chief surgeon of the division for instructions.

Johnson, Charles W., contract surgeon, is granted leave for three months with permission to visit the United States.

Wolven, F. Homer, contract dental surgeon, is granted leave for one month and fifteen days on account of sickness, with permission to visit China and Japan.

Hall, William E., contract surgeon, orders which grant leave for one month with permission to visit China and Japan to take effect about June 1, are amended so that the leave will take effect about July 1.

Decker, George M., contract dental surgeon, is relieved from duty in the department of the Colorado, to take effect at such time as will enable him to comply with this order and will then proceed to his home Oswego, N. Y., and report to the surgeon-general of the army for annulment of contract on August 15.

Newton, Ralph W., contract surgeon, now at Camp Daraga, Albay, will proceed to Virac, Island of Catanduanes for duty.

The following-named medical officers will proceed to the station set after their respective names for duty: First Lieutenant Theodore Lamson, assistant surgeon, Los Banos, Laguna; First Lieutenant Arthur M. Whaley, assistant surgeon, Camp Daraga, Albay; First Lieutenant William A. Powell, assistant surgeon, Camp McGrath, Batangas; First Lieutenant Lloyd L. Smith, assistant surgeon, Cuartel Meisic, Manila; First Lieutenant Craig R. Snyder, assistant surgeon, Mariquina, Rizal.

Rhoads, First Lieutenant **Thomas L.**, assistant surgeon, now on leave at Boyerton, Pa., is relieved from further duty at the U. S. Army General Hospital, Presidio, and will proceed to Philadelphia, Pa., and assume the duties of attending surgeon and examiner of recruits in that city.

Krebs, First Lieutenant **Lloyd Lee**., assistant surgeon, leave granted April 11 is extended ten days.

Halsell, John T., contract surgeon, now on leave at Laredo, Tex., will proceed to San Antonio, Tex., and report to the commanding general, department of Texas, for assignment to temporary duty.

The following-named medical officers will proceed to the station set after their respective names for duty: First Lieutenant Charles L. Foster, assistant surgeon, to Caloocan, Rizal, relieving Contract Surgeon Calvin D. Snyder, who will proceed to Ambulong, Batangas, for duty; First Lieutenant John B. Huggins, assistant surgeon, to Ragay, Ambos Camarines.

Bevans, First Lieutenant **James L.**, assistant surgeon, is relieved from duty at Fort Barrancas, and will proceed to Fort H. G. Wright for duty, to relieve First Lieutenant Clyde S. Ford, assistant surgeon, who will proceed to Fort Barrancas for duty.

Jones, John F., contract surgeon, orders of July 12 are so amended as to direct him to report by letter to the surgeon-general of the army September 30, for annulment of contract.

Connor, Michael E., contract surgeon, is granted leave for one month upon the expiration of which he will report to the surgeon-general of the army for annulment of contract.

Thornton, James W., contract surgeon, is relieved from further duty at Fort McDowell, and will report at depot of recruits and casuals, Angel Island, for assignment to temporary duty.

Wells, Francis M., contract surgeon, will report at Fort Miley for duty, relieving Contract Surgeon Michael E. Connor.

Bemtgen, August A., sergeant first class, Army General Hospital, Presidio, will report at Fort McDowell for duty.

Gardner, Lieutenant-Colonel **Edwin F.**, deputy surgeon-general, will report to Brigadier-General Thomas H. Barry, president of an army retiring board at Atlanta, Ga., for examination by the board.

The following assignments to stations and duty of assistant surgeons, recently appointed are ordered: First Lieutenant Henry L. Brown, now at Columbus Barracks, will report at that post for duty; First Lieutenant Howard H. Baily, now in Washington, D. C., will proceed to Plattsburg Barracks for duty; First Lieutenant Barry G. Humphreys, now at Fort DuPont, will proceed to Fort Totten for duty; First Lieutenant Paul L. Freeman, now in Washington, D. C., will proceed to Fort Slocum for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended July 23, 1904:

DeValin, C. M., passed assistant surgeon, detached from the Albany and ordered home to wait orders—July 15.

McDonell, W. N., acting assistant surgeon, detached from the Glacier and ordered to the Marcellus—July 15.

McMurdo, P. F., acting assistant surgeon, detached from the Gloucester and ordered to the Navy Yard, League Island, Pa.—July 15.

Black, W. H., acting assistant surgeon, detached from the Navy Yard, N. Y., August 12 and ordered to the Naval Station, New Orleans, La.—July 15.

Bogert, E. S., Jr., surgeon, orders of July 15 modified, ordered to continue duty at the Naval Academy—July 18.

Curtis, L. W., surgeon, detached from the Buffalo and ordered home to wait orders—July 18.

Parker, E. G., passed assistant surgeon, detached from the Wheeling and ordered to the Buffalo—July 18.

Sutton, R. L., assistant surgeon, detached from duty with the Marine Battalion on the Isthmus of Panama and ordered to the Naval Hospital, New York, N. Y., for treatment—July 18.

Grieve, C. C., assistant surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the Naval Station, Guam, L. I.—July 20.

Cather, D. C., assistant surgeon, appointed assistant surgeon with rank of lieutenant, junior grade, from July 9, 1904—July 21.

Changes in the Public Health and Marine-Hospital Service for the week ended July 21, 1904:

Bailhache, Preston H., surgeon, granted leave of absence for seven days from July 17, 1904, under paragraph 189 of the regulations.

Mead, F. W., surgeon, granted leave of absence for one month from August 1—July 19, 1904.

White, J. H., surgeon, granted extension of leave of absence for three days from July 18—July 15, 1904.

Clark, Taliaferro, passed assistant surgeon, relieved from duty at Ellis Island, N. Y., and directed to proceed to Philadelphia, Pa., and report to medical officer in command for assignment to exclusive duty in connection with examination of aliens—July 19, 1904.

Hobdy, W. C., passed assistant surgeon, granted leave of absence for twenty-four days from July 26—July 19, 1904.

Ramus, Carl, passed assistant surgeon, relieved from duty at San Francisco, Cal., and directed to proceed to Honolulu, T. H., and report to chief quarantine officer for duty, relieving Assistant Surgeon R. L. Wilson—July 15, 1904.

Stansfield, H. A., passed assistant surgeon, relieved from duty in the Hygienic Laboratory and directed to report to the chairman of the Isthmian Canal Commission for duty on the Isthmus of Panama—July 13, 1904.

Wilson, R. L., assistant surgeon, upon being relieved at Honolulu, T. H., by Passed Assistant Surgeon Carl Ramus, to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty—July 15, 1904.

Harris, B. Y., acting assistant surgeon, granted leave of absence for thirty days from August 1—July 21, 1904.

Tappan, J. W., acting assistant surgeon, department letter of July 6, 1904, granting leave of absence for thirty days from July 10, amended to read thirty days from August 24—July 15, 1904.

Todt, W. C., acting assistant surgeon, granted leave of absence for fourteen days from July 15—July 19, 1904.

Walker, R. T., acting assistant surgeon, granted leave of absence for four days from July 26—July 18, 1904.

Macdowell, W. F., pharmacist, granted leave of absence for thirty days from August 8—July 15, 1904.

Ryder, L. W., pharmacist, granted leave of absence for thirty days from August 15—July 18, 1904.

Watters, M. H., pharmacist, granted leave of absence for twenty-five days from August 15—July 15, 1904.

Promotion.

Assistant Surgeon H. A. Stansfield commissioned as passed assistant surgeon to rank as such from June 4—July 11, 1904.

Board Convened.

Board convened to meet at the Marine Hospital, Stapleton, N. Y., July 18, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon A. C. Smith, chairman; Passed Assistant Surgeon J. B. Greene, recorder.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J., June 7 to 10, 1904.

[Specially reported for *American Medicine.*]

(*Continued from p. 143.*)

Section on Practice of Medicine.

FIFTH SESSION.

The chairman of the committee reported that they had selected as chairman of the section for the ensuing year Richard C. Cabot, of Boston; for secretary, the present efficient incumbent, Joseph L. Miller, of Chicago. The secretary cast the ballot for these nominees.

Differential Leukocyte Count as an Aid in the Diagnosis of Fevers.—WILLIAM KRAUSS (Memphis, Tenn.) reported the results of a study made to determine how far a differential leukocyte count could replace culture methods, etc., where such aids could not be readily employed. His paper was based largely on the examination of 200 spreads made from the blood of patients suffering from infectious diseases, particularly malaria. He has found that a positive diagnosis can often be made in this manner before the malaria parasite appears in the blood or the Widal reaction becomes of diagnostic value. The diagnostic point in cases of malaria is the increase of large lymphocytes. These cells equal or exceed the small lymphocytes. There is usually an accompanying diminution of the polynuclear cells, except during the onset of the paroxysm. An increase of the polynuclears, except as noted, is taken as evidence of the presence of some other disease. If 75% of polynuclears is found, the disease is not due to the malaria parasite or else that organism will be readily found. This test is also of value in telling when the malarial infection is eradicated in chronic cases where the parasite is often very difficult of detection. The large lymphocytes also increase in typhoid fever, but not to such an extent as in malaria. A table which will be printed with the paper includes cases of malaria and its various modifications or complications, syphilis, typhoid fever, endocarditis, pneumonia, liver abscess, tuberculosis, etc., and sundry control cases. The stain employed is a modification of Goldhorn's. There is a personal factor in differentiating the leukocytes, but the series reported were made mainly by two persons who obtained very similar readings from any one specimen. Krauss concludes that the value of the count lies not so much in the absolute increase of the large lymphocytes as in their relative increase over the small variety. He also believes that malaria and typhoid fever can then be more readily differentiated from pneumonia, sepsis, and similar conditions than by means of the hemocytometer. The mean of 125 cases of malaria gave a count of small lymphocytes, 15%; large, 21%; the average of all cases reported, including other observers, is small lymphocytes, 14%; large, 19%.

Discussion.—R. C. CABOT (Boston) said that the results of Krauss' observations confirm those of English observers. The personal factor in mononuclear leukocyte counts is hard to eliminate; what are small lymphocytes and what are large? No two persons will give exactly the same reading from any one specimen. The differential count in cases of malaria has a certain value in confirming the diagnosis, but he is not convinced that it can take the place of finding the malaria parasite. Cabot emphasizes the value of film specimens; the reason, or at least a chief reason, that so few physicians take up blood work is that it means the counting of red cells, which is laborious and takes a great deal of time. Cabot seldom counts the red cells; the value in a blood count is the number and the differential count of the leukocytes. The technic of staining films has been much shortened in recent years by the various stains that have been announced. Leishman's is the best of the many modifications of the Romanowsky method. R. N. WILLSON (Philadelphia) said that in regard to the statement that a high percentage of polynuclears excluded typhoid fever and malaria; he has studied cases of both, in which there was a high polynuclear count as a complication of the disease. The polynuclears in one case of perforation in typhoid fever ranged from 80% to 94%; in cystitis complicating the same disease they reached 98%. A finding in malaria opposite to the usual rule has been noticed by Willson and other observers in the Philadelphia Hospital in recent years; in many cases the malaria parasite is not found in the blood of supposed cases of malaria until after quinin has been administered. KRAUSS, in closing, said that not much difficulty in separating the large from the small lymphocyte should occur from the fact that the size had been arbitrarily fixed; all cells less or equal in size to the polynuclear leukocyte are small lymphocytes and all above the polynuclear are large lymphocytes. In answer to a question of GRANDY (Norfolk), Krauss said that the best field for the application of the test was in the case of people who had been cinchonized before coming for diagnosis.

Pathogenesis of Uremia and Eclampsia.—R. N. WILLSON (Philadelphia) compared the theories of causation of these conditions most popular at the present time. Clinical evidence indicates that they are probably due to a coincidence of two causes: (1) The action of toxins upon the psychomotor centers; (2) mechanical pressure on those centers. In support of the latter view is the fact that symptoms common to both resemble in every way pressure symptoms and are relieved by lessening pressure. Among these symptoms are headache, sleeplessness, dizziness, cyanosis, aphasia, paralysis, and amaurosis. As illustrative of his statements, Willson cited three cases, one in considerable detail. This was the case of a colored clergyman with an old history of hemiplegia, who was admitted in coma; the urine contained albumin, hyaline and hyalogranular casts. After various methods of treatment, lumbar puncture was resorted to; the fluid spurted out as if under great pressure. Following this, the actions of the patient became more quiet and he could be roused from his coma. The symptoms reappeared and a second puncture was made; 10 cc. of fluid was obtained with much more difficulty than at first, and the patient came partially out of coma. A third puncture obtained much less fluid. Death soon afterward ensued. Autopsy revealed a markedly hypertrophied heart, atheromatous arteries, and chronic diffuse nephritis. In addition, there was in the brain a large cyst posterior to the motor area on the left side, and involving also the temporosphenoidal and occipital lobes. It contained a small quantity of fluid, and was bounded by softened, partially necrotic tissue. There was some doubt as to whether the cyst had originally communicated with the lateral ventricle or had ruptured during removal; the former is believed to have been the condition. The right ventricle was distended. Willson has been reluctant to accept the pressure theory, but the immediate improvement of symptoms upon the relief of pressure, points to the fact that this may be an element in their production. Relief seems to be due to depleting the excess of fluid from the tissues and diminishing localized edema of the brain. Among Willson's conclusions are: 1. In uremia and eclampsia one or several toxins are acting on the cerebral cortex. 2. Intracerebral pressure plays no small part in the etiology of symptoms. 3. Lumbar puncture temporarily relieves symptoms and may save life; it should be added to the means for combating the condition. 4. The infusion of salt solution is contraindicated, unless in some cases of anuria. 5. It is to be remembered that lumbar puncture alone is not curative.

Discussion.—JAMES TYSON (Philadelphia) said that the subject had long been a disputed one; he thought Willson's paper a very fair presentation of the matter. A toxic agent must be considered as the most plausible cause, although he believes that in a few cases of puerperal eclampsia the condition is of reflex origin. As to how the toxic agent acts we are yet at sea. Chairman LAMBERT asked if in any of the cases reported there was found degeneration of the liver. In cases of puerperal eclampsia lately studied by him there were changes in the liver essentially like those found in acute yellow atrophy of the liver. This leads to the suggestion that the toxin in the two conditions is the same. Two types of eclampsia are seen. One has convulsions, and there is high circulatory tension; the other does not cause convulsions, and the liver resembles the changes in acute yellow atrophy. WILLSON, in closing, said that acute yellow atrophy was present in some but not in all cases. Cases that recover after the withdrawal of fluid, as some have, must be due largely to pressure. Hence we have some cases that are toxic and some due to pressure. An interesting point is that in all or nearly all cases terminating fatally the cerebrospinal fluid has been bloody; in cases that have recovered the fluid was clear. In the case detailed, the fluid was at first clear, but at the last puncture, just before death, it was bloody.

[*To be continued.*]

Section on Surgery and Anatomy.

SEVENTH SESSION.

The Treatment of Fractures of the Patella by Lateral Sutures.—JOSEPH A. BLAKE (New York City). The vastus internus and externus are not only inserted into the patella but also by strong aponeurotic structures, the socalled lateral patella ligaments, directly to the tibia. These ligaments are connected with the quadriceps tendon, the patella and the ligamentum patellæ. In fractures by direct violence alone they are not torn and suffice to keep the fragments in apposition. In fractures by muscular violence they are torn and considerable separation of the fragments results. The latter cases are best treated by operation, while in the former good results can be obtained by mechanical treatment. In operating, suture of the fragments is unnecessary. It is only necessary to suture the lateral patella ligaments. This is done with chromicized catgut or kangaroo tendon, the sutures being introduced on each side of the patella as close to it as possible. Perfect apposition and bony union is obtained. The operation is short and minimizes the traumatism and consequent danger of infection. The author has operated with this technic 20 times, with good results, both in regard to union and function. He does not consider it necessary to delay operation, as is advised by some surgeons.

Discussion.—VAUGHN (U. S. Marine-Hospital Service) has tried all the ordinary methods and all forms of suture material, but believes that silver wire is most satisfactory. Any of the open methods of suture will give bony union. THIENHAUS

(Milwaukee) spoke of the great difficulty in getting the fragments of the patella together in old fractures. He reported a case in which he found it necessary to chisel off the tuberosity of the tibia and to do a plastic operation on the tendon on the rectus femoris to get the fragments together, an excellent result following. Skiagraphs showing the condition before and after operation were demonstrated. Binnie (Kansas City) believes that fibrous union is as good as bony union in many cases. If operation is considered advisable it should be done early and thoroughly before important changes have resulted. Rodman (Philadelphia). The hazard to life and limb from the open operation makes it inadvisable to undertake it in patients over 50 years of age who can lead a sedentary life. Eisendrath (Chicago) called attention to the fact that the periosteum of the patella fuses with the fibers of the quadriceps tendon, and this fibrous sheath should be turned out so as to prevent it from catching between the ends of the fragments and preventing union. Powers (Denver) believes that where there is no special contraindication to suture, it is not only permissible, but demanded. Blake, in closing, called attention to the tilting of the fragments which occurs when they are drilled and wired together. He prefers a mildly chromicized catgut, as it does not slip so readily as the plain suture material. If it is too thoroughly chromicized, however, it is not only nonabsorbable, but is a chemic irritant.

Surgical Treatment of Certain Cases of Arthritis Deformans.—Martin B. Tinker (Ithaca, N. Y.). Before beginning discussion of this subject, it is necessary to keep in mind the exact character of the disease under consideration. The condition is not a subacute or chronic rheumatism, or tuberculosis, but a distinct diseased condition characterized by its long course with progressive involvement of many joints, leading eventually to absolute disability from ankylosis. Many suggestions have been made as to the etiology of the affection; in some cases it follows severe nerve strain, and the nervous element is no doubt an important factor. Disturbance of metabolism is also always present, but these two are probably only contributing factors. The infectious origin seems most probable, as several cases have been observed in which the disease developed directly after a severe infection. Pain, swelling, and stiffness of the joints are the most important symptoms. The pain ceases as the joints become fixed. In the diagnosis the use of tuberculin is of value in distinguishing from tuberculosis a condition with which it may be confused. In the treatment, both palliative and operative measures may be considered. As a rule the general principle followed in the treatment of joint trouble, to put the joint at rest, is reversed, for if the joint is kept quiet, stiffening is certain to occur at once. Gymnastics, massage, and passive motion should be judiciously employed. Baking at from 280° F. to 350° F. is of value, as are also the use of various forms of bath. General hygienic measures are also of importance. In operative treatment, forced motion under anesthesia was condemned. The stiffness is not from adhesions, but from bony deposit and change of the contour of the bones affected. Arthrotomy and excision of osteophytic deposits may be employed where the stiffness of the joint is dependent upon the presence of only one or two such bony prominences locking the joint, and where the acute symptoms have entirely subsided. Excision of the joint is indicated in cases of complete ankylosis to restore motion, and often enables the patient to feed and dress himself and perform other necessary duties impossible with an ankylosed joint. Operative treatment is limited to comparatively few cases of this kind. The condition is a most pitiable one, and the general condition is incurable.

Discussion.—Vaughn (U. S. Marine-Hospital Service) considers this condition of infectious origin. He does not believe that we should entirely condemn attempts to free the joint by forcible manipulations, and mentions a case in which he broke up the obstruction in both knees which were flexed at the time of operation. The stiffness did not recur. In another case of stiff elbow the stiffening did recur and resection was necessary.

Impacted Fractures of the Neck of the Femur.—Le Moyne Wills (Los Angeles, Cal.) reported two interesting cases, and presented radiographs. The history of the cases was given, showing manner of injury and difference in degree of force applied. He contrasted the treatment received by each, one having received care and attention, the other none. The importance of the use of the röntgen rays was urged, and excellent skiagraphs showing the condition of the bones were exhibited. One of them was taken with a portable apparatus, which had to be carried a considerable distance into the country.

Discussion.—Sherman (San Francisco). While the röntgen ray is a valuable aid in these cases, he believes that it is to some degree leading to neglect of other means of diagnosis and careless habits of physical examination. He mentioned the relative infrequency of fractures in California, because there is no snow and ice. Eisendrath (Chicago) has found the method of treatment advocated by Ruth, of Iowa, of great value in treating fractures of the neck of the femur.

Fat Embolism of Lung, following Fractures, with Report of Two Cases.—F. Gregory Connell (Leadville, Colo.) This subject has received little consideration in English or American literature, no case of this kind having been reported before the Association. The symptomatology and clinical course are variable and indefinite. They may be confused with those of conditions somewhat similar, and the true state of affairs be unsuspected. The discovery of fat globules in the sputum or urine of a suspected case will establish the diagnosis. The prognosis is usually grave, and the treatment prophylactic or symptomatic. Fatty emboli, after passing through the lung, may be arrested in other organs, notably the brain and the kidney. Embolism of this character may occur after various traumatisms, but most commonly after fracture of the long bones. Undoubtedly more or less fat enters the circulation as a result of most fractures. Connell considers the condition more important and believes it is more common than infrequent reports of cases would indicate. He reported a case in which the symptoms developed on the fifth day after a comminuted fracture of the tibia.

Section on Ophthalmology.

THIRD SESSION (CONTINUED).

Syphiloma of the Ciliary Body.—H. Knapp (New York City) read this paper and illustrated the same. He stated that he believed these cases not to be as hopeless as generally supposed and quoted a case in which the diagnosis of iritis serosa was made and the treatment instituted accordingly. At a later period a history of syphilis at a remote period was obtained and the patient was placed on inunctions. A typical feature in this as in other such cases was the swelling of the upper part of the ciliary region extending upward and to the temporal region. In the early stage it pursued a course similar to iritis and the swelling was about 3 mm. to 4 mm. high and 6 mm. to 8 mm. long and extended around the corneal margin. The tension was alternately high and low. There was not very great pain. Continuation of the constitutional treatment brought about an abatement of the symptoms. While apparently hopeless he stated that sympathetic ophthalmia was not to be feared in these cases. Persistence in treatment was indicated. He also gave the record of another case of gumma of the iris having similar clinical history and features. He employed potassium iodid in very large doses and the gumma disappeared leaving behind pigmentation at the site of the lesion. His conclusions were that gumma of the ciliary body or other ocular structures was not necessarily hopeless in prognosis and that the best treatment was the administration of large doses of potassium iodid. He then referred to statistics concerning 67 cases.

Discussion.—Swan Burnett (Washington, D. C.) related his experience with syphilomas in negroes, and stated that the eyes were lost in many cases. He also spoke of the intense pain. He further remarked that the disease was essentially a secondary condition. According to his observations, it did not leave very useful eyes in negroes. He had not encountered it in whites. Dionin was considered favorably in the local treatment. C. J. Kipp (Newark, N. J.) had rarely seen a case with perforation of the sclera in which enucleation was not indicated. The diagnosis, he said, was at all times difficult. He prefers the administration of mercury to potassium iodid, and related a case in which, after enucleation of one eye, serous iritis occurred in the other. Inunctions were employed, and mercury was given internally with beneficial results. E. E. Holt (Portland, Me.) related cases occurring in soldiers in which the sclera had ruptured, and in which the prognosis of the eye was a great question. Leadbetter (Birmingham, Ala.) brought up the question of syphiloma in negroes, and believed that the results here could be attributed to the patient's negligence in the care of the disease. Randolph (Baltimore) mentioned a case occurring in a white man similar to the cases of Burnett, in which the growth was diagnosed as sarcoma by another physician, and an unfavorable prognosis given. He promptly instituted mercurial inunctions and the internal administration of potassium iodid, with beneficial results. He asked that the essayist give some points for differential diagnosis. In closing the discussion, H. Knapp laid great stress on the enlargement up and out of a dark color involving the sclera as characteristic of syphiloma of the ciliary body. In sarcoma, he stated, the enlargement was largely confined to the iris at first, oblong or tongue-like, and without inflammatory symptoms. In syphilomas there is sympathetic ophthalmia. Being constitutional, it may be bilateral.

G. E. DeSchweinitz announced the opening of the new laboratories of the University of Pennsylvania, on Friday, June 10, 1904, and as a member of the University committee, extended a special invitation to the section to be present.

Temporal Cleft of the Nerve Head and the Other Fundus Anomalies often Present with It.—Chas. H. Beard (Chicago), on a paper with this title, reported a series of observations concerning a hitherto undescribed appearance of the optic nerve entrance, particularly as regards the arrangement of the nerve fibers and that of the bloodvessels of the retina. He mentioned especially the whitish crescent occurring on the nasal side of the disc often crossed by vessels and applied the term "morning-glory nerve head" to this condition. Various anomalies and anastomoses of the arterial supply were considered, as was also torsion of the eyeground toward the temporal side, with no evidences of imperfect closure of the fetal cleft elsewhere occurring in these cases. He had noticed the prevalence of errors of refraction on the side having the defect. He believed it was not a true coloboma, but as Ginsburg had observed, an anomalous condition due to an imperforate lamina cribrosa. The essayist stated he had on more than one occasion observed it in two members of the same condition. Attention was also called to certain physiopathologic features of the choroid that accompanied the condition in question that were partly congenital and partly acquired. The attendant functional abnormalities were detailed, among which was a striking peculiarity relative to the physiologic blind spot. Numerous colored drawings and charts were projected on the screen to illustrate the paper.

Discussion.—G. E. DeSchweinitz congratulated Beard on the originality of the observations contained in his paper. He did not know whether or not these changes were associated with any abnormal mentality, and ventured the query as to whether or not they belonged among the stigmas of degeneration. Brown (Minneapolis) discussed the paper and expressed a doubt as to whether the physiologic cup was not pathologic when the eccentric fields were altered. In closing the discussion Beard mentioned that there were no structural changes indicative of imperfect closure of the cleft in his cases. Strabismus and nystagmus were observed. The eye with the cleft in the nerve head usually possessed a high error of refraction. In none of his cases were there any evidences of disordered mentality or stigmas of degeneration. He brought up the subject of the powder grain fundus and showed that where there was thin choroid a wider physiologic excavation was present. Diminished light sense was present in these cases.

Obstruction in the Retinal Arteries.—Allen Greenwood (Boston) in presenting this paper stated that the most frequent causes were arteriosclerosis, embolism, spasm; most frequent is arterial disease. Arteriosclerosis of retinal arteries was often not recognized early. Later stages produce "degenerative albuminuric retinitis." Most cases follow general arteriosclerosis and are to be distinguished from inflammatory retinitis due to uremic poisoning. He insisted that it was important that this be recognized early, for treatment would add to comfort and length of life. Complications to be delayed are sclerosis of vessels of brain and kidneys. Ophthalmoscopic examination of elderly patients often reveals early arterial changes years before involvement of kidneys becomes apparent. Embolus is usually a dislodged fragment of diseased heart valve. Treatment must be early to cause it to pass into a smaller and more peripherally situated vessel in time to restore retinal function. Many cases of socalled embolism probably result from sudden closure of retinal artery nearly obstructed by endarteritis, closure being due to spasm or lowering of blood-pressure. Spasm as cause of attacks of sudden temporary blindness is now an accepted fact. It usually occurs in retinal arteries, the seat of endarteritis, and these two conditions may cause permanent closure of central artery or a branch, and lead to blindness. In treatment it was essential that the patients should live moderately in every respect, being careful to constantly maintain proper elimination, the details of the treatment to suit the requirements of each individual case. Potassium iodid was advised and amyl nitrite was recommended to avoid spasms of the vessels.

Discussion.—J. Weeks (New York City) demonstrated that certain conditions, especially perivasculitis, showed changes analogous to arteriosclerosis. The white line in these was uniform. In atrophy of the vessels the white line was appreciable, the caliber was uniformly diminished, and anemia was present. In arteriosclerosis the narrowing was irregular and nodular in type. The small vessels, he believed, were usually affected in spasm. Embolus sometimes occurred in connection with arteriosclerosis. He also referred to the red spot in embolism and thrombosis, and to the possibility of having obstruction with macular changes without albuminuria. In closing the discussion, Greenwood remarked that while macular changes did occur without albuminuria, renal changes ultimately followed, and that two varieties of retinal arteriosclerosis should be recognized, that preceding and that accompanying or following renal disease.

Development of the Faculty of Binocular Vision.—Edward Jackson (Denver) in this paper remarked that the fusion faculty, a highly specialized power of coordination, is probably developed slowly, but only during childhood, it being extremely difficult or impossible to develop it during adult life. He also stated that calling attention to the possibilities of fusion may induce the child to practise it habitually, if favorable conditions are supplied. The weak point in the usual methods of training is the limited range of objects on which the fusion faculty can be exercised and the small proportion of time that the training could be continued. He then presented an instrument which was adapted for all objects without special preparation, and all acts of vision. The instrument makes use of the principle of lateral inversion of images formed in mirrors; it consists of two inclined mirrors, one of which can be rotated; the images formed in the mirrors are viewed through a hole in the back of the appliance. It should be placed before the deviating eye. Smoked lenses may be placed before the opening to make the existing diplopia manifest. By a special contrivance of a head band the appliance can be worn constantly.

Discussion.—Wendel Reber (Philadelphia) referred to the study of binocular vision in adults in whom there was no vision until full grown. He believed that the instrument might be applicable in cases such as the celebrated case of congenital cataract of Trombetta in developing binocular single vision. He also spoke of the possibility of chiasm growth as a cause of defective fusion faculty, and believed that strabismus might be regarded as a reversion of type. Casey A. Wood (Chicago) inquired into the expense of the apparatus, believing from its appearance it might be more expensive than other similar devices. In closing the discussion, Jackson referred to the case quoted by Reber, and to Miner's case, and spoke of developing fusion by educative measures. He also remarked that it was a common observation to have fusion developed after the correction of high degrees of ametropia. H. Knapp (New York City) also discussed this paper.

The Usefulness of the Ophthalmometer.—F. C. Heath (Indianapolis) in this paper brought out the question as to whether the ophthalmometer was of any practical use in refraction work, and to prove its value cited briefly three cases, types of many others seen in everyday practice. He also related additional cases tending to show whether or not it obviated the necessity of mydriatics. The essayist in addition took up the subject of its infallibility and its limitations, and compared it with other methods of measuring refraction. He concluded that it was the surest way of measuring corneal astigmatism, but should be combined with other methods. When mydriatics were refused by the patient it was undoubtedly the most accurate method. It was the most useful corneal instrument, but did not do away entirely with the use of mydriatics, and while not infallible, had but few failures when properly used.

Discussion.—H. Knapp (New York City) opened the discussion, referring to the first attempt to determine lenticular astigmatism by Thomas Young. W. Reber (Philadelphia) was not very enthusiastic about the instrument, although he uses it routinely. He preferred retinoscopy. He believed the most valuable evidence of astigmatism given by the ophthalmometer was its negative evidence. Ray (Louisville, Ky.) thought it of great aid in detecting astigmatism, and especially in determining its axis. C. F. Clark (Columbus, Ohio) employed the instrument in the same manner as Reber, and asked for an explanation of those cases of astigmatism following cataract extraction, in which the results of the ophthalmometer did not correspond with the findings by means of the test lenses. E. Jackson stated that the scale of the ophthalmometer was gauged only for the complete eye, and indicated merely the curvature between two given points. He said the center may differ from the entire curve from margin to margin. He employs the instrument routinely, but does not depend on it. In closing the discussion, Heath stated to the effect that, while it could not be relied upon, he obtained good results in about 75% of cases of astigmatism.

FOURTH SESSION.

Some Problems of Presbyopia.—George M. Gould, (Philadelphia) in this paper, presented 15 statements, with explanatory additions, based on an extended experience as follows: 1. In oncoming presbyopia, cycloplegia generally necessary to obtain the static refraction on which the presbyopia is based. Personally he employs homatropin and cocain up to the age of 55 years, or even 60 years, if necessary, avoiding them if there is any tendency to glaucoma. 2. Age at which correction should first be given depends on the preexisting refractive error. 3. Correction of error often dependent on amblyopia from disease. 4. Less accommodation may condition the amount of presbyopic error. 5. Onset of presbyopia may be delayed by hypertrophied accommodation. 6. Age of correction of presbyopia and degree of error depend on amount of near work. 7. Presbyopes who misstate age may suffer if oculist does not detect the error. 8. Occupation may necessitate higher and earlier correction than usual. 9. Quality and power of light must be considered. 10. Position of body and head in near work may be harmful. 11. Effect of general health, vitality, vigor of will and of body. 12. Failure to cure reflexes of eyestrain may be due to want of bifocals. 13. Eyeglasses being more prone to maladjustment than spectacles may cause failure to relieve symptoms or sequels of eyestrain. 14. Premature presbyopia possible years before usual age may explain failure to return symptoms when none of the preceding causes will do so. 15. Systemic disease and not presbyopia or eyestrain may cause symptoms. He cautioned against having fixed rules in this condition, and of relying upon optical machines.

Discussion.—R. A. Randolph (Baltimore), in opening the discussion, stated that cycloplegia was frequently necessary in early presbyopia, and that he frequently employed the same, giving preference to the homatropin and cocain discs. He did not, however, use it the same as in younger individuals. He prevents any possibility of glaucoma by the instillation of from one to two drops of eserin. G. S. Savage (Nashville, Tenn.) referred to the difference between a strong and weak ciliary muscle and the relation of each to convergence. He said he tested the strength of the muscle by its ability to overcome high convex lenses. A weak ciliary muscle means early presbyopia and demands strong cerebral impulse and induces spasm. He also remarked of the differences in the muscle balance for distance and for near work. He related a case of a young girl 28 years of age in which a weak ciliary muscle in an attempt to overcome failing accommodation induced spasm of convergence, which was relieved by wearing one-half the presbyopic correction. In his opinion the early correction of hyperopia would prevent premature presbyopia. H. Knapp (New York City) recommended bifocals in presbyopia and mentioned their several advantages. He routinely examines for failing accommodation and believes the whole trouble to be in the condition of the refraction and not in the muscles. M. STEPHENSON (Akron, O.) said he used homatropin in these cases in albolene, instilled with the patient in a dark room, following it in persons over 45 years of age with eserin. In many uncorrected myopes he thought there was often presbyopia, and stated that frequently in such cases the correction relieved the muscles and in this way defeated the purpose of stimulating convergence. In prescribing glasses the vocation of the patient should be considered. He saw no objection to nose glasses when properly fitted and remarked that the oculist often had no choice in this matter. They should be adjusted at frequent intervals. W. L. PYLE (Philadelphia) referred to the early impressions made on him by Burnett and Gould as regards the necessity of cycloplegia in early presbyopia. He cited a case of glaucoma following the instillation of homatropin and cocain, in which recovery followed a posterior sclerotomy, but said this did not deter him continuing cycloplegics in early presbyopia. He believed the invariable use of eserin after the cycloplegic would prevent glaucoma. VALK (New York City) said he did not use cycloplegics after the age of 45 years. In prescribing lenses he was influenced greatly by the nature of the patient's occupation. J. S. KIRKENDALL (Ithaca, N. Y.) thought early presbyopia in myopia was apparent and not real. J. L. THOMPSON (Indianapolis) said he had used homatropin in some cases as old as 50 years, but always follows it with eserin. He believed atropin to be dangerous in these cases. The disappearance of low degrees of astigmatism under cycloplegia was remarked. The necessity of gauging the correcting lenses by the situation of the near point was dwelt upon on account of the uncertainty of the age, especially in females. He spoke of the various kinds of glasses indicated and said he believed Gould exaggerated the question of migraine, relating several instances in which it was due to other causes, especially reflection of the sun's rays. Apart from this, he thought Gould's ideas were correct. In closing the discussion, GOULD gave the proportions of homatropin and cocain he employed and when followed by three or four instillations of eserin (2 gr. to the ounce) it was possible to restore the accommodation in 15 minutes. He recommended the invariable instillation of this drug in these cases. He failed to see how Valk could correct presbyopia after 40 years without a cycloplegic, without failing to recognize low degrees of astigmatism and other forms of ametropia. The various ill-effects of astigmatism were then given.

Symposium on Sympathetic Ophthalmia: Clinical and Histologic Observations on Sympathetic Ophthalmia.—CLARENCE A. VEASEY (Philadelphia) briefly referred to some of the points in therapeutics in previously published papers, and gave the histories of two of his own cases. In one, the sympathetic disease appeared eight years after the primary injury by a piece of glass, which remained inside of the eye during this period; in the other, the sympathetic affection became manifest in four weeks after the primary injury. The exciting eye was enucleated. Various forms of treatment were employed to combat the sympathetic disease, none of which were attended with success except the administration of large doses of salicylate of soda. In the first case the salicylate was withheld on several occasions, and the symptoms returned. Recovery with useful vision ultimately occurred. A histologic study of the enucleated eyes showed areas of degeneration in a cross section of the optic nerve, which were probably due to the passage of toxins. Cultures taken from the eye showed staphylococci, which organisms were also found in the nerve sheath. He emphasized the necessity of taking the vision daily in all these cases in order to carefully follow the progress of the disease.

Sympathetic Ophthalmitis.—SAMUEL THEOBALD (Baltimore) briefly reviewed the various theories as to the genesis of sympathetic ophthalmitis. Thirty years ago there was but one view held as to the genesis of sympathetic ophthalmitis—that it was the result of a reflex irritation transmitted from the primary to the secondary eye through ciliary nerves. Notwithstanding the convincing evidence in favor of this view it soon came to having but few adherents, because it conflicted with the teaching of modern pathology that inflammation cannot be produced by an irritation transmitted through a sensory nerve. The theories which have since been advanced—the progressive optic neuritis theory advocated by Alt, and the septic theories of Leber, Snellen, and Berlin—rest on no substantial basis. The carefully conducted experiments of Head and Campbell regarding the pathology of herpes zoster, which show that bacteria take no part in either the ganglion or secondary skin lesions, and that the latter are the result of "intense irritation of cells in the ganglion which normally subserve the function of pain," seem to dispose of the only serious objection which has ever been urged to the ciliary nerve or reflex theory of sympathetic ophthalmitis, and bring this theory, which so satisfactorily explains the clinical phenomena of the disease, once more to the forefront. He concluded that there existed a definite relation between herpes zoster ophthalmicus, sympathetic ophthalmia, malarial keratitis, iridokeratitis, monocular exudative choroiditis, serous iritis, and other affections and the ganglia of the eye, especially the ophthalmic ganglion.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

CLASSIFICATION OF AMŒBA COLI.

BY

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of San Francisco, Cal.

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To the Editor of American Medicine:—In *American Medicine* for February 20, 1904, I published an article entitled, "The Life Cycle of Amœba Coli in the Human Body—a Preliminary Note," in which I gave the results arrived at as to the method of reproduction of this organism from a study of over 700 cases of amebic dysentery in which the amebas were observed in the feces. In this article I mentioned the researches of Schaudinn, published in the "Arbeiten kais Gesundheitsamte," 3, 547-576, 1903. In his work, Schaudinn has distinguished two varieties of ameba, one occurring normally in the human intestine and the other occurring only in disease. To these organisms he has given the names *Entamœba coli* and *Entamœba histolytica*, respectively. In his classification *Entamœba coli* corresponds to the ameba observed by Losch, in 1875, but cannot be considered as being the same, as Schaudinn distinctly states that this variety is not pathogenic; unless it be admitted that the amebas observed by Losch in a case of dysentery were not pathogenic. From his researches Schaudinn considers that *Entamœba coli* is the form inhabiting the normal intestine and that it does not possess any pathologic characteristics, whereas *Entamœba histolytica* is the form which produces amebic dysentery. *Entamœba coli* reproduces itself in the human intestine, according to Schaudinn, by simple division and by schizogony, with the formation normally of eight daughter cells, whereas *Entamœba histolytica* reproduces itself by both simple and multiple division and is accompanied by resting stages, which differentiate it from *Entamœba coli.* These resting stages are formed, according to Schaudinn, by the rejection of chromatin from the nucleus, which collects in masses and is distributed throughout the protoplasm, while the nucleus itself degenerates and is absorbed or extruded. These collections of chromatin are gradually set free by the disappearance of the protoplasm in which they are imbedded, and become young amebas.

In the article referred to I described a process of spore formation in *Amœba coli* which coincides exactly with that described by Schaudinn, and in a previous communication to the *Medical News*, March 16, 1901, I described certain appearances in amebas which I stated at that time were in all probability spores. It is this article which I wish to speak of, because my statements in it seem to have been misunderstood by some observers.

In his masterly article upon the protozoa published in Vol. VIII of the "Reference Hand Book of the Medical Sciences," Professor Henry B. Ward quotes from my observations which were published in the *Medical News* regarding *Amœba coli.* He says: "It is difficult to pass satisfactorily upon the specific character of the forms hitherto observed in the United States, and only two references will be made. The observations of Craig[1] seem to have been made on *Entamœba coli* of Schaudinn, in which the former described as 'oval spots' the formation of the encysted daughter cells already well known from the work of Casagrandi e Barbagallo. The splendid monograph of Councilman and Lafleur in my opinion deals unmistakably with *E. histolytica* of Schaudinn."

At the time Professor Ward's contribution was written it is evident he had not seen my later article upon the life cycle of *Amœba coli*, published in *American Medicine*, in February, 1904, and while in my first article it may appear that I was describing the nonpathogenic amebas to which the name *Entamœba coli* has been given by Schaudinn, I would state that my description applied only to amebas which were found in cases of dysentery, and according to Schaudinn's classification must have referred to *Entamœba histolytica.* This confusion regarding the form of ameba which I described in 1901 well illustrates the difficulty of separating these organisms into different species. While the observations of Schaudinn are very exact and undoubtedly worthy of greatest consideration, they have not, as yet, been confirmed by other authorities, so far as I know, and it would seem to be a little premature to classify the ameba found in the human body into two distinct divisions, pathogenic and nonpathogenic, until further observations have confirmed the results of this single investigator. From my experience, which at this date covers the examination of over 800 cases of dysentery in which amebas were demonstrated in the feces, I am sceptical as to the practicability of establishing two distinct forms of the organism, and I believe it is wiser to consider the question still open. While undoubtedly amebas occur in the normal intestine, I have not been able to satisfy myself that the distinction can be made between these amebas and those occurring in the diseased intestine. I am in thorough accord with Schaudinn as to the method of reproduction of the amebas observed in dysentery, and as my observations concerning this subject were conducted upon the same class of cases as the observations I published in 1901, it will at once be seen that I am dealing at this time with the amebas which have been called by Schaudinn *Entamœba histolytica.* I have preferred, however, in my contributions to retain the name *Amœba coli,* given by Losch, until further observations show that it is a misnomer.

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[1] Medical News, March 16, 1901.

CEREBRAL HEMORRHAGE UPON THE CORTEX.

BY
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of Philadelphia.

Surgeon to the Methodist Episcopal Hospital; Consulting Surgeon to the State Asylum, Norristown, etc.

Mrs. X., an American, aged 78, was admitted to the medical ward of the Methodist Hospital for the first time, March 29, 1904, with a history of having had acute articular rheumatism at the age of 33. Her heart action was irregular, exhibiting a double mitral, a systolic aortic, and a first tricuspid murmur, with accentuation of the pulmonic second sound. The urinary examination showed a persistent low specific gravity, 1,011, no sugar, no albumin, no casts. Her other organs were healthy. She was discharged April 10, 1904.

She was admitted, the second time, to my service on the surgical side, having been found a few hours earlier, about 3 p. m. Friday, May 6, lying at the foot of the stairs at her residence, in an unconscious condition. The patient resided with her daughter, who left her in the morning in her usual health. She had latterly been doing and saying childish things, and her daughter stated she, for the last three years, had a tendency to fall; "she would become dizzy, the back grow weak with a peculiar sensation from the back up to the head," but she had never become unconscious, nor favored one side in falling. The "spells," sometimes as frequent as two a week, were never characterized by any tendency to somnolency.

The patient was last seen by one of the other occupants of the house about 2 p.m. One hour later she was found lying upon her back at the foot of the stairs. No noise as of a heavy fall was heard. Her spectacles were broken at the nose piece, with one lens absent.

Upon admission to the hospital, two bruises were detected, one, on the right shin, which looked old, the other upon the right thigh anteriorly, of recent origin. There were no other external marks of violence.

She was in a stupor, but could be slightly roused by shaking and calling loudly, at which times she would mumble and the expression of her face would change. The pupils were small, but not pin-point, equal, and reacted to light. The ophthalmologic examination by Dr. Veasey the next day (May 7) was negative. Upon lifting the eyelid there was a contraction of the muscles of the face. Upon admission there had been slight movement on flexion of the arms upon pinching, but none of the legs. On May 8 there was slight flexion of the lower extremities upon irritation, but not of the upper. Patella reflex was abolished upon both sides. There was no ankle-clonus, no Babinski phenomenon or reflex; mouth drooped on right side (?).

Upon admission she vomited, expectorating sputum streaked with blood; there was no blood from the ears or nose, nor was there subconjunctival hemorrhage.

There was dorsal decubitus, no tremors, no localizing symptoms, pulse was 84 and full. Respirations 36 and somewhat labored. Temperature, 100.6°. Urine, alkaline reaction, specific gravity 1,006, no sugar, no albumin, no casts; phosphatic crystals and a few pus cells were found. The next day she took 65 cg. (1 gr.) of calomel in divided doses and a few ounces of milk, but by 6 p.m. she would not swallow. Nutrient enemas were not retained. There was incontinence of urine.

The low specific gravity of the urine, the absence of focal symptoms, with the unconsciousness not absolute, suggested uremia as a first thought, but the absence of edema, albumin negative, and the failure to find casts, after a persistent search, and the similar earlier record negatived this idea, though we realized that chronic contracted kidney, of all the commoner diseases, is the most insidious, multiform in its manifestations, and the most difficult to differentiate.

Thrombosis, or embolus, from the heart lesion was considered; but the coma, the vomiting, and the labored breathing favored hemorrhage. Tumor of the frontal lobe, in consequence of the childish action and speech, with the "falling spells" lasting for three years, and without any localizing symptoms, was worthy of consideration, but the shifting of the symptoms from the upper to the lower extremities, the coma, the vomiting, the increase in temperature, favored hemorrhage. The pupillary condition, with the comparatively slight increase in the pulse-rate and respiratory rhythm, so far indicated a disease distant from the base, while the unconsciousness was significant of gray matter involvement probably upon the cortex; and the absence of localizing phenomena (so far as the coma would allow) pointed to the involvement of one of the silent areas of the cerebrum. The diagnosis was possibly tumor, but most probably *hemorrhage upon the silent areas.* The patient died May 8.

Autopsy.—Beyond the presence of calculi in the gallbladder, the digestive tract was normal. Kidneys healthy. Spleen not enlarged, but somewhat soft and pulpy. Lungs normal.

Heart.—A white spot the size of a dime on the anterior surface of the pericardium; cavities empty; mitral valve atheromatous; calcareous changes in sinuses of Valsalva just beyond the aortic valve and about the orifice of the coronary arteries.

There was no fracture of the skull, either of calvarium or of the base.

On lifting the meninges, a small clot the size of an English walnut was found at the anterior extremity of the second and third temporosphenoidal lobes upon the left hemisphere, into which clot, branches of the middle cerebral arteries led. The brain substance beneath was more or less disintegrated. Another small clot about the middle portion of the third left frontal convolution from rupture of the anterior capillaries of the same artery was also found; the motor zone was not impinged upon.

The middle cerebral artery showed everywhere yellowish areas (atheroma).

Sections of the corona radiata, basal ganglion, pons, medulla and cerebellum were negative.

While a diagnosis of this kind by exclusion is perhaps not of great value, it is mainly of use by adding emphasis to its possibility through exact localization in the focal areas, so that we may thereby, by exclusion, depend the more upon the absence of symptoms; while the comparative rarity of hemorrhage from the arteries of the cortex, as compared with the lenticulostriate, makes the case worthy of record.

My thanks are due to our pathologist, Dr. Farr, for the careful autopsy, and to the surgical resident, Dr. Imboden, for the painstaking examinations of the urine and the recorded history.

Do We Hear Ourselves as Others Hear Us?—Dr. Laloy, writing in *La Nature*, a Paris publication, says that a man does not hear his own voice as the rest of the world hears it. According to a translation made by the Literary Digest, Dr. Laloy explains: "If a person records on a phonograph a few sentences pronounced by himself, together with others by his friends, and causes the machine to reproduce these at the end of a brief period, it generally happens that he easily recognizes his friends' voices, but not his own. On the other hand, the friends recognize his voice perfectly. This singular fact proves that every one hears his own voice differently from others. As is remarked by Professor Exner, the difference must lie in the quality of tone. It must be remembered that one hears his own voice not only through the air, as do his auditors, but across the solid parts situated between the organs of speech and those of hearing. The sound thus produced has a different timbre from that conducted to the ear by air alone. We may show this as follows: Take the end of a wooden rod between the teeth and pronounce a vowel continuously. Let the other end be alternately taken between the teeth and released by another person, who at the same time stops his ears. The latter will find that every time he seizes the rod in his teeth, the sound becomes stronger than when it reaches his ear through air alone, and has a different quality. The experiment may be varied by applying a wooden rod to the larynx of the person observed and touching it, from time to time, to the observer's own larynx. As in the preceding case, it will be found that its passage through a solid body augments the intensity of the sound and modifies its quality."

ORIGINAL ARTICLES

THE TREATMENT AND CONTROL OF THE TUBERCULOUS PATIENT IN HIS HOME.[1]

BY
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of Philadelphia.
Director of the Henry Phipps Institute, etc.

At last the genius of man has brought to bay his arch enemy. From the dawn of history until within the memory of even young men tuberculosis has been the unconquered foe of mankind carrying on its devastation in every clime and under every possible condition. It has destroyed man and all his friends in the animal kingdom; it has roamed at will and has never known any hindrance. Now it is about to be exterminated from the earth.

This great achievement of civilization has been made possible by the wonderful discovery by Pasteur of a new world, the world of microorganisms. Pasteur's discovery was the culmination of research by scientists who had gone before him, but it was his genius which interpreted correctly the enigmas which had been partly solved by his predecessors. Pasteur was followed by a host of ardent explorers of the new world, each bringing to light some new fact which augmented man's power over disease.

Quite naturally one of the diseases upon which the new light was most likely first to be thrown was tuberculosis. In every part of the world scientists devoted themselves to the study of this disease. Koch's discovery of the tubercle bacillus moreover made investigation along the line of this disease more attractive and easier than along lines which had not yet been so well explored, so that the growth of knowledge about this disease was more rapid than that about any other. The bacteriologist, the pathologist, the clinician, and the veterinary surgeon have vied one with another to throw new light upon this subject.

The bacteriologist studied the life history of the tubercle bacillus and made this microorganism as well known to us as are many of our domestic animals and house plants. He made us familiar with the conditions under which the microorganism grows, the food which it consumes, the products which it gives off, and the things in nature which are inimical to its life. He revealed to us its variations in form, its chemic composition, its idiosyncrasies, in short, gave such complete knowledge about it that it has come into our power to control its existence.

The pathologist studied the tissues upon which the tubercle bacillus grows. He revealed to us the changes which take place in those tissues and the process by which the microorganism gets into them and again gets out of them. He made known to us which tissues of the body are most prone to invasion by the microorganism and what the consequential damages are in the organism by reason of the injury done to the tissue invaded. He also made known to us the process by which the organism endeavors to make repairs and what the condition of the tissue is when it has been repaired.

The clinician gathered up and analyzed the symptoms which are set up by the organism when invaded by the tubercle bacillus and its associates, and showed us the value of such symptoms as indicators of the invasion of the disease before its presence can otherwise be demonstrated. He showed the methods by which the disease is communicated from one individual to another, the conditions under which implantation takes place, the environments which are most conducive to the development of the disease, and the circumstances under which the disease can best be resisted. He studied the relationship between nutrition and tuberculosis, and made known to us the mode of life and the kind of food which help the organism to recover when it has been invaded by the disease. He also proved the value of many medicinal remedies in helping nature to throw off the disease. He taught us the best practical measures for the prevention of the spread of the disease by the destruction of the microorganism before it can enter another host.

The veterinary surgeon demonstrated the unity of tuberculosis throughout the animal kingdom. He showed us that while the tubercle bacillus varies in form and in likes and dislikes accordingly as it has grown upon different soils it nevertheless is the same microorganism wherever it may grow, and can be trained to grow upon soils to which it is not congenial. He showed us that if tuberculosis is to be exterminated it must be attacked from all quarters, and that the possibility of its intertransmission between human beings and animals must be obviated. He pointed out to us the various ways by which intertransmission of human and animal tuberculosis may take place, and the rules and practices which ought to be observed in order to avoid such intertransmission.

Knowledge gained from all these sources enables us to lay down certain definite propositions about tuberculosis which point the way for both treatment and control of the tuberculous. 1. Tuberculosis is a house disease; it runs its course in the house, and it proves fatal in the house. Without the house it could not continue to exist. 2. Tuberculosis is a family disease. The home which is the center to which the family is drawn also is the center from which tuberculosis radiates. All the sweet ties of affection which hold members of a family together are mediums of distribution of tuberculosis. Intimacy is the line along which contagion travels. The kiss, the handshake, the embrace, and every custom which from time immemorial has been consecrated to the home, is a means of spreading tuberculosis. Intimacy, as a rule, is necessary for the spread of the disease. 3. Tuberculosis is, in a measure, an occupation disease. Occupations which bring people close together under unhygienic conditions, particularly where irritating substances are given off during the manufacturing processes, damage the mucous membrane of the lungs and serve as mediums for conveying tuberculous matter, often are the means of spreading tuberculosis. The enclosures in which such occupations are followed moreover frequently produce soil for the tubercle bacillus in the occupants by the debasement of nutrition from want of air. 4. Tuberculosis is a disease of the poor, downtrodden, and debased. The tubercle bacillus does not grow well in healthy tissue. It cannot get a foothold in the tissues of a person who is in a strictly normal condition. It must have tissue which is already somewhat debased, for a place of beginning. Overwork, underfeeding, under-airing, dissipation, physical injury to tissues by traumatism or by other diseases, are the usual forerunners of tuberculosis. 5. Tuberculosis is a slow, long-drawn-out disease which, as a rule, kills by inches. Even the cases which are known as galloping consumption, have had a long period of unrecognized quiescence. The average duration of tuberculosis probably is ten years. Perhaps two-thirds of this time is a period of delicate health merely. There are no symptoms, but the person is looked upon by everyone as a delicate person. 6. Tuberculosis is a curable disease. The tubercle bacillus is not a virulent parasite for human beings. It is only when associated with other microorganisms that it becomes dangerous, and even then it does not destroy much tissue at a time. Unfortunately, when unchecked, it continues to make inroads until it has destroyed so much tissue, and has damaged so many organs that the toxemia of a simple ordinary cold may prove fatal. Its inroads can readily be checked, however, by healthy nutrition. Just in proportion as the body is restored to a normal condition of health the tubercle bacillus deteriorates, ceases to reproduce itself, and gradually becomes exterminated. Every living organism has within itself the power of self-protection by which it can fight off parasitic life. It can produce an antitoxin which neutralizes the toxins produced by the parasitic microorganisms, and it can produce cells which destroy the microorganisms themselves. That the human body can destroy and cast out tubercle bacilli is no longer to be doubted. 7. Tuberculosis can be prevented. This is the brightest star in the firmament of modern science. No deduction from the new knowledge about tuberculosis stands out more boldly and unequivocally than this. That which is due to life is perpetuated by reproduction; stop the reproduction and it becomes extinct. The tubercle bacillus ordinarily only can reproduce itself in a host. Its life outside of a host is dormant. It hibernates, so to speak, during this time in a caché consisting of broken-down tissue or dead tissue cells. This caché is easily discernible at the time that it is given off by the old host. The matter which constitutes the caché is known in common parlance as pus or sputum. It is through this pus or sputum, and through this alone, that tuberculosis can be conveyed from one person to another. Science has discovered many substances which will destroy the life in this pus or sputum, and destruction of the pus or sputum by fire is a very easy matter. Sterilization or destruction of all matter given off by the tuberculous at the moment when it is given off absolutely prevents new implantations. What can be done with one tuberculous person can be done with a hundred, and what can be done with a hundred can be done with a thousand. Theoretically, at least, it is possible for every tuberculous person on earth to sterilize or destroy every particle of tuberculous matter before any of it can get into another person. Practically, the prevention of tuberculosis, then, is a question of ways and means of how to bring every tuberculous person under control. 8. Tuberculosis exists in every part of the world, in every climate, and in all seasons of the year. It has existed at all times of which we have any historic record. It is the most prevalent of all diseases, and causes more deaths than any other disease. It causes from a seventh to a tenth of all the deaths throughout the world. The treatment and control of the tuberculous, therefore, is a universal problem. It must be worked out in every part of the world, and the methods used must be such as can be used in any part of the world. 9. The extermination of tuberculosis in animals must go hand in hand with the extermination of tuberculosis in human beings. Every precaution must be taken against intertransmission of animal and human tuberculosis. Each of these tasks should stand on its own foundation, but they should be carried on simultaneously and in harmony one with the other. The crusade against tuberculosis in the human race should not be made to carry the burden of the crusade against tuberculosis in the animal kingdom by the dissemination of false doctrines about intertransmissibility, neither should it be impeded by the dissemination of false doctrines about nonintertransmissibility. That animal tuberculosis can be conveyed to human beings is a settled fact. How frequently or infrequently this happens has little bearing upon the subject, one way or the other, except in so far as false notions about this matter may lead to improper measures for the prevention of tuberculosis.

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[1] An address delivered by invitation at the Sixth Annual School of Instruction for Health Officers, at Burlington, Vt., June 27, 1904.

Tuberculosis can be successfully treated anywhere. Climate has practically nothing to do with the matter. Formerly, climate was looked upon as the most important factor in the production of tuberculosis, and consequently it was also looked upon as a most important factor in the treatment of it. For many men it is difficult even at the present time to give up these ideas. It has been demonstrated, however, by practical tests, that the disease can be successfully treated anywhere, and comparative statistics of results obtained show conclusively that climate practically plays no role in the matter at all. Even in large cities, on small streets, good results are obtained at the present time by modern scientific treatment.

Modern scientific treatment of tuberculosis means a carefully selected diet, life in the open air, regulation of exercise and such medication as will help injured organs to do their work in a physiologic way. The diet must be one which will give the largest amount of nutrition with the smallest possible amount of labor on the part of the organs making the nutrition. Food, therefore, must be selected not only for its nutritive value, but for its nutritive value plus the ease with which it can be transformed into tissue. Of all foods, milk undoubtedly is the one which gives the best returns in nutrition for the smallest consumption of energy. Next to milk come eggs, after these beef and mutton, and then leguminous vegetables. Meat contains a great deal of nutritive value, but its transformation into tissue uses up a great deal of energy, and for this reason it ought to be used only once a day. For the average tuberculous subject a good diet is one consisting of one meal of solid food a day, and three quarts of milk and six raw eggs a day. Fruit of all kinds may be allowed, and some of it should be used daily. Nuts which are easily digested, such as almonds, walnuts and pecans, may be used, and it is good practice to permit of their use at pleasure, as they require considerable mastication. No food should be permitted which is used for the mere purpose of tickling the appetite, and, above all things, pastry and dainties should be forbidden. The milk and eggs may be distributed over the day at intervals of two hours, but no milk nor eggs should be taken within two or three hours of the full meal before or after. The doctor should always definitely lay down the time at which food should be taken and the amount to be taken, and he should impress it upon the patient that the full quantity must be taken each time, whether there is a desire for it or not. When patients are assured that they can take this quantity of food and that it is beneficial to them to take it, even when they are nauseated, they will take it as a matter of course, whereas otherwise, with preconceived notions about their inability to take it, they will decline it.

Life in the open air must mean just what the words indicate. The patient should be in the open air 24 hours out of the 24. If it is possible to put him out in a tent he should be put in a tent. If this cannot be done, the hours which are spent in the house must be spent in a room which is well ventilated and in which the windows are always open. There must be no half heartedness in this matter and drafts must be absolutely disregarded. A room should be selected in which there are windows on two sides at least, and these windows must at all times be kept open. This does not mean in fine weather only but at all times, winter and summer, rain and shine. If windows must be closed temporarily during a storm to protect the furniture, they must be opened as soon as the storm is over. Rebreathed air is very harmful to a person suffering from tuberculosis and must be avoided under all and any circumstances. Products of combustion are carried off by the lungs in the exhalation of air. These substances are poisonous to the organism and thus do harm aside from the injury which results from insufficient amount of oxygen. Air purifies itself by circulation and for this reason outside air is practically always free from any poisonous products of combustion. Air in a room can only be purified while in motion, hence a room is never properly ventilated unless air can enter from one side and pass out from the other. When a patient is exposed to a draft he should be protected against reduction in temperature by proper clothing. Night air must be supplied as freely as day air. If anything, night air is superior to day air, particularly in cities, because it is free from irritating substances. In this connection it should always be borne in mind that it is physically impossible to take what is ordinarily known as a cold from exposure to a draft. Colds are all due to microorganisms and always are contracted by contagion.

It is very important to control the amount of energy used up by muscular action in the treatment of tuberculosis. Muscular action consumes energy and throws into the circulation products of combustion. When the organism is already on the verge of bankruptcy it is an easy matter to bankrupt it by an excessive amount of physical exercise. Persons who have fever or who are far advanced in the disease should not be allowed to take any exercise at all. As the fever disappears and as the patient gains in strength, exercise may be gradually taken up, but it must be so gradual that fatigue may always be guarded against. One severe fatigue may change a favorable case to an unfavorable one. It is safest to begin with a few minutes' mild exercise, such as walking twice a day, and gradually add from two to five minutes a day until the patient is able to walk several hours without fatigue. When fatigue is experienced by the amount of exercise permitted, the time should be cut down to a point at which fatigue does not ensue. With patients who have cavity formations and who have dilation of the right ventricle, exercise should be taken up with the most extreme care. With some of these patients physical exercise can never again be taken up and they must be content with a life of inactivity. They have lost their reserve lung capacity and are unable for this reason to take exercise without putting a severe strain upon their organism, and especially upon the heart.

Medication in the treatment of tuberculosis should always be a secondary matter and should be resorted to only as a help to organs which are unable fully to perform their functions. In most cases stomachics and digestive ferments are indicated, because the stomach is not well able to do the amount of work thrown upon it unaided by artificial means. The bowels, which are apt to become clogged, need to be cleaned out frequently by some such purgative as epsom salts or castor-oil. The heart needs to be closely watched and when overacting, as indicated by an accentuated second sound, should be relieved by some such drug as nitroglycerin. Opiates and alcohol should never be used; neither should any drug which is depressing either upon the nervous system or upon the heart. The old-fashioned cough medicines should be absolutely eschewed. When the patient is suffering from a cold some benefit may be derived from the ammonia preparations, but even these should be used only temporarily. A safe rule is to use no drug unless there is a positive indication for it.

The control of tuberculosis can be summarily expressed in one word, cleanliness. It must be absolute cleanliness, however, and cleanliness in the light of modern science. Old ideas about cleanliness will no longer suffice. Civilization long since has taught us to dispose of certain dejecta of the human body in a way which prevents the return of those dejecta into the body with food and drink before they have been broken up into their elementary constituents by the chemistry of nature. Civilization, however, still permits us to carry with us on our persons other dejecta which are even more prejudicial to health, or if not to carry them about with us on our persons to throw them anywhere that is convenient. In the light of modern science, such practices can no longer be looked upon as consistent with cleanliness. We now know that the human organism frequently has to combat parasitic microorganisms, and that it throws out these microorganisms by way of the respiratory tract as well as through the excretory organs. It may be, indeed, when all the facts are known, that we will find that parasitic microorganisms are more frequently thrown off by way of the mucous membrane of the respiratory tract than by any other channel. The secretions of the mucous membrane of the nose, throat, and lungs, and the broken down tissue which is thrown off from the lungs in cough, very frequently contain microorganisms which have been ejected from the system because they are prejudicial to it. Expectoration, therefore, of all kinds as ordinarily practised is prejudicial to health and is inconsistent with cleanliness from a scientific point of view.

Inasmuch as the mucous membrane of the respiratory tract may become a culture medium for parasitic microorganisms, and the lung tissue itself may become such a medium, and inasmuch as when these parts do become culture mediums for parasitic microorganisms nature throws off these microorganisms through a hypersecretion or through broken-down tissue, all of which must come away in the form of expectoration, it goes without saying that expectoration is just as necessary to physical well-being as is the removal from the body of any of the dejecta. Expectoration, therefore, cannot be stopped, and in itself cannot be at variance with cleanliness. The method of disposing of expectorated matter, however, is at variance with cleanliness, and must be changed. In the light of our new knowledge, all matter which is given off from the mucous membrane of the respiratory tract must be disposed of as carefully and with as much forethought for the safety and comfort of others as are other dejecta of the human body. This can easily be done. Already civilization has provided us with means of disposing of expectorated matter with perfect safety to ourselves and to others. For people who expectorate very little a paper napkin and a paper bag in which to deposit the paper napkin are all that is necessary. These can be had very readily at the present time at stores which deal in such commodities. For people who expectorate a great deal many devices are at command. Paper pocket spitcups are ingeniously gotten up for us, and various kinds of impervious paper boxes nicely fitted into a tin box with a cover on are available. When none of these things can be had, an ordinary earthen coffee cup with a handle to it, into which ordinary Red Seal lye and water may be deposited, can be had. It is possible, therefore, at the present time for everyone to dispose of expectorated matter without prejudice to himself or to anyone else.

For the poor, the simpler the method of disposing of expectoration, the more likely it is to be carried out. The manner of doing it, moreover, must not attract too much attention. Many devices for the disposal of expectorated matter are objectionable from this point of view. Nobody, for instance, cares to be seen with a sputum flask, and there is something suggestive of uncleanliness in the use of such a flask which is repulsive to a great many people. Paper napkins and paper bags can easily be concealed, either in a cabba or a pocket, and have the additional recommendation of being very cheap. Among the poor, therefore, more probably can be accomplished by recommending the use of these means for the disposal of expectorated matter than by any other.

The treatment and control of tuberculosis in practice, at least, falls to the doctor and nurse and health departments. Unfortunately, none of these is at present properly equipped for the work. The education and training of doctors and nurses in the past has, if anything, unfitted them for the scientific treatment and control of the tuberculous. Departments of health, with few exceptions, are not well enough organized and equipped to carry out the modern requirements for the prevention of tuberculosis. It therefore yet remains to educate properly and train the people who are to carry on this work and to organize and equip the departments of government through which the official part is to be accomplished.

Quite naturally, the most efficient factor in the treatment and control of the tuberculous would be the family physician, if he were properly equipped for the work. Could every family physician of the land at once be transformed into an expert on tuberculosis, the tuberculosis problem could be solved in a very short time. This, of course, cannot be done. With the older physicians, the best that can be hoped for is to convince them that tuberculosis is contagious, curable, and preventable, and to induce them to drop old methods of treatment with alcohol, opiates, and depressants, substituting therefor common-sense diet with outdoor life. It is not in the nature of things for them to be able to equip themselves to make early diagnoses and to apply modern remedies in a scientific way. They could do much, however, if they would look upon every one in delicate health as a victim of tuberculosis in some form and would at once institute what may be called hygienic treatment by diet and outdoor life with a view of reestablishing good health. For these men every delicate person should be looked upon as a tuberculous subject until the contrary is proved. Of the younger men, some have had better training in the modern methods of physical examination, but even with these the training has been entirely theoretic, and they often are at sea when they come to its practical application. It is surprising how few men in the practice of medicine are capable of making an exact record of the condition of the heart and lungs. It is the experience of all sanatoriums which have been established for the treatment of early cases of tuberculosis that examiners for the sanatoriums, who have been carefully selected in the vast majority of instances, send cases relatively far advanced for incipient cases. The fault undoubtedly has been with our medical schools, and this fault still exists. Physical examination of the heart and lungs is an art and not a science, and can only be learned by apprenticeship under a master. Medical colleges teach it as a science, but not as an art. Unfortunately, they are not equipped to teach it as an art. In order that medical colleges may be able to teach the art of early diagnosis in tuberculosis it will be necessary for them to equip wards for the treatment of tuberculosis in all its stages according to modern methods. Every medical college should transform the top story of the hospital attached to it into a ward for the treatment of tuberculosis, with a roof-garden as part of the equipment. In this way the college would attract the material necessary for the training of its students. It would be able to treat successfully tuberculosis in all stages of the disease, to make cures in many of its cases, and, quite naturally, the tuberculous poor would soon flock to it in consequence of the work done. Such an arrangement would enable colleges to train men properly in the early diagnosis of tuberculosis and in the modern scientific treatment of it.

Nurses, like doctors, will have to be educated along new lines to make them available in the crusade against tuberculosis. As nurses are now trained, they are of little value in the care of consumptives. In the first place, by reason of false ideas about the contagion of tuberculosis, they have such a fear of the disease that very few are willing to be engaged in such nursing. All over the country hospitals and sanatoriums for the treatment of the tuberculous practically have to train their own nurses, either out of raw material or out of nurses who have already had a general training. It is even difficult to get this raw material. A woman who has been properly trained to take care of a consumptive need have no fear of the disease, because she controls the situation and has it in her power to make the consumptive absolutely harmless. It is largely because trained nurses know nothing about tuberculosis, and have not been trained to nurse tuberculous subjects that they have such a fear. In such a large undertaking as the stamping out of a disease like tuberculosis, it would be worth the while of every hospital in the country to open a ward for the treatment of consumptives, if for no other purpose than the proper training of nurses in the care of them. Next to the doctor, no one could do more effective work than the nurse were she properly equipped.

Departments of health will nearly all have to be reconstructed before they can take an active, efficient part in the crusade against tuberculosis. As things now are, very few governments have departments of health properly organized for this work. For governmental control of tuberculosis, it is necessary to have first, machinery for the registration of every case of tuberculosis. Second, machinery for supplying material aid and proper instruction to the consumptive poor, who are unable to help themselves. Doctors and nurses should be sent to these poor people to treat them, educate them and help them. Third, have hospitals for the treatment of the dying consumptives who cannot be properly cared for at home, and sanatoriums for the treatment of earlier cases. Fourth, legal enactment and machinery for the enforced isolation of vicious consumptives who refuse to be instructed and persistently decline to live up to such rules as are necessary for the protection of others. Fifth, machinery and equipment for the sterilization of all places which have been occupied by consumptives. Sixth, legal enactment and machinery for the regulation and control of ventilation and cleanliness of all workshops of any and every description. Seventh, legal enactment and machinery for the control of the spread of tuberculosis in domestic animals. A department of health properly organized for such work as here outlined and properly equipped must be more than the tail of a political kite. It must be a department of the government depending upon the central executive power properly organized under the law, and operating strictly within the limits of the law. As yet, there are few such departments of health in existence.

In conclusion, it only remains to be said that the treatment and control of tuberculosis must largely be carried on in the home of the patient. The disease is too prevalent to be dealt with in any other way. Hospitals and sanatoriums are proper adjuncts, but must be viewed as adjuncts. They are necessary for the treatment and control of exceptional cases. The majority of cases can be treated and controlled in their homes, and as a matter of economy, will have to be thus treated and controlled. The most efficient machinery for this work undoubtedly is the dispensary. A dispensary for the treatment and control of the tuberculous poor should be opened by departments of health and by all hospitals. The Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis opened a dispensary on a large scale on the general plans laid down by Calmette, at Lille, in February, 1903, and since then the city of New York and a number of New York hospitals have opened dispensaries modeled on the same plan. The operation of these dispensaries has clearly demonstrated that they are the most efficient weapons so far known in the crusade against tuberculosis. The results of treatment are exceedingly good and the educational work and control of patients is quite efficient. Best of all, the patients are educated and restored to health without undue interference with their ordinary avocations and without pauperization. Every department of health should establish a dispensary at once, and cities in which no departments of health exist should get up organizations for the purpose of opening dispensaries.

Vaccination Marks.—Since vaccination marks in themselves convey but little information as to the time of life when vaccination was performed, it has been urged that all operators should vaccinate in a uniform manner, and with markings peculiar to the age of the individual. Thus it has been suggested that a triangle with the apex downward could indicate that the vaccination had been performed when five years of age; the triangle with the apex upward, between 5 and 10 years; the scars arranged in a horizontal line, between 10 and 15 years; in a vertical line, between 15 and 20 years, etc. While this is probably not practicable, since each individual vaccinator in ordinary practice would feel no necessity for conforming to any fixed usage; but it is a fact that in the large municipalities public vaccinators could be required to conform to some such plan. If so, it would be of definite value to medical men, hospitals and dispensaries, in the years following.

EDEMA.

A Consideration of the Physiologic and Pathologic Factors Concerned in its Formation.[1]

BY

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(D. W. Harrington Lectureship, First.)

FOURTH LECTURE.

Introduction.—We now turn our attention to the pathology of edema. As we have stated in the introductory remarks of the first lecture, edema is an abnormal accumulation of lymph. The knowledge of the pathology of edema, then, has to be preceded by a knowledge of the physiology of lymph. However, this is not the actual history of the pathology of edema. The various phenomena of edema were noticed by physicians long before there was any knowledge of lymph, and the desire to understand the nature and the causes of edema preceded the attempts of physiology to study systematically the intricacies of lymph-production. Until recently the investigations of the pathology of edema were carried on independent of the studies on the physiology of lymph. In fact, certain views now holding a place in physiology have their origin, as we shall soon see, in the researches on the pathology of lymph.

Experiments by Richard Lower.—It is an interesting fact, that the first experiment made for the purpose of throwing light on the nature and cause of cardiac edema was carried out about 200 years ago by Richard Lower. The experiment consisted in tying the inferior vena cava, and the report reads that edema of both legs followed this operation.

Here we have a classic experiment that was employed in recent years often enough for the purpose of studying the effect of venous pressure upon the production of lymph, as well as on the production of edema. As to the result obtained by Lower, it was at first confirmed in similar experiments made in the twenties of the last century. Some 30 years ago, however, Ranvier stated that ligation of the femoral vein in dogs does not bring on edema unless the sciatic nerve is cut. The sciatic nerve, you know, carries the vasoconstrictors for the vessels of the leg; by cutting this nerve, the bloodvessels become dilated, and the leg receives more blood. Ranvier seemed to believe that the edema which followed was due to this cause. Now, you remember, from the lecture on the production of lymph, that arterial congestion is an unreliable factor in the production of an increase of flow of lymph. Cohnheim soon demonstrated that vasodilation alone will never bring on edema. The cervical sympathetic, for instance, carries the vasoconstrictors for the vessels of the rabbit's ears. When you cut the sympathetic on one side, the corresponding ear becomes fiery red. Cohnheim cut the sympathetic on both sides, and tied the large vein at the root of one ear. There was marked edema on this side, none on the other side. The tying of the vein caused an increase of the venous pressure, and the cutting of the sympathetic caused an increase of the arterial pressure. The hereby enormously increased intracapillary pressure is then the cause of the transudation of such a considerable quantity of lymph that it cannot be carried away by the bloodvessels and the lymphatics, hence the edema.

As to the failure to produce edema by tying the femoral vein it is due, it is explained, to the collateral circulation which soon becomes established after the ligation of the main vein. Sotnitschewski, under the direction of Cohnheim, caused edema of the leg by the injection of plaster-of-paris into it. The result was ascribed to the complete venous obstruction which the injection accomplished. Possibly, however, the injection caused also an irritation of the vessel wall, creating thereby another factor for the production of edema, of which we shall soon hear more.

Bright's Theory of Renal Edema.—Again, in the early years of the last century, the recognition by Richard Bright that albuminuria and anasarca are frequent symptoms of renal diseases, caused the question as to the origin of renal edema to become a favored study in the pathology of our subject. Bright's theory was that, by the loss of albumin with the urine the blood became watery, hydremic, and that the walls of the capillary vessels permit the passage into the tissues of dilute serum, hence the edema. This theory was tested experimentally by Bright himself and by contemporaries of Bright, among whom I shall mention the celebrated physiologist Magendie, who injected water into the bloodvessels of dogs.

Stewart's and Bartels' Theory of Renal Edema.—The accumulated clinical observations, have however, gradually developed the conviction that the loss of albumin cannot be the cause of edema, since much larger losses of albumin from other parts of the body, as well as from the kidneys, frequently enough do not lead to any sign of edema. On the other hand, edema often occurs also in cases in which there is but little albumin in the urine. But, as the urine in some forms of Bright's disease is scanty, and as just in these forms of renal disease edema is a frequent phenomenon, the theory was set up by Granger Stewart and by Bartels that the scantiness of the urine leads to an accumulation of water within the blood. In nephritis, therefore, not only the blood is hydremic, but the circulation is also plethoric. The plethora, it was further assumed, increases the pressure within the capillaries, hereby filtering the hydremic serum into the tissues. It is then, hydremic plethora which is essentially the cause of renal edema.

Cohnheim's Classic Work on the Pathology of Edema.—Against this theory many objections were brought forward, especially by the celebrated pathologist Julius Cohnheim, who has laid the foundation for many views we entertain today upon the pathology of edema. Simple scantiness of urine, Cohnheim argued, cannot be the cause of edema, since ligation of both ureters does not lead to edema; and, furthermore, there are on record many cases of complete anuria which were due to calculi, or to pressure from tumors, or to hysteria, which lasted for many days, and sometimes even weeks, and never led to general edema. On the other hand, the connection between edema and scantiness of urine, Cohnheim said further, can be also interpreted that the urine is scanty on account of the edema; *i. e.*, because the blood gives up water to the tissues, it has not enough for the elimination through the kidneys.

The Experiments of Cohnheim and Lichtheim.—In an extensive series of experiments on animals, Cohnheim, in conjunction with Lichtheim, investigated the question whether plethora can lead to anasarca, to edema of the cutis and subcutis—the form of edema by which renal diseases are mostly characterized. These now celebrated experiments led to conclusions which exerted and still exert a great influence upon the views we now hold upon the pathology of edema.

These investigators introduced into the veins of rabbits and dogs large quantities of normal solutions of sodium chlorid; in many cases the quantities introduced were equal to more than one-half of the entire weight of the animal. They found that the enormous plethora caused by these transfusions led, indeed, to ascites, to edematous swelling of nearly all the glandular organs, to edema of the gastrointestinal tissues, and to enormous secretions within the gastrointestinal canal. But there was no fluid within the thoracic cavity, and there was no edema of the skin. In these experiments, then, an enormous hydremic plethora did not lead to edema of the cutis and subcutis.

Another instructive fact was observed, that the transfusion with normal saline caused an enormous flow of lymph from the thoracic duct, but had no influence upon the lymph-flow from the normal extremities. You will remember that salt solutions belong to Heidenhain's second class of lymphagogues.

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[1] Lectures delivered at the University of Buffalo, Buffalo, N. Y., on November 30, December 1, 2 and 3, 1903.

Let me remark, in parenthesis, that Cohnheim and Lichtheim published their results about 15 years before the appearance of Heidenhain's celebrated article on the production of lymph. You see here again an instance in which pathology did not wait for physiology to lead the way.

Cohnheim and Lichtheim found, in the further course of their studies, however, that the transfusions of saline would cause an edema of the skin in any part of the body if this part was subjected to any moderate irritation. Thus, a previous exposure of the part to the sun, the painting of it with iodin, the submersion in hot water for a short period, would predispose this part to become edematous if subsequently transfusion was practised on the animal. Ligation of the femoral vein, which alone, as we have seen, does not lead to edema of the leg, is a very effective factor in transfusion. Most of these subsidiary factors in causing edema, cause for themselves an irritation, a very mild superficial inflammation. Now Cohnheim has shown that the change in the permeability of the vessel wall is one of the most essential factors in the production of inflammation. In the first stage of inflammation, the change of the permeability of the endothelial wall leads, as Lassar has shown, to transudation of a clear lymph rich in proteids. It is this transudation which is the cause of the collateral edema, as it was formerly termed, or the inflammatory edema, as it is termed now. Cohnheim, therefore, believes that the mild irritation of the skin, in the experiments mentioned caused a certain alteration of the capillary walls, which made them more permeable for the fluid of the plethoric hydremia. The fact that the transfusion leads to an increase of lymph flow from the thoracic duct but not of lymph from the extremities, Cohnheim explains by the assumption that the capillaries of the abdominal viscera are more permeable than those of the extremities. He also states that through the saline injections there is a greater flow of lymph also within the glands, so that they become edematous; which explains itself, again, by the greater permeability of their capillary walls. The difference in the permeability of the capillary wall in different organs, and in the increase of the lymph flow in the glands, you will remember are the essential points in the views of Starling and of Asher with regard to the formation of lymph. Cohnheim anticipated them by 20 years—pathology was in the lead again.

Cohnheim explains the results, which were obtained in his experiments with Lichtheim, by assuming that the enormous hydremic plethora, produced by the transfusion, was sufficient to cause transudation through the more permeable capillary walls of the intestines and of the glands, but were insufficient for the less permeable capillaries of the skin. By the addition, however, of an irritant to the skin, the permeability of these capillaries became increased also, hence the edema.

Acute hydremia alone, according to Cohnheim and Lichtheim, causes no transudation at all. When they replaced a good part of the blood by an equal quantity of normal saline there was no transudation in any part of the body. A repetition of this procedure, however, for a number of successive days, became instrumental in bringing out edema of the leg after tying the femoral vein. Chronic hydremia probably leads, they say, to an increase of the permeability of the vessel wall.

The experiments of Cohnheim and Lichtheim have been repeated by a great number of investigators. The results stated were confirmed in all the essential points by a majority of observers, and the experiments underlying the few dissenting reports, like those of Gaertner, Salvioti, and others, are not exactly comparable to those of Cohnheim and Lichtheim.

Experiments of Magnus.—The results of the latter investigators, however, found recently an interesting elucidation through a very instructive piece of experimental work by Magnus. Transfusion of animals, immediately upon their death, invariably leads to anasarca. In living animals transfusion leads to edema of the skin when these animals previously received injections of arsenic, or were in deep anesthesia by chloroform or ether. Sodium fluorid, to which Heidenhain attached so much importance as a protoplasmic poison, has no especial effect. In nephrectomized animals transfusion invariably led to anasarca if it was carried out a day or two after the nephrectomy. As pharmacologists consider arsenic a specific poison for the bloodvessels, its aggravating effect upon the edema of the skin is quite a strong support of Cohnheim's theory regarding the importance of the permeability of the capillary wall in the production of edema.

Cohnheim's Classification of Edema.—Based upon his extensive experimental experience, Cohnheim arrived at the view that the many forms of edema are to be reduced to two classes: Edemas which are due to excessive permeability of the capillary wall, and edemas due to venous congestion. This would seem to remind us of Starling's statement regarding formation of lymph; it is due, he says, to filtration and the permeability of the capillary wall. But Cohnheim states expressly, that, even in venous congestion, blood-pressure is not the only cause of the edema. He thinks here also of the diminished velocity of the bloodstream, but especially again of the increased permeability of the endothelial wall. As to the nature of this change of the permeability, it is necessary to point out that Cohnheim did not think it due to a simple physical process. He says expressly that the endothelial cell is a living tissue, "or organ, if you please," with a metabolism of its own. Any change affecting the intracapillary or extracapillary fluid, of whatever nature, will change the metabolism of the cells, which will cause some unknown changes, perhaps of the irritability of the cell.

As instances of edemas due to venous congestion, Cohnheim mentions cardiac edema and edema due to venous thrombosis. Pure renal edemas—*i. e.*, when without cardiac complications—are due, according to Cohnheim, exclusively to an increase of the permeability of the capillary wall, and are, therefore, to be considered as inflammatory in their origin. Edema in scarlet fever nephritis is a clear instance of this kind; an inflammation of the skin caused an increased permeability of the walls of the capillaries of the skin. But here, as well as in nephritis, on account of the impaired elimination, the blood contains some toxic agent, which affects the capillary walls. General edemas due to "cold" are caused by irritations of the skin, and are, therefore, also of an inflammatory character. The edemas of malaria are brought on by an irritating poison in the blood. Hydremia, when chronic, gradually changes, as we have seen, the permeability of the capillaries. Hence the edemas of anemia, chlorosis and cachexia. Hydrocele, hydrocephalus, and many other forms of local edema, even the *œdema ex vacuo*, Cohnheim classifies as inflammatory edemas.

The essential factor in the formation of edema is, according to Cohnheim, the increased transudation from the blood, which can no longer be mastered by the lymphatics. The diminished absorption alone is never the essential cause of edema. Tying all the lymphatics of a part, or even of the thoracic duct, never leads to edema. Cohnheim admits, however, that the obstruction of lymphatics might be sometimes a subsidiary factor in the development of edema.

We shall mention here that, according to Boddaert, the tying of all the lymphatics of a part really leads to edema of that part. The chief difficulty with the lymphatics is their extensive collateral connection; one is never sure that all are obstructed.

To my mind, any increased transudation which cannot be overcome by absorption, is soon, in itself, a potent cause also for obstruction of the paths of absorption, at least by the lymphatics, the increased pressure within the tissues surely ought to lead to compression of the lymphatics. It is a factor in the formation of edema, which is rarely mentioned in the discussions of its pathology, but which is known, or ought to be known, to the practitioner. We all have seen how the removal of a part of a transudate leads to rapid absorption of the remaining fluid, which means, apparently, that by relieving the paths of absorption from over-pressure they are enabled to resume their function.

However, absorption by the lymphatics is, as we have stated above, still an obscure chapter in the physiology of lymph, and we know not much more of it in the pathology of edema.

Reichel's Theory of Edema.—Reichel has recently put forward the theory that absorption is an essential factor in the formation of edema. He derived his view from some experiments which he made upon nephritic patients. He found that in such patients the absorption of salt solutions, which he injected into the subcutaneous tissue, is considerably diminished.

There is some break in the evidence brought forward by Reichel. In order to facilitate the observations, he selected for his experiments such patients who had no edema (interstitial nephritis). But, then, if the retardation of absorption be the chief cause of edema, the question could be raised, Why was there no edema in these patients?

The decreased absorption from ascitic fluid I had occasion to observe in the following instructive case: In removing ascitic fluid from a patient, I found that it had a dark-green color, and found out that more than two weeks previous to this operation the patient took methylene-blue. The urine, I was told, was blue for a few days, but was normal in color for the last 10 days. Here the methylene-blue, which entered into the ascitic transudate, did not leave it for at least 10 days.

Landerer's Theory of Edema.—A factor in the formation of edema is, according to Landerer, the loss of the elasticity of the tissues. In studying the elasticity of the tissues, Landerer found that the same tissues, when edematous are distinctly less elastic than in the normal state. However, here again the loss of elasticity might be the result of edema, and not its cause. But it must be admitted that a loss in the elasticity of the tissue of an organ is favorable to the development of edema within this tissue, and possibly is, indeed, in some cases at least, a potent subsidiary factor. The edema of the legs in repeated pregnancies is probably due in part to the diminished elasticity of the tissues.

Senator's View of Renal Edema.—In connection with Cohnheim's view on renal edema, we have to mention Senator's view on that subject. He agrees with Cohnheim that renal edema is of an inflammatory character. But whereas Cohnheim considers the edema as a secondary condition due to a toxic agent produced by the nephritis, Senator is of the opinion that edema is just as primary a condition as nephritis. Both are brought on by the same toxic agent circulating within the blood and attacking the glomeruli in the kidney as well as the bloodvessels of the cutis and subcutis, causing hereby increased permeability of their walls. This toxic agent, which circulates within the blood, has its origin in the primary disease, like scarlet fever, malaria "cold," etc., which led up to nephritis and edema.

Of the investigators who took an active part in the recent studies upon lymph, we find some dealing subsequently with the pathology of edema. Thus Cohnstein, as well as Starling, who were most active in the struggle against the secretory theory of lymph, have formulated their views with regard to edema from a physicochemic point of view.

Cohnstein tabulates the factors causing the appearance of edema as follows:

1. Increase of intracapillary pressure.
2. Reduction of pressure within the tissues.
3. Increase of permeability of the capillary wall.
4. Chemic changes in the blood plasma.
5. Chemic changes in the tissue fluid.
6. Disorders in the removal of the tissue fluid by the lymphatics.
7. Disorders in the removal of the tissue fluid by the bloodvessels.

Starling's Table of the Causes of Edema.—Starling's table of the factors involved in the causation of edema reads as follows:

1. Factors causing increased transudation:
    A. Increased intracapillary pressure:
        a. Venous obstruction.
        b. Vasodilation.
        c. Plethora.
    B. Increased permeability of vessel-wall:
        a. Local injury by mechanical irritants.
        Local injury by thermal irritants.
        Local injury by chemic irritants.
        b. Malnutrition.
        c. General injury by circulating poisons (?)
    C. Watery condition of the blood (hydremia).
2. Factors causing *diminished absorption:*
    A. By lymphatics:
        a. Paralysis of limbs.
        b. Obstruction of lymphatic trunks.
    B. By veins:
        a. Venous obstruction.
        b. Watery condition of the blood.
        c. Concentrated transudations.

Of course, both writers, Starling as well as Cohnstein, maintain that probably no edema occurs which is due to only one of the enumerated factors; usually a few of them combine to produce edema. Both writers are interested mostly in venous pressure, and both apparently attach to filtration, as a factor in the production of edema, a much greater importance than Cohnheim did.

Starling, however, finds the apparently simple problem of cardiac edema, *i. e.*, the edema which occurs as a consequence of uncompensated, or imperfectly compensated heart diseases, a rather difficult task to solve. The generally assumed increased venous pressure in cardiac failure is true only, Starling says, of the veins very near the heart. In all other veins, especially those of the extremities and intestines, the pressure is very low, and the intracapillary pressure is there surely lower than normal. What is, then, the actual cause of cardiac edema?

Starling's Theory of Cardiac Edema.—The theory which Starling offers is somewhat complicated. Starling divides the appearance of cardiac edema into several stages. The first effect of cardiac failure, he says, is to lower the mean intracapillary pressure, which leads to a decrease in transudation and excretion, and to an increased absorption from the tissues into the blood. The continuation of these conditions leads to hydremic plethora and a rise of mean pressure which finally effects also a rise of the intracapillary pressure, so that in all the dependent parts of the body exudation predominates over absorption. Furthermore, the continued stagnation of the blood leads to malnutrition of the walls of the bloodvessels, whereby their permeability is increased. As another subsidiary factor in the production of edema, Starling considers the increase of the mean pressure in the veins near the heart; it obstructs the discharge of the thoracic duct and thus impairs the absorption by the lymphatics.

Wooldridge's View of Cardiac Edema.—We shall mention here also the view of Wooldridge as to the cause of cardiac edema. He established that the injection of tissue fibrinogen into an animal whose femoral vein was tied, leads invariably to edema of that leg. Based upon this experience, he advanced the theory that cardiac edema is chiefly caused by an autointoxication of the organism by the fibrinogen of the lymph, which is probably increased in cardiac insufficiency.

Hamburger's Views on the Causation of Edema.—Hamburger, whose vitalistic theory of the production of lymph we have discussed before, discards all physical factors in explaining any of the edemas. Even the edema in venous stagnation is produced, according to him, not by filtration, but by a hypersecretion of lymph by the endothelial cells, to which they are stimulated by the metabolic products in the stagnated venous blood. His view of edema is that it is produced through increased transudation brought on either by a greater permeability of the vessel wall, which then loses its secreting power and acts only as a filter, or by an increase in the secretory activity of the endothelial cells. The increased cellular activity is further brought about, Hamburger thinks, either by a greater accumulation of the normal metabolic products within the blood, or by specific products generated by bacterial activity.

From the ascitic fluid of a patient, Hamburger isolated a microbe, the living cultures of which, as well as the toxic products, possessed strong lymphagogic properties.

In this connection, we should mention that, even before Hamburger, it was found by Gaertner and Roemer, that an intravenous injection of tuberculin, as well as of other bacterial products, will bring on an increase of lymph flow from the thoracic duct. These toxic products belong apparently to Heidenhain's lymphagogues of the first class.

The Theory of Lazarus-Barlow.—Whereas the increased permeability of the capillary wall might still be considered as a physical element in Hamburger's theory of the formation of edema, no physical factor seems to find place in the pathology of edema as conceived by Lazarus-Barlow. This author assumes that in all cases of edema the tissues are greatly starved, and, what is more, contain an overdose of waste products. In some way the tissues acquaint the bloodvessels in their neighborhood of their great need, to which the latter respond with such a liberal transudation that it cannot be mastered by the lymphatics, and edema results. The liberal output of fluid of the local bloodvessels is refunded by the distant well-fed and well-cleaned tissues through the agency of the distant bloodvessels. These strongly flavored vitalistic views are supported by some experiments on the effects of local venous congestion upon the specific gravity of the blood and the muscles in the affected part, as well as in distant regions. Barlow extends his theory to all forms of edema.

Loeb's Theory of Edema.—Studies of the changes in the specific gravity of the muscle led Jacques Loeb also to offer a theory of the causation of edema, based on purely chemic principles. Loeb observed that a muscle takes up fluid even from a very strongly hypertonic solution of sodium chlorid, and discovered that this is due to the presence of a trace of acid in the muscle. Loeb has then developed the theory that the taking up of water by the tissues is due, not to filtration by the intracapillary blood-pressure, but to the attraction of water by the tissues, *i. e.*, the increased osmotic pressure of the tissues as a result of some chemic changes within them. This view he tried to corroborate by the following experiment: He constricted the leg of a frog so strongly that no blood or any other fluid could enter or escape from beneath the ligature, and found that under these circumstances the specific gravity of the muscles increased; they attracted water from the neighborhood —they became edematous. It seems to me that this experiment is incapable of proving the contention of Loeb. He says the leg of the frog was edematous. But when a leg is so constricted that blood can neither get in nor out, it certainly cannot change its volume, cannot become edematous. The fluid within the leg might be redistributed between the tissues, but the volume of the leg will obviously not be increased, cannot become edematous. The legs might become edematous only in such experiments as were carried out by Barlow, in which the constriction permitted some arterial inflow, or as in Cohnheim's experiments, in which only the iliac vein of the frog was tied.

Loeb also applies his theory in an interesting way to the causation of edema. He states that the slightest chemic changes in the tissues of the lungs are capable of setting up changes in the osmotic pressure within the tissues, which would cause pathologic transudation in a shorter time and in a greater measure than could ever be accomplished by any changes in the blood-pressure. (Here, again, I do not fully grasp his contention. The essential feature of pulmonary edema is the appearance of a serous fluid in the air cells and in the lumen of the bronchi. Now changes in the osmotic pressure within the cutis alveolæ tissues might attract fluid from the bloodvessels and cause edema of these tissues, it might also attract fluid from the air cells. But how could it be the means of driving the fluid into the empty air cells?)

As to the chief point of the theory, *i. e.*, that the chemic changes of the tissues, by virtue of the increased osmotic pressure, might be an essential factor in the production of edema of the tissues, it can be unreservedly admitted that it is at once a plausible as well as a very fruitful view. When we discussed lymph, we mentioned that Von Koranyi brought forward the theory that the breaking down of the tissues increases the osmotic pressure within the lymph spaces, and thus attracts water from the blood. In order to apply this view to the formation of edema, we need only to assume that in certain pathologic conditions the metabolism, the breaking-down processess within the tissues, are so much aggravated that the water attracted by them cannot be carried off satisfactorily, hence the edema.

Retention of Chlorids in Nephritis.—The theory of the importance of the osmotic pressure of the tissues for the formation of edema received a new aspect by the very recent investigations on the elimination of chlorids in nephritis. It was found that in nephritis the elimination of chlorids is diminished (H. Strauss, Marischler, Achard and Loeper, Claude and Mauti, Steyrer). It was also found in a few investigated cases that the muscles and some other tissues contained more chlorids than under normal conditions (Loeper, Bohn, Strauss). It is then possible in renal diseases that the retained or deposited chlorids in the tissues attract water in abnormal quantities, and are, therefore, one of the causes for the production of edema in nephritis. There are already on record successful therapeutic results obtained by procedures undertaken from the last stated point of view. (Widal and Javal, Achard and Claude, etc.) Withholding of chlorids, it is claimed, has effected the disappearance of edema. It is too early to form an exact estimate of the reliability of these reports.

We have to point out, however, that only the retention of chlorids by the tissues (Historetention, Straus) could be a factor in the causation of edema. Retention of the chlorids within the blood would rather lead to absorption of water from the tissues, on account of the increased osmotic pressure of the blood.

Experiments on Nephrectomized Rabbits.—We may quote in this connection the observations made by Salant and myself. We found that in nephrectomized animals the absorption of solutions of sodium chlorid from the peritoneal cavity is a good deal better than in normal animals. We ascribed the favorable effect of double nephrectomy upon absorption to the increased osmotic pressure of the blood. Von Koranyi has shown, a few years ago, that the osmotic pressure of the blood is increased after double nephrectomy. This was recently confirmed by Bickel. The latter found at the same time that the electric conductivity remains unchanged. This indicates that the rise of osmotic pressure is accomplished by substances which are not dissociated by electricity, or by nonelectrolites; which would mean here that the retained substances are not crystalloids, but organic substances of high molecular construction.

Our observation of the improved absorption in nephrectomized animals throws light upon the puzzling question, why complete anuria never leads to edema. We know now that acute anuria does not cause increased transudation or retention of water, but leads rather to improved absorption.

The Relations of the Nervous System to Edema.—We have yet to speak of one more factor in the causation of edema, it is the influence of the nervous system. From the experiments cited with the section of the sciatic or cervical sympathetic nerve, we have learned that the simple removal of the influence of the vasoconstrictors from a part of the body does not lead to edema of that part. But we have learned at the same time that this removal is very effective as a subsidiary factor. For instance, the ligation of the femoral vein alone does not lead to edema of the leg, but edema occurs as soon as the sciatic nerve is cut in addition to the ligation. But the simple removal of the constrictors does not bring full vasodilation. This is brought about by stimulation of the peripheral end of a vasodilator. And here it seems that edema can, indeed, be produced by this procedure alone. In the second lecture I mentioned that by stimulation of the peripheral end of the lingual nerve, which is the carrier of the vasodilator nerves for the tongue, this organ can be made edematous. However, the edema thus produced is of a very moderate type. For a development of a well-pronounced edema, the active vasodilation probably has to be assisted by some other subsidiary factor potent in the causation of edema.

The socalled angioneurotic edemas belong probably to this type. By some unknown cause, a local active vasodilation takes place which, with the assistance of some subsidiary factor, causes the rapid appearance of a local edema. The process is less obscure when these local edemas or acute urticaria appear as a result of some gastrointestinal autointoxication. We know that many substances belonging to Heidenhain's first group of lymphagogues cause an increased production of lymph. They probably cause also an increase of the permeability of the bloodvessels all over the body—in some parts more and in some parts less. A slight local stimulus, which in normal conditions is entirely insufficient to cause either local vasodilation or local production of lymph, is, under these circumstances, capable of bringing out local vasodilation as well as local edema—tâches cérébrales or artificial urticaria.

However, the subject of the relations of the vasomotors to local edemas, as well as to edema in general, is still quite obscure. The views brought forward are essentially conjectural in their origin and have a very meager experimental foundation.

Whether edema is controlled directly by nerves other than vasomotors, by socalled trophic nerves, is a still more obscure question. Clinical writers sometimes speak of trophoneurotic edema (Veilchenfeld). But I know of no undisputed experimental evidence in favor of such an assumption, while the clinical experiences easily permit other interpretations.

Welch's Theory of Pulmonary Edema.—In discussing the various forms of edema in the first edition of his brilliant lectures on general pathology, Cohnheim remarked that there is one form of edema, a most important one, for which he could as yet offer no adequate explanation; this is pulmonary edema. But soon after, pulmonary edema was elucidated by a theory which still occupies a commanding position in general pathology. The theory was based upon an extensive series of experiments carried out in the laboratory of Cohnheim by an investigator who is now one of our foremost pathologists in this country—I refer to Dr. William H. Welch, of Johns Hopkins University. It is just 25 years since the theory was advanced. In the course of this quarter of a century the theory was tested experimentally, discussed and criticised by Sahli, Grossmann, and Löwit. It seemed to me that it would be highly instructive to hear the originator of this theory present and discuss it again in his concise way. Professor Welch complied with my request, for which I wish here to express my gratitude. Permit me to read to you the remarks written down by Prof. Welch on his theory of pulmonary edema:

> I am glad to comply with your kind invitation to say something concerning the theory of the causation of certain forms of pulmonary edema which I advanced 25 years ago on the basis of an experimental research undertaken at the suggestion and under the supervision of my honored teacher, Professor Cohnheim, in his laboratory in Breslau. This research was the first experimental study of the subject, and Professor Sahli, one of the leading critics of the theory, has been good enough to say that "even the opponents of the theory need not hesitate to give it praise of having for the first time directed, upon the firm foundation of pathologic experiment, the pathology of pulmonary edema into straight and serviceable paths."
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> Permit me to recall some of the leading results and conclusions of my investigation, published in "Virchow's Archiv," in March, 1878. These related to acute general edema of the lungs, from which the inflammatory forms of edema were separated. The various hypotheses current at that time, concerning the causation of pulmonary edema, were subjected to a critical analysis, based in part upon experimental work, and all were rejected as unsupported or directly opposed by established facts. Although some of these hypothetic causes of pulmonary edema, such as active hyperemia, enfeebled action of the entire heart, and passive hyperemia due to mitral and aortic valvular disease, continue to be prominently mentioned in some textbooks, I consider that the criticism passed upon them is still valid, and that no satisfactory additional evidence in their support has been furnished.
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> My investigations were directed mainly toward a solution of the question whether acute general pulmonary edema belongs to the group of the socalled mechanical edemas, referable to passive hyperemia, or to that other group, of more obscure causation, which includes the hydremic or cachectic edemas, and which was at that time, and is still, often attributed to changes in the vascular walls. Even 25 years ago it was recognized by Cohnheim that other than mechanical factors are concerned in the edemas due to venous congestion, and especially that these are not the direct result of rise of intracapillary pressure, but for the purposes of my research it was not deemed necessary to consider how passive hyperemia induced edema. The essential thing was to determine whether or not acute general edema of the lungs belongs to this latter category.
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> Acute general edema of the lungs is characterized by several features, which seem to give it a position quite apart from edemas of other parts of the body. Among these distinctive features may be mentioned the often rapid or sudden onset of the affection, sometimes its quick disappearance, its occurrence as an occasional complication of a great variety of acute and of chronic diseases, although a constant accompaniment of none, and its frequency as a terminal or even agonal event. Whatever be the explanation adopted, it must take cognizance of these and other peculiar characters of pulmonary edema. In view of these characters, and of previous work by himself and Lichtheim, relating to the pulmonary circulation, Professor Cohnheim, when I began my experiments, considered it improbable that edema of the lungs would be shown to be a "Stauungsœdem" or congestive edema.
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> I endeavored in the first place to determine whether it is possible to produce, experimentally, edema of the lungs by obstruction to the outflow of blood from the pulmonary veins. The previous experiments of Cohnheim and Lichtheim had already demonstrated that very great increase of the bloodpressure in the aorta may occur with relatively little effect upon the pressure in the pulmonary vessels, and also that the right ventricle is capable of overcoming enormous obstacles in the pulmonary circulation without material lowering of the aortic pressure. My experiments confirmed and extended these results. I succeeded, however, in producing edema of the lungs, both by ligation of the aorta and its branches, and by ligation of pulmonary veins; but the degree of obstruction to the circulation in the aorta or in the pulmonary veins necessary to bring about this result, was found to be so enormous that it is scarcely conceivable that it could, under any circumstances, occur in human beings.
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> The experiments thus far, while proving the possibility of the occurrence of pulmonary edema in consequence of passive hyperemia, not only shed no light upon the conditions actually concerned in the production of this affection in human beings, but, on the other hand, tended to discredit the causative factors which had previously been based upon this assumption.
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> The possible ways in which venous hyperemia of the lungs might be induced were not, however, exhausted by the experiments mentioned. There occurred to me as a possible mechanical explanation of pulmonary edema, a condition which I described in the following words: "*A disproportion between the working power of the left ventricle and of the right ventricle of such character that, the resistance remaining the same, the left heart is unable to expel in a unit of time the same quantity of blood as the right heart.*" I lay some stress upon this mode of statement of my theory, and emphasized it by the type in my article. It is true that I mentioned and examined experimentally only paralysis of the left ventricle as a cause of this incongruity between the two sides of the heart, but it is evident, as was mentioned by Cohnheim soon afterward, that spasm of the left ventricle might bring about the same result.
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> The experimental test of this hypothesis is a matter of

great difficulty. I sought in vain for some poison which would act in the desired way upon the left ventricle. Although several poisons occasionally produced edema of the lungs, none did so constantly, and I was unable to demonstrate in this way an isolated, paralyzing effect on the left ventricle. I succeeded, however, in paralyzing the left ventricle of rabbits by the coarse procedure of squeezing it between the fingers, and I observed in many instances after this manipulation, continued, apparently forcible action of the right ventricle with diminished force of the left ventricle, as indicated by the pressure in the carotid artery. Under these circumstances well-marked pulmonary edema resulted. It is this experiment upon the rabbit which constituted the experimental basis of the theory of pulmonary edema advanced in my article on the subject.

I considered briefly the nature of the forces which might be operative in supplying the right ventricle with the requisite amount of blood for the production of pulmonary edema after lessened output from the left ventricle, and to this aspect of the subject Sigmund Mayer, shortly after my publication, devoted especial attention.

I was not unmindful of the fact that this theory, if applicable to human beings, must conform to clinical and anatomic observations, and I endeavored to point out that it not only was not contradicted by such observations, but that it furnished a better explanation than any other hypothesis, known at that time, of many cases of acute general pulmonary edema in man.

Of the fate of this theory during the quarter of a century since its publication it is impossible for me to speak in detail in this necessarily brief communication, but there are a few points upon which I should like to touch. The theory has obtained wide, although by no means universal acceptance, in German and Russian publications, being unreservedly adopted, for example, by such eminent clinicians as Strümpell and Eichhorst. It seems to be little known and has been but little discussed by American, English and French writers. The experimental results have been abundantly confirmed and extended, although not all are agreed in their interpretation.

Grossmann, in an interesting experimental study of pulmonary edema due to poisoning by muscarin, believes that he has demonstrated that this form of edema is due to spasm of the left ventricle with resulting venous hyperemia of the lungs, and that the same condition of the left ventricle is present in many cases of human pulmonary edema. This opinion is not, as Grossmann seems to suppose, opposed to the fundamental conception underlying my theory—namely, a disproportion between the action of the two ventricles in the sense that the left ventricle propels in a unit of time only a fraction of the quantity of blood expelled by the right ventricle into the pulmonary artery. It seems to me, however, more probable that an enfeebled action of the left ventricle, rather than a spasmodic action, is likely to be the cause of this disproportion under the conditions in which pulmonary edema ordinarily occurs.

The most important criticism to which my theory of pulmonary edema has been subjected, is by Sahli, in a valuable paper published in 1885. The strongest points in his argument against the theory are that the radial pulse in cases of pulmonary edema to which my explanation might be applied, does not indicate paralysis of the left ventricle, and that the anatomic condition is not one of hyperemia. Both of these possible objections had occurred to me, and Sahli is in error in stating that my theory was promulgated without consideration on my part whether the pathologic-anatomic condition of human edematous lungs is one of hyperemia.

I stated in my article that it seemed to me doubtful whether clinical methods could determine whether the assumed relative disproportion between the work of the two ventricles existed or not. In my judgment, Sahli is mistaken in supposing that the paralysis of the left ventricle must be almost complete in order that the degree of passive hyperemia requisite for the production of pulmonary edema should ensue. As is well known, it is absolutely essential for the integrity of the circulation and the continuance of life, that each ventricle should pump into its artery the same quantity of blood in a given time. This is the central fact of the circulation, and is secured under normal conditions by regulatory mechanisms of the most perfect order. The disturbance implied by interference with this mechanism is profound, and hence, in accordance with my theory, pulmonary edema is practically unknown in previously healthy persons. Let, however, this mechanism be so disturbed that at each systole, the right ventricle throws even a little more blood into the pulmonary artery than does the left ventricle into the aorta; then it will not be long before there is a large excess of blood in the pulmonary vessels. What is in the first instance essential is not the absolute force of either the right or of the left ventricle, but rather the relation between these. Hence I do not consider that the condition of the peripheral pulse affords satisfactory indication whether the heart is disturbed in the sense required by my theory.

The difficulty or impracticability of upsetting, in the case of healthy animals, the remarkable mechanism which coordinates the relative force of the two ventricles by an experimental procedure which stops short of a high degree of paralysis of the left ventricle, is doubtless what might be expected under these conditions, but it is reasonable to suppose that in those severe affections of human beings which are associated with general pulmonary edema, this coordinating mechanism may be disturbed far more readily and without extreme grade of paralysis of the left ventricle. The experiment upon the rabbit, already cited in support of the theory, must be considered as only a crude and imperfect reproduction of the condition assumed to underlie the onset of pulmonary edema in man.

Sahli contends that the pallor of many edematous lungs proves that the edema is not of a congestive type. He seems to have made no microscopic examination of such lungs. I describe in my article the microscopic characters of general pulmonary edema in human beings, and there, it seems to me, show conclusively that the edema is one usually associated with venous hyperemia. Certainly the enormous distention of the capillaries, the large number of corpuscles in the serous transudate and the richness in albumin of this transudate, are features of congestive rather than of hydremic or cachectic edema. The color of dropsical tissues is an unsafe guide for judging their blood-contents, and, while in my experience, lungs which are the seat of general edema, often enough show to the naked eye the evidences of hyperemia, I have often been surprised to find, even in the paler lungs, by microscopic examination, marked hyperemia and diapedesis of red corpuscles. Renant and others have made similar observations.

Löwit, in an experimental research published in 1893, reached the conclusion that congestive edema of the lungs is the result of obstructed outflow of blood from the pulmonary veins associated with increased inflow of blood into the pulmonary artery. It is only through a misconception of my theory of disproportionate action of the two ventricles, that Löwit should find any conflict between his conclusion and the essence of this theory. Löwit's main contention, however, that rise of pressure in the pulmonary artery attends obstructed outflow from the pulmonary veins only when the supply of blood to the pulmonary artery is increased, is opposed by the results not only of his predecessors, but also of Grossmann and other experimenters. I agree also with Grossmann, in opposition to Löwit, that increased supply of blood to the pulmonary artery is not essential for the production of congestive edema of the lungs, although it is a self-evident corollary of my theory, as was pointed out in my article, that given the requisite disproportion between the action of the two ventricles, the higher the pressure in the pulmonary artery, the more favorable are the conditions for the production of pulmonary edema.

Incomprehensible to me, as indeed it has been to others, and entirely without experimental support, is the opinion expressed in a criticism of my theory by Jürgensen, that paralysis of the right ventricle leads to pulmonary hyperemia and edema of the lungs.

It is hardly necessary to state that such factors as changes in osmotic pressure, alterations in the capillary endothelium, interference with the absorption of lymph, which have become prominent in the later discussions of the causation of edema may be utilized in the explanations of pulmonary edema, as of congestive edema elsewhere, but I find great difficulty in conceiving any of these factors alone to be the primary cause of acute general edema of the lungs.

In one respect I am in agreement with Sahli; namely, that a larger number of cases of pulmonary edema are referable to inflammatory changes in the vascular walls than is generally supposed. My opinion is based upon the results of the systematic bacteriologic examinations which are made at all autopsies at the Johns Hopkins Hospital. Not only in irregular and localized edemas, but also in not a few extensive and even general pulmonary edemas, plate cultures from the lungs show numerous colonies of bacteria, most frequently streptococci and lanceolate micrococci, so numerous that they must have been in active growth in the lungs.

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My thanks are also due to Professor Sahli, of Berne, Switzerland, who was kind enough to inform me by letter and a few annotations, as to his present views with regard to the origin of pulmonary edema. He is still of the opinion "that the theory of paralysis of the left ventricle (Welch) is not tenable," but he is now inclined to admit that there are some other forms of venous congestion than that due to mitral regurgitation which might lead to pulmonary edema.

It is indeed, as Welch has pointed out, the confusion of the experiment, made in support of the theory, with the theory itself, that led many writers to a criticism of the latter. It is assumed by them that for the development of pulmonary edema the theory requires the occurrence of paralysis of the left ventricle, whereas the theory presupposes only a disproportion in the effect of the activities of both ventricles, with a balance in favor of the right heart. This disproportion can manifest itself in many forms, of which ligation of the aorta and its branches, ligation of the pulmonary veins, paralysis or spasm of the left ventricle are only crude examples,

examples to which the experimenter is mostly compelled to recur to, as the finer mechanisms are only rarely accessible to us.

Pulmonary Edema after Adrenalin.—I might mention here a form of pulmonary edema which I have observed, and which in my opinion was brought on by such a disproportion as is presupposed by the theory of Welch. In a few normal rabbits acute general pulmonary edema set in a few minutes after an intravenous injection of a comparatively large dose of adrenalin (1.5 cc.). My explanation of the occurrence is, that in consequence of the great obstacle caused by the considerable constriction of all the smaller bloodvessels of the body, the left ventricle was incapable of throwing out all the blood which it received from the pulmonary veins, while on the other hand, the right ventricle, stimulated by adrenalin, unloaded with increased energy upon the lungs all the blood which the contracting vessels drove into it.

We have thus finished our review of the various views and theories of the factors concerned in the formation of edema, and of the experimental facts upon which the theories were variously built.

Review.—Summing up briefly we may, at the present stage of our knowledge, consider the following influences as the factors operative in the production of edema:

1. Chemic changes which lead to an increase of the osmotic pressure, or an increase in the water-attracting power of the tissues. These chemic changes might consist in an increase in the katabolic processes of the cells, by which larger molecules are broken down into smaller ones; in the abnormal retention of sodium chlorid or other crystalloids by the tissues; or by the formation of acids by which the law of osmosis becomes changed. (J. Loeb.)

2. An increase in the difference between intracapillary and extracapillary pressure, by which the normal transudation of serum into the tissue spaces is increased. This can be accomplished either by an increase of the intracapillary pressure or by a decrease of the extracapillary pressure (loss of elasticity of the tissues), or by both. Increase of the intracapillary pressure can be brought about by a disproportion between the inflow of blood into the capillaries and outflow from them, with a balance in favor of the inflow. In the systemic circulation it is the disproportion between venous and arterial flow, in the pulmonary circulation between the output of the right and the left ventricle. In either case the volume of the blood in the capillaries of the corresponding part is increased. An increase in the volume of blood of the entire body (plethora) will increase the pressure in all the capillaries, and might be a factor in the production of general dropsy. Gravity, under certain circumstances, increases the volume of the blood in the capillaries of low-hanging parts of the body, and might, therefore, also be a subsidiary factor in the production of edema in such parts.

3. An increase in the permeability of the endothelial wall of the blood capillaries in the edematous parts. This can be brought on by agents, which cause inflammation in these parts; by tissue fibrinogen, albumoses, bacterial products, and in general, by Heidenhain's lymphagogues of the first group circulating in the blood; by general hydremia or by local malnutrition or asphyxia caused by local stagnation or slowness of the blood stream.

4. An impairment of the mechanism of absorption. Here we can speak distinctly only of obstruction or compression of the lymphatics of the edematous parts.

Of the part which the nervous system possibly plays in the causation of edema we can say for the present very little. As far as the vasomotor nerves are concerned, they effect edema by influencing the intracapillary pressure, and possibly also by influencing the lymph capillaries. Hysteric edemas might be brought about in the same manner. We have for the present no conclusive evidence that the nervous system has a direct influence upon the formation of lymph or edema.

Whether the formation of edema is influenced also by an increase of the vital secretion of the capillary endothelial cells, or by an increase in vital activity of the tissue cells, depends upon our views as to the part played by these vital activities in the formation of lymph. On general grounds, there can be no objection to the assumption that some vital activity in the sense defined in the first lecture is operative in the formation of edema. But, it must be conceded that there are, for the present, no such facts which prove conclusively that the endothelial cells are secreting lymph (Heidenhain, Hamburger), or that the tissue cells are producing lymph by their vital activity (Asher), or that these cells, when starved, or are loaded with waste products, make known their needs in some vital way to the adjacent bloodvessels (Lazarus-Barlow). We must, however, bear in mind, that the absence of a conclusive evidence for the existence of such vital activities is not identical with the presence of a conclusive evidence for the nonexistence of such activities, a confusion we meet not infrequently in physiologic discussions.

Potocytosis.—I would like to call attention here briefly, to a vital activity which we know that the endothelial cells, as well as the other living body cells, are endowed with, and which might, to a certain extent, be operative in the production of lymph, as well as of edema. We know that endothelial and epithelial cells, as well as other fixed cells, are endowed with phagocytic properties, *i. e.*, they are capable of taking up corpuscular substances into their bodies, and they can take up the substances on one side of their bodies and give them up on the other side. It is by this phagocytic activity of the epithelial and endothelial cells that MacCallum explains, as stated in the third lecture, the entrance of corpuscular substances (carmin granules, for instance) from the peritoneal cavity into the closed lymphatics. This activity is, in the first place, of a mechanical character; processes of the cells embrace the particle and draw it into the cell; the vital part of the act consists only in the motility of parts of the cell body and the sending out of pseudopodia, all of which is not a new, but an old, well-established fact. Now, if comparatively large solid bodies can be transported by the cells from one side of an epithelial or endothelial layer to the other side of it, what objection can there be to an assumption, that submicroscopic quantities of a solution which come in proximate touch with the cell can be transported in the same manner, *i. e.*, by being taken up by submicroscopic pseudopodia of the endothelia on the inside and quickly landed on the other side of the capillary wall—in either direction and in either of the capillaries? It is plausible to assume further, that the smaller the acting pseudopodia and the quantities taken up are, the quicker the process of transportation will be carried out. We might furthermore assume, that the act of selection of the dissolved substances for transportation is assisted by some kind of chemotaxis, just as it is assumed that the phagocytic activities are greatly influenced by chemotactic affinities. It is obvious that this mode of activity need not be restricted to endothelial and epithelial cells and only for the purpose of transmission of fluid from one side of a thin membrane to the other side of it; all cells might be endowed with the submicroscopic act of "sipping" the adjacent fluid, which might, indeed, be a subsidiary, or even an essential factor in the process of the nutrition of all cells.

As the term phagocytosis is now a firmly established one, meaning the ability of the cells to eat or devour some solid particles, we might, in imitation of this term designate the ability of the cells to drink solutions by the term *potocytosis* (πινω—to drink, κύτος—a hollow cell).

The hypothesis assumes no new vital properties of the endothelia. It is based upon the universally conceded fact of the contractility of these cells. That the endothelia are capable of sending out ameboid processes is now also generally acknowledged.

Tonicity of the Endothelia.—The contractility of the endothelia however, is capable of being a factor in the formation of lymph and edema in another and in a simple way. A contractile tissue is irritable and responds to all kinds of stimuli with different degrees of contractions. It rarely, if ever, is totally and absolutely relaxed, it is nearly always in a state of tonus of a variable degree. The endothelial layer of the capillary wall possesses pores, it is generally assumed, through which the transudation of serum takes place. These pores in the endothelia are surrounded by contractile tissue which is continually in a state of tonus and which is capable of responding to various stimuli by changes in its tonicity. This means that the width of the pores is variable according to the tonicity of the endothelia, and according to the character of the stimuli which the endothelia receive from the neighboring fluids and semisolid tissues. Furthermore, the tonicity of the endothelia may not be the same on both sides of the cell, so that the pores may be funnel shaped, with the wider opening turned either toward the inside or toward the tissue side of the capillaries.

As the amount of the transudate in a given time, when all conditions are equal, surely depends upon the size of the pores and probably also upon their shape, it is therefore, evident that the contractility and irritability of the endothelia are potent factors in the formation of lymph and edema.

The contractility of the endothelia is surely influenced by the character and composition of the fluid with which they come in contact. Blood saturated with oxygen will affect the endothelia differently than venous blood; different toxic agents or different metabolic products will affect the contractility in a different way—some may increase and others may, more or less, inhibit it. Here we may recall that recently nerves were described terminating directly in the capillary wall (S. Meyer). It is possible, therefore, that the contractility of the endothelia and through it, the width of the pores, are subject also to the direct influence of the nervous system.

We might, therefore, agree with Heidenhain, Hamburger and others, that a vital activity of the endothelial cells of the capillary wall is an important factor in the production of lymph and the formation of edema. But we do not assume that the cells are secreting lymph, nor do we ascribe to the endothelia any other new vital property. We throw out the suggestion simply that the generally conceded vital properties of the endothelial cells, irritability and contractility, are controlling factors in the process of transudation. This might be accomplished in the first place by variation in the tonicity of the endothelia and, through it, variation in the size and shape of the pores; and in the second place, by the ameboid activity of submicroscopic processes of the endothelia, an activity which we have designated by the term potocytosis.

While we thus recognize in the vital activity of the endothelia an important factor in the production of lymph, we by no means undervalue the importance of the chemic and physical factors for the processes of transudation. On the contrary, we believe that osmosis and diffusion on the one hand and the differences between the intracapillary and extracapillary pressure on the other hand, are essential elements in the production of lymph and edema. We only assume that the vital activity of the endothelia is a third and controlling element in the complex mechanism of lymph production. The complexity of this mechanism might be compared in a certain sense with the respiratory mechanism. Here the contraction of the muscles and the irritability of the center to changes in the gases, represent the vital elements, while the exchanges of the gases between the air and the blood on the one hand, and the elasticity of the lung tissues and the ribs, etc., on the other hand, are the physicochemic elements of this properly working complex mechanism. In the process of lymph production the gases of the blood and the normal katabolic products are the elements which normally control the tonicity of the epithelia and size and shape of their pores, while the intracapillary mechanical pressure and the osmotic pressure of the tissue fluid push and pull some serum from the blood through the pores into the tissue spaces. It is possible that the process is supported also by some "potocytic" activity.

In normal conditions the relations between the tonicity of the cells and the chemicophysical influences are so stable that subsidiary factors, gravity, for instance, exert no perceptible influence upon the result. In slow but prolonged pathologic conditions the first impairment of the mechanism is the loss of its stability; any subsidiary factor might bring about an increase in the process of transudation—might cause local or general edema.

Cardiac Edema.—In insufficient activity of the heart, blood accumulates, stagnates in the veins and capillaries. This leads to a diminished oxygenation and perhaps improper nutrition of all the endothelia of the capillary walls. Perhaps also tissue fibrinogen (Wooldridge) and other abnormal products are formed within the blood. All the elements change the irritability of the endothelia and inhibit, relax in a greater or less degree, their tonus. The diminution of the tonus alone, however, is in this case insufficient to enlarge the opening of the pores, since in uncompensated hearts the blood-pressure within the veins and capillaries is diminished. In low hanging parts, however, where gravity assists in overfilling the capillaries with blood, the capillaries become unusually distended and the pores of the endothelia open to permit a greater transudation; hence the cardiac edema. The same holds good for the endothelia of the lungs. They are relaxed but there is insufficient intracapillary pressure to distend the pores. However, a moderate disproportion between the right and left heart which leads even to a moderate increase in the intracapillary pressure is sufficient to open the pores and to cause an abnormal transudation through the capillary walls; hence the occurrence of pulmonary edema in cardiac insufficiency.

Renal Edemas.—In pure renal diseases the conditions are apparently variable. The toxic agent which circulates in the blood of some forms of renal disease (interstitial nephritis, for instance) does not inhibit the tonus; on the contrary its effect is probably to increase in general the excitability of contractile tissues with which it comes in contact, *i. e.*, the endothelia, the muscular sheath of the small arteries, and the muscle fibers of the heart. Hence, the absence of any transudation, the increase of blood-pressure and the gradual development of hypertrophy of the heart muscles in interstitial nephritis. In other forms of pure renal disease (chronic parenchymatous and acute nephritis) the agent circulating in the blood probably causes a more or less pronounced relaxation, an inhibition of the tonicity of the endothelia and an increase in the size of their pores. This agent probably is, as Senator suggests, also the primary cause of the nephritis and not a product of the latter. The relaxation of the endothelial tonus, in conjunction with the chemic changes in the tissues which lead to an increase of osmotic pressure therein, are the causes of the increased transudation into the tissues of the renal edema.

When all forms of renal edema lead up finally to cardiac disturbances the conditions are then governed by the above described results of cardiac insufficiency, *i. e.*, edema is liable to set in also in cases of interstitial nephritis. This edema would then be simply of cardiac origin. It is, however, possible that, parallel to the gradual development of the insufficiency of the heart muscle, the endothelia, too, gradually lose their tonicity, and the porosity of the endothelial wall precedes already the conditions consequent upon cardiac failure. In other words, in the final stages of interstitial nephritis with cardiac complications, the permeability of the endothelia is much greater than in cardiac insufficiency alone.

We should also recall the point made by Starling that in cardiac failure the blood-pressure in the veins near the heart is greater than normal, and might form an obstacle to the discharge of the lymph by the thoracic duct and to the absorption of interstitial fluid by the lymphatics. In cases of nephritis complicated by cardiac failure the abundant fluid in the subpleuritic and subperitoneal tissues will find an easier exit through the relaxed pores of the peritoneal and pleural epithelia into the peritoneum and the pleural cavity, than through the lymphatics; hence the hydrothorax and ascites in these cases. The very same factor is operative also in the occurrence of pulmonary edema in these cases, in addition to the mechanism we have discussed above while speaking of cardiac insufficiency alone.

Edema of Venous Obstruction.—In cases of edema due to venous obstruction in human beings, as in venous thrombosis or hepatic cirrhosis, etc., the preceding stagnation of the blood leads to a relaxation of the endothelial tonus, and this in conjunction with the increased intracapillary pressure (due to increased venous pressure) produces an increased transudation.

Inflammatory Edema.—In inflammatory edema the agent which brings on the inflammation causes also a great relaxation of the endothelial tonus, and this in conjunction with the increased intracapillary pressure, due to the active vasodilation of the small arteries, causes an abundant transudation. The slowing up in the circulation in the capillaries with its consequences is perhaps a subsidiary factor in the relaxation of the endothelial tonus. The wandering of the leukocytes takes place perhaps through the widened pores.

It is self-understood that the descriptions which were given here of the genesis of the different forms of edema are not offered as the final solutions of the problem. It was only an attempt to show how, by the assumption of change in the tonus of the endothelia, in combination with the physicochemic factors, many forms of edema can be fairly well explained. We have not even attempted to bring into these interpretations the phenomena of potocytosis which we believe to be a subsidiary factor in some processes of transudations. We have further not entered into any discussions as to the part which the tonicity of the endothelia and their potocytic faculty may play in the act of absorption by the lymphatics as well as by the bloodvessels. We wished mainly to bring out that there are well-established vital properties of the endothelia which are capable of taking an active share in the formation of lymph and edema, and that it is neither the vital elements alone nor the physicochemic factors alone which are at work. The process of normal and pathologic transudation and absorption of lymph is the result of a combination of various "vital" and physicochemic factors which surely are not yet known to their full extent.

What we have been describing here as changes in the size and shape of the endothelial pores due to the changes in the tonus of the endothelia is, it may be said, after all nothing else but the often spoken of changes in the permeability of the endothelia. There is, however, one distinct difference between the two kinds of changes. By the assumption of increased permeability of the endothelia is generally, understood either a purely physical change, or at least a loss of the vitality of the endothelia. By the assumption of a decrease in the tonus, however, no loss of vital power is claimed; on the contrary, the inhibition of the tonus is as good a vital occurrence as is its increase, just as vasodilation is as vital a phenomenon as vasoconstriction. Because the inhibition of the tonus is a vital phenomenon it might appear and disappear rapidly. It is not only a pathologic phenomenon, it is a physiologic factor which is capable of regulating the amount of lymph by facilitating transudation as well as absorption.

But we do not wish to deny that there can be increases of permeability of the endothelial wall due to a partial or complete loss of vitality of the endothelia. Possibly this is indeed the case in edemas due to advanced cachexia, or in some stages of inflammation due to violent causes. The restitution in these cases, however, will surely be of an entirely different character than in the conditions due to inhibition of the tonus.

THE IMMEDIATE REPAIR OF LACERATIONS OF THE PERINEUM, WITH SPECIAL REFERENCE TO PLACING THE SUTURES IN POSITION BEFORE THE LACERATION TAKES PLACE.[1]

BY

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The importance of closing up small tears of the vagina and perineum has not so far been generally recognized by the profession. Year by year we have been getting to understand that deaths during the puerperium are due to a great many causes and we see that just in proportion as we succeed in eliminating these causes the deathrate in childbirth is growing less. Infection still remains the greatest cause and we have still much to do before the whole rank and file of the profession of midwifery realize the importance of making the fewest possible vaginal examinations and of making even those few as nearly aseptic as possible. But since it is practically impossible to reach perfection in this direction, we must turn our attention to lessening the avenues by which germs may enter the system by immediately closing all tears so as to leave no raw surface in direct connection with the lymphatics. At one time it was thought that puerperal infection took place only through the cavity of the uterus and the tubes, or through the placental site; but since we have been opening the abdomen for the relief of puerperal septicemia, we know that the infection frequently reaches the blood through the lymphatics receiving lymph from the perineum, vagina and cervix. In nearly every case I have seen, the chain of lymphatics running up the side of the uterus was filled with pus. More than once I have seen the temperature come down promptly after washing out the uterus and vagina and packing the latter with sterile gauze, so as to stop absorption.

The question of the immediate closing of tears of the cervix has been assigned to other members taking part in this discussion. I heartily endorse all that has been said in favor of it, and I know of at least one maternity hospital where the procedure has been regularly adopted and with marked success. As regards tears of the vagina, they should be sewed up with a running, fine chromicized catgut suture while the patient is still under the anesthetic. Owing to the ease with which the cervix can be drawn down or forward or backward with a four-pronged forceps, and owing to the great distensibility of the vulva, especially if it is torn, as it generally is when the vagina has been lacerated, there is no difficulty in seeing the tears in the vagina and closing them before closing the perineum. The field of operation can be kept clean by having copious constant irrigation going on, or the uterus can be packed with gauze temporarily to keep the usual trickling of blood from flowing over the vagina.

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[1] Read before the American Gynecological Society, Boston Meeting, May, 1904.

For the same reasons as the foregoing, namely, to prevent septic absorption, it is important to close even small tears of the perineum. During the last 15 years I have made a regular practice of putting in a stitch or two in every case in which even half an inch of the fourchet has been torn. The result has been that my patients have been almost entirely free from the slight rise of temperature on the second or third day which it has been customary to attribute to the milk, but which I suspect is due rather to a little septic absorption through these slight lacerations. I am certain that patients who have had these small lacerations of the perineum repaired have made better convalescences than those on whom it was not done. In the case of very considerable tears of the perineum, especially of those which extend through the sphincter into the bowel, the question of loss of function of the muscles of the perineum and of the pelvic fascia is still more important. Emmet has described the results of this accident so well that it is unnecessary to draw attention to it. Every member of this society knows that the separation of the levator ani and transversus perinei muscles disables a woman very considerably. Nature, it is true, tries to heal these tears, but she is only able to do it by granulations, which are converted into scar tissue, which in a place so full of nerves as this, must cause reflex irritation when the inevitable contraction takes place. There are many other reasons why we should close all tears of the perineum, which are well known to the profession. I once operated on a physician's wife, a beautiful woman and a great social favorite, who was lacerated during her first confinement and who was practically a prisoner in her room for the next 20 years, owing to loss of control of the bowels. This in turn led to the wrecking of their domestic happiness, for the reflex irritation ruined her nervous system.

I admit that the immediate repair of the cervix, vagina and perineum is difficult in a poor house with poor light and poor assistants, and it would be better to send for assistance in the form of an expert in plastic work, who, with the help of a nurse and the family doctor, could quickly sew up all tears. But in cases in which such a man is not available, the family doctor himself, if provided with catgut and silkwormgut ready sterilized and a few pœan forceps, a few small curved needles, and a good needle holder, and above all with a large curved perineum needle on a handle, can obtain very good results. The greatest difficulty consists in securing the divided ends of the levator ani muscles and pelvic fascia, which retract at once when torn; for it is of little use to sew up the perineum without taking in the muscles. This difficulty, however, can be overcome by a method which I have devised.

Just before the child's head comes down upon the perineum, the patient is anesthetized and brought across the bed with the feet held by a twisted sheet or leg-holder. The perineum is sterilized with soap and brush and mercuric chlorid and then with the large curved needle firmly held in the right hand, and with the thumb of the left hand in the anus and the left forefinger in the vagina, the needle is entered at the base of the lesser lip on the patient's left, and passed rapidly under the vagina and about 2½ inches above the fourchet, coming out at the corresponding point on the woman's right side. A silkwormgut suture is threaded into it with the right hand and the needle is withdrawn, followed by the silkwormgut, the two ends of which are caught with a hemostat. A second one is passed in the same way an inch lower down but taking in the muscles of the perineum. We can generally tell beforehand, by the rigidity of the perineum, whether the tear is going to be a bad one or not; in the former case we can put in a third stitch which would take in the sphincter ani on each side of the middle line. Delivery can now go on naturally or artificially, but as soon as the placenta has been delivered the perineum is inspected under a good light and a stream of water, all clots being rubbed off with the finger; the stitches are tied from above downward, when we will find that there is absolutely accurate coaptation of the separated parts.

Speaking of the light in the confinement room, especially of the poor, we should always take steps before delivery to provide good light, for two reasons: (1) That we may see how dirty the place is; (2) to see what we are doing. As a rule, a darkened room means a dirty and a badly ventilated room. In the daytime arrange the patient so that the perineum will be facing a bright window, and if the confinement is likely to take place at night, provide beforehand for a good light easily available for examining the perineum. When we hear physicians say that they have never seen a laceration of the perineum, they may be telling the truth, because they attended all their patients in a dark room.

The presence of the silkwormgut stitches placed as stated, before the head comes through the perineum and hanging loosely attached by their ends to a forceps, does not interfere with the termination of the labor in any way; not even if forceps are required. If by keeping the pains under control and the head well toward the symphysis there has, happily, been no laceration, no harm is done by their having been introduced; you simply take off the pœan and draw them out. While if the perineum has been lacerated more or less, it is of great advantage to save time and trouble by having them already in, but still more so by having them exactly in the right place to bring the lacerated surfaces together; just as they were before the delivery. I have often heard Emmet say, "They might as well have sewed up her drawers as sew the skin of the perineum," referring, of course, to the failure to restore the muscles; and in many cases in which repair was immediately done I have had to do a secondary operation some years later for the restoration of the muscles.

In conclusion, I would strongly urge every accoucheur to have in his bag a sealed tube with a sterilized needle and catgut in alcohol and another with six threads of silkwormgut in alcohol, as well as a needle holder, a bullet forceps and a perineum needle on a handle. As good light is a great desideratum, a laryngoscopic mirror or headlight would greatly facilitate rapid work.

The placing of the perineal sutures before the tear occurs is an instance in which "an ounce of prevention is worth a pound of cure."

CARCINOMATOUS TRANSFORMATION OF ULCER OF THE STOMACH.*

BY

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The possibility of a malignant development in cases of acute or chronic ulcer of the stomach was first suggested by Cruveilhier[1] in 1835. The coexistence of ulcer and cancer was noted also by Rokitansky[2] in 1839. The observations made during the past 15 years have been as interesting as they are varied in the conclusions.

The extremes of view are shown by Kollmar[3] who says that in an experience of 20 years at the Clinic of Tübingen he never observed a single case and by Zenker[4] who holds that every case of cancer of the stomach develops upon a previous ulcer.

The accurate work accomplished by numerous clinicians in all parts of the world would seem to furnish ample evidence that cases of cancerous changes in ulcer of the stomach do occur. The accumulation of the rough reports from such cases will probably show that cancer develops on ulcer more frequently than has been supposed.

In 1888, Rosenheim[5] began a series of investigations into cancer of the stomach. He made a large number of histologic examinations from the mucous membrane in cases of cancer, which he found almost uniformly atrophied; whereas in cases of cancer engrafted upon ulcer the mucous membrane was intact.

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* Read before the Ohio State Medical Association, May 19, 1904.

Rosenheim reported eight cases of cancer following ulcer observing each time the increase of HCl and the integrity of the mucous membrane. He says: "In cases in which the symptoms indicate unquestionable cancer, the persistence of free HCl shows a priori that the cancer has developed upon an ulcer."

Waetzoldt[6] reports a case in a woman of 48, of clinical ulcer, continuing with times of apparent freedom from disease for 28 years. At this time the HCl was 3.7 per 1,000. Death followed after a gastroenterostomy, while the necropsy revealed an ulcer of the lesser curvature with degeneration of the borders and invasion of neighboring lymphatics with cancer cells.

The case of Biach[7] was that of a man of 48, who had suffered for a long time with symptoms of hyperchlorhydria. These conditions subsided under rest treatment with medication, but recurred from time to time. Finally the patient became cachectic and died of a perforation. The necropsy showed a perforated and degenerated ulcer with stenosis of the pylorus.

The persistence of hyperchlorhydria is illustrated by the case of Eisenlohr.[8] The patient, a male of 49, suffered for nine years with symptoms of ulcer. Hyperchlorhydria with profuse hemorrhages appeared, followed after treatment by periods of remission. The patient died cachectic. Free hydrochloric acid had been found present until 10 days before death, but was absent three days before death. The section showed an enormous ulcer. The border in the pylorus had become carcinomatous.

D. D. Stewart[9] gives a very complete clinical history with accurate observations upon a case of carcinomatous ulcer of the stomach. The history showed a period of symptoms corresponding to ulcer with hyperchlorhydria followed finally by cachexia. The necropsy revealed two independent carcinomatous ulcers, one near the pylorus, the other near the cardiac orifice in the lesser curvature. The intervening gastric mucosa was perfectly normal histologically, which accounted for the continuous presence of hydrochloric acid.

Futterer[10] reports several cases, most of which are lacking in complete observations of the clinical conditions previous to the development of the carcinomatous degeneration. He says that the cancerous process usually begins at the lower border of the ulcer, contending that the irritation of the food bears a pathogenic role in the origin of the cancer.

Audistère,[11] in a thesis published in Paris gives very complete reports of several cases with histologic studies of the tissues. His monograph gives a fairly complete bibliography to which I am indebted for many references to the literature.

Pathologic Anatomy.—An examination into the structure of the stomach in cases of cancerous degeneration of ulcer shows interesting conditions. The ulcer is found at or near the pylorus in more than 50% of the cases. The process of canceration upon ulcer shows only a slight tendency to spread and invade the pylorus. The dilation of the organ is therefore less frequent. When the disease is well established, vomiting of food occurs very soon after its ingestion, which fact, no doubt, explains the moderate degree of dilation when present. The base of the ulceration is, as a rule, made upon one of the neighboring organs. It may be upon the pancreas, the muscular tunic, or, if very extensive, in the duodenum. The base is usually smooth and hard, as in chronic ulcer. One does not observe the granulation as in simple ulcerated cancer. The canceration begins in the pavement epithelium of the glandular tubules. The edges of the ulcer are significant. They are symmetrically rounded and quite thick. The sides are not marked by the separate coverings of the stomach walls, as in simple ulcer. The border is crater-like in appearance. The mucous membrane covering the edges is ulcerated in places, and at other points friable. That portion of the stomach not invaded by the cancerous process may present normal conditions. On the other hand, the sides of an old noncancerous ulcer may present the same hard and callous appearance from continued inflammatory action. Hence a microscopic examination is sometimes necessary to determine the exact nature of the change.

Diagnosis.—The most important phase to the internist and the general practitioner is the diagnosis and prophylaxis of canceration of the stomach. Mayo Robson and Moynihan, the Mayos, Ochsner, Futterer, and others prominent in the surgery of the stomach, believe the irritation from ulcer and healed ulcer defects in the mucosa furnish the starting point of the majority of cancers. These men have an extensive opportunity to observe conditions in the stomach, *intra vitam*, hence their conclusions are of great value.

W. J. Mayo[12] says that of 145 cases of cancer of the stomach which came to operation under him, 60% presented a history of ulcer. Years may have elapsed before the cancerous process began. Two types of the disease are usually noticed. In the majority of cases the indications of ulcer continue until the malignant invasion. This change is accompanied by an aggravation of the pain, which at times is almost intolerable. Vomiting is excited by either liquid or solid food, and nausea is not infrequent. Small quantities of blood may be found in the vomitus, but one rarely meets profuse hematemesis. The appetite finally fails, and complete anorexia results. After a period varying from two to nine months emaciation becomes marked and the anemia is grave. It is rarely possible to find a tumor. The presence of fragments of growth in the wash-water after lavage is occasionally observed, and when present is conclusive. The findings of the chemic and microscopic examination of the stomach contents are not characteristic of cancer until quite late in the progress of the disease. An increase in the hydrochloric acid is usually noted until very near the fatal issue. This fact often misleads in the diagnosis. The limitation of the process prevents the stenosis of the pylorus in many cases.

In a second class of cases the ulcer symptoms continue until the end. Profuse hematemesis may occur, and perforation is not uncommon. In another class of cases the ulcer symptoms may have subsided for months or perhaps years and a recurrence of digestive difficulties seems to indicate a return of the ulcer, but in reality they are due to the beginning of the malignant growth. These conditions are rather difficult to diagnose. When one has to treat a patient with ulcer of the stomach he should bear in mind the grave responsibility resting upon his judgment. Having established the presence of ulcer by the clinical signs, pain and distress in the epigastrium after solid food, pain in the dorsal region, the presence of increased acidity after a test-meal, pyrosis, and possibly hematemesis and melena, he should immediately impress upon the patient or his friends the gravity of the case.

The frequent occurrence of cancer after ulcer, the danger of perforation, perigastric abscess, ulceration extending into the liver or pancreas, perigastric adhesions, hour-glass contraction of the stomach, pyloric stenosis in a large number of cases, certainly are proof positive that we should insist upon the importance of appropriate treatment. The classic treatment should then be followed—rest in bed with rectal alimentation, followed by milk diet over a period of perhaps four weeks. Under such a course of treatment the symptoms may become more marked. There may be loss of weight, increased severity of pain, uncontrollable vomiting. The patient may have paroxysms of pain three or four times a day after food, and a progressive anemia and weakness in spite of the rest in bed. It is not usual to have increase of pain in simple ulcer when the patient is upon a milk diet. Under such circumstances, with the stomach contents showing increased acidity, we may be fairly certain that the diagnosis is canceration of ulcer.

Again, we may observe a patient between 35 and 45, who, without previous history of gastric difficulty, experiences the symptoms of a severe hyperchlorhydria, followed by hematemesis, thus establishing the diagnosis of gastric ulcer. The proper medical treatment may be instituted, but in spite of it the symptoms become more severe. A marked anemia develops and the pain is excruciating. Metastases appear in 4, 6, or possibly after 15 months, followed by death from some complication of the ulcer or as a result of the cancerous growth.

Hayem[13] says cancerized ulcer is the most severe of all gastric affections. The treatment of this condition is entirely surgical. The performance of gastrectomy or a gastroenterostomy offers a curative or palliative relief in proportion to the success in establishing an early diagnosis.

Prophylaxis.—Proper treatment medically of simple ulcer in its first manifestations is a preventive measure which physicians should rigidly enforce. The recommendation of gastroenterostomy performed by a skilful surgeon in cases of intractable chronic ulcer is another means which should be employed to prevent the possibility of cancer development. Treatment of a recurrence of digestive disturbances after a history of ulcer with apparent recovery should be carried forward without any loss of time. Surgical interference is successful only when resorted to early in cases of development of cancer upon ulcer.

CONCLUSIONS.

Cases of carcinomatous transformation of ulcer of the stomach are probably more frequent than is currently believed.

Treatment may be along surgical lines with a reasonable hope of prolongation of life, and along medical lines merely in a palliative manner.

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TREATMENT OF GONORRHEA: A CLINICAL STUDY.[1]

BY

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of Chicago.

That the treatment of gonorrhea is not satisfactory is proved by the fact that new remedies are constantly being sought for. No one kind of treatment is generally recognized as the best. The purely expectant treatment has been followed by many from the earliest times without having been able successfully to recommend itself for general adoption. It is still employed, however, by some, because it is free from many of the harmful results that have attended local treatment. Internal medication is more or less efficient for the urethritis, but it only modifies and shortens the course of the inflammation and does not always prevent the sequels. In the male there is perhaps a chance for it, but as the urethra constitutes a very unimportant part of the vulnerable area in the female, it cannot be relied upon in gynecologic practice.

Local medication has until recently been quite unsatisfactory. Astringent injections acted slowly, and in male urethritis were often followed by stricture, periurethral abscess, and the spread of the infection to the seminal ducts and bladder. In the female they did not reach the deeper parts nor prevent the spread of the disease.

The injection of the silver salts has not yet done what was expected. The most efficient ones are, I believe, those that are irritating, and which therefore have the same objectionable qualities as the astringents formerly employed. The nonirritating silver salts are less efficient and slow in action, unless they are used with such frequency, aided by the frequent passage of the urine, that they keep the germs pretty nearly all washed out, and thus act by cleansing the urethra rather than by promptly killing the gonococci.

The desideratums are, a remedy that will rapidly destroy or remove the germs without doing injury to the protective epithelium, and a method of application that will not carry them to the deeper portions of the genitourinary tract. Practically it is necessary that the patient should be able to carry out the treatment at home. Since the gonococcus is not an excessively virulent germ and rapidly perishes when deprived of favorable conditions for its development, these desideratums ought to be obtainable.

A few years ago prolonged irrigation of the male urethra with hot water was found efficient, but proved to be a practical failure because of the difficulty of carrying it out properly. The surgeon had personally to make all of the treatments, and could not, or did not, always make them often enough. Besides, it was quite difficult for a surgeon to administer the prolonged irrigations properly, for they took up a great deal of his time.

I was surprised at the good results reported, and considered that it effected the ideal cure. And it occurred to me that the same kind of a cure might be effected by washing out the urethra with a small syringe used by the patient. Such quantities of water could not be used, but the urethra could be washed out thoroughly for as long a time, and, what was a distinct advantage, the patient could repeat the washing out much more frequently than would be possible by the medical attendant at his office. In fact, it could be repeated so often and so thoroughly that the pus and germs would be practically all washed out, and the injection could be repeated before they had reaccumulated sufficiently to invade new areas. This I considered all the more practicable, because the epithelial cells would not be destroyed or injured.

Reasoning thus I felt that if treatment were commenced soon after an infective coitus and continued for two or three days, the disease could be aborted, and if begun later it would immediately arrest the progress of the infection along the genital canal and rapidly eradicate it from the area already affected.

As I was at that time engaged in general practice I found a few opportunities to try it on the male. My experience, however, has only been with arresting the progress and rapidly curing the infection. I have had no experience in aborting it.

My first patient came to me the day after the appearance of the discharge. I provided him with a glass earsyringe, the nozle of which was enlarged near the point and showed him how he should compress the urethra firmly with the thumb and forefinger of his left hand, as far back as the pubic bones would allow, and then inject water as hot as could be borne until the urethra below the compression was distended. I had him hold it in by keeping the nozle against the urethral orifice for about half a minute. The water was then allowed to run out and still hotter water injected immediately.

This maneuver was repeated for 10 minutes. He was directed to employ this treatment every two hours by day and once during the night. He was advised to continue the injections 20 minutes each time when possible.

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[1] Read before the Twenty-ninth Annual Meeting of the American Gynecological Society, May 24, 1904.

The young man was not employed and had access to running hot water at home and carried out the treatment quite faithfully. The result was surprising. After a few days the discharge became mucous and only showed itself in minute quantities after four hours' interval between injections. During the second week the discharge disappeared entirely. After that the injections were used five or six times daily for another two weeks, but not at all during the night.

I directed him to drink all the water he could and to urinate frequently. By drinking before going to bed he was always awakened for treatment during the night by a desire to urinate.

One drawback to this treatment of male urethritis is that men cannot always give up the time and cannot always get the hot water. In such cases I have directed them to wash out the urethra with plain cold water, then inject a mixture of equal parts of hydrogen dioxid and either warm or cold water five or six times and hold it in place a minute each time. The deeper part of the urethra is of course kept shut off by firm compression between the thumb and forefinger as already described. As an unnecessary but perhaps beneficial adjuvant the patient may inject a 5% or 10% solution of argyrol or protargol. I attach greater importance to the thorough washing out of the pus and germs than to the disinfection, for what the dioxid does not remove the silver probably does not reach. Whenever germicides are used they should be entirely unirritating, for the mucosa becomes very sensitive after so much bathing in warm water.

By carrying a small bottle of diluted dioxid and another of the silver salt solution a man can treat himself at his place of business, the treatments being made in such case upon arising and after breakfast at home; in the middle of the forenoon, at noon, in the middle of the afternoon and about 6 p.m. at his place of business; and after dinner, at bedtime and once in the night at home. With treatments made in this way the discharge has rapidly diminished so that it was unnoticeable after two weeks. The cure is quick in proportion to the frequency and duration of the treatments.

I have not tried this method in the male after the infection had spread to the deeper portions of the urethra. When it has gone that far I think that frequent deep injections of a $\frac{1}{500}$ solution of succinic dioxid would act much more efficiently than the ordinary germicides. I have related this experience with gonorrheal urethritis in the male because the possibility of isolating the distal end of the urethra and watching the discharge gave a more perfect demonstration of the efficiency of the method than would be possible in female patients.

I do not depend upon urethral injections for the treatment of gonorrheal urethritis in the female because the patient cannot properly manage them, and because the urethritis recovers quite satisfactorily without urethral injections. In order however to prevent the spread of the infection to the glands about the urethral orifice as well as other parts of the vulva, I order hot sitz baths every two hours by day, lasting from 10 to 20 minutes, and once during the night. If the vulva has been producing a discharge for three or four days, I order a copious hot vaginal douche after each sitz bath. The vulva should be thoroughly washed off after each urination. If the urethra is not affected the sitz baths can be omitted and the douches kept up for 20 minutes at a time. After two weeks every four hours during the daytime is often enough for the douches or sitz baths. After this three times in 24 hours, and after four weeks twice. There need be no fear of carrying germs to the deeper parts with the syringe, for the douche is so copious and prolonged that they would be washed out again.

I have cured patients in this way time and again without observing any sequels, and have cured them in this way after they had been treated unsuccessfully by the ordinary methods.

When the cervical endometrium is infected I do not think that local applications of germicides penetrate the mucous glands, and hence do not employ them. I depend upon the frequent prolonged vaginal douche of water as hot as can be borne to relax the external os and the mouths of the mucous glands, and wash out the pus and germs, as well as to affect them deleteriously by the high temperature.

When the corporal endometrium is infected I see to it that the internal os is sufficiently dilated for free drainage, and depend upon the hot vaginal injections. The same treatment is used palliatively for gonorrheal salpingitis, except that, of course, the patient is kept in bed until the acute symptoms have subsided.

According to my experience, gonorrhea should always be promptly treated but never be overtreated, and I believe that hot sitz baths and hot douches, with internal treatment perhaps, for the urethritis, is all that is called for in the average case. But this treatment must be carried out faithfully and thoroughly. I prefer plain water to the normal salt solution, or mild astringent or antiseptics, for it can be used hotter and more copiously, and because I think that plain water by a sort of osmotic action tends to draw out the mucus or pus and other material upon which the germs feed, as well as the germs themselves.

Since the discovery of the efficiency of succinic dioxid as a destroyer of germs and of their culture media I have come to the conclusion that the injection of an ounce or more of the saturated solution right after each douche, the patient taking the dorsal recumbent posture and retaining it as long as possible, would materially hasten the cure and lessen the danger of infection of the cervical endometrium.

The advantages of this treatment, when used early, may be summed up as follows:

1. It prevents the spread of the disease to adjacent parts.
2. It does not injure the epithelial covering, and thus it tends to limit the infection to the superficial areas.
3. It removes more germs and pus cells than either astringents or disinfectants can destroy. It acts in the same way as constant irrigation both in aborting and arresting the progress of the infection.
4. It can be used more frequently than astringents or strong germicides, so that the parts can practically be kept free of pus and germs all of the time, while the method of using germicides or astringents three or four times daily allows the germs and pus to accumulate and spread between injections.
5. In the male, and possibly in the female, hydrogen dioxid injections may be substituted when the time and facilities for the hot water treatment cannot be had. When the discharge has become scanty and the injections cannot readily be used so frequently, a nonirritating solution of a silver salt can follow each hot water or hydrogen dioxid treatment.
6. It may be used in connection with succinic dioxid injections for the dissolving of germs and culture material not eliminated by the douches.
7. It possesses all of the advantages of the expectant treatment, viz., it does no harm. It can be combined with the internal or local medication when it becomes impossible to carry it out with the necessary time consuming detail. It exemplifies the superiority of asepsis to antisepsis.

Ophthalmology is a new quarterly journal, owned, edited, and published in the interests of the medical profession, the initial number of which will appear October 1, 1904. Yearly subscription, $5.00. It will be an ophthalmic periodical of about 250 pages, devoting about a third of each issue to original essays, the balance to abstracts of original articles appearing in domestic and foreign literature, also complete book reviews. H. V. Würdeman, M.D., will be the managing editor and publisher.

ON THE PERSISTENCE OF CERTAIN RACIAL CHARACTERISTICS.

BY

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From numerous allusions found in contemporary literature, especially in the writings of continental authors, it would seem that there is a widespread and generally accepted opinion that an admixture of white blood with African or negro blood imparts certain characteristics which are usually persistent, and that however attenuated the admixture, the stigma may be recognized by these certain peculiarities. The opinion prevails that the strain may be thus verified, even when wholly unsuspected and when the general physiognomic characteristics would not indicate its presence, thus giving to the signs a certain medicolegal value. Among the most commonly mentioned are certain peculiarities of the fingernails. Thus Dumas, in one of his dramas, makes the dénouement turn upon the detection by this means of the imposturing of a colored woman as white. Exactly what the signs are, is not made clear. Although I have frequently encountered the idea in literature, the proposition is usually rather vaguely defined or expressed in terms too general to have any real ethnic scientific value. For this reason I am at present only able to refer the reader to two writers who set forth the idea with any degree of exactness. Paul Bourget, in "Cosmopolis," says of Florent, "Il fallait le coup d'oeil d'une Yankee pour discerner sous les ongles de ce bel adolescent un peu bruni la toute petite goutte de ce sang noir deja si lointain." It would have required the glance of a Yankee eye to discern under the nails of this handsome, somewhat bronzed youth the infinitesimal drop of black blood already so distant.

Here the author probably refers to that bronzing of the nail so often seen in the colored races, and which in appearance is somewhat analogous to the discoloration produced in the fingernail of the surgeon, after prolonged immersion in a solution of mercuric chlorid.

The only other interpretation that I am able to give to his words is, that the flesh beneath the transparent nail showed a difference in coloration, which could be detected by the practised eye, but which would not be remarked by the casual observer.

The following extract is from Theodor Storm's Jenseit des Meeres:

"Als ich auf die schlanken weiszen Fingerchen blickte, erschien mir daran, anders, als ich es sonst gesehen hatte. Die kleinen Halbmonde an den Wurzeln der Nägel waren nicht wie bei uns Andern heller, sondern bläulich und dunkler als der übrige Theil derselben. Ich hatte damals noch nicht gelesen, dasz dies als Kennzeichen jener oft so schönen Parias der amerikanischen Staaten gilt, in deren Adern auch nur ein Tropfen schwarzen Sklavenblutes läuft, u. s. w."

As I gazed upon the slim, white fingers, there appeared to me to be something different there from what I had ever before seen. The small half-moons at the roots of the nails were not as with us brighter, but bluish and darker than the upper part thereof. At this time I had not yet read that this is accepted as a sure token over there, of the ofttimes beautiful American pariah, in whose veins runs even the smallest drop of black slave blood.

Here the proposition is clearly and definitely set forth. Likewise, the idea seems to have gained considerable prevalence in the South, that the nails of the negro possess distinctive characteristics, and while one often hears the expression, "nails like a negro," yet I have failed to find any distinct or uniform idea associated therewith. Perhaps the most prevalent notion is that the lunets are absent.

Therefore, I formulate the following proposition: Do the nails of negroes and persons of mixed blood possess distinct attributes? Is it possible to verify this admixture of blood by peculiarities of the fingernails when the general characteristics fail to indicate it?

Believing that my hospital clinic, which is largely attended by both colored and mixed races, offered a favorable field for observation on the foregoing propositions, I have, with this end in view, examined in the course of the past three years over 500 suitable cases, in order to arrive at such conclusions as might be reached from ocular observation alone.

The term "mixed races," as used in this article, refers to varying admixtures of negro and white blood.

First, a few observations on the general character of the fingernail of the pure-blooded negro. In this race, as found in this vicinity, the nails are usually of coarse texture, showing frequent longitudinal striæ, but very generally showing the presence of well-developed, prominent crescents. Indeed, my observations would lead me to the belief that the crescents are not less frequently present in the pure black than in the pure white races, since I was particularly struck by the fact that in the lower orders of European races they were found to be frequently absent, especially among Poles, Hungarians, Hebrews, and Russians. The body of the nail often shows pigmentation by reflected light, and the darker hue of the underlying flesh gives it a dark, dusky color, varying from brown to bluish-purple. The matrix is tightly adherent and on its upper surface, with the exception of a few longitudinal fissures, is continuous with the epiderm.

When, however, we examine the mixed races, we are immediately struck with a marked peculiarity, namely, the very general absence of the half-moons. This peculiarity shows itself as soon as we depart from the true negro, and is markedly true of individuals who might be classed as mulattos, quadroons and octoroons, while in those of still more attenuated blood we get a gradual return of the lunet, which bears a pretty constant ratio to the increase, and therefore serves as a fair index of ascent in the scale toward the white race.

It recurs first on the thumb, where it is often found with a considerable admixture of dark blood; next, it is found most often on the little finger, and then on the index finger, after that, perhaps on the middle finger, occurring numerically oftener in the individual, as has been said, as the admixture of dark blood thins. Likewise the two hands are more frequently in harmony, in the more blood attenuated individuals. This description applies to those individuals in whom the admixture of negro blood is unmistakable and in whom it is plainly apparent from skin pigmentation and physiognomic markings, and in whom therefore the traits enumerated, while interesting as variations, do not bear directly on the propositions. Moreover, in this class, the body of such nails, by reason of pigmentation between or beneath the layers, could readily be recognized as belonging to a colored person.

The principal interest centers in the examination of individuals whose features and color do not stamp them as of negro descent, but who admitted or were known to have contaminated blood in their veins. A careful examination of a large number of these, utterly failed to reveal any distinctive markings of the nails which would designate the "pariah."

The experiment was made a number of times of covering such persons and allowing the students who had assisted in the work to guess whether the individual were white or colored, the nails alone being exposed. It is to be noted that in a number of the cases herein referred to, the general racial traits were so far absent that critical examination did not enable me to classify them correctly. Especially was this the case with young children and with males more than females, which might be accounted for on the grounds of sex selection. It was further noticed that in the older members of a family, the common characteristics of the race were often decidedly more manifest than in the younger ones, but that these manifestations grew more marked with age. This is especially true of skin pigmentation.

Hence the conclusions that certain markings develop with growth. The question is often asked whether negro babies are not born white. Needless to say this idea is wholly erroneous, and although the infants of dark-skinned parents are invariably much lighter than the parents at birth, they soon darken. Infants are included within a color scale beginning with light putty color and ending with *café au lait*. The foregoing, though homely, is the most accurate that I am able to formulate.

To cite an example falling under the first part of the above paragraph, a boy of 6 came to the dispensary, and, while I pride myself on being able to classify accurately the two races, the boy was entered as white. Later, when he returned with an older sister, the mistake was apparent, yet a close family likeness was noticeable. Among the individuals examined were the members of two Washington families, who for two generations have passed for white, but who, in the third generation backward, to personal knowledge, showed the light touch of Tubal. The children of the third generation are of light blonde type, with flaxen hair, and in facial conformity are more widely removed from their prototype than the number of generations would indicate. The iris is generally blue, and the sclerotic shows no pigment stains, such as may be observed in mixed blood, nor does the pigment layer underlying the sclerotic impart to it the transparent blue coloration characteristic of negro blood. It is needless to remark that the nails are also negative.

In the course of this investigation, observations were made upon one or two other well recognized anatomic distinctions. In the white race, without exception, the two alar cartilages of the nose do not meet in the median line in front, but leave a considerable hiatus into which projects the cartilage of the septum naris. Further, the alar cartilages are sharply beveled and the interval is most marked at the tip, where they project considerably beyond the septum. This may be readily felt by placing the tip of the finger against the tip of the nose. In the negro race the interval between the two lateral cartilages does not exist, the bevel is wanting, and the cartilages join each other so symmetrically that it cannot be distinguished that they are not one piece. I know of no descriptive anatomist who has heretofore called attention to this fact. This peculiarity is fairly persistent, as are all the other traits referred to herein, but it likewise fails to maintain itself in much diluted blood, and would not be recognizable when confirmatory signs, such as color of the skin, conformation of the face, quality of the hair, odor, and other traits are absent.

I will refer to but one more attribute, and that briefly. The stretch, *i. e.*, the distance from finger-tip to finger-tip with the arms extended to their fullest possible length, compared with the height of the individual, exceeds the height in negro males to a greater degree than in any other non-Caucasian race, and is much greater than in the white race. This variation soon fails as we depart from the true negro, and even in light skinned individuals has no significance.

In conclusion, I express my belief that there is no positive sign whereby a very attenuated strain of negro blood may be asserted, the prevalent idea to the contrary notwithstanding.

Cure for Leprosy.—It is reported that Captain E. B. Rost, of the Indian medical service, has succeeded in cultivating the bacillus of leprosy, and has made a substance from the cultures which he terms leprolin, and which, when injected into lepers, has marked beneficial action, alleviating symptoms of the disease. Cures have been reported in four cases.

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2.—See *American Medicine*, Vol. VII, No. 24, p. 926.

3.—See *American Medicine*, Vol. VII, No. 24, p. 927.

5.—See *American Medicine*, Vol. VII, No. 25, p. 976.

6.—Vincent's Angina and Stomatitis.—G. C. Crandall reports a case. This disease is characterized by a membranous ulcerative process, quite painful, but with slight systemic reaction, the lesions, especially of the mouth, healing slowly, the secretion, pseudomembrane, and tissue beneath containing a fusiform bacillus associated, as a rule, with a spirillum. In the author's case the disease was at first confined to the throat, but was quickly and thoroughly inoculated in the gums by the irritation incident to cleaning the teeth. The dentist was not aware of the condition of the throat. When we have infection of throat or mouth it would be well to confine the diet to food requiring no mastication, thus avoiding all irritation of the mucous membrane. The writer reviews the literature briefly. Differential diagnosis from syphilis and diphtheria can be made by the history and a microscopic examination. [H.M.]

7.—Pathogeny of Osteomalacia or Senile Atrophy.—E. S. Talbot states that osteomalacia exists for years in pelvic and other bones before the symptoms can possibly be recognized. It can be studied earliest in the alveolar process, which is the most transitory structure in the body. It develops twice and is absorbed thrice if the second set of teeth are shed. The evolution of the face whereby the jaws are decreasing in size, with the many complications thereon resultant, renders the jaws and alveolar process increasingly transitory. In the evolution from the lowest vertebrates up there has been a continuous succession of teeth, as found in some selachians, a partial continuous succession as in some mammals, and a comparatively permanent set as in man. This shedding of teeth, due to senile absorption, atavistic in type, takes place in every one to a greater or less extent after 45. Should man live in a comparatively healthy state long enough he would lose all teeth from this process. Degenerate children from precocity, due to arrested development at the senile or simian period of intrauterine life, may show symptoms of this disease with the first set at from 6 to 10 years of age. Autointoxication and drug poisoning are etiologic factors, the first irritation through the blood-stream causing endarteritis obliterans, inflammation, and halisteresis. Osteomalacia is as common among wild as domestic animals. If due to autointoxication, effete matter should be removed. It is the basic explanation of pyorrhea alveolaris. [H.M.]

8.—See *American Medicine*, Vol. VII, No. 25, p. 974.

9.—See *American Medicine*, Vol. VII, No. 26, p. 1012.

10.—Tetanus.—A. Woldert reminds us that at the earliest time when tetanus can be diagnosed the disease has been in progress from 5 to 12 days as a rule. The toxin does not reach the spinal cord through the blood stream but slowly passes along the axis cylinders of motor cells from their terminations. Apparently the myelin sheath is impervious, the toxin entering at the end of the neuron. Sensory nerves do not transport the toxin. It enters where the toxin is most concentrated at the point of infection and also at the points to which it has been distributed by the blood and lymph. In the case reported an amputation at the lower third of the thigh had been done for the relief of gangrene following a lacerated and contused wound about four inches below the knee-joint with fracture of the leg at this point. The operation was done six days after the injury. The next afternoon, seven days after the injury, there were marked symptoms of tetanus present. [H.M.]

11.—Pelvic Abscess.—P. D. Bourland states that pelvic abscess from cellulitis without pus tube is rare, and even including the latter is rarer in towns and country districts than in cities. He reports a case after childbirth, in which all the refinements of prophylaxis were used. Latent infection from a previous abscess is improbable, as five and a half years of entire freedom from pelvic disease had elapsed. There was no endometritis, the lochia were normal. The abscess savored strongly of the colon bacillus, the pus being thin and foul. The sepsis of the first 11 days may have been due to a lymphangitis or phlebitis arising from the vagina. If so, obstetric phophylaxis should include surgical preparation of the vagina. A point of interest is the very mild grade of sepsis which preceded the violent cellulitis. The temperature curve showed that infection was nearly stamped out when metastasis to a favorable soil occurred. The extreme toxemia and shock following operation suggests the advantage of opening such abscesses with a cautery or cauterizing the edges of the opening with carbolic acid or the actual cautery immediately. [H.M.]

Boston Medical and Surgical Journal.

July 21, 1904. [Vol. CLI, No. 3.]

1. A Case of Moral Insanity with Repeated Homicides and Incendiarism and Late Development of Delusions. Henry R. Stedman.
2. The Etiology and Modern Methods of Treatment of Chronic Urethritis. Charles M. Whitney.

2.—Treatment of Chronic Urethritis.—C. M. Whitney gives anatomic causes for the persistence of urethritis into the chronic condition and for the poor results in treatment. Throughout the urethra are alternate dilations and contractions normally and various glands are continuous by their ducts with the urethra. Into these glands and follicles the gonococci penetrate and are extremely difficult to dislodge. The ordinary two-glass test, valuable in acute urethritis, is useless in the chronic stage, because the discharge is scanty. Whitney's method is to wash out the anterior urethra with a 4% solution of boric acid; then the patient urinates into two glasses; if both are clear the trouble is in the anterior urethra; if the first only contains shreds, the trouble is in the posterior urethra, while if both glasses are cloudy it indicates that the bladder is involved. The cleansed bladder should now be filled with boric solution, the prostate and seminal vesicles massaged and the fluid from the bladder again examined as before. This should locate the seat of trouble. To attack the germs we may use argyrol, protargol, or permanganate of potassium. His plan is to place daily a 10% solution of argyrol in the urethra and allow to remain five minutes, applied by the physician, while a 4% solution may be used for an equal period three times daily by the patient himself. The whole urethral tract may be irrigated with permanganate by the Janet method. Having rid the canal of organisms, it should now be examined for localized areas of inflammation. The cardinal point in treatment is thorough dilation of the urethra from the fossa navicularis to the prostate. Meatotomy may be necessary. A new instrument for this purpose and for dilation is shown. [A.B.C.]

Medical Record.

July 23, 1904. [Vol. 66, No. 4.]

1. Notes on Some Uncommon Forms of Nervous Diseases. L. Pierce Clark.
2. The Modern Tuberculosis Dispensary. S. A. Knopf.
3. Dietetics in Summer Diarrhea. Benj. Edel Helprin.
4. Clinical Notes on the Mammary Gland, with Report of Four Cases of Somewhat Unusual Interest. Thomas H. Manley.
5. Fallacies in Vital Statistics. F. L. Wachenheim.
6. A Few Quotations from Shakespeare, Showing His Acquaintance with Medical and Other Sciences. J. W. Wainwright.

3.—Dietetics in Summer Diarrhea.—B. E. Helprin, when the stools are abnormal, recommends change of diet, rather than drugging. If there are curds or vomiting, albumen water is advisable, the white of one egg and 5 gr. of table salt being added to 8 oz. of water for a child 1 year old, with a little brandy or whisky. The next day barley water may be given, taking a heaping tablespoonful of barley to one pint of water, and boiling for 20 or 30 minutes, adding milk sugar to make the food palatable. We may alternate this with browned flour, 2 tablespoonfuls, gradually added to 2 pints of boiling water. This may be given in 3 oz. portions and 10 feedings. Condensed milk may be gradually added. A tonic helps to tide over the weakness from reduced diet. The child should be waked for its feedings. The return to fresh milk should be very gradual. In obstinate cases gavage is indicated. Opium is justifiable only as a last resort. A useful prescription for the diarrhea is:

Bismuthi subnitratis	ʒv	20	
Bismuthi salicylatis	gr. xij		8
Syrupi rhei aromatici	ʒiij	12	
Aquæ q.s. ad.	f℥iv	120	

Usually given in dr. (4 gm.) doses every two or four hours.

The following also is valuable:

Bismuthi subnitratis	ʒv	20
Sulfuris sublimatis	gr. xxx	2

Divide into 30 powders, and give one in water every two hours. Colonic irrigations are efficient when there is offensive odor, mucus and blood. [H.M.]

New York Medical Journal.

July 16, 1904. [Vol. LXXX, No. 3.]

1. Some "Liver" Cases. J. H. Carstens.
2. The Sequels of Typhoid Fever in the Nervous System. Pearce Bailey.
3. The Differential Diagnosis between Incipient Pulmonary Tuberculosis, Healed Cavities, and Nontuberculous Fibrosis. George W. Norris.
4. Congenital Inspiratory Laryngeal Stridor, with Report of a Case. Samuel Kohn.
5. The Dysentery of the Tropics, with Special Reference to Our Insular Possessions. Frederick M. Hartstock.

1.—Some liver cases are reported by J. H. Carstens. The first is a case of gallstones in a woman of 51, who had been treated for years for dyspepsia and acute gastritis. About 50 gallstones were removed and complete recovery followed. The second case is one of suppurating gallbladder in a man of 29. At intervals for two years he would be taken with chills and fever. This would last for several days or weeks, combined with profuse perspiration and more or less nausea. The case had been considered one of malarial toxemia. The gallbladder was drained and complete recovery followed. The third case is one of gallstones in a woman of 42, who had had jaundice for eight months. An operation was performed, but the patient died from debility and heart failure. The fourth case is one in which several hundred gallstones were removed and the distressing symptoms relieved, but the operation revealed a malignant growth of the liver that must soon prove fatal. Case five illustrates the necessity for an exploratory operation in obscure abdominal swellings. Exploration revealed a floating kidney and liver, which were replaced, and complete recovery followed. The sixth case is one of gallstones, ventral hernia, and fibroid of the uterus. [C.A.O.]

2.—Sequels of Typhoid Fever in the Nervous System.—Pearce Bailey says that aside from meningitis, hemiplegia is the most frequent brain complication of typhoid. It may occur early in the disease, but comes much more commonly during or after the third week. The hemiplegias usually involve both the face and the extremities of the affected side. They do not seem to exert an unfavorable influence on the course of the typhoid, and are only occasionally fatal. In some cases the paralysis is said to disappear entirely, more frequently it improves. Neuritis is by far the commonest organic sequel of typhoid in the nervous system. Of the chronic degenerative diseases of the nervous system with typhoid as a cause, multiple sclerosis is the only one in which such a connection is at all plain. The most typical of the posttyphoid psychoses is of the asthenic type, and resembles in many ways the asthenic psychoses generally. [C.A.O.]

4.—Laryngeal Stridor.—Samuel Kohn reports such a condition in a child of 2, that had existed since birth. The child was anemic and had suffered in its development. He says that the cause of the affection is seen to lie in the larynx, and to be due to a hypertrophy of the soft tissues at the introitus laryngis. The treatment in this case consisted of small doses of sublimate, alternating with small doses of syrup of the iodid of iron and cod-liver oil combined with hygienic measures and good nourishment. [C.A.O.]

5.—Tropical Dysentery.—F. M. Hartstock divides the types of dysentery seen in our insular possessions into catarrhal, amebic, and acute specific. The simple catarrhal is benign as compared with the other two. The specific dysentery gives, in a large percentage of cases, the agglutinative test, and in the amebic the parasite will appear in the dejections. In the amebic type the part most affected is the lower bowel, from the anus to the transverse colon, but the whole tract from the ileocecal valve down may be diseased. The type of inflammation is ulcerative. Amebic dysentery terminates in recovery; or is complicated by abscess of liver, or sprue may intervene, or the patient be carried off by some intercurrent disease, such as tuberculosis or pneumonia. In acute bacillary dysentery the patient is entirely prostrated from the onset; death may take place in a few days from an overwhelming infection. The postmortem appearances are rarely those of ulceration, except in cases that have become subacute or chronic. The large intestine and lower part of the small intestine participate in the inflammation; the mucosa is greatly swollen and thickened; the follicles are enlarged; and the mucosa is dotted over with punctate hemorrhages and coated with a seminecrotic mucous layer rich in cells. [C.A.O.]

Medical News.

July 23, 1904. [Vol. 85, No. 4.]

1. Some Surgical Aspects of Obstetrics. WILLIAM S. STONE.
2. Myelogenous Leukemia with Disappearance of the Splenomegaly and the Myelocytes. CHARLES E. SIMON and D. G. J. CAMPBELL.
3. A Visit to Gheel. SMITH ELY JELLIFFE.
4. Personal Experience in the Treatment of Typhoid Fever. CARTER S. COLE.
5. Extrauterine Pregnancy: Some Observations in a Case Ruptured by Examination. W. L. WALLACE.
6. A New Brace for the Shoulder-joint. LEONARD W. ELY.
7. The Early Diagnosis of Pott's Disease. FRANK P. VALE.

1.—Surgical Aspects of Obstetrics.—William S. Stone says injuries to the cervix of such severe character as to cause immediate and subsequent symptoms are of constant occurrence under the following circumstances: 1. Premature rupture of the membranes. 2. Application of the forceps and all operations requiring rapid dilation of the cervix. 3. Meddlesome attempts to hasten the dilation manually in normal cases. Treatment of these injuries should be regarded from the same point of view as wounds in any other part of the body, viz.; hemorrhage, sepsis, disturbance of function and subsequent disease. Contrary to general belief, hemorrhage from a lacerated cervix after labor is more common than from any other part of the genital tract. Douching and iodoform gauze packing are useless in controlling this hemorrhage. Stone insists that repair should be done at the earliest possible moment. Operation should not be attempted with the patient in bed, but she should be placed upon a table. No one particular instrument, operation or device is necessary. [A.B.C.]

2.—Myelogenous Leukemia.—C. E. Simon and D. G. J. Campbell review the fever cases already published and add one of their own in which the splenomegaly and myelocythemia disappeared, and the patient's improvement has now lasted a year. When she entered the hospital the leukocytes numbered 350,000; a month later, 4,000; the myelocytes had diminished to 6.1%, and there was nothing to suggest leukemia, except 10.8% of mast cells. Six weeks later the enlargement of the spleen disappeared, and in 10 months the organ was scarcely palpable. The patient's weight increased; her hemoglobin has risen to over 75%, and the red cells have increased correspondingly; the leukocytes have been normal, and even subnormal, and at no time since April 28, 1903, have the myelocytes been over 2.4%. Significant, however, is the fact that the mast cells have been much above the maximum normal; they varied between 3.5% and 10.8%. Upon this percentage, without knowing the patient's past history, a diagnosis of myelogenous leukemia would be justifiable, and there can scarcely be any doubt that the arrest of the disease is merely temporary, if indeed there is arrest of the pathologic process. [H.M.]

4.—Typhoid Fever.—C. S. Cole thus summarizes the results of his observations: Fever is a necessary part of the disease and varies according to the week in which it occurs. We cannot change the type although we may control the fever. The use of coal-tar products is seldom, if ever, desirable but the use of water externally and internally is necessary. Nutrition must be liquid and must be adapted to the case. Medication plays a very small part in treatment and should be used only to meet certain indications. [H.M.]

5.—Extrauterine Pregnancy.—W. L. Wallace has had nine extrauterine pregnancies in 300 celiotomies. He reports three in detail. One was of particular interest in that rupture was produced by a pelvic examination, but fortunately the patient was in the hospital, and immediate laparotomy, intravenous injection of saline solution, and control of hemorrhage saved the patient's life. The pregnancy was interstitial. In another case ruptured extrauterine pregnancy was diagnosed, but the patient refused to go to a hospital until 12 hours had elapsed. The danger of rupture by examination ought to be remembered, and a suspicious case ought to be carefully watched for a few hours after an examination; and in a probable case, it would be much safer if the examination could be made in a hospital operating-room, where a vaginal puncture and exploration could instantly clear away any doubt in diagnosis, and any necessary operation could at once be performed with safety. [A.B.C.]

7.—Early Diagnosis of Pott's Disease.—Frank P. Vale comments upon two cases of Pott's disease, which recently came under his observation in men of 23 and 35, respectively; in one, symptoms had existed for 10 months, and in the other they had existed for four and a half years, and in both there was a wellmarked beginning kyphosis, yet neither had at any time had a systematic examination by his physician looking to this trouble. Even Sir Frederick Treves[1] relates that he did an unsuccessful exploratory laparotomy for persistent gastric symptoms, only to discover a few days later a heretofore unobserved kyphosis of Pott's disease. Vale emphasizes the frequency of referred pains, particularly abdominal, in this affection. A case is reported in which a child of 9 years had for two years complained only of pain in the region of the stomach. Dorsal caries was discovered. Pain at the seat of disease is comparatively rare. In the early diagnosis of Pott's disease the first symptom to appear and the last to disappear is muscular rigidity. This can be exhibited in many ways, almost every movement of the child makes it evident to a careful observer. Disease in the lumbar region may early cause a lordosis and prominent abdomen from contracture of the psoas muscles. Vale insists that too little attention has been given to the röntgen rays as an aid in diagnosis. Orthopedists have as yet apparently not recognized their value, especially in the dorsal region, which cannot be satisfactorily palpated. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

Quinquaud's Sign.—In December, 1893, Quinquaud made a peculiar experiment with his pupils. He asked each of them to place the tips of his spread fingers upon his (Quinquaud's) hand. Two of his students with whom he had performed the experiment he regarded quizzically, while to others he remarked that the result had been negative. He died the following month, without having published his observations; and it was not until seven years later that the sign was brought before the profession by Maridort. Although the description given by the latter was quite lucid, the phenomenon remained practically unknown until Fürbringer,[2] of Berlin, directed attention to it. When the experiment is performed in the manner indicated—that is, when the spread fingers of the hand are held perpendicularly against the hand of the examiner—nothing peculiar can at first be noticed; but, if the experiment is successful, the examiner experiences after two or three seconds slight, rapidly succeeding shocks, or concussions, as if the phalangeal bones were quickly pressed or rubbed against each other and against the palm of the examiner. The sensation is that of a crepitus, such as is found in arthritis deformans. Maridort was of the opinion that while the sign is not absolutely specific, it is, nevertheless, strongly indicative of alcoholic abuse. Aubry, who examined 115 cases of various kinds, came to the conclusion that the presence of the sign shows that there has been indulgence in alcohol. Fürbringer has examined 468 patients for Quinquaud's sign. He found it absent in 89.5% of nondrinkers and in 10.5% of drinkers. Under nondrinkers he classes the moderate drinkers and the total abstainers. There is no parallelism between Quinquaud's sign and tremor. The former is less valuable than the latter, which was absent or scarcely noticeable in 93% of nondrinkers and in 7% of drinkers. Quinquaud's sign is audible with the stethoscope as a distinct, but peculiar form of friction. The opportunity to make an autopsy on several of the patients in which the sign had been well marked was afforded, and the phalangeal joints were found to show nothing abnormal. There was not even an undue degree of dryness. Regarding the pathogenesis of the phenomenon, Fürbringer comes to the rather unsatisfactory conclusion that it is a neurosis. On account of its limited diagnostic value—so far as alcoholism, at least, is concerned—the sign will not acquire much importance; but as a phenomenon amenable to investigation, it merits study. The sensation produced in testing for it is, as the writer has found, certainly peculiar, and hardly comparable to any other.

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[1] London Practitioner, 1903, p. 1.

[2] Deut. med. Woch., No. 29, June 30, 1904.

REVIEW OF LITERATURE

A Comparison of the Normal Function of the Two Kidneys.—J. Albarran[1] examined 11 dogs and 19 human beings for the purpose of determining the relative activity of the two kidneys, paying attention to the following points: (1) The quantity of urine secreted; (2) the amount of urea present in the urine, expressed in percent, and the total during a definite period; (3) the percentage and actual amount of chlorids; (4) the percentage and actual quantity of phosphoric acid. If the function of the kidneys is tested during a period of from 15 to 30 minutes, it is seen that the kidneys secrete different quantities of urine, and that the quantity of the salts mentioned holds an inverse ratio to the quantity of urine. The difference may amount to 30%; in more than half of the cases it amounts to more than 10%. The quantity of urea varies per liter in a fourth of the cases more than 1 gm. (15 gr.), and may differ as much as 6.5 gm. (100 gr.). The quantity of chlorids varies in a fifth of the cases more than 1 gm. (15 gr.) per liter, and may reach a difference of 5 gm. (75 gr.). Smaller differences are noted if the urine is collected in definite periods following each other. The longer the periods of comparison the more equal is the functionating power of the kidney. [E.L.]

Differential Diagnosis between Pulmonary Tuberculosis and Conditions Resembling It.—H. R. M. Landis[2] mentions conditions which have caused errors in diagnosis by members of the staff of the Phipps Institute or by physicians referring patients to them. Two points are emphasized as of special importance in obviating mistakes: 1. The definite "line of march" taken by the invading tubercle bacillus, as pointed out by Fowler, which results in the disease being in a more advanced state at the apex than in the lower lobe. 2. Systematic examination of the sputum in all cases of pulmonary disease. The common conditions causing confusion in diagnosis are chronic bronchitis, bronchiectasis, fibroid lung, mitral stenosis, and syphilis of the lung. Recent papers indicate that the last, though formerly looked upon as a rare condition, is not infrequently met with. In bronchiectasis, cough, expectoration and dyspnea are the prominent symptoms; expectoration is quite characteristic, occurring in large quantities at a time and particularly on rising. A history of prolonged inflammation of the bronchi or the surrounding structures is of value in diagnosing this condition. Mitral stenosis is a frequent cause of blood-spitting, but should lead to difficulty in diagnosis only when there is no murmur. [A.G.E.]

Suprarenal Extract in Diseases of the Esophagus.—F. G. Janowski[1] employs the preparations of suprarenal glands in acute esophagitis, relying on their vasoconstrictory and analgesic local action. He has used Merck's tablets ("suprarenaden") of 5 gr. each, instructing the patient to suck a tablet 5 to 10 minutes before meals. Recently, he tried adrenalin (Parke, Davis & Co.) 5 to 10 drops of the 1 to 1,000 solution, also a few minutes before a meal. By these means the dysphagia of acute esophagitis is often promptly relieved. Moreover, the remedy appears to exercise an equally soothing action on the acute gastritis which usually accompanies toxic esophagitis. Encouraged by this success, the author has further tried adrenalin against cancerous stricture of the esophagus in the hope of reducing the vascular engorgement and thus effecting a passage. As a matter of fact his reasoning proved correct and relief was promptly forthcoming in a number of cases. [L.J.]

Proteid Digestion in the Intestines.—The experiments of K. Glaessner[2] with dogs show that the contents of the small intestine, after a meat diet, contain monoamino acids and diamino acids, which are not found in the large intestine. Hence, the small intestine is the main seat of proteid digestion. The absorption of the products of proteid disintegration also takes place exclusively in the small intestine. In the contents of the large intestine the noncoagulable proteids are represented by nitrogenous bodies precipitated by tungstophosphoric acid. These nitrogenous bodies include ammonia; also such products as oxyphenylaethylamin and tetramethylendiamin, resulting from the separation of CO_2 from the diamino acids; and also xanthin bases, arising from the desquamation of the mucous membrane and from the digestive secretions. [B.K.]

Nature of Still's Disease—Chronic Polyarthritis in Children.—Still's disease is a variety of chronic polyarthritis, which is differentiated from arthritis deformans and chronic rheumatism by marked enlargement of the lymph-nodes and usually of the spleen, tendency to irregular fever, absence of noteworthy bone deposits, and its exclusive appearance in children before their second dentition. It is believed to be an infection, but thus far its cause has not been discovered. D. L. Edsall[3] reports a case of this rare affection; he believes his case to have been due to widespread chronic tuberculosis of the joints. His patient, a boy of 13, had the disease for some years, it gradually spreading to nearly all the joints of the body, showing also all the other symptoms of the disease. He reacted positively to the tuberculin test, but an excised gland showed no histologic evidences of tuberculosis. Acid-fast bacilli having the typical appearance of tubercle bacilli were discovered in an emulsion made from the nodes, but inoculations of guineapigs with this emulsion proved to be negative; and no evidences of tuberculosis were to be found at the autopsies of the guineapigs. Edsall's explanation for this curious phenomenon was that the bacilli must have been either very attenuated or even dead. [E.L.]

Infants' Milk and Mortality.—E. von Behring's[4] searches after a method by means of which cows' milk can be transported without impure substances dangerous to life and health (bacteria and toxins) entering it, and which will prevent its loss of those specific therapeutic substances, which his treatment of the cow has given to their milk, have attained success. A solution of formalin 1 to 4,000 cannot be discovered in milk by even the most sensitive of human beings, and its use has enabled him not only to preserve milk in a perfectly sweet and healthy condition for as much as 8 days, so that it could not be differentiated from fresh milk, but it was found by all tests known to him not to have lost any of the immune substances which it had at the outset. Milk without formalin became sour after 60 hours, with formalin 1 to 10,000 it remained sweet for 8 days, and with formalin 1 to 5,000 for 13 days. Milk thus treated had increased bactericidal powers as compared with untreated milk, the boiling of milk diminishing this power. He therefore advises in cases where the milk is used directly from the cow to do so without boiling it; when it must be transported first, to add formalin solution and to use it also without first cooking it.

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[1] Annales des maladies des organs genitourinaires, 1904, xxii, 81.
[2] Proceedings Philadelphia County Medical Society, May 31, 1904.

[1] Russki Vratch, May 15, 1904.
[2] Zeit. für klin. Med., Bd. lii, p. 361.
[3] Archives of Pediatrics, 1904, xxi, 175.
[4] Therapy der Gegenwart, 1904, xlv, 1.

Tonsillitis as a Cause of Nephritis.—J. L. Morse[1] reports four cases of acute nephritis in children, which were preceded by or arose during attacks of tonsillitis. He believes that either mild or severe tonsillitis may be followed by nephritis, and considers this a more frequent cause of Bright's disease than is supposed. He advises, therefore, examination of the urine during every case of tonsillitis, the examinations to be continued for some time into convalescence. [E.L.]

The Tuberculous Constitution a Dietetic Condition.—A. W. Martin[2] concludes from careful investigations extending over 17 years that fats play a much more important part in the animal economy than has hitherto been accorded them; they exercise a function almost unknown at present, but altogether different from and above simply heat production. In his opinion, a deficiency of fat in the diet is the prime factor in the production of that state of the tissues which permits the lodgement and growth of the tubercle bacillus. Not every person in whose diet there is a deficiency of fat and an excess of carbohydrates will become tuberculous any more than all temperate drinkers will become drunkards; it is from such persons, however, that the ranks of the tuberculous are recruited. Not a case of tuberculosis observed during the 17 years has been an exception to this rule, and this has been the only constant one of the many factors considered as potent in the causation of tuberculosis. Weakly children of tuberculous parents, when brought up with an abundance of fat in their food, present a marked contrast to older ones whose dietary has not been regulated. The principle in question gives a clue to the value of cod-liver oil in the treatment of tuberculous patients and is of great importance in the prevention of the disease. [A.G.E.]

Two Hundred Cases of Lobar Pneumonia.—John Hay[3] reports experience with 200 cases of lobar pneumonia, but his statistics are confined to a series of 150 cases. Of these 150 there were 33 patients below 20 years of age, with a mortality of 9.1%; 89 between 20 and 50, with a mortality of 41.5%, and 28 over 50, with a mortality of 75%; the total mortality was 61 or 40.5%. Among the 150 were 65 alcoholics, of these 37 died, a mortality of 57%. There are two periods of excessive strain upon the heart in pneumonia, namely during the onset of hepatization when there is sudden diminution of the capillary area in the lung, and from the fourth or fifth day up to the crisis, the latter period being due to the excessive toxemia and continued high temperature. The most serious cardiac lesion from the point of view of prognosis is that which attacks the myocardium. Valvular disease is not so important. The danger signals in pneumonia are those which indicate severe toxemia at the onset of cardiac failure. In treatment morphin is usually safe for delirium up to the fifth day. The light delirium occasionally accompanying the course should be controlled by morphia; abdominal distention is fraught with danger to the overworked heart. That the signs of cardiac failure demand a cardiac stimulant or tonic is evident, but for this purpose alcohol is not the drug. Alcohol has its place in the treatment of pneumonia, both during the acute stage and convalescence, but this should not be in the role of a cardiac stimulant. The drugs which he uses to prevent cardiac failure are strychnin, digitalis, caffein, and ammonium carbonate, the latter is indicated particularly in cases associated with bronchitis; it should be given in large doses, 10 gr. every 4 hours, and occasional doses of 20 gr. to 30 gr. may be given. It is followed by free expectoration. [A.B.C.]

The Pasteurization of Milk.—V. Hoton[4] believes that the simple boiling (especially rapid boiling) of milk should be absolutely abandoned as dangerous. Boiling by the method of Otli and others gives immediate security, but the results are not durable. Moreover, it alters the quality of the milk, is impracticable, and presents only insignificant advantages in comparison with the serious inconvenience. The pasteurization at 100° by the method of Escherich, Hippius, and Hoton, gives absolutely certain and durable results. It insures a prolonged preservation of the milk, but reduces the alimentary value. Pasteurization at 75°, by the different methods for infants or adults, presents no advantages over the pasteurization at 100°. It is practically too complicated to be useful. Pasteurization at 60° and 65° does not affect the quality of the milk; is a simple method; and has advantages above all the older methods, especially simple boiling. [J.H.W.R.]

Clinical Value of the Average Analysis of Gastric Contents.—C. S. Fischer[1] says the real object of gastric analysis is to determine the secreting capability of the stomach under the conditions in which it finds itself. He then reviews the chief methods employed for this purpose and points out their failings. The ordinary trial breakfast does not fulfil the requirements of a physiologic test for acid secretion; it does not appeal to the special senses and this, as demonstrated by Pawlow, is an important cause of secretion. It may attain results that are correct for tea and bread, but not for the average normal diet of the individual. Successive analyses in the same cases demonstrate its variability. Fischer employs a meal composed of the ordinary test-breakfast, to which is added a quarter pound finely chopped beef that has been broiled and slightly seasoned. If it is desired to know the behavior of the stomach under mild and also stronger stimulation, employ the ordinary breakfast and later on the one described. Two each of these meals should be given upon fasting stomachs upon successive days. There is more in gastric analysis than determining actual diseased conditions; there still remain to be discovered all the individual peculiarities operating in each case. [A.G.E.]

Prognosis and Treatment of Tabes Dorsalis.—Maurice Faure[2] states emphatically that we should get away from the idea of treating tabes by drugs alone. Antisyphilitic treatment should always be employed in the early stages, especially if the patient had not previously undergone such treatment, but it, should not be continued when it is observed to do no good. No tabetic has his disease arrested solely on account of the mercury and iodids he has taken. In a group of tabetics we find the disease steadily progressive in a third of the cases; it is arrested or improved or cured in a fourth of the cases; in the remainder it proceeds by periods of quiescence without, however, apparently shortening but little the patient's life. Occasionally patients are cured of tabes; and arrest in the early stages practically amounts to a cure. Treatment should be along the same lines as we now prescribe for tuberculous patients. The patient should be properly nourished, his bladder and bowels kept in proper order, sleep secured, and life in the open air encouraged. He should take an annual "cure" of one or more months' duration in a sanatorium, during which he should devote himself entirely to the process of repairing damaged tissue. Treatment, hygienic and otherwise, must be persisted in for months and years. [A.B.C.]

Laryngeal Crepitus as a Sign of Pulmonary Tuberculosis.—Remouchamps[3] can elicit this sign when there is not the least pathologic sound present by ordinary methods of auscultation. Its value is evident when bacteria are not demonstrable and fever bars the tuberculin test. The patient, preferably erect, stands face to face with the physician, his mouth open. The physician places his right hand on the patient's left shoulder, and resting his left thumb on the patient's chin, brings his left ear close to the mouth, keeping it at a distance of two or three inches. He then will perceive a fine crepitation, whose maximum intensity appears to be in the larynx, the latter amplifying sound, having their origin in lesions of the pulmonary parenchyma. The sound is similar to that of a fine pen slowly scratching on paper. It is audible, both in inspiration and expiration, but more particularly the latter. It increases and diminishes with increase or improvement in the lesions. In some instances it can be heard without the patient opening his mouth, sometimes several feet from the patient. In the early period of bronchitis limited to the apex the sound of mucous and bullous rales gives rise for two or three days to a sort of crepitation, which somewhat resembles that in question, from which, however, it can always be distinguished by the presence of rhoncous and sibilant rales. The persistent absence of this sign justifies discarding the diagnosis of pulmonary tuberculosis. [H.M.]

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[1] Archives of Pediatrics, 1904, xxi, 337.
[2] Public Health, July, 1904.
[3] British Medical Journal, June 11, 1904.
[4] Journal Méd. de Bruxelles, May, 1904, p. 217.

[1] American Journal of the Medical Sciences, July, 1904.
[2] The Lancet, June 18, 1904.
[3] Medical Press and Circular, April 20, 1904.

Bilharziosis.—W. H. Rankin,[1] in a general review of this subject, speaks of its increased interest to physicians in seaport towns because of our closer commercial relations with those countries in which the disease is quite prevalent. Within two years a few cases have been seen in New York, several in Canada, and one in the West Indies. The parasite probably gains entrance to the body mainly in drinking water, though digging in infected soil or bathing in contaminated water may be responsible. The earliest symptoms are malaise, backache, and pain referred to the bladder or rectum. From the rectum may be a discharge of yellow or greenish-yellow mucus; tenesmus is severe and persistent; the mucous membrane is congested, and may show small ulcers or small polypi containing parasites. Ischiorectal abscesses or perineal fistulas are common. As a rule bladder symptoms are more serious, the urethra also being involved. Gonorrhea may be simulated and the symptoms of acute or chronic cystitis supervene. The eosinophile leukocytes of the blood are usually greatly increased; the positive diagnosis is made by finding ovums of the parasite in the rectal mucus or in the urine. [A.G.E.]

Functional Diagnosis of Arterial Sclerosis and the Differential Diagnosis of Angina Pectoris.—M. Sihle[2] concludes that a presclerotic stage precedes the development of sclerosis of the vessels in which the blood-pressure is elevated. The early stage can be recognized by measuring the difference in blood-pressure between the brachial and the digital arteries. The more rigid and narrow the vessel, the more advanced is the sclerosis and the greater is the difference in the blood-pressure. The more relaxed the bloodvessel wall and the less the resistance, the lower is the blood-pressure, as well as the difference in the blood-pressure. The mean difference in pressure between the brachial and digital arteries in middle life amounts to 30 mm. to 40 mm. Hg. When the difference amounts to 60 mm. or more, a sclerotic process exists. A sclerosis of the vessels of the upper extremities presupposes a sclerosis of the internal organs. On the contrary, a normal or subnormal blood-pressure in the vessels of the upper extremities, just as a normal or subnormal difference in pressure, indicates with great probability an absence of sclerosis of the organs. A knowledge of the blood-pressure and the difference in the blood-pressure throws light on the differential diagnosis and prognosis of angina pectoris. Angina pectoris is in the nature of a reflex neurosis. The pains result from spasm of the vessels. Arteriosclerosis is a particularly good soil for the development of angina pectoris, next to which are the infectious diseases, especially influenza. Sihle does not believe that true angina is a *sténocardie d'effort.* [J.H.W.R.]

The Technic of Vaccination.—E. R. Larned[3] says there is no such thing as nonsusceptibility to vaccine; negative results of vaccination are due to carelessness or lack of skill on the part of the vaccinator or to inert lymph. Larned's technic is: Scrub the site with soap and water, rinse with boiled water and wipe dry. Place a drop of liquid vaccine on the skin and work it in by means of a large sized needle the point of which has been broken off and the sharp edges dulled. A rotary motion best accomplishes the purpose and the area gone over should not exceed an eighth inch in diameter. Scarification, use of a sharp pointed needle, scraping the skin with a scalpel and similar methods are unnecessarily severe. Antiseptic dressings after inoculation should never be used. In a successful case a shield may be used during the two or three days the inflammation is at its height. Failure to obtain good results with vaccine is frequently due to the deteriorating influence of heat or cold or strong light while the material is in storage. [A.G.E.]

Pads upon the Finger-joints and Dupuytren's Contracture.—A. E. Garrod[1] calls attention to certain small pads which at times are seen on the dorsal aspect of the interphalangeal joints of the proximal row. They usually appear on both hands, though are rarely symmetric, and may vary in size from a split pea to a half hazelnut. When the fingers are extended, the pads are moderately soft, but with fingers flexed they are hard and immovable. Garrod has seen 12 patients with these pads—7 in males, and 5 in females. Of the patients 3 were under 15, 5 were under 20, while in 1 case they had appeared at 60. The etiology is unknown, but a peculiarity is that they seem related in some manner to Dupuytren's contracture; of the 12 patients seen, 6 exhibited Dupuytren's contracture, and the fathers of 3 of the remaining 6 were similarly afflicted; the family histories of the 3 still remaining were not inquired into. The pads usually appeared earlier in life than does Dupuytren's contracture, and aside from the fact that they probably precede a contracture they appear to be of little clinical significance. That they bear some relation to a gouty diathesis is not improbable. [A.B.C.]

Some Disorders of the Spleen.—Frederick Taylor[2] concludes his third lecture, and in it discusses infantile anemia, Hodgkin's disease, leukocythemia, splenomegaly, polycythemia, scleroma, primary and secondary anemias, etc. He states that these disorders of the spleen reviewed carefully convince us that the spleen is more sinned against than sinning. It is rarely responsible for the lesions which it suffers, or for the complaints with which it is associated in the various infective disorders. In splenic anemia and infantile anemia it is probably poisoned from without. In the different forms of leukemia it is overcharged with leukocytes; and only in splenic anemia as yet is the charge seriously made against it, that itself, having been poisoned from the bowel it subsequently inhibits, by fresh production of poisons, the formation of blood. It is in this disease that good results have sometimes been obtained by splenectomy, though it must be admitted that death sometimes takes place shortly after operation. In the other cases the primary conditions must be treated and, in so far as they can, be controlled. The enlargement of the spleen may be expected to subside. When the spleen is at fault, considerable reduction in size of the spleen has occurred under arsenic, and also under inhalation of oxygen, but a relapse of the disease is almost inevitable. [A.B.C.]

GENERAL SURGERY

Martin B. Tinker
A. B. Craig C. A. Orr

EDITORIAL COMMENT

Pathogeny of Postoperative Decubitus Acutus.—The pathogeny of postoperative decubitus acutus has been made the subject of an interesting communication by Dr. J. Vanverts, of Lille.[3] It was first discussed at length by Baudron, in 1894. The lesion develops after surgical operations of various kinds, but which have all been found to possess this feature in common, "the existence of complex intrapelvic maneuvers." According to Baudron, the evolution in all such cases was from a trophic disturbance, strictly comparable to that which originates the decubitus following spinal lesions. Dr. Vanverts denies the accuracy of this view. He was led to study the question by the observation of two cases, in which the previously received explanation of the occurrence of postoperative decubitus acutus was found to be utterly inapplicable. He has also brought together three others, which occurred in the practice of Drs. Potel, Tillaux, and Nicaise, respectively. He points out that the condition has been found to develop in the course of acute general infections, such as septicemia, puerperal fever, smallpox, typhoid fever, etc.; and refers to the communications of Broca and Lemaire, which described its occurrence in alcoholic subjects obliged to remain long in bed in the position of dorsal decubitus. Accordingly, in both the infective and the alcoholic cases, "the cause of the rapid development of sacral or gluteal sores must be sought in the profound modifications which have been produced in the tissues by the presence of microbic toxins or by that of alcohol. As Lemaire has pointed out, there is not only a profound alteration in the constitution of the blood, but also in the osmotic exchanges which take place through the coats of the vessels. The development of postoperative decubitus has hitherto been observed in female patients only. Of the two observed by Dr. Vanverts, one was aged 35 and the other 42; each was the subject of complex pelvic lesions. The latter of these developed "une vesication intense" at the seat of the application of tincture of iodin over the site of an intercostal pain. Of the other three collected by him, a common feature was youth; and in none were the pelvic conditions of an aggravated type. Dr. Potel's patient, indeed, was a girl of 20, who had been operated on for appendicular troubles, which were readily rectified; so that no intrapelvic procedure at all was carried out. Accordingly, the general conclusions which must be drawn from the records hitherto obtained are, that we should be prepared, at least, for the occurrence of postoperative decubitus acutus in females of various ages, and under various conditions of pathologic sequence—not by any means necessarily of pelvic origin.

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[1] Brooklyn Medical Journal, July, 1904.
[2] Wiener. klin Woch., April, 1904, p. 379.
[3] Medicine, July, 1904.

[1] British Medical Journal, July 2, 1904.
[2] British Medical Journal, June 11, 1904.
[3] Gazette des Hôpitaux, May 19, 1904.

REVIEW OF LITERATURE

Loss of Scrotum from Traumatic Gangrene: Plastic Operation and Recovery.—A. G. Bisset[1] reports that a man of 43 while carrying the corner of a very heavy concrete board was subjected to great strain and probably slight abrasion of the scrotum. He immediately became ill, got home with difficulty, had a rigor, became feverish, suffered abdominal pain and was unable to take food. His condition steadily grew worse, and on the third day he was seen by a physician, who at once sent him to a hospital. On admission he was almost in collapse. The seat of trouble was at the scrotum, which latter was greatly swollen and gangrenous, except three small projections extending from the penoscrotal junction. At no time had there been any trouble with the urine. At operation almost the entire scrotum, which was now a great foul slough, was cut away with scissors, leaving the testicles freely exposed. A month later a flap of skin, beginning at the junction of the thigh and scrotum, was turned down on each side and the two united by suture underneath and around the testicles, the flaps remaining attached to the thighs to preserve vitality. The flaps behaved favorably, and three weeks later the final attachment, one each side to the thigh, was severed, the ends brought up and the testicles completely covered. The patient made a complete recovery, with a serviceable scrotum. [A.B.C.]

Litholapaxy in the Office.—G. M. Muren[2] reports two cases of litholapaxy performed in his office as emphasizing the possibilities of conservative treatment of stone in the bladder, and not as remarkable occurrences in genitourinary surgery. He believes that cutting operations are often performed when the former would save considerable time in convalescence and lessen the risk of mortality. In the cases reported, neither local nor general anesthesia was employed. During several days before operation the patient was given urotropin, .5 gm. (7.5 gr.) three times daily; the bladder was washed daily with 2% boric acid solution, followed by silver nitrate, 1 to 4,000. This treatment should be continued after operation until all symptoms of cystitis subside. Not all patients will do well without an anesthetic; those with large and sensitive prostates will do better under general anesthesia, as will also highly nervous men. Too much may be attempted at one sitting; unless the removal of the entire stone can be easily accomplished at one operation, it should be gradually fragmented and removed. [A.G.E.]

Intestinal Obstruction.—G. R. Anderson[1] reports three cases in detail. In one case he had to deal with an obturator hernia of the left side in a woman of 75. The signs of obstruction were complicated by constant and severe pain in the left thigh. The diagnosis was partial enterocele at the left femoral ring, and operation was done therefor; no hernia was found; then obturator hernia was suspected but the patient's condition being extremely bad, laparotomy was ruled out; the wound made for suspected femoral hernia was extended into the obturator region externally and there a tense hernial sac the size of a bantam's egg was found. This sac was quickly opened and the herniated bowel simply pushed back into place. The patient recovered. In another case the small intestines were so matted together that obstruction, which for sometime had been incomplete, suddenly became complete and lateral anastomosis had to be performed. The third case was one of chronic obstruction due to inflammatory exudate in the pelvis, necessitating a temporary colotomy. [A.B.C.]

Strangulation of Testicle from Torsion of Mesorchium.—G. H. Edington[1] reports the case. A male child of 7 months was brought to the dispensary on account of swelling of the scrotum. The mother stated the swelling was first noticed on the previous day, and now the left side of the scrotum was the size of a tangerine orange, red, glazed, and hot. The child had apparently suffered no pain. Chloroform was at once given, the scrotum incised, tunica vaginalis opened, the exposed testicle was seen to be purple from strangulation, and behind was the much enlarged epididymis, resembling a dark blood clot. The cord was ligated and the testicle was removed. The testicle was then seen to be connected to the posterior surface of the tunica vaginalis by a narrow pedicle instead of, as is usual, by an attachment extending almost the complete length of the epididymis. The pedicle was at the upper pole and the testicle had undergone a complete twist, thus cutting off the blood supply. Treatment in such cases is castration, unless seen very early. [A.B.C.]

Nephrectomy after Injury.—H. T. Cox[2] reports the case. A youth of 19 was thrown heavily against the guard plate by rolling of the ship, striking his right side. Collapse, pain at the seat of injury, vomiting, and voluntary evacuation of apparently almost pure blood from the bladder were the symptoms soon manifest. Four hours after the accident the patient was almost pulseless; there was complete loss at resonance in the right flank, and the catheter brought blood from the bladder. Symptoms of internal bleeding were so marked that laparotomy was quickly done, incision being carried from the middle of the last rib to the iliac crest. A large quantity of blood surrounded the right kidney; the latter organ was so badly lacerated as to demand nephrectomy. On removal the kidney was found to be torn completely in half, transversely, and also lacerated longitudinally. Intravenous injection of salt solution was given during operation. The patient made a good recovery, the remaining kidney secreting 33 oz. during the first 24 hours after operation, and from 40 oz. to 60 oz. daily thereafter. [A.B.C.]

The Cause of Cystitis in Children.—T. Zelenski[3] reports a case of cystitis in a boy of 12. A microorganism resembling the staphylococcus was found in the urinary sediment. He also reports three cases in which the cause of the cystitis was proved to be due to the tubercle bacillus. [J.H.W.R.]

Cancer of the Male Breast.—Charles R. Keyser[4] reports 5 cases: All were operated upon, and at least 2 of the patients were known to have died. Keyser has collected 9 additional cases, making 14 in all. The patients represented ages from 12 to 91, with an average of 61.5. This indicates that the disease appears relatively later in men, the average age of women being between 40 and 50. In women carcinoma of the breast is found most frequently on the left side; the reverse is true in men. In 13 instances it was ascertained how long the disease persisted, the average being 3.36 years; in women the average is somewhat less, according to Wagstaffe the average is placed at 1.63 years. Treatment of malignant disease of the male breast is the same as for a like condition in the female. It should be done radically, the muscular fascia (and muscle, if involved), the fat and glands in the axilla should be carefully removed. Under such treatment the prognosis is good if disease has not existed too long. [A.B.C.]

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[1] The Lancet, June 25, 1904.
[2] Brooklyn Medical Journal, July, 1904.

[1] The Lancet, June 25, 1904.
[2] The Lancet, June 18, 1904.
[3] Wiener klin. Wochenschrift, 1904, No. 5, p. 123.
[4] British Medical Journal, May 28, 1904.

Morphin in Severe Cerebral Injuries.—J. A MacDougall[1] states that Barr, of Liverpool, has shown how freely and beneficially morphin may be administered in meningitis. It is probable that the beneficent influence is due to its effect upon the vascular and nervous systems, inducing the condition of rest, which Hilton taught is nature's opportunity. MacDougall reasons that if the drug has this quieting effect upon the nervous and vascular systems in inflammation of the meninges, due probably to an infection, why not upon the brain and meninges inflamed and irritated by traumatism? He reports three cases of head injury in which he employed morphin in doses of ⅙ gr. every eight hours with good effect. Two of the patients attempted suicide with pistol; in each case trephining was done. The third patient was thrown from a height, struck on his head, sustaining—supposedly—a fracture at the base. The after-treatment in each case was that ordinarily employed in such cases, supplemented by morphin. All the patients recovered. [A.B.C.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Stagnin, a New Styptic Prepared from the Spleen by Autolysis.—The fact that the spleen rarely becomes the seat of carcinomatous metastases, probably because of a harmful influence exerted by the cells or juices of the organ on the growth of the cancer cells, induced T. Landau[2] to manufacture by autolysis an extract from the spleen of horses with the idea of possibly influencing the disease, but his experiments in this direction have thus far been complete failures. The extract, however, being found very rich in albuminous iron ingredients, he gave it to a number of individuals suffering with different varieties of anemia, and always with favorable result. Incidentally it appeared that this substance, which he therefore calls "stagnin" checked profuse menorrhagia and metrorrhagia when other drugs, local applications, and even curetments were ineffective. Landau is not able to explain this property satisfactorily, but has learned that the substance increases the coagulability of the blood, and does not, like adrenalin contract the bloodvessels; it acts directly and indirectly through its chemic composition. On account of this it is to be used only in the cases of capillary hemorrhages, and not in bleeding from arteries. He advises its use also in hemoptysis, gastric and intestinal hemorrhage, and spontaneous hemorrhage from internal organs. Hirsch[2] describes the method of preparing stagnin, a method known as Salkowski's antiseptic autolysis: The spleen is placed on ice immediately after the slaughter of the animal; one to one and a half hours later it is scraped with a knife disinfected in alcohol, the pulp being thus separated from the fibrous components of the spleen; all this is done under rigid antisepsis. The pulp is then rubbed up with double the quantity of sodium chlorid solution (0.91%) which has been made alkaline by the addition of a solution of sodium bicarbonate; an excess of chloroform added to the whole protects it from decomposition. After 48 hours, during which it is exposed to a temperature of 37° C., the mixture is filtered. The filtrate, after preliminary tests on animals to prove its harmlessness, was employed for the experiments. As in some instances the action of the solution was not quick enough, Hirsch concentrated it into a fourth of its original volume by boiling; the concentrated solution was found to be of increased activity, thus proving the active substance to be a chemic body resistant to boiling, and not a ferment. Further experiments showed the most active preparation to be one precipitated with alcohol from the original solution, which had been concentrated to a fourth its original volume by boiling. The precipitate, filtered off and dried by alcohol, was found to be a yellowish-brown powder, which with water formed a clear, odorless, light-yellow liquid. The redissolved precipitate was injected into the muscles of the gluteal region. The first day one syringeful was injected, the second day two, and this dose was continued until the desired result was achieved. The method was employed: 1. In 13 cases of myometrial disease (myoma, hyperplasia uteri, metritis); 10 patients were cured, and in 1 a transient success was recorded; in 2 cases (cardiac disease and cervical polypus) no improvement was noted. 2. In 4 cases of endometrial disease with 2 successes and 2 failures. 3. In 24 cases of hemorrhage secondary to adnexal and parametrial inflammations with 21 successes. 4. In 4 cases of incomplete abortions with 3 successes. 5. In 13 cases of hemorrhage without known cause (menopause, menorrhagia, virginal hemorrhage); the patients were all improved. 6. In 1 case of hemophilia with success. [E.L.]

Sodium Arsenate in Tsetse-fly Disease in Cattle.—Edward J. Moore,[1] District Medical Officer, South Nigeria, West Africa, states that the government of South Nigeria established an experimental farm, with the intention of teaching natives to use cow milk as an article of diet for children and thus lessen infant mortality. The site selected was one of the few localities where horses and mules thrive fairly well, and 22 cattle were established there. These remained in good health for a month and gave large quantities of milk, then the flow practically ceased and the animals became emaciated, refused to eat, had swelling of the feet and legs, difficult urination, and for a month drowsiness supervened, deepening into profound slumber, which lasted 36 hours and terminated in death. Examination of the blood of the animals revealed the trypanosome. Fowler's solution was administered in dram doses, 3 times daily, without material improvement. Moore then prepared a 1% solution of sodium arsenate, rendered slightly alkaline with sodium bicarbonate, and selecting the worst cases, in which drowsiness had supervened and the condition appeared hopeless, injected 1 oz. of the solution subcutaneously on two occasions at an interval of a week. Beneficial results were marked. The teeth, which were loose, became firm, appetite improved, the animal put on flesh, and the flow of milk was reestablished. The injections were tried with similar results on all the surviving cattle. Moore believes from these experiments that single large injections of sodium arsenate, 65 cg. (10 gr.), or even more, well diluted and given at intervals of two weeks, exercise the most beneficial effect in this disease among cattle. He suggests their employment in the human subject, in whom single injections of 1.25 cc. (20 m.) do not produce unpleasant results. [A.B.C.]

The Diuresis Produced by Theocin in Healthy Persons.—H. Dreser,[2] in reporting the results of his observations, states that of all the purin bases given in solution theocin was the most powerful. The salts of the blood and of the tissue fluids represent almost exclusively those constituents which cause retention of water in the organism. In dropsical patients with diminution of albumin in the blood and dropsical fluid, there is the same percentage of salts as in the healthy. A gram of salt retains from 100 to 110 times its weight of water in the body. The elimination of water alone in a dropsical patient by a diuretic would not result in lasting benefit, as the salts remaining would, when fluids were again ingested, retain as much water as was previously expelled. The experiments with theocin showed that it not only promoted the elimination of water, but of the constituents held in solution. Increased passage of water is accompanied by a discharge of salts, but less than after ingestion of theocin. The excretion of electrolytes is specifically promoted by theocin, and we may therefore anticipate that in dropsy it will expel the salts retaining the water and thus release the latter. This is more rational than treatment with salines or medicinal wood decoctions and infusions, which produce effects similar to the diuresis due to water drinking. [H.M.] [It must be repeated, that theocin too long continued causes suppression of urine in part by mechanically blocking the tubules with cystalline deposit. S.S.C.]

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[1] The Lancet, June 25, 1904.
[2] Berliner klinische Wochenschrift, 1904, xli, No. 22, 577.

[1] The Lancet, July 2, 1904
[2] Edinburgh Medical Journal, February, 1904.

Apocynum Cannabinum a Cardiac Stimulant and Diuretic.—Pawinsky[1] finds that the fluid extract of apocynum cannabinum is closely related to digitalis so far as its chemic composition, and physiologic and therapeutic action are concerned. In medium sized doses it slows the pulse and increases arterial pressure; in large doses it quickens the pulse and produces arhythmia. The slowing of the pulse is due to its action on the pneumogastric center. Its diuretic action is marked, the urine being increased to four to six quarts in 24 hours. No unfavorable symptoms in the gastrointestinal tract were noticed. The drug is indicated when regulation of the cardiac action and increase in the amount of urine are indicated. In valvular and myocardial diseases it is of great service, but no results have been noted in cardiac neuroses. [E.L.]

The Pharmacology of Diphtheria Toxin.—W. O. Krasnoff[2] made a series of experiments on cats and dogs with diphtheria toxin. He finds that the toxin lowers blood-pressure and the working power of the heart, owing to the action on the vasomotor system in the medulla. The heart itself is not notably affected and remains responsive to direct stimulation to the last moment. On the other hand, respiration is early affected in a marked degree. Death takes place by respiratory failure, the heart continuing to beat actively; in other words death is caused by asphyxia, as shown also by autopsies. Krasnoff finally makes a comparison of his experimental results with the clinical manifestations of diphtheria in man, and succeeds in proving a close analogy between the two. [L. J.]

Treatment of Asthma.—Individuals suffering with asthma take long and deep inspirations to overcome their air-hunger, by this means bringing a great deal of fresh air into their lungs, but instead of this improving their condition, further deterioration is caused, as through the acute distention of the lungs the expanding and contracting power of the chest wall is restricted. The pulmonary circulation is also interfered with by this great amount of air, and further, the greater the amount of air within the lungs the greater the reflex bronchial and diaphragmatic spasm. To break this vicious circle it is necessary to increase the time of expiration, and to diminish the time of inspiration during the attack as well as after. Both inspiration and expiration should be shallow, and the latter much longer than the former. To accomplish this, M. Saenger[3] recommends counting, with a loud voice and with especial intonation of the vowels; a certain number should be left out, and whenever this number or a multiple of it is reached, the patient should take a quick, short inspiration. In this way the patient's thoughts are taken from his condition; it can be continued after the paroxysm as well. Another method is by expiratory gymnastics; the patient is asked to pronounce a certain vowel as long as he can, and then inspire quickly, this to be continued for 15 minutes and repeated several times daily. Saenger has employed these methods with 11 patients, and reports good results in nine. [E.L.] [Pneumotherapy (inhalation of compressed and exhalation into rarefied air) is better. S.S.C.]

The Hypnotic Treatment of Migraine.—J. Belitzki[4] reports very favorably on the influence of hypnotic suggestion in hemicrania. This treatment has been advocated by Bechterew, who has seen excellent effects of suggestion in many functional neuroses, such as hysteric palsies, neuralgias, neurasthenic manifestations, etc. Belitzki pleads for more frequent resort to hypnotism in the treatment of hemicrania. [L.J.] [The method is dangerous and unnecessary. S.S.C.]

PATHOLOGY.

J. Edwin Sweet

EDITORIAL COMMENT

The Purin Bases.—A correspondent asks some very difficult questions in regard to the purin bases, their importance in the animal economy, their relation to urea and uric acid, and their role in pathology. These are difficult questions because we do not at present know the answer; a great deal has been written, a great deal has been conjectured concerning the purin derivatives, but when all is added together there remains more to be learned than has yet been dreamed. Emil Fischer theoretically assumed a basic substance of these bodies, calling it purin, $C_5H_4N_4$, and then produced it by synthesis, one of the most striking achievements of pure reasoning. By processes of oxidation and substitution, hypoxanthin is first obtained from purin, then xanthin, and then uric acid, $C_5N_4H_4O_3$. As an example of the complexity of the question, Fischer has also constructed a tautomeric formula; he thinks that this tautomeric compound actually exists side by side with the one given above. By introducing one amino group into the atomic structure of purin, the bases known as compounds of nucleic acid are formed, such as adenin, guanin, etc. Methyl substitution products of xanthin are also found in the urine, which are probably derivatives of the purin bases found in foodstuffs—caffein, theobromin, etc. Uric acid is doubtless formed in the body by oxidation of preformed bodies of the purin group, which are found in the foodstuffs. These substances are derived from nucleic acid, a substance combined in the nuclei as nucleoproteids. Uric acid may be considered the forerunner of urea, or it may be produced from urea by synthesis. Both possibilities have some foundation in experimental evidence. An increase of uric acid excretion must therefore follow a diet rich in nuclein, while a diet rich in nitrogen, containing no purin bases, will not cause an increase. But the whole matter is subject to influences over which we have no control, and which vary greatly in individuals. Even in gout the excretion of urea and uric acid may not vary from the normal, neither in acute attacks nor in chronic cases. There is always an increase of uric acid in the blood, but this alone does not explain gout. The best conception of gout at present seems to be that it is caused by some unknown anomaly of the metabolism of nucleic acid, some disturbance which prevents these bodies from forming the soluble precursors of uric acid, in which soluble form the uric acid can be transported and excreted. In other words, instead of some soluble precursor being formed to be carried away in the blood current, the uric acid forms in the tissue and unites with sodium to form the insoluble monosodium urate. According to this conception the chief difficulty is not with the uric acid, but with the precursors of uric acid—the nucleic acid derivatives which are normally soluble, but which in gout become insoluble; the uric acid is then deposited in the tissue before it reaches the organs in which this katabolism normally occurs.

REVIEW OF LITERATURE

The Position of the Center of the Macula Lutea in the Human Brain.—L. Laqueur[1] describes in detail a number of cases which to his mind prove that the cerebral center of the macula lutea is in the most posterior part of the fissura calcarina, very near the point of the occipital lobe. Laqueur defends this idea against Henschen, who believes the center to be in the extreme anterior part of the fissure in the neighborhood of the cuneus.

Experimental Anatomic Researches on the Relation of the Posterior Spinal Roots to the Spinal Ganglions.—K. Kleist[1] concludes that the posterior root is probably composed of three sets of fibers; the chief component is a sensory path, the others a centripetal and a centrifugal path. The spinal ganglion is not only a trophic organ, a station through which all impulses pass, but the place where origin and ending of different paths (sensory and sympathetic, for example), lie side by side, where impulses pass from one conducting system to another, and where the reflex circuit is closed.

Cysts and Other Embryonal Disturbances of Development of the Kidneys.—It has seemed for some time that the congenital tumors of the kidneys and those of childhood had been satisfactorily explained by the modification of Cohnheim's theory—the inclusion of alien cells—which has been elaborated by Wilms, Ribbert, and others. O. Busse[1] contributes a long article opposing this view. He seeks to prove that we can find the original elements of all these tumors in the embryonal kidney itself, that we do not need to draw upon the adrenal or any other organ for an explanation.

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[1] Bull. et Mém. de la Soc. de Thérap., February 24, 1904.
[2] Dissertation, Moscow, 1903.
[3] Münchener medicinische Wochenschrift, 1904, li, No. 8, p. 335.
[4] Obosrenie Psychiatrii, February, 1904.

[1] Virchow's Arch., 175, 3.

The Bacteriologic Examination of the Blood of the Cadaver.—Simmonds[1] concludes from the results of the routine examination of 1,200 cadavers that a bacteriologic examination of the blood is an essential of postmortem work, and can often give the only definite knowledge concerning the cause of death.

The Leukemias.—G. Banti[2] gives a very concise and clear summary of the present status of the opposing theories concerning leukemia. He arrives at the interesting conclusion, which he expresses with caution, that myelogenic leukemia is a systematic, myeloid sarcomatosis of the blood-forming and the lymph-forming organs. The cells in the blood are neoplastic cells. Banti does not consider that Löwit's bodies are parasites. He thinks the disease should be counted among the infectious diseases, even though he has no idea of what the specific cause may be.

An Attempt to Carry Out an Antimalarial Campaign According to the Method of Koch.—Ed. and Et. Sergent[3] report the results of their experiment in Loire, combating malaria by attacking the parasites in the blood of all the malarial inhabitants. The experiment failed for the reasons which have always been theoretically advanced against Koch's idea—it is impossible to make a microscopic diagnosis of all cases of latent malaria, and it is also impossible to carry out a general disinfection of malarial blood by means of quinin. Such a prophylaxis is as logical as the methodic destruction of the mosquito, but it cannot be carried out. The same authors describe in minute detail the successful results of their "antimalarial campaign in Algeria," carried out along the classic lines, free use of petroleum and gauze over the openings of houses.

Can Hydrophobia Poison be Filtered?—Celli and Blasi[4] cut the brain and spinal cord of animals suffering with hydrophobia into small pieces and mixed it with fine sand, and pulverized it with Buchner's press under 300 atmospheres. The juice was diluted with sterile water infected with fresh agar cultures, and filtered through ordinary small Berkefeld filters by aspiration from a water pump. The filtrate was tested microscopically and culturally to prove its sterility, and small quantities injected into the cranial cavities of cats and dogs. Most of the animals died without showing any characteristic changes either during life or at autopsy; some few of the animals developed paralyses. In the hippocampus major of two of the animals they found the bodies described by Negri as the specific agents of hydrophobia. [E.L.]

Agglutination of Typhoid Bacilli in Proteus and Staphylococcus Infections.—In two cases of suppurative ear disease, caused by the proteus bacillus, complicated by staphylococcic and streptococcic infection, Lubowski and Steinberg[5] found that the blood-serum agglutinated the typhoid bacillus in dilutions up to 1 to 80. Experimental investigations with rabbits and guineapigs showed that injections of proteus bacilli and staphylococcus cultures increased the agglutinating power of the animals' serum toward typhoid bacilli. This result was not obtained with cultures of streptococci, cholera bacilli or *Bacillus fluorescens liquefaciens.* These facts show that there may be certain factors ("agglutinin receptors") common to microorganisms, which belong to quite different groups, according to our present methods of classification. [B.K.]

Marmorek's Tuberculosis Serum.—J. Goldschmidt[6] explains Marmorek's method of manufacturing his serum and discusses Marmorek's paper in which he develops the idea which led him to experiment with it. Koch's tuberculin does not mobilize the tubercle bacilli but rather a toxin either contained in their bodies or deposited in the giant cells. This toxin differs when it exists as product of the vital activity of the bacilli within the organism of the patient and when extracted from the bacillary body *in vitro;* he considers it adapted for the manufacture of a very active antitoxin. Goldschmidt warns against the use of the new serum in man, as he has seen nothing but ill-effects thus far from it. [E.L.]

Cerebral Metastases in Deciduoma Malignum.—The symptoms, local condition and pathology of deciduoma malignum are discussed by E. Siefert[1] in the first part of his paper. He finds that this tumor forms metastases almost exclusively along the blood path and but rarely by way of the lymph vessels. In probably about 10% of the cases, in which metastases form, these deposits locate in the brain, this organ occupying third place to lungs and neighboring localities of primary tumor. He relates the histories and autopsy discoveries of six cases of this kind collected from literature and adds one from his own practice. He finds that the metastases differ markedly from the histologic picture of the primary tumor. The clinical picture is usually that of a brain tumor arising in the course of a uterine lesion with its symptoms. Sometimes no uterine lesion has been thought of, as it often remains latent for months and sometimes the metastasis shows itself as an acute psychosis; in the latter instances a diagnosis will be quite difficult. [E.L.]

Therapeutic Experiments with Trypanosomiasis.—P. Ehrlich and K. Shiga[2] have been experimenting with a substance they call trypanroth. They find this substance soluble in water, but insoluble in acetone and alcohol. It is not changed by acetic acid but is precipitated by strong mineral acids. Trypanroth is slightly toxic, .5 gm. (7 gr.) is the lethal dose for a rat weighing 1 kilo (2.2 pounds). The administration of trypanroth is followed by a reddish discoloration of the skin which is first visible over the ears in the course of a few minutes, reaching its maximum intensity in 8 or 10 hours. The discoloration persists for 6 to 10 weeks, when it gradually disappears; at this time it is still present in some of the internal organs, especially the kidneys. They found that if by injecting a rat with 0.2 cc. (12 m.) of a 10% solution of diluted blood from a rat infected with *T. elmassiani*, the infected rats died on the fourth and fifth days; but if in addition to the blood containing the trypanosomes, trypanroth was administered, the rats did not become ill. When the rats were treated with 0.3 cc. (20 m.) of a 1% solution of trypanroth even three days after the infection the trypanosomes rapidly disappeared from the blood. [J.F.]

Peculiar Form of Hand Infection.—J. R. McDill and W. B. Wherry[3] report two cases of a peculiar infection of the hand occurring in a hospital surgeon and a nurse. The surgeon had been caring for several cases of acute suppurating conjunctivitis and one case of leg infection that ended in septicemia. Both cases occurred in an index finger, that of the nurse following a prick of the finger made while lancing the hand of the surgeon. The clinical course of each was unusual, and in the case of the nurse, gangrene ensued, necessitating amputation. During the acute period of the attack, but not later, there was obtained from each an organism that possessed all the characteristics of the Koch-Weeks bacillus. The writers are inclined to consider it as identical with, or a closely related type of, that organism. [A.G.E.]

Determination of the Thermal Death Point of Bacteria.—F. J. A. Dalton and J. W. H. Eyre[4] state that while the thermal death point of bacteria is one of the most important characters to be determined, the methods employed are often unsatisfactory and inaccurate. Four points in the determination are discussed at length: 1. The time and temperature. The relative importance of these factors is of the first moment; the writers finally decided to take as a standard a fixed exposure of 10 minutes, regarding the death point as that temperature which invariably caused the death of all the bacteria exposed to it for that period. 2. Cultivation of the organism for testing.

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[1] Virchow's Arch., 175, 3.
[2] Centralbl. f. allg. Path. u. Path. Anat., 15, No. 1.
[3] Ann. de l'Inst. Past., 18, No. 2.
[4] Deutsche medicinische Wochenschrift, xxix, No. 50.
[5] Deut. Archiv f. klin. Med., Bd. lxxix, p. 396.
[6] Deutsche medicinische Wochenschrift, xxix, No. 51.

[1] Archiv für Psychiatrie, 1904, xxxviii, 1.
[2] Berliner klin. Wochsch., 1904, Nos. 13 and 14.
[3] Bureau of Government Laboratories, Manila, No. 10, 1903.
[4] Journal of Hygiene, April, 1904.

An emulsion of the "optimum cultivation" is employed. 3. Source of heat. An elaborate description of a gas regulator for furnishing accurate temperatures is given. 4. Technic of the test. This is described in detail as regards the bulk of the emulsion, its germ content, and the tubes to be used. An example of the working of the plan is given in determining the death point of *M. melitensis*, which was really the object of the elaborate preparations described. It is usually stated that artificial growths of this organism die at a temperature above 42° C. With the apparatus in question, the thermal death point was found to be 57.5° C. [A.G.E.]

Polycythemia of Congenital Heart Disease.—I. S. Wile[1] reviews the many theories regarding this condition of the blood, and reports several cases. He discusses three methods of increasing the amount of oxygen available to body cells: 1. Increased power of the red cell to carry oxygen; this is set aside as impossible. 2. More rapid aeration by increased heart action; this would result in a damaged heart. 3. Increased number of red cells; this offers a solution of the problem of suboxidation without entailing too great strain upon the heart. The blood may be regarded as a tissue with fluid intercellular substance, and liable to atrophy, hypertrophy, or degeneration of its constituent cells. If we believe in the laws of tissue repair, it is logical to believe that in the polycythemia of congenital heart disease we have an excellent example of compensatory hypertrophy, with an actual increase in the number of red blood cells. [A.G.E.]

The Hemolytic Nature of Uremic Blood-serum.—H. Senator[2] in a case of uremia, was unable to verify the results of other investigators who observed an arrest of hemolysis when the blood of animals was treated with the blood-serum of uremic patients. Senator does not discredit the observations of the other investigators, and says that uremia and nephritis may cause alterations in the hemolytic nature of the blood-serum of such patients, even though these changes are not present in all cases. [J.F.]

The Effects of Röntgen Rays upon Lower Animal Life.—K. Dunham[3] reports the results of experiments made to determine if the röntgen rays exert destructive influence upon the lower forms of animal life and also what technic best produces such destruction. Of the six organisms exposed, three were destroyed and three unaffected. Conclusions regarding the use of tubes are: 1. The closer the tube to the object treated the more destructive the rays. 2. Lower tubes excited by small currents are not so destructive as lower tubes excited by heavier currents which are resisted. 3. Very high tubes have very little effect. If we recognize the analogy between these lower organisms and the new cells of malignant growths, in their degree of resistance, the best rays to destroy epitheliomatous and sarcomatous cells are those from the lower tube excited by a heavy current with much resistance. [A.G.E.]

Granulation of Leukocytes.—A. Wolff[4] believes that the classification of leukocytes according to their granulation is the most rational method. The socalled neutrophile granules may exhibit various shades between blue and reddish-violet, and differing staining methods may produce differences in the shades. It is not advisable to make a subclassification of the neutrophiles, as that would destroy the utility of the system. Wolff claims that there is an azure-blue granulation in the lymphocytes and mononuclear leukocytes, which have been generally regarded as forming a nongranular class. This granulation is not evident in all preparations on account of peculiar properties of solubility possessed by the granules. Hence, the azure granulation of the lymphocytes is to be regarded as a specific leukocyte granulation, and a close relationship is shown to exist between the lymphocytes and mononuclear leukocytes. Also, these investigations show that there are no nongranular leukocytes in the blood. [B.K.]

Canine Piroplasmosis.—G. H. F. Nuttall[5] furnishes a very full review of this condition, including the history, distribution, cause, symptoms, pathology, natural and experimental infection and immunity, and treatment. A bibliography of bovine, equine, human, and canine piroplasmosis is added. This comparative study is of particular value in connection with the description of a human form of the parasite, as the cause of the "tick" fever of the Rocky Mountains, by Wilson and Chowning. Interesting points are that the blood of an apparently recovered dog may contain parasites for months afterward, there being no evidence that they become attenuated under such circumstances; infection is caused by a species of tick, *H. leachi*. There is no known remedy for canine piroplasmosis, but recent investigations indicate the value of serum inoculation as a preventive and its possibilities in the treatment. [A.G.E.]

Antitoxin and Agglutinin in the Blood of Immunized Animals.—Figari,[1] in order to determine whether antitoxins and agglutinins are of plasmatic or cellular origin, carried out experiments with the following material: In the first series he used serum of immunized animals obtained by coagulation; in the next series he rapidly centrifuged defibrinated blood, utilizing the fluid portion; in the third series he used an extract of the sediment obtained in the centrifuged blood. He found from his experiments that the aqueous extract always had a higher antitoxic and agglutinating value than the centrifuged blood; it also had the same and often a higher value than the serum obtained by coagulation. He says, while his experiments do not prove that there are no antitoxins and agglutinins in the plasma, he believes they are for the most part found in the cells. [J.F.]

Diplococcus of Weichselbaum in Cerebrospinal Meningitis.—A. Monti,[2] of Pavia, discovered it in the case of a child of 9 months. Necropsy confirmed the diagnosis. The author has met *Diplococcus lanceolatus* and *Staphylococcus pyogenes aureus*, but never the microorganism of Weichselbaum. He did not know of the occurrence of this latter in the regions near Pavia, where it was thought not to be existing. *Diplococcus intracellularis* was found in this case in the meningeal exudate. The author questions its relation to certain cases of pneumonia in which there are meningeal symptoms superadded. The work of Foà is distinctive. [T.H.E.]

Diseases Caused by Trypanosomes in Man.—According to Navarre,[3] there are five species of trypanosomes pathogenic for the higher vertebrates. These are the *T. evansi*, the cause of surra; *T. rougeti*, the cause of dourine; *T. elmassiani*, cause of caderas; *T. brucei*, cause of nagana; and *T. theilerii*. *T. brucei* is the only one thus far shown to be pathogenic for man, the secondary host for this organism being the tsetse fly. From a careful review of the evidence on the subject, the author concludes that this organism is the cause of sleeping-sickness in man, and also of a disease closely allied to, if not identical with, nagana. If the parasite invades the blood alone, nagana is produced, which is not a fatal illness in man. If the cerebrospinal fluid is also infected at the same time, the symptoms observed are those of sleeping-sickness. [B.K.]

The Osmotic Pressure of Exudates and Transudates.—Rzetkowski[4] finds the freezing point is lower in exudates containing the greatest number of leukocytes. He further says the freezing point or the molecular concentration of exudates is independent of the molecular concentration of the blood, but in the transudates, which result from circulatory disturbances and Bright's disease, the molecular concentration depends in part upon the primary alterations in the chemic composition of the blood. In regard to the molecular concentration of ascitic fluid he is not inclined to express an opinion. [J.F.]

Role of the Envelope of the Red Corpuscle in Hemolysis and Agglutination.—S. Peskind[5] interprets certain facts adduced by him as showing that the red blood cell possesses an envelope; this is not a differentiated membrane, but a part of the stroma condensed to form the surface of the corpuscle. It is hemoglobin-free and seems to possess a certain glaze that prevents agglutination of normal cells and makes them less susceptible to the action of toxins. Agglutination is produced

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[1] Archives of Pediatrics, May, 1904.
[2] Berliner klin. Woch., 1904, Bd. xli, No. 8.
[3] Johns Hopkins Hospital Bulletin, February, 1904.
[4] Zeit. für klin. Med., Bd. lii, p. 325.
[5] Journal of Hygiene, April, 1904.

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[1] Berliner klin. Woch., 190, Bd. xli, No. 7.
[2] Il Policlinico (Rome), No. 26. 1904.
[3] Lyon Médical, March 13. 1904.
[4] Berliner klin Woch., 1904, Bd. xli, No. 9.
[5] American Journal of the Medical Sciences, June, 1904.

by substances, biologic or chemic, that make the envelope sticky; in this way agglutinins probably lower the resistance of red cells to toxins and other agents. From the fact that the agglutinins almost always occur with the hemolysins, Peskind suggests that they bear some cooperative relation to each other similar to that existing between the intermediary body and the complement. The resistance of corpuscles depends in large part on the condition of the envelope; its function is to take part in various metabolic processes, the chief of which is that of internal respiration. This is accomplished through the medium of a selective permeability. [A.G.E.]

Contributions to the Study of Hematology.—Mitulescu[1] in a comparative study of the hemoglobin with the colorimetric and the ferrometric systems, obtained parallel results except in conditions where hemolysis was taking place or in conditions where pigment was present in the blood; in these conditions the ferrometric method gave higher percentages of hemoglobin. If hemolytic processes are suspected Mitulescu believes that both methods should be employed in determining the hemoglobin percentage, but for ordinary clinical purposes he believes the colorimetric method is sufficient. [J.F.]

Comparative Study of the Bacilli of Dysentery.—J. W. H. Eyre[2] furnishes the results of a very painstaking study of the cultural characters and serum reaction of 10 strains of dysentery bacilli. These were the Mott, the Flexner (of the "Strong," "Duval," "New Haven," and "Harris-Manila" types), the Shiga (from Japan, Prague and Berlin), the Kruse and the Eyre. As controls were employed *B. coli communis* (human and water types), *B. typhosus* and *B. enteritidis* of Gärtner. Cultural results showed the Mott strain to be a slightly typical *B. coli.* Of the remainder, the Shiga, Kruse, and Eyre strains, together with the Flexner, New Haven, form a group whose members are exactly comparable to *B. dysenteriæ*, as originally described; the Flexner, Strong, Duval, and Harris types are varieties so far "fixed" in their characters as to appear to warrant their inclusion in a definite group distinct from that containing Shiga's *B. dysenteriæ.* Serum agglutination tests confirmed this division. The frequent association of members of the former group with Shiga's bacillus, at least in the asylum dysentery of England, although absent from the normal intestinal tract, leads Eyre to the opinion that the last word has yet to be said with regard to the etiology of epidemic dysentery. At any rate, the term "pseudodysentery," applied by some observers to the Flexner group, is an unfortunate title. [A.G.E.]

Acute Leukemia.—A. Gilbert and E. Weyl[3] report two cases of acute leukemia. The first, a healthy woman of 25, was taken suddenly with sore throat, fever, prostration, dysphagia; the tonsils became swollen and the cervical glands enlarged; soon hemorrhages appeared from the gums, throat and nose, the gums showed marked tumefaction; pallor and weakness progressive. The blood count showed 92,000 leukocytes, hemoglobin 50%, and red corpuscles 3,200,000. Death occurred on the twelfth day from the beginning of the illness. The second patient, a boy of 9, was also taken with a sore throat, epistaxis and a large inguinal ecchymosis; an antidiphtheric injection was given, but in spite of this the purpura became generalized, the spleen and lymphatic glands enlarged, and the temperature remained high. New hemorrhages occurred; on the seventh day the patient died in a state of collapse. The blood showed 4,200 white corpuscles, 1,450,000 red corpuscles and 25% hemoglobin. The autopsy showed numerous internal and external hemorrhages, enlargement of spleen and lymph-glands, red bone marrow, liver and kidneys hemorrhagic. In both cases a diagnosis of acute leukemia was made because of the suddenness of the onset, the immediate profound prostration, the hemorrhage, the location of the process in the throat, the enlargement of lymph-glands and spleen, the gums, the progressive typhoidal state and the profound anemia. The leukopenia of the second case they explain through a very intense leukolysis, a condition which has repeatedly been observed in such cases. They are not able to point out the cause of the affection. [E.L.]

Diagnosis of Carcinoma.—Sigel[1] finds from his experiments that the albumin and nitrogen content of the stomach washings is greatly increased. These results are in accord with the results obtained by Salomon. Sigel does not agree with Salomon when he says that if the test is negative ulcerative conditions in all probability are not present in the stomach. Sigel tried the tryptophan reaction in 15 cases of carcinoma and found it positive in two cases only. From his experiments with Gluzinski's method of diagnosing a carcinoma engrafted upon an ulcer Sigel says although the method is not absolute it is nevertheless an aid in recognizing the condition. The examination of the urine for the volatile fatty acids is of subordinate value in itself but in combination with the examination of the functions of the stomach it may be an aid in the diagnosis of carcinoma. [J.F.]

The Nucleus in Malignant Neoplasms.—P. Paterson[2] records interesting observations on the behavior of the nuclei in cells of malignant tumors. The changes are found in both carcinomas and sarcomas, and may be thus briefly summarized: A certain number of the nuclei throw out processes like pseudopodia, this being the first stage in budding or the beginning of a migration of the nucleus from its cell. In the latter instance the wandering body is found in an adjacent cell or in the surrounding fibrous tissue, where it may produce daughter nuclei or coalesce with another similar nucleus. This process takes place while many of the cells are multiplying by mitosis and a part of a nucleus may be extruded and the remainder go on to mitosis. The phenomenon may be seen throughout the tumor, but best at the periphery, where epithelial proliferation is almost entirely by budding, mitosis being essentially absent. Paterson believes that this process is inflammatory, and if the irritation subsided the nuclei would return to their normal condition. When the stimulation, whatever that may be, is continued, the described series of changes is caused and the process becomes malignant. The exciting cause seems histologic rather than bacterial in nature. [A.G.E.]

Changes in the Erythrocytes in Lead-poisoning.—In view of the difficulty of diagnosing beginning lead intoxication, a recent and reliable sign gains importance. It consists in certain changes of the red cells. By means of these changes A. T. Lurie[3] has been able to make a differential diagnosis in a puzzling case, and other reports in literature seem to point in the same direction. The chief phenomenon in the blood characteristic of lead-poisoning is the appearance of basophile granules in the red corpuscles. This must be looked upon as a degenerative process and is found especially in cases presenting the picture of gastrointestinal disturbances. The basophile granules appear only in chronic lead intoxication, never in acute or subacute plumbism. [L.J.]

Notes on Romanowsky Staining.—W. B. Leishman[4] contributes a very practical paper regarding his modification of the above stain. He describes the solution and the technic for staining blood films. The greater part of the article is devoted to a consideration of the stain in other than blood work. Leishman states that it may be employed in staining various parasites found in the blood and tissues, bacteria, pus, and other cellular exudates, smear preparations from the various organs, and, finally, as a differential stain for sections. The technic and results in each are clearly given. [A.G.E.]

The Yellow Fever Mosquito.—G. E. Beyer[5] gives a lengthy description, illustrated by six plates, of the mouth parts and salivary glands, normal and otherwise, of the yellow fever mosquito. He denominates thus the stegomyia as he considers it proved beyond a reasonable doubt that this mosquito transmits yellow fever from man to man. By analogy, the exciting cause should have its last stage of development in the salivary gland of the mosquito, as does the malaria parasite. Beyer describes certain cyst-like bodies found in the glands of 37 infected mosquitos studied by Working Party No. 2, of the Yellow Fever Institute, in Vera Cruz, in 1903. Small hyaline bodies, or sporozoites, were also present, these having originated from smaller cysts within the large ones and evidently the product of direct multiple division. That these organisms are the etiologic factor in the production of yellow fever remains to be proved. Working Party No. 2 succeeded in producing the disease by inoculation of serum filtrate obtained with a Chamberland B filter, which had not before been done. This throws some doubt on the microscopic size of the cause of the disease if the filters are considered to be always reliable. Beyer concludes that the salivary glands of 12-day contaminated mosquitos contain phases of an animal organism that has not been observed in noncontaminated insects and that this must be regarded with suspicion as being the cause of yellow fever; proof is yet to be adduced. [A.G.E.]

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[1] Berliner klin. Woch., 1904, No. 16.
[2] Edinburgh Medical Journal, June, 1904.
[3] Archiv de Med. experimental et D'anatomie pathologique, 1904, xvi, 163.

[1] Berliner klin. Wochenschrift, 1904, Nos. 11 and 12.
[2] The Practitioner, May, 1904.
[3] Russki Vratch, April 24, 1904.
[4] Journal of the Royal Army Medical Corps, June, 1904.
[5] New Orleans Medical and Surgical Journal, May, 1904

Intracranial Inoculation of the Bacillus of Eberth or Its Toxin.—After injecting rabbits and guineapigs with from $\frac{1}{10}$ cc. to $\frac{1}{20}$ cc. of a typhoid bacillus culture, Vincent[1] observed extraordinarily marked clinical disturbances, which in the further course of the disease led to death in the case of the latter in from 24 to 36 hours, in the case of the former in from 1 to 5 days. The most suitable cultures for this purpose are such as are from 15 to 20 days old, and contain large amounts of toxin. He found that the filtrates of such cultures are almost as efficacious as the cultures themselves. If young cultures (about 16 hours old) were employed, a short period of illness resulted; this was followed by a complete restitution of the animal. In the case of guineapigs, the symptoms began to appear after a few minutes; the temperature soon reaches 102°. The pig is shaken up by chills, later passes into a stuporous coma, which is connected with hypothermia and isolated convulsions. In rabbits this stuporous state is interrupted by a condition which resembles delirium or hallucinations. Occasionally, symptoms pointing to the intestinal tract are seen; the urine usually contains albumin. The autopsies showed softening of liver and spleen, injection of kidneys, and adrenal glands. The brain substance in all instances was softened; the nerve cells stain very poorly. The nuclei and nucleoli especially took the stain poorly and were hardly visible; the dendrites were recognized with difficulty, or not at all. An extensive round cell infiltration existed everywhere. [E.L.]

The Formation of Cholera Amboceptors in Rabbits under the Influence of Alcohol and Mixed Infection.—Friedberger[2] maintains that his experiments in animals where he administered alcohol in intoxicating doses and at the same time infected these animals with cholera, bear out the clinical observations that alcohol does good in the acute infectious diseases and that its administration is justifiable in the initial stages. In those cases in which the alcohol was administered some time prior to the infection the drug seemed to be detrimental. In the third series of experiments he finds that those animals infected with other bacteria in addition to the cholera spirillum were less resistant than those that were infected with cholera alone, an observation which proved to him that fewer amboceptors are produced in the mixed infections. [J.F.]

Bacterial Examination of Water.—W. G. Bissell[3] reports the results of a detailed study of the colon bacillus and also of 104 samples of water from the Niagara river, 54 at a point 12 miles below Buffalo and 54 from 22 miles below. In the former the colon bacillus was present in from 21% of the samples when the amount examined was .1 cc. up to 91% when liter lots were tested; in the latter the percentage varied from 19 to 59% under like conditions. Among the conclusions reached are: 1. There is a difference between the B. *acidi lactici* of Hoeppe and the colon bacillus. 2. The colon bacillus cannot be constantly detected in 1 cc. amounts of water from the same source although it may be heavily polluted with sewage. 3. The presence of colon bacilli in 50% of 1 cc. amounts of water is strongly indicative of sewage pollution. 4. Agitation has little or no effect upon colon bacilli in water and light appears to exert a destructive influence. 5. The positive detection of true colon bacilli in waters not presumably receiving sewage is rare. [A.G.E.]

Pseudodiphtheria Bacillus.—Josef Schwoner[1] reviews the subject carefully, and has made a number of experiments upon animals. He concludes that the pseudodiphtheria bacillus may be divided into two groups. *Group A* agrees morphologically and as to culture characteristics with the bacillus described by Hofmann. The cultures have the following common characteristics: (*a*) Intense alkali production; (*b*) rapid, moderate growth upon agar; (*c*) creamy growth upon potatoes; (*d*) agglutinating quality in polyvalent and monovalent serum; (*e*) slight difference from the Löffler bacillus. *Group B* is characterized by the following peculiarities: (*a*) Slight production of alkaline or acid; (*b*) slight, slow delicate growth upon agar; (*c*) only insignificant growth upon potatoes; (*d*) agglutination of homologous cultures by homologous serums; (*e*) resemblance to the Löffler bacillus morphologically and in the culture. Group A may be designated as "Hofmann's culture," while Group B, on the contrary, belongs to a group of pseudodiphtheric bacilli, to which may be added the xerosis bacillus and that described by Pfeiffer as occurring in the normal human urethra. [J.H.W.R.]

Relation of Eosinophiles to Bacterial Infection.—E. L. Opie,[2] in a preliminary report on this subject, details observations which demonstrate that eosinophile leukocytes have a part in the inflammatory reaction which follows the entrance of bacteria into the body. They are attracted from the blood to the site of inoculation and from the bone marrow into the blood. Rarely if ever do they act as phagocytes. Degenerative changes, particularly of the nuclei, then ensue and later these cells are ingested by macrophages. [A.G.E.]

Comparative Agglutination of the Various Tubercle Bacilli.—S. Arloing and P. Courmont[3] find that certain homogeneous cultures of tubercle bacilli are not agglutinated by serum from tuberculous animals, even by serum obtained by inoculation of the same culture. Such cultures cannot be used for serodiagnostic purposes. Those cultures which are agglutinable may be agglutinated by all tuberculous serums, no matter from what animal they may be taken. Likewise, all tuberculous serums (human, bovine, or other) are agglutinants for all samples of agglutinable tubercle bacilli. Therefore, the method of serum diagnosis is applicable to all forms of tuberculosis, provided an agglutinable culture is used. The study of agglutination does not reveal any appreciable differences between human and bovine tuberculosis. [B.K.]

Investigations with Formaldehyd Disinfection.—Bonhoff[4] says the influence of temperature upon formaldehyd is greater than is generally believed. In winter anthrax spores are not destroyed, even when the amount of formaldehyd to disinfect is greatly increased. It is better, if the temperature is below 10° C., to raise the temperature instead of the dose of formaldehyd. For ordinary cases, Bonhoff recommends 5 gm. of formaldehyd to the cubic foot of space and 7 hours' application; for severe cases he recommends 10 gm. per cubic foot. [J.F.]

Comparison of Radium Rays and Röntgen Rays.—J. Rudis-Jicinsky[5] has made numerous experiments to ascertain the effect of radium upon living tissue and compares the results with those from the röntgent rays. The actions of the two are similar, stimulant in proper dosage and irritant in prolonged exposures. Radium irritation may be in some cases, especially malignant growths situated in cavities, of some benefit but that substance cannot and will not replace the most active and penetrative röntgen rays. Radium requires more exposures to produce the same or less effect. In one series, 80 exposures to radium produced about the same effect as 36 to röntgen rays. With radium the "burn" is not so extensive and more superficial. Guineapigs dying from the effects of the two influences showed the same conditions, degeneration of the posterior horns and tracts and dilation of the spinal canal by hemorrhage. The "burns" from both agents showed a special inflammatory process with development of fibrous tissue. [A.G.E.]

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[1] C. R. de la Societe de la Biologie, 1904, Vol. lv.
[2] Berliner klin. Wochenschrift, 1904, No. 10.
[3] American Journal of the Medical Sciences, May, 1904.

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[1] Wiener klinische Wochenschrift, No. 50, p. 1385.
[2] Johns Hopkins Hospital Bulletin, March, 1904.
[3] Lyon Médical, April 24, 1904.
[4] Berliner klin. Wochenschrift, 1904, No. 19.
[5] Iowa Medical Journal, April, 1904.

Widal Reaction in the Cleveland Typhoid Epidemic.—L. W. Laod[1] gives statistics regarding the Widal reaction in 454 undoubted cases of typhoid fever admitted to the Lakeside Hospital during the past 14 months. Of these cases, 2.4% gave absolutely negative results; 10.9% gave suggestive reactions, that is positive 1 to 20, but not 1 to 50; 86.7% gave positive reactions 1 to 20 and 1 to 50. The earliest day of illness on which the reaction was obtained was the third and the latest the fifty-fourth. Two groups of cases, respectively, those during the first 8 and the last 6 months, show considerable difference in the character of the reaction. During the latter period the appearance of the reaction was distinctly delayed, it was less often positive, and there were more anomalous cases. [A.G.E.]

The Significance of Finding Blood in the Feces.—Joachim[2] was able, by means of Weber's test, to demonstrate blood in the feces in malignant tumors of the intestinal canal, in gastric ulcer, in cases of pneumonia having bloody sputum, in a few cases of enteric fever, in failing compensation, in hemorrhagic pancreatitis, in catarrhal conditions of the common bile duct, and in secondary carcinoma of the liver. In view of the fact that the blood can be demonstrated in the feces in so many conditions makes it of less value in diagnosis; then, too, he says it possesses several fallacies. If but 3 gm. of blood be swallowed, a positive reaction for blood can be elicited in the feces with Weber's test. The aloin test is still more intense in such an instance. Similar results can be obtained after fresh, unboiled, or medium done meats and saugages are eaten. If 100 gm. of blood be taken, blood can be demonstrated in the feces for three days afterward. [J.F.]

Changes in the Intercostal Muscles and Diaphragm in Infective Processes Involving Lung and Pleura.—W. M. L. Coplin,[3] after stating that he is aware of no important study of the relations between the intercostal muscles and inflammation of the lung and pleura, details the results of a study of 7 cases. Of these, 2 were croupous pneumonias, with plastic pleurisy; 2 tuberculous pleurisy; 2 acute pneumococcal pleurisy; 1 a chronic empyema. The following changes were found; the order may be changed by further observation: 1. Granular degeneration of muscle fibers; this is probably due to toxins in the blood and not to the inflammation in the adjacent serosa. 2. Dissociation and hyaline degeneration of the fibers, the latter change not to be differentiated from that described by Zenker and known to occur in the muscles of the abdominal wall in typhoid. 3. Infiltration by leukocytes, mainly mononuclear in type, and the appearance of abundant fibrin and bacteria, the latter being scanty or absent in the preceding forms. No specimen illustrating what might be looked upon as the next stage has been secured, but the final outcome is believed to be illustrated by the findings in the case of empyema. Briefly, these were marked atrophy and destruction of the muscle fibers with intercalation of newly formed and forming fibrous tissue with, at points, advanced fatty infiltration. The influence of these changes upon the thoracic wall in modifying the physical signs and interfering with function will at once suggest themselves to the clinician. [A.G.E.]

Multiple Arterial Thrombosis.—H. Eichhorst[4] reports the case of a woman who suddenly became subject to gangrene of the left, and later the right leg. No femoral pulse could be felt in either extremity. The patient had signs of a mitral stenosis, and the gangrene was attributed to an embolus, whose exact location could not be determined. About three weeks later the patient was suddenly seized with violent pains in the abdomen, lost consciousness, and soon died. At autopsy an acute, verrucose inflammation of the mitral valve was found, superimposed on an old fibrinous endocarditis. A thrombus was found in the abdominal aorta, extending into both femorals. But beside this, thrombosis had also occurred in the superior mesenteric, left renal, splenic, right pulmonary, left inferior thyroid, and left carotid arteries. Most of these lesions had caused no symptoms during life, death having been due to shocks following the thrombotic closure of the superior mesenteric. The author believes the multiple thrombosis to have been due to bacterial invasion of the vasa vasorum, the bacteria having their seat of origin in the acute cardiac lesion. [B.K.]

Involvement of Trachea and Esophagus by Thyroid Cancer.—C. Viannay and L. Pinatelle[1] present a detailed study of invasion of the trachea and esophagus by cancerous goiter. Of 173 collected cases of cancer of the thyroid, the trachea was involved in 14, and the esophagus in 7. Notes of all these cases are given. The case they report occurred in a woman of 39; there was involvement of both trachea and esophagus, the latter being perforated. Noteworthy points were the rapid growth of the cancer which appeared without the presence of a preexisting goiter and was at first taken to be an acute thyroiditis, and the occurrence of an abundant hemorrhage from the mouth during the first weeks of the growth of the tumor. [A.G.E.]

Polyvalent Antistreptococcic Serum.—Tavel[2] found that when streptococcic cultures are brought in contact with a homologous streptococcic serum, agglutination takes place quickly, when the serum is heterologous, but closely related, agglutination takes place in part and after some time; if, however, the serum comes from heterologous and distinctly related cultures, there will be no agglutination. The agglutination test shows readily the superiority of polyvalent serums over monovalent; the former produced agglutinations with every serum, while the monovalent produced it only with their own serum. He then reports three cases in his experience in which the injections of polyvalent serums in streptococcic infections and sepsis produced rapid recovery, even from very low states; in some cases the symptoms will disappear after the first injection, to reappear after the effects have worn off. The injection must then be repeated. He concludes from his clinical and experimental studies that polyvalent antistreptococcic serum is a specific against all streptococcic infections. The reasons why it is not invariably successful are, that too small doses are used; that serums suitable to every case cannot be produced; that the serum as specific serum contains only the amboceptors, which stimulate phagocytosis or fasten the complements to the bacteria, and does not contain the complements which are lacking in advanced states of infection. If we can stimulate phagocytosis and add the complements as well as the specific serum in grave cases, we may feel that we can fight successfully against the most virulent infection. [E.L.]

Glycogenesis in the Liver after Admixture with Alcohol.—J. Seegen[3] was surprised to find that when the livers of dogs were mixed with alcohol, glycogenesis was not interfered with. He believes that an enzyme is the active factor in glycogenesis, and that the theory that glucose has its origin in glycogen is erroneous. He also is of the opinion that glycogenesis is a function of the liver cell and not a chemic action. [J.H.W.R.]

Experiments with Radium.—M. Metzenbaum[4] details numerous experiments with radium, other radioactive substances and aluminum. Two substances not hitherto reported as possessing radioactivity were shown to possess that power; these are zirconium nitrate and yttrium. The former is possibly more powerful than thorium. Experiments with induced radioactivity were disappointing. The suspension of tubes of radium of varying strengths for long periods of time in various solutions and powders gave positive proof that neither the solutions nor powders were capable of affecting photographic plates; the supposed induced radioactivity could not be shown by means of an electroscope. Metzenbaum states that after a study of all the literature on the subject he finds but few cases reported by thoroughly reliable observers wherein the radium rays have shown a beneficial action in the treatment of disease. They are a death-producing agent to all living cells, either plant or animal, if applied in sufficient strength and for a long enough time; their value in medicine is not based on a life-giving property as has been stated, but on their power, not as yet fully proved, to destroy germs or the cells of malignant growths without also destroying healthy tissue. [A.G.E.]

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[1] Cleveland Medical Journal, May, 1904.
[2] Berliner klin. Wochenschrft., 1904, No. 18.
[3] American Journal of the Medical Sciences, May, 1904.
[4] Deut. Archiv f. klin Med., Bd. lxxx, p. 75.

[1] Revue de Chirurgie, March, 1904.
[2] Deutsche medicinische Wochenschrift. Nos. 50 and 51, xxix.
[3] Wiener klinische Wochenschrift, 1904, No. 7, p. 179.
[4] Cleveland Medical Journal, May, 1904.

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American disregard of life receives a lurid illumination from the statement of the Master of the New York Pilots' Association that the life-belts and similar furnishings are hired for the day in which the official inspection is made, and are returned to the lending company when this is over. The useless shams are then brought back for the murder of the victims of the Slocum and other disasters. Ferryboats and tugboats are thus fitted up with life-preservers, and life-rafts borrowed for the occasion. The inspectors come aboard, stay only a few hours, go through their tasks perfunctorily and superficially, and depart, presumably doubly paid. As long as there is no disaster all goes well, but when it comes and the guilt is demonstrated, there should be no babyishness about the punishment. The horrible farce of steamboat inspection is thus made plain, while we sneer at the bribery and degradation of Russia or France.

College Rowing and Athletics.—The study of 106 former Harvard oarsmen, by George L. Meylan, of Columbia University in the *Harvard Graduates' Magazine*, is valuable. His investigations were made for the purpose of determining, if possible, if rowing in the university boat had been a detriment to the health, and, in general, if athletes succeeded in life and what influence their athletic training had exercised, one way or the other, on their careers. It appears from his painstaking researches that the old oarsmen are an exceptionally healthy body; that they exceed the expectation of life, according to the insurance tables. Although it is shown that college athletics do not result in pulmonary tuberculosis or cardiac disease, and are generally beneficial, it does not follow that their abuse is not so. As Mr. Meylan says both extremes are to be avoided. When conducted properly and not carried to excess, the good resulting from athletics greatly exceeds the evil. Efforts should be made to regulate but not to abolish athletics. All good things become bad when abused; this applies to athletics. The abuses of athletics are in the direction of excess, inordinate desire to win at any cost, the spirit of commercialism, and the tendencies to professionalism and to gambling. There is hope for the future because a strong public sentiment is growing in favor of moderation and regulation in all branches of college athletics. It should not be forgotten in the discussion that when the oarsmen were chosen to go into training they were larger, heavier, better built men than any other in the college; that even before any training was done their waist girth was 7 inches more than the average for the college. They all had larger chests than the average, and were, in fact, possessed of nearly perfect bodies and rare stamina before they were permitted to train. From which it may be concluded that these men would have outlasted the average man if they had never rowed a stroke. Also to be remembered is the fact that the statistics as to football are not included in Mr. Meylan's study.

The History of Syphilis, Particularly in France.—The midsummer (July) special number of *The Practitioner* is devoted entirely to the consideration of syphilis, the 11 articles therein forming a most instructive monograph on various phases of this protean disease. Dr. Paul Gastou gives a brief history of the elucidation of syphilis by French investigators since the time of Ricord. Mainly because of the monumental work of Professor Fournier, characterized as chief and foremost of writers on syphilis, the advancing knowledge of the disease as traced in France, although not so claimed by Gastou, is largely its world history. The limited field of Ricord and his contemporaries was clinical experience, the arbiter in diagnosis specific treatment. First suggested by Bassereau, the duality of venereal diseases was by Rollet completely established between 1852 and 1869. Hereditary syphilis was investigated before this time, but was only put on a sound basis by Fournier in 1881. The mode of its transmission is still a mooted question, though the majority of French syphilographers hold to the possibility of paternal, as well as maternal, infection. Another undecided point is the contagiousness of syphilis, although upon this depends the advisability of the marriage of syphilitics. Fournier holds that infection is permanent, and reinfection can never occur; Augagneur insists on the possibility of second, but attenuated, attacks. Notwithstanding these unsettled points, depending largely upon our lack of knowledge of the etiology of syphilis, Fournier, assisted by his contemporaries, has builded a fabric including the unity of general paralysis and tabes, of the dystrophies of congenital syphilis in removed generations, and of the parasyphilitic affections. Recent work on syphilis is along the line of its pathogenesis. Inoculation into animals for purposes of study has long been attempted. It appears that Martineau and Hamonic were successful in this 21 years ago, but, if so, nothing ever came of the experiment. Within the past year Roux and Metchnikoff have succeeded in inoculating human syphilis into apes, and inducing in them artificial immunity by means of virus, attenuated by passage through several animals. This presages a marked advance in our knowledge of syphilis. Regarding the progress here briefly outlined, Gastou makes the statement that all this study of syphilis lacks the foundation of experiment and scientific proof necessary to make of it an enduring structure, which, though pessimistic, is too true.

Syphilis in Egypt.—Here, according to Dr. F. C. Madden, the disease among the lower classes of the native population is a terrible scourge. Lack of sanitation, intense objection to treatment by physicians, and the tendency to regard everything that occurs as an expression of the will of Allah, and therefore unavoidable, are largely responsible for the gravity of the situation. The greater number of the people believe that syphilis is made worse by medicinal treatment. Babies are not washed during the first year lest syphilis be attracted by the clean skin. The temperature and dampness of the Nile region and the low resisting powers of the black races further south furnish ideal fields for the ravages of the disease which, though sporadic since time immemorial, was made epidemic by Napoleon's soldiers. One of the special characters of syphilis in Egypt is that the great majority of male genital chancres become phagedenic unless at once vigorously treated. As would be expected, secondary lesions are very severe and condylomas flourish in truly tropical luxuriance. On the contrary, tertiary syphilis is not so common as the previous statements would indicate; its usual manifestation is ulceration of the lips, palate, and nose, with extension to the pharynx that in very many persons makes necessary a permanent tracheotomy. Dr. Symmers, pathologist to the Kasr-el-Ainy Hospital, Cairo, in an experience of more than 3,000 autopsies, very rarely found tertiary syphilis of the internal viscera and central nervous system. This comparative immunity is also true in congenital syphilis. Eye disease is also a rare result. These findings indicate that the virulence of syphilis in Egypt is largely expended during the first and second stages. Madden states positively that malignant (epitheliomatous) transformation of old tertiary ulcerations *does* occur, but only in a small proportion of cases. Although the Egyptians recognize mercury as the proper drug for the treatment of syphilis, they nevertheless treat secondary lesions almost entirely by infusion of sarsaparilla; to this potassium iodid may be added in the later manifestations.

Pathology of Syphilis.—At first glance the pathology of syphilis appears to be quite well understood. The disease has definite stages, and the histology of the lesions characteristic of each is to be found in any textbook on the subject. But in the attempt to explain many obscure points the pathologist is handicapped by lack of knowledge of the causative agent, or at least, its mode of action. Until this is known the relation of the stages of syphilis, the reason for the intervals between them and certain other phenomena, must remain unsolved. If the bacillus described by DeLisle and Jullien be the cause, its precise characters are not yet determined. Recent successful animal inoculations promise much in this direction. At present no point in the pathology of syphilis is more discussed than the nature of the bloodvessel changes in various parts of the body. That there is a distinct syphilitic arteritis, even of the aorta, is, we believe, now generally accepted by pathologists, though there is not wanting those who hold that the lesion of the aorta commonly known as atheroma is at times produced by syphilis. Dr. F. W. Mott, in considering "Syphilitic Disease of the Brain," believes Heubner's dictum that syphilitic arteritis never undergoes caseation—never, in fact, becomes atheroma—is, though generally true, much too absolute. Mott has observed caseation with fatty crystals in the plaques of acute syphilitic aortitis occurring in syphilitic persons under 30. In the smaller cerebral arteries obliterative arteritis is one of the most frequent results of syphilis. In many cases of associated endarteritis and periarteritis Mott has been unable to determine which was primary; he believes in cases accompanied by meningitis the periarteritis precedes the endarterial lesion. Dr. G. F. Still, discussing in a paper on "Syphilis in Children," the relation of bone changes in the skull to syphilis and rickets, says he is unconvinced that two to four symmetric bosses on the vertex of an infant's skull are pathognomonic of syphilis; on the contrary, he asserts that bosses indistinguishable clinically from syphilitic bosses may result from rickets alone. The pathology of the socalled parasyphilitic diseases is usually considered under their respective headings, but if Fournier's generalization be accepted, as strongly urged by Mott, the lesions of tabes dorsalis and general paralysis of the insane must be included with syphilis itself.

Prophylaxis of Syphilis.—Although syphilis is not the terrifying disease it was in former centuries its ravages are still so extensive as to make its prevention an attainment devoutly to be desired. Until the cause be definitely understood, prophylaxis is essentially limited to two measures, moral elevation of the individual and legislative control of public women. The former, though highly desirable, must necessarily be so slow in effect that from the practical standpoint of modern preventive medicine it may be disregarded. Legal control of prostitutes, tried especially in Europe, has not yielded satisfactory results. In Egypt, as pointed out by Dr. Madden, there is in the large towns and so far as practicable throughout the country, compulsory weekly examination, and if necessary, treatment of public women. We wish he had stated more specifically the results of this method in preventing spread of the disease; its partial failure, we infer from his statement, that the certificates of treatment furnished are of little value as a safeguard because those women who are cured rent their certificates to less fortunate associates. If, however, there is a modicum of good in legal restraint and inspection, it should be thoroughly tried out. Several writers in *The Practitioner*, while admitting that in general these measures are of doubtful efficiency, believe they should be adopted in case of the army. The editor says the repeal of regulations once in force for the English army has resulted in a serious increase of the malady which yearly invalids an alarming number of soldiers. The Medical Advisory Board of the Army is now engaged in formulating means to control the disease.

Treatment of Syphilis.—Mercury remains *the* drug in the treatment of syphilis, recent years adding only refinement in methods of administration. In this country and in England it is still given principally by the mouth in the form of pills, gray powder, or solution. Some physicians prefer to give the drug by hypodermic, usually intramuscular, injection, others being deterred from its employment because it is painful to the patient and apt to give rise to disagreeable local disturbances. That essentially all the objections to this method may be overruled is shown by Dr. Louis Wickham in an excellent article setting forth the advantages of injections. He prefers as the site of injection the buttock "at the point of intersection of two lines, one a horizontal line passing through the junction of the upper quarter with the lower three-quarters of the buttock, the other a vertical line through the junction of the internal third with the external two-thirds of the region." A circle with a radius of 2 cm. around this point marks out the safe area. The technic is described in a manner to convince the most sceptical of the feasibility of hypodermic injections if they are desired. The treatment of syphilis at watering-places as represented by Wiesbaden and Aix-la-Chapelle is ably described by Drs. Touton and Lieven, the former setting forth the virtues of saline, the latter of sulfur waters as adjuncts to mercury which is of course given by inunction. Sir Alfred Cooper advocates the Zittmann treatment in cases of socalled malignant syphilis where mercury and potassium iodid are unavailing and even aggravate the symptoms. Its principle is elimination by sweating and purgation and in some cases yields marvelous results; its efficacy should be more widely known. The serum treatment of syphilis is summarized by Dr. J. E. Lane as not giving sufficiently favorable results to recommend it as a routine therapeutic measure.

The Department of Public Health and Charities of Philadelphia.—The annual report of the Bureau of Health of Philadelphia for 1903 appears for the first time as one of the divisions of the new Department of Public Health and Charities, organized in the spring of 1903. Under the efficient leadership of Director Edward Martin, the department is furnishing proof of the wisdom of its formation, which was accomplished by transferring from the Department of Public Safety the Bureau of Health, and substituting for it the Bureau of Corrections, formerly associated with Charities. It is yet too early to attempt a final estimate of the workings of the department under its first director, or judicially to weigh the criticisms that have been made, as they always will be upon the acts of every public official. At this time, however, several points deserve commendatory mention. 1. The formation by Dr. Martin of an advisory board, composed of six eminent and honored physicians; the cooperation of these men cannot fail to be of sterling value to the city. 2. The appointment of a physician as chief of the Bureau of Health. The appropriateness of this is so apparent that comment would be unneeded were it not that the administration of that bureau had for a long time previous been entrusted to laymen. The present freedom of the city from smallpox, for the first time in three years, is one proof of the efficiency of this reorganization. 3. The securing of 37 additional medical inspectors, and amalgamating under the completed corps of 50 the duties of medical inspectors and vaccine physicians, and adding to this the systematic daily inspection of pupils in the public schools. We believe that this corps, if rightly constituted and given proper authority, will prove a tower of strength to the department. Only men who have at heart the best interests of the profession and of humanity at large should make up its personnel. The dictation of politics or partisanship will mean trifling with human life. Physicians who cannot succeed in practice possess no right to act as inspectors. Honest, capable "hustlers" in the cause of improved sanitation and lowered deathrate should alone be given places in the corps. We anticipate much from this body of physicians organized by the new department. Therein lies a foundation for future weal or woe. There is in Philadelphia a great deal to be accomplished in the way of preventive medicine, and the Department of Public Health and Charities is being perfected for the work; we bespeak for it the loyal support of every physician in the city.

Mental Fatigue; Eyestrain.—The subject of mental fatigue has recently received attention at the hands of Professor Seashore,[1] and his editorial commentator in the *British Medical Journal.*[2] As the latter very justly observes: "Considering the importance of the study of mental fatigue, and the large mass of evidence educed by psychologists engaged in its investigation, the opposing views of different authorities might appear, at first sight, somewhat remarkable." But further consideration should soon satisfy the discriminating observer that the cause and genetic development of this item of scientific chaos are not far to seek. It has necessarily sprung into existence on the borderland of physical and metaphysical knowledge; and receives from the latter region a full share of the discrepancies and uncertainties derivable, in every individual instance, from the "personal equation," the standpoint selected by the observer, and the inherent difficulties of the investigation. The question of attention is, of course, one of the most important in this connection. Its combination with memory is the most important of all data for the fixation of the individual in the intellectual scale. The French psychologist, Ribot, argues from the datum that savages are incapable of voluntary attention. In this connection two noted definitions of "genius" are filed in evidence: Carlyle's of "an infinite capacity for taking pains;" and Macaulay's ponderously grandiose one, "a magisterial subjection of all dispersive influences, a concentration of the mind upon the thing which has to be done, and a proud renunciation of all means of effect which do not spontaneously connect themselves with it." There is no mistaking the ring of the note of Caledonian self-appreciation, which furnishes the distinctive hue to each of those definitions. Each emphasizes the feature which its author believed to be his own most prominent one. It is diametrically removed from what other thinkers would be inclined to formulate. But the apostle who preaches on the margin of this wilderness has to rely upon the evidence of introspection. When he sets himself to think out his psychologic problem, he arranges his faculties so as to think profoundly, and at the same time to watch the details of the working of the intellectual machinery in his own mind. How distressingly suggestive of the muscular gymnastics by which the kitten tries to catch its own tail! The inevitable chameleon color of such observations is further illustrated by Professor Seashore's unfavorable criticism of Kraepelin's view that mental fatigue is "a general fatigue." Other eminent observers are also of the latter opinion. Mosso and McDougall both maintain that "there exists only one kind of fatigue, namely, nervous fatigue." We are disposed to think that the apparent contradiction may be reduced to harmony—if both parties will look through the same end of the telescope, and the latter be one of high penetrating power. Physical overexertion throws an excess of muscular waste into the circulation, which has the effect of rendering the blood unfit for the nutrition of the delicately organized nerve centers, on whose functional[1] activity all vital processes depend. It is well known that mental activity is accompanied by increased determination of blood to the brain, with the inevitable accompaniment of increased metabolism of the exquisitely fragile cerebral tissues. This produces the result of functional impurity of the circulation, the ill-effects of which increase at compound interest in connection with the overstrained organs of thought. The feeling of "*general*" fatigue then comes to be gradually established. Surely every reader has felt it, who has made such efforts, and recognized the similarity of feeling of being "completely done up," which follows excess of either class of exertion! But a special factor in the production of mental fatigue, and which is completely ignored in these discussions, is that of eyestrain. The unhappy owner of astigmatic eyes—one or both, symmetric or asymmetric, in greater or lesser degree of abnormal development—is in the position of having his most delicate nerve-centers as much strained, and his cerebral circulation as much distorted by half an hour's continuous exertion of attention and memory, accompanied by reading, as will those of his healthy neighbor be by the work of a whole day. It is this most important fact that should be fixed before the minds, more especially of teachers and educators.

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[1] Psychological Bulletin, Vol. 1, No. 4.

[2] April 30, 1904.

Water-cress as an Infecting Agent.—But a few short weeks ago we announced that news had arrived from a far-off British colony of the previously unsuspected existence of a natural therapeutic agent, the powers of which must, if judiciously directed, lead to the extinction of one of the most mysterious as well as most hopeless of known diseases. The disease was "beriberi," the remedy announced, was the "water-cress"—*Nasturtium aquaticum* of the older, *Nasturtium officinale* of twentieth century botanists. And immediately after this announcement comes one from Hackney (a district of the London metropolis) to the effect that its Public Health Committee has deemed it desirable to recommend the local government board to hold an inquiry as to the sources of the water-cress supply of the metropolis. The primordial germ of this item of inquisitorial sanitation developed from the tracing of an outbreak of enteric fever, which occurred last autumn in Hackney, to the consumption of sewage-polluted specimens. This most cleanly of plants—in its natural habitat, the continuous bath of a shallow stream—must share in the contamination which necessarily accompanies the formation of large cities. There is no difficulty in comprehending the facility with which it may undergo sewage contamination; and the special danger connected in its case with any specific infection, as it is always eaten in the raw state. Even the cold ablutions which it is supposed to undergo before being presented at table, are often very largely discounted, from the almost unique cleanliness of its origin and habits in its perfectly natural state—which is, of course, far removed from cities. Such habits are almost as uniquely destructive to its purity in the near vicinity of large communities. Being nearly always found in shallow water, rubbish, mud, and sewage impurities, when passing its way are almost sure to settle about its roots and contaminate its stalks and leaves. The announcement of possible danger connected with water-cress is not, however, either new or limited to association with disease of presumed bacterial origin. It had already been convicted, justly or unjustly—of being the passive accomplice in the tranference of *Tænia echinococcus*, and the consequent formation of hydatid cysts in the human body.

N-rays and Anesthetics.—None of the more striking experiments performed with the new N-rays is more wonderful than the recent investigation by Becquerel, in which he has ascertained that certain inorganic bodies, such as calcium sulfid, which emit these rays after having been exposed to sunlight, when subjected to the influence of an anesthetic, such as chloroform, ether, or nitrous oxid, lose this power. A few months ago Meyer found that this would happen with plants, but that an anesthetic should affect an inorganic substance is an entirely different matter, and brings up a new and difficult question for scientists to answer. It may even mean the breaking down of the line between organic and inorganic substances, and that the N-rays are the result of certain vital processes which anesthetics may check. In other experiments of a similar nature it has been found that the variation of the N-rays produced by the nervous centers, as indicated by the glowing of the phosphorescent screen on which they were received, enables an observer to follow the action of an anesthetic and to determine when danger to life begins, since it is possible to distinguish readily the point of death. The development of this experiment will doubtless afford an interesting method of studying anesthesia, and it may be possible to employ it to indicate the time necessary for employing restorative measures when a patient is under the influence of an anesthetic. Such a use in the light of present experiments is the barest possibility, but it indicates a field that may be opened up by this new discovery.—[*Harper's Weekly.*]

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[1] *American Medicine*, January 23, 1904: Physical Overexertion and Its Effects upon Health, by John Knott.

AMERICAN NEWS AND NOTES

GENERAL.

Fourth of July Victims.—According to statistics compiled by the *Chicago Tribune* up to July 22, there were 112 deaths throughout the country as a result of accidents on the Fourth of July. Of this number 46 were fatal cases of tetanus, resulting from wounds received on that date. This is a remarkable reduction from the number of fatalities one year ago, which reached nearer the 500 mark, of which some 400 were tetanus. This, as has been previously commented on in these columns, is unquestionably due to the persistent agitation on this subject on the part of newspapers, medical journals, medical lecturers, etc., directing attention to the necessity for prompt surgical treatment in these cases.

Boll Weevil Controlled.—Information from the Agricultural Department, Washington, D. C., states that Dr. O. F. Cook, botanist for the Department, has reported complete success for his experiments with the "kelep," the boll weevil eating ant which he recently imported to Texas from Guatemala. On the strength of Dr. Cook's report the Department has issued a bulletin declaring that the Guatemalan ant holds the weevil in check and permits the regular harvesting of a crop of cotton, even under conditions favorable to the weevil. "This ant," the bulletin says, "injures no form of vegetation and takes nothing from the cotton plant except the nectar secreted for it on the leaves and floral envelopes. The habits and temperament of the insect are such that it is readily capable of domestication, transportation and colonization in the cotton fields of Texas." Dr. Cook's report is based on experiments conducted on the government reservation in Victoria, Texas. The ants will not be sent elsewhere unless such action is requested. The department officials will assist a planter in introducing the insects to his cotton fields. "The kelep," the report adds, "is as yet the only ant known to attack and destroy healthy adult boll weevils, just as the cotton grown with the protection of the ants is, so far as known, the only field culture permanently maintained in the weevil infested regions of Central America."

Miscellaneous.—Pennsylvania Sanitation is the title of a new medical publication, the first number of which appeared in July. It is devoted to hygiene and sanitary science and is the official bulletin of the State Board of Health of Pennsylvania, associated health authorities, and sanitarians of Pennsylvania.—**New York**: Plans for the **Rockefeller Institute of Medical Research**, the largest institution of its kind in the world, for which John D. Rockefeller has already contributed $1,200,000, were filed this week in the department of public buildings, and work on the site has been begun. The plans embrace the main building, together with two auxiliary buildings.—**Baltimore**: The following appointments have been made in the medical faculty of the **Johns Hopkins University**; Dr. Percy M. Dawson, associate professor of physiology; Dr. Joseph Erlanger, associate professor of physiology; Dr. Warren H. Lewis, associate professor of anatomy; Dr. Arthur S. Lowenhart, associate in physiologic chemistry and pharmacology; Ernest G. Martin, Ph.D., instructor in physiology; Dr. Augustus G. Pohlman, instructor in anatomy; and Dr. George L. Streeter, instructor in anatomy.—**The American Neurological Association** meets at St. Louis at the Planter's Hotel instead of in the Worlds Fair Grounds as originally planned. The sessions will last from 9 a.m. to 1 p.m. daily. A general invitation to attend is extended to the medical profession. **Medical Society of the Missouri Valley**. The seventeenth annual meeting of this association will be held Thursday and Friday, August 25 and 26, at Council Bluffs, Ia. An entertaining program is being prepared, and the adoption of a new constitution and by-laws, placing this society in line with the American Medical Association will make this one of the most important meetings in its history.

EASTERN STATES.

Home for Convalescents.—A new philanthropic institution, to be known as the New England Convalescent Rest Home, is to be established at Waltham, as an auxiliary to the hospital work in the State of Massachusetts. Its establishment will meet a long-felt need of physicians of Boston for larger facilities for the care of discharged hospital patients during convalescence.

NEW YORK.

To Study Pneumonia in New York.—Pathologists and bacteriologists are interested in the appropriation of $10,000 recently made by the New York Board of Aldermen for the study of pneumonia and acute respiratory diseases, and the possibility of infection through inhalation. There has been a general movement of late years by the local boards of health of the larger cities toward securing better ventilation of street cars, churches, places of amusement, etc., in connection with the sanitation of the same, with the hope that much light could be thrown upon the possibility of infection through inhaling the respirations of diseased persons. It was in furtherance of this project that New York has made the appropriation.

PHILADELPHIA, PENNSYLVANIA, ETC.

Approved by the Lay Press.—The *Public Ledger*, of Philadelphia, says: The State Board of Health is a body which cuts a very small figure among the politicians. It has no offices to fill, and has but a very small appropriation to expend in furthering its vitally important function. It goes about its work, however, in a quiet and unobtrusive way, advising, investigating, safeguarding, and organizing, spreading useful knowledge of the best means of preventing disease, and keeping the public from becoming indifferent or neglectful in matters of sanitation and hygiene. One of the most recent results of its useful efforts, an indirect but very practical outcome of its work of organizing the sanitary forces of the State, is the establishment of a monthly journal of hygiene and sanitary science to be known by the title *Sanitation*. It is to be an official bulletin for the State Board of Health, and for the Associated Health Authorities and Sanitarians of Pennsylvania, and its especial field will be to aid and encourage those who may be engaged in sanitary work, keeping them in touch with one another and informed as to methods and results of modern sanitary science.

Tuberculosis and Pneumonia Placed among Contagious Diseases.—The Board of Health has directed the sending to all physicians of a circular, containing a greatly augmented list of transmissible diseases, in which are included tuberculosis and pneumonia. All cases of the diseases enumerated in the circular must be reported to the board by the attending physician. The circular states that, Whereas, For the protection of the public health, it is essential that this board shall have prompt and full information concerning the existence of all such diseases; it is therefore *Resolved*, That all physicians having knowledge of the existence of cholera, measles, malarial fever, rubella, typhoid fever (enteric fever), whoopingcough, typhus fever (spotted fever), tuberculosis (in any of its manifestations), pneumonia, scarlet fever, erysipelas, smallpox, variola, or varioloid, puerperal fever, plague, chickenpox (varicella), trachoma, diphtheria, leprosy, diphtheric croup, tetanus, cerebrospinal meningitis, hydrophobia, anthrax, shall forward the same to this board on cards prepared for the purpose at the earliest moment after the establishment of the diagnosis; and, be it further *Resolved*, That all practitioners of veterinary medicine having knowledge of the existence of glanders (farcy), anthrax, tuberculosis, tetanus, or rabies in animals or in man, shall likewise report the same, etc.

WESTERN STATES.

The Result of Milk Supervision in Chicago.—The Bulletin of the Chicago Health Department for the week ended July 9 says: For the first time since the supervision of the city's milk-supply was undertaken by the Department in 1893, every sample of milk and cream collected by the milk inspectors during the week was found up to or above the ordinance standards—3% of butter fat for milk and 15% for cream, many of the milk samples showing over 4% and some cream 15% and 16% of butter fat. All milk averaged 3.8% fat and all cream averaged 20.1% fat. In January, 1893, the samples collected averaged less than 10% up to the standards. The improvement has been steady and progressive during the period until the average of below grades, month after month, is now less than 6%, and the deathrate among the young—especially among those between one and five years of age, the "milk-feeding period"—has as steadily and progressively diminished.

Chicago Continues the Demand for Pure Milk.—The Bulletin of Chicago's Health Department for the week ended June 25, discusses at some length the condition of Chicago's milk supply, and then sums the matter up by stating that the most important results of the commissioner's personal investigations of a number of dairy farms in this and adjoining States from which Chicago receives its milk supply, are: (1) An increasing proportion of Chicago's milk is delivered to the consumer within 12 hours after milking. The bulk of it, however, is from 24 to 36 hours old before delivery. There is no insuperable reason why it should not be delivered within the shorter period, and every effort of the department is being made to this end; (2) there is much room for improvement in the conditions of milk production on nearly all the dairy farms visited, except those under the direct supervision of a few large contracting firms. The Dairy Inspectors of the department are engaged in visiting this class of farms, explaining to their owners the necessary requirements, reporting upon their conditions, and recommending the exclusion of their product from the Chicago market if, after a reasonable time, they fail to conform to these requirements; (3) it costs more to produce clean milk than dirty milk—therefore, cheap milk is, *prima facie*, impure and unwholesome milk, and the housekeeper who buys it is helping to perpetuate unclean conditions of dairies and helping to swell the deathrate of the city, by having her babies die off from diseases caused by poor and impure milk. The consumer should make it an object to the milk producer and the milk dealer to furnish a clean, fresh, and wholesome product, by being willing to pay a fair price for such product and by giving personal attention to its quality and proper care after its receipt. The laboratory of the department makes analyses of milk and reports upon its quality free of charge for any person desiring such information.

FOREIGN NEWS AND NOTES

GENERAL.

Antityphoid inoculation has, according to a recent report, been introduced into the German army. The troops proceeding to Southwest Africa have been made the subject of treatment.

No More Deformed Feet in China.—The Dowager Empress of China is making some progress in her old age. One of her late commendable acts was the issuance of a decree against deforming the feet of women to make them small. That cruelty has long been a custom among the women of rank in China, and if it is abolished it will be highly creditable to the Empire.

Zeitschrift für klinische Medicine.—The latest number, Bd. liii, is issued as a Festschrift in celebration of the twenty-fifth anniversary of the professorship of Dr. Franz Riegel, of Giessen, the noted authority on diseases of the stomach. It contains 35 separate articles, which, however, are for the most part of mediocre value; and, as a whole, this Festschrift is not on a par with the usual German jubilee publications.

Chinese Medicines.—Though the pill habit is said by medical journals to cause more dyspepsia than it cures, it has at any rate the sanction of antiquity. In an article which Dr. H. L. Norris, a British naval surgeon on the China station, contributes to one of the medical journals he remarks that doses in the Chinese pharmacopeia are invariably large and the pills are "taken by the hundreds." The Chinese, he adds, possess an enormous veneration for antiquity, and beside powdered deers' horns to promote longevity, and tigers' bones to promote bravery, dose themselves with fossil ivory, fossil crabs and shells, ancient soot and water in which a few copper coins of an early dynasty have been boiled. Other imaginative remedies are scorpions, dried silkworms, baked toads, wasps' nests and cockroaches. At the end of a considerable catalogue of similar prophylactics Dr. Norris observes that, though his list is far from complete, it will show through what a varied range of thought Chinese ideas have moved in attempts to relieve the diseases common to humanity. Perhaps the most curious of all preventive medicines is a soup made from a black cat which is drunk by blacksmiths in Canton to prevent burns from hot metals. If the remedies are in themselves nauseating the nomenclature of the drugs is almost literary. "The arrow of the hundred medicines," "thunderpills," "water dragon bones," "the king of the field boundaries," "thousand tales, worth seed" are some of the names.

OBITUARIES.

Henry E. Paine, at his home in Dickson, Ill., July 24, from pulmonary abscess after an illness of two months, aged 63; a graduate of Bellevue Hospital Medical College, New York, in 1863. He had been a prominent practitioner in Dickson since 1865, was a member of the American Medical Association, was acting assistant surgeon in the Federal army during the Civil war, and more recently district surgeon of the Chicago and Northwestern Railway. He was a member of the National Association of Railway Surgeons.

William C. Cole, assistant physician at the Illinois Central Hospital for the Insane, Jacksonville, Ill., at his apartments in that institution, June 28, aged 59; a graduate of the Louisville Medical College in 1872, a member of the American Medical Association, and of various local organizations.

John A. Morrison, at his home in Cochranville, July 26, aged 90; a graduate of Jefferson Medical College, Philadelphia, in 1837. In 1850 he was elected to Congress, served one term. He was prominent in the Masonic order.

Caroline H. Daniels, of Ohio, who was for many years a medical missionary in Southern China, at the University Hospital, Ann Arbor, Mich., July 2, from tuberculous meningitis, aged 60.

Richardson B. Okie, at his home in Berwyn, Pa., July 30, aged 54. He was educated at Rugby Academy and graduated from the medical department of the University of Pennsylvania in 1870.

Henry M. Wetherill, at his home in Philadelphia, July 27, aged 52; a graduate of the University of Pennsylvania in 1877. He had suffered from heart disease for some years.

W. C. Darnell, at his home in Huntsville, Ala., July 28, after an illness of several weeks. He was 35 years of age and a graduate of Vanderbilt University, Nashville, Tenn.

William T. Blackford, in Graysville, Ga., was struck by a railway train near Ringgold, Ga., and instantly killed, July 9, aged 75; a graduate of the New York University in 1851.

Norborn T. Greer, at his home in Rocky Mount, Va., July 7, aged 70; a graduate of the University of the Maryland School of Medicine, Baltimore, in 1878.

Daniel H. Sutton, at his home in Shenandoah, Pa., July 27, aged 65. He served with distinction in the Federal army during the Civil war.

George Ford Goers, at his home in Syracuse, N. Y., June 27, aged 28; a graduate of the College of Medicine, Syracuse, N. Y., in 1898.

William H. Githens, at his home in Hampton, Ill., June 29, aged 77; a graduate of the University of Iowa, Keokuk, in 1853.

Samuel M. Brown, at his home in New Bethel, Ind., June 25, aged 82. He had practised for 55 years in New Bethel.

Alfred Sutton Hayden, suddenly, at his home in Salem, Ohio, July 3, from Bright's disease, aged 62.

Robert J. Flint, at his home in Antwerp, N. J., from pulmonary tuberculosis, June 27, aged 33.

William S. Spriggs, at his home in Bell Valley, Ohio, from apoplexy, June 30, aged 67.

Foreign.—ANTOIN CHECHOFF, at Baden-Weiller, Germany, July 15, from tuberculosis. He was a Russian, and though famous as a physician, his reputation throughout Russia was largely due to his literary ability. He was one of the nine Russian academicians and ranked with Gorkey as a writer. He recently volunteered his services to go to the Far East as an army surgeon, but was not accepted by the military authorities on account of ill health.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 29, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
District of Columbia:	Washington	July 16-23		1
Illinois:	Chicago	July 16-23	4	
	Danville	July 16-23	1	
Iowa:	Clinton	July 8-16	1	
Kentucky:	Covington	July 16-23	1	
Louisiana:	New Orleans	July 16-23	1	
			Imported.	
Massachusetts:	Fitchburg	July 16-23	1	
Michigan:	Detroit	July 16-23	1	
Missouri:	St. Louis	July 16-23	5	
New York:	New York	July 16-23	2	
Ohio:	Cincinnati	July 8-15	2	
Pennsylvania:	McKeesport	July 16-23	1	
	Williamsport	July 16-23	1	
Tennessee:	Memphis	July 16-23		1
Wisconsin:	Milwaukee	July 8-23	3	
SMALLPOX—INSULAR.				
Philippine Islands:	Manila	May 7-June 4	19	5
SMALLPOX—FOREIGN.				
Belgium:	Brussels	July 2-9		1
Brazil:	Pernambuco	July 1-15		24
China:	Hongkong	May 28-June 11	7	1
	Shanghai	June 4-11		3
France:	Paris	June 25-July 9	20	2
Great Britain:	Edinburgh	July 2-9		1
	Glasgow	July 8-15	11	2
	London	July 2-9	10	
	Nottingham	July 2-9	3	
India:	Bombay	June 21-28		17
	Karachi	June 19-26	2	
Japan:	Nagasaki	June 1-20	4	3
Netherlands:	Rotterdam	July 8-16	1	
Panama:	Panama	July 11-18	1	1
Turkey:	Constantinople	June 27-July 3		7
YELLOW FEVER.				
Costa Rica:	Limon	July 8-16	1	
Mexico:	Merida	July 3-9	4	
	Tehuantepec	June 3-9	6	1
	Vera Cruz	July 9-16	4	
CHOLERA.				
China:	Hongkong	May 28-June 11	13	11
India:	Bombay	June 21-28		1
PLAGUE—INSULAR.				
Hawaii:	Hilo	July 21		1
Philippine Islands:	Cebu	May 25		1
	Manila	May 7-June 4	12	12
PLAGUE—FOREIGN.				
Australia:	Brisbane	June 11-18	1	
	Maryborough	June 3		1
	Sydney	June 6		1
China:	Hongkong	May 28-June 11	83	83
India:	Bombay	June 21-28		48
	Karachi	June 19-26	3	3

Changes in the Medical Corps of the U. S. Army for the week ended July 30, 1904:

CHURCH, Captain JAMES R., assistant surgeon, leave granted for one month on surgeon's certificate is extended two months.

The operation of paragraph 3, S. O. 166, July 16, 1904, W. D., relating to First Lieutenants James L. Bevans and Clyde S. Ford, assistant surgeons, is suspended until the conclusion of the Army maneuvers to be held at Manassas, Va.

Billingslea, First Lieutenant Charles C., assistant surgeon, now under treatment at the United States General Hospital, Presidio, is relieved from further duty in the Philippines Division, and will report on August 1 for assignment to duty at that hospital, to relieve Captain Benjamin J. Edger, Jr., assistant surgeon, who will proceed to Fort Brown for duty.

Snyder, Major Henry D., surgeon, is relieved from duty at Plattsburg Barracks, and will proceed to Fort Sam Houston for duty.

Woodruff, Major Charles E., surgeon, now on sick leave at Cloppers, Md., is relieved from further duty in the Philippines Division, and upon the expiration of said leave will proceed to Plattsburg Barracks for duty.

Gandy, Major Charles M., surgeon, is detailed to attend the encampment of the organized militia of the State of Michigan, to be held at Ludington, Mich.

Eastman, First Lieutenant William R., assistant surgeon, leave granted May 23 is extended one month.

Stallman, George E., contract dental surgeon, now at San Francisco, will report for transportation to the Philippine Islands on transport to sail from that place about August 1.

The following-named assistant surgeons are designated for duty at the Army maneuvers to be held at Manassas: Captains William E. Purviance, Paul F. Straub, Ralph S. Porter, Elmer A. Dean, Thomas S. Bratton; First Lieutenants Charles E. Marrow, Henry L. Brown, James Bourke, Robert M. Blanchard, William W. Reno, Fred W. Palmer, Jay R. Shook, James F. Edwards, William L. Keller, Peter C. Field, William M. Roberts.

Geer, First Lieutenant Charles C., assistant surgeon, is granted leave for three months on surgeon's certificate.

Truax, J. P., contract surgeon, is granted leave for one month from return to Fort Wright of First Lieutenant R. B. Grubbs, assistant surgeon.

The operation of so much of orders, July 23, W. D., as relate to Captain Benjamin J. Edger, Jr., assistant surgeon, is suspended until the conclusion of the Army maneuvers to be held in the department of California.

Love, J. W., contract surgeon, leave granted April 28 is extended one month.

Changes in the Medical Corps of the U. S. Navy for the week ended July 30, 1904:

Furlong, F. M., passed assistant surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., August 5, and ordered to the Chicago—July 22.

Farwell, W. G., assistant surgeon, ordered to the Naval Recruiting Rendezvous, Boston, Mass.—July 22.

Murphy, J. F., assistant surgeon, ordered to the Hancock, temporarily—July 23.

Barber, G. H., surgeon, ordered to the Hist and to additional duty at the Naval Training Station, Newport, R. I.—July 27.

Butler, C. S., passed assistant surgeon, detached from the Constellation and ordered to the Naval Training Station, Narragansett Bay, R. I., and duty on the Hist—July 28.

Cather, C. D., assistant surgeon, ordered to the Naval Hospital, New York, N. Y.—July 28.

(Orders issued by Commander-in-Chief of Asiatic Fleet:)

DeBruler, J. P., assistant surgeon, Subig Bay Naval Reserves, P. I., to El Cano—July 28.

Mayers, G. N., assistant surgeon, El Cano, to Raleigh—July 28.

Moore, J. M., passed assistant surgeon, Raleigh, to home—July 28.

Changes in the Public Health and Marine-Hospital Service for the week ended July 28, 1904:

Glennan, A. H., assistant surgeon-general, granted leave of absence for fifteen days from August 1—July 22, 1904.

Irwin, Fairfax, surgeon, granted leave of absence for one month from August 15—July 26, 1904.

Kalloch, P. C., surgeon, granted leave of absence for twenty-two days from August 1—July 28, 1904

McIntosh, W. P., surgeon, to assume temporary charge of Portland (Me.) Quarantine, in addition to other duties, during absence of Surgeon P. C. Kalloch on leave—July 28, 1904.

Guiteras, G. M., surgeon, Bureau letter of July 11, 1904, granting Surgeon Guiteras leave of absence for seven days from July 14, 1904, amended to read four days only—July 26, 1904.

McMullen, John, passed assistant surgeon, granted leave of absence for one month from August 5—July 28, 1904.

Glover, M. W., assistant surgeon, Bureau letter of July 13, 1904, granting Assistant Surgeon Glover leave of absence for seven days on account of sickness, amended to read five days from July 12—July 25, 1904.

Ward, W. K., assistant surgeon, to proceed to Bridgeton, Barbadoes, F. W. I., for duty in office of the United States Consul—July 12, 1904.

Stiles, Ch. W., zoologist, detailed to represent Service at Sixth International Congress of Zoology at Berne, Switzerland, August 14-19—July 22, 1904.

Seavey, L. T., acting assistant surgeon, granted leave of absence for fourteen days from August 8—July 27, 1904.

Smith, Emma F., medical inspectress, granted leave of absence for thirty days from July 1—July 22, 1904.

Board Convened.

Board convened to meet at Washington, D. C., August 1, 1904, for the physical examination of an officer of the Revenue Cutter Service, and an applicant for admission into the said Service. Detail for the Board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Promotion.

L. C. Spangler, pharmacist of the third class, promoted to be pharmacist of the second class, effective May 28—July 25, 1904.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J., June 7 to 10, 1904.

[Specially reported for *American Medicine*.]

(*Continued from p. 185.*)

Section on Practice of Medicine.

FIFTH SESSION (CONTINUED).

Amebic Dysentery; Its Local Lesions and Treatment.—J. P. Tuttle (New York) read a paper based on the results of a study of 74 cases of amebic dysentery. He first spoke of the significance of *Amœba coli*, its life history, characters, and influence in the production of dysentery. He believes the positive cause of dysentery to be of no particular type; the size varies greatly. The diagnosis is made by finding mobile amebas in the stools or the scrapings from ulcers in the intestine. The stools should be examined on a warm slide in a warm room before they have cooled. Amebic dysentery is of insidious onset and usually causes no great trouble in the rectum, much less than does bacillary dysentery. Periodicity is characteristic. Certain cases may be called latent. One patient had liver abscess that recurred three times, with amebas in the pus, but had no diarrhea and no ulceration of the intestines. Another case had mucous colitis, with amebas in the stools, but had constipation. The geographic distribution is wellnigh universal. Three acute cases were observed in persons who have never been outside of New York. The local lesions are practically confined to the colon; the ulcers are superficial and are always found in the rectum and sigmoid, this being contrary to the experience of Rogers and Futcher, who state that they are more frequent in the cecum. The treatment of amebic dysentery must be based on the fact that the organisms are in the submucosa and not on the surface. Any solution washes off only the surface amebas and leaves the others. Quinin, bichlorid, and other agents are not curative unless held in the colon for a long period of time. The ameba cannot live at a temperature below 65°, hence Tuttle treats his cases by flushing the colon with ice water. With the patient in the knee-chest position the colon is filled with the water; this is done two or three times a day for three or four days when the amebas will have disappeared. If patients are not amenable to such treatment and the caput coli cannot be irrigated, Tuttle draws out the appendix after Weir's suggestion, except he uses the entire organ and severs it after adhesions are formed. Through this opening the colon is irrigated from above. A patient upon whom this expedient was employed was exhibited to the section; remarkable improvement and gain in weight has followed the adoption of this method. Tuttle has employed all remedies and discarded all but cold water.

Discussion.—F. B. Turck (Chicago) has treated many army cases and prefers to use first very hot water, as high as 131°, and then follow by ice water. The hot water stimulates the circulation and lessens the depressing effect of the ice water. He finds no difficulty in irrigating the caput coli. A point to be remembered is that secondary infection follows every amebic infection and the former lesions have to be treated. Philip Marvel (Atlantic City) cited a case in which he used ice water irrigations with satisfactory results. Some months later he found contractures in the rectum which would not permit the passage of a proctoscope used during the treatment. Whether this was due to the dysenteric lesions or to the ice water he is not positive. W. Krauss (Memphis) said that to make the diagnosis of amebic dysentery, the patient and the microscope should be in the same room. He has used cold water with signal success. Tuttle, in closing, said that local treatment of the secondary ulcers in the rectum was most necessary. He regards the operation recommended as less dangerous than chronic dysentery, with its constant danger of liver abscess; this statement was made in reply to several of the speakers who thought it a somewhat radical procedure.

The Family Physician as a Factor in the Solution of the Tuberculosis Problem.—S. A. Knopf (New York) referred to his previously published conception of what a family physician should be and some of the reasons why the type is disappearing. He emphasized the chances of cure in the early stages of the disease mentioned and the financial and economic gain resulting from such cures; he asserted positively that the tuberculosis problem will never be solved without the aid of the family physician. All the rules that may be formulated will not avail in enforcing the necessary hygienic regulations. The physician who is constantly guarding the welfare of families will notice the early subjective and objective symptoms of the disease, in which he should be well trained. Knopf at the present time disapproves of the tuberculin test; if doubtful cases are treated for a time as though tuberculous no harm will be done. The family physician can do much to keep the people suffering from tuberculosis from taking and depending upon the numerous quack nostrums that are so freely advertised. The marriage of tuberculous persons can be to some extent prevented or regulated and the idea inculcated that tuberculous people should not propagate their kind. Suggestions to rich persons regarding benefactions to sanatoriums would also come within the pale of the family physician.

Has Influenza Been a Causative Factor in the Increase of Appendicitis?—PHILIP MARVEL (Atlantic City) said that to answer this question in the affirmative it should be shown that appendicitis has increased where influenza has been frequent; that similar microorganisms should be found in the two conditions, and that personal observations bear out the findings of others. He believes that these conditions are fulfilled and that the increase of the last 20 years, which cannot be satisfactorily explained by our better knowledge of the disease, is partly due to the presence of influenza. Marvel presented statistics from several Philadelphia hospitals to show the great increase in appendicitis, particularly within the past five years. Influenza occurs in acute and chronic forms in the lungs, and he does not see why the gastrointestinal type should not have a chronic form. This would simply be admitting a chronic intestinal influenza with the appendix the most vulnerable to its effects. Five illustrative personal cases were cited, in which attacks of influenza were followed by appendicitis. Among a dozen replies from members of the profession, Marvel's view was disagreed with by five of six physicians and agreed to by five of six surgeons. Marvel concluded by saying that there is more than a probability of the existence of a chronic intestinal influenza.

Discussion.—DELANCEY ROCHESTER (Buffalo) considered the paper inconclusive. Appendicitis has increased, but we must exclude cases not before recognized, or at least not operated on and reported. It is also a question as to whether influenza has been as prominent during the past five as during the preceding five or ten years. A great many things now called influenza are not that disease. He agrees with Marvel, that there is an intestinal influenza that may become chronic. J. J. WALSH (New York) stated that as appendicitis was first socalled in 1885 or later and influenza appeared in 1889 or 1890, it may well be that the two have simply increased in prominence together. An acute agent is necessary to start up an old lesion, and it is reasonable to suppose that strictures found in appendices are as long in forming as are similar changes in the urethra, or from five to twenty years. We have abdominal influenza. A. E. ROUSSEL (Philadelphia) considers the catarrhal type of appendicitis the least frequent. Influenza is now in the position of malaria some years ago, the dumping ground of many conditions. He would restrict the term to cases in which the bacillus of Pfeiffer is found; of these cases there have been very few during the last two or three years. R. T. MORRIS (New York) said that influenza causes appendicitis by inducing swelling of the mucosa of the appendix, and finally anemia of the organ by compression; it is then readily attacked by infection. This may not be in evidence during the acute stage of influenza.

SIXTH SESSION.

Aneurysm of the Innominate Artery.—A. P. FRANCINE (Philadelphia) reported a case typical of this lesion; also autopsy records and clinical notes of six cases from the Philadelphia Hospital, collected from an analysis of 3,309 autopsies; and one case each from the Pennsylvania and Episcopal Hospitals. The diagnosis is occasionally easy, but often difficult. Francine presented an original chart, showing the anatomic relations of the parts involved and then considered the symptoms, physical signs, and differential diagnosis from aneurysm of the arch of the aorta. He believes that the clinical obscurity of the lesion does not warrant the difficulty in diagnosis that is commonly experienced. Certain respiratory signs not before noted were observed in the personal case reported. These were impaired resonance and diminished or distant respiratory sounds adjacent to the tumor and an increase of these qualities around this zone. Special attention was directed to two signs which are believed to be pathognomonic of aneurysm of the innominate. They are: (1) The regurgitant character of the right radial pulse; (2) the angle of reentry in the second right interspace. These aneurysms rarely undergo spontaneous organization. Treatment should be palliative at first, measures to lower blood-pressure, increase the coagulability of the blood, and compression. Operative measures are followed by cure in certain cases; distal ligation of the common carotid and subclavian is usually adopted.

Pathology and Etiology of Arthritis Deformans.—THOMAS MCCRAE (Baltimore) chose to give a personal summing up of this much discussed question rather than a review of all the theories regarding it. He would limit the term infective arthritis to cases associated with a microorganism. There are but few points settled about this disease and three are especially unsettled: 1. Have we one or two or more diseases under this name? 2. What is its relation to acute articular rheumatism? McCrae believes they are totally distinct. 3. What is its relation to infections of various kinds? The following statements are believed to be correct; (*a*) the majority of descriptions have been of late stages of the disease; (*b*) at some time or other the disease manifests acute symptoms; (*c*) the disease does not always progress to degeneration and deformities of joints; a great many cases go on to recovery, perfect or nearly perfect. As to the pathologic anatomy there are the atrophic and hypertrophic forms. The former probably begins in the synovial membranes, involves later the cartilages and finally the bone atrophies. McCrae thinks there is no definite histologic picture, this being the same as in gonorrheal arthritis, tuberculosis, etc. Periarticular and secondary changes are especially to be noted. Can such condition go on to the hypertrophic type? McCrae knows of no case proving this although many writers support such a view. The prominent feature of the hypertrophic type is bony overgrowth; it often occurs in advanced life but rarely in the young. Three conditions deserve special mention: 1. Arthritis deformans as seen in the spine; here it is usually of the hypertrophic type but occurs in the ligaments as well as in the joints. There is much confusion regarding these forms but McCrae thinks they are all cases of arthritis deformans with various manifestations. 2. The monoarticular type occurring usually in the hip or shoulder. Careful examination often reveals other affected joints. 3. The socalled Still's disease in children. This is only arthritis deformans in early life. Personally McCrae would like to make two diseases of arthritis deformans and believes that would help clear the subject but is not convinced that this is true; a strong point against it is the association of types. It is impossible to separate one that does not run into the others. As to the etiology there are three theories: The neural, specific infection, and the result of a multiple infection. McCrae believes that evidence points toward a specific infection as the cause. Accurate bacteriologic and pathologic examinations should be made in all cases.

Symptomatology of Arthritis Deformans.—J. J. WALSH (New York) thinks it unfortunate to consider arthritis deformans as a single disease; we need clinical observations to separate groups of cases for diagnosis and treatment. Light is coming into the rheumatic diseases; acute articular rheumatism is an affection from which every one gets well unless a heart lesion be left. There is a group not yet cleared up, and among these arthritis occupies a noncommital position. Clinically three classes of cases can be distinguished: (1) Osteoarthritis; this type is found especially in old men and involves particularly the hip-joint and the shoulder; (2) milder forms seen in women of middle life. The terminal joints of the fingers or the thumb are involved; often the disease is not recognized as such; these may be the socalled Heberden's nodes; (3) a type occurring in young people and simulating acute articular rheumatism; this is the most deforming type and leaves the victims helpless cripples. This type is distinctly symmetric. The differential diagnosis from rheumatism is not difficult if one notices the involvement of the fingers and the usual involvement of the jaw. The spine is involved in many cases. A diagnostic point about all the types is that there is more discomfort and pain and tenderness than the condition appears to justify. Salicylates do not relieve the fever or the pain. The predisposing cause, that is, perhaps, the most important is overwork. The element of exposure is difficult to determine. The prognosis is not so unfavorable as usually thought. The unfortunate feature is the tendency to recurrence.

Treatment of Arthritis Deformans.—CLARENCE E. SKINNER (New Haven, Conn.) believes there is evidence that curative measures can do much, and that arthritis deformans is to be rescued from the class of hopeless diseases. Early diagnosis is here exceedingly important, as the treatment of diseases that may be confounded with it is inefficient and harmful in arthritis deformans. Restricted diet is harmful, as malnutrition is a prominent feature in many of the cases. The gradual movement of joints after the acute stage has passed may be beneficial, but the sudden breaking up of ankylosed joints should never be practised. Drugs, except the tonic and alterative types, are of little avail. The salicylates may relieve pain in some cases. Severe pain must be treated, and is better controlled by external applications than by internal remedies. Physical therapy must be resorted to, among these elements being hot air applications, electricity, and mechanical vibration. Of these dry hot air is the most valuable, and its method of application is important. It should not be given as the cabinet bath, or the Turkish bath, or the arc light bath. The two first are debilitating and pernicious; the last is not purely thermal. The proper method is to put the patient up to the armpits in a metallic asbestos lined cylinder, and raise it to a temperature of 350° to 400°. The exposure is usually 20 minutes to 35 minutes. Electricity is the next most useful agent, the static machine being best. Various currents and methods of application for different symptoms and stages of the disease were detailed by the speaker. A series of 51 cases was reported, and various tables of symptoms and results appended. The most important was that of nine cases that have remained entirely free from symptoms for from one to two and a half years. The prognosis is much less gloomy since the adoption of the later therapeutic measures.

Discussion.—GOLDTHWAIT (Boston) said that some classification of types must be formed, though it matters little whether they are called distinct diseases or not. It is hardly proper to throw out of the infective class those which simulate infectious diseases, due to known organisms. There are a great many cases of deformity in which we see neither the atrophic nor hypertrophic type. Still's disease is clearly the infective type; it is found in adults as well as in children. Probably the atrophic and hypertrophic types are distinct; some are acute and some chronic from the beginning. Heredity is much the same as in tuberculosis; here there is joint weakness, and it depends on circumstances whether the person gets the atrophic, hypertrophic, or infective type. He has known the atrophic to follow the hypertrophic type, but never the converse. He wishes that the terms mono and polyarticular might be given up. Allen Jones (Buffalo) is not ready to give up the term chronic rheumatism until we have ascertained the cause of both acute articular rheumatism and arthritis deformans. DeLancey Rochester (Buffalo) stated that the treatment of these cases by electricity is applicable only to those physicians that have the apparatus; he believes that results can be obtained without it. The hot air cabinet and bed bath will stimulate as well as the costly oven, and by massage and movements of the joints good results may be obtained. He recommends a mixed diet, from which all sweets are excluded, and which contains plenty of fresh, green vegetables. McCrae, in closing, said that chronic rheumatism is an unfortunate term; the only condition to which it is applicable is where various rheumatic manifestations or complications persist for a long time. It should not be applied to chronic joint lesions. As to the treatment, he wished strongly to impress the fact, that the disease was not due to uric acid. The profession, as well as the laity, attribute too much to uric acid. That there is a hopeful side to arthritis deformans is shown by the many people that bear signs of old lesions but have recovered. J. J. Walsh, in closing, said that the less we insist on heredity as a factor the better it will be; family peculiarities are transmitted, but acquired diseases are not. The nervous theory of arthritis deformans is very consoling in certain cases of symmetric distribution, whether it be true or not. One should see to the nutrition of his patient and let metabolism alone; the latter is a very much overworked word. Walsh warns about the use of the salicylates in this disease. He believes that we can make definite use of classification without knowing the causative organism. Skinner, in closing, said that little good could be obtained from the cabinet bath in most cases. No benefit comes from the use of low heat. Bad cases need to be in a sanatorium.

How the General Practitioner Should Treat Gonorrhea.—Ferd. C. Valentine (New York) believes that the general practitioner in declining to treat gonorrhea is doing a wrong. He is as competent to treat the disease before serious complications are present as is the specialist. The man with gonorrhea is as much entitled to treatment as is the drunken man or one who is suffering from other indiscretions. When refused treatment by his physician and sent to a specialist, the patient is given the wrong idea of his disease; he concludes that if he has a "secret disease," he is disgraced. This contributes to the neurasthenia that generally accompanies the disease. It increases the expenses of the patient, and he loses confidence in his family physician. In this way an opponent to scientific medicine may be made. The general practitioner can master the details of office treatment which are not difficult; with ordinary dexterity it need be neither painful nor uncleanly to the patient or obnoxious and time-wasting to the physician. The latter can emphasize the necessity of treatment from the beginning, and also seize the only chance of aborting the disease. For each treatment 15 minutes should suffice without show of undue haste. Two daily treatments will be needed in some stages of the disease, and they should be 12 hours apart; this is not often convenient, however, and the time can be arranged to better suit the physician. Potassium permanganate is the best drug for irrigation.

Problems for the Tuberculous Convalescent.—A. Mansfield Holmes (Denver) believes it would be wise to devote more time to those who have made the fight against tuberculosis. Many patients do not plan a campaign when sent away from home and out of necessity or desire return too quickly to their old environment with the probability of an early recrudescence. Cases were cited to illustrate this point. Rules must be formulated to suit conditions. Convalescents should be without work if possible, but sometimes the patient is a breadwinner, then one has to advise as to the most favorable conditions possible. Essential rules for right living at home are too often not impressed upon returning patients, or those who are convalescing at home. Physicians too seldom see patients in their private homes. Three things are of prime importance in tuberculosis: Early diagnosis, early abandoning of environment, immediate adoption of rules for right living. The establishment of remunerative industries in connection with endowed sanatoriums will do much toward settling the problem of convalescent patients.

Discussion.—J. W. Foss (Phœnix, Ariz.) finds that one cause of relapse among tuberculous patients is a sense of mental well-being that is in excess of their physical condition. This results in overwork. J. N. McConnell (Las Cruces, N. M.) said it were better to lose the word cure and substitute for it the term arrest. In eight years he has seen no cures but many arrests of the disease. Deep breathing in many cases should be fought against. Whenever rib movements are in any way restricted deep breathing should not be recommended as adhesions may be broken and fresh infection loosed. A patient should really be sentenced for a certain time, say two years, to produce arrest of the disease; at the end of that time he is allowed to go if in proper condition. Then he should be advised as to the best course to pursue; he should not return to the place in which he contracted the disease. C. C. Browning (Highland, Cal.) said that the feeling of well-being is apt to lead to social life that is injurious because of the hours kept, etc. A convalescent patient should take up agriculture or horticulture if possible. If he must return to his employment he is to remember the use of fresh air and the avoidance of sudden chilling. Potter (Indianapolis) emphasized the importance of the right use of the terms cure and arrest; too many are misleading themselves and their patients by the former term. Many are appealing to the public press for help in obtaining support for institutions and are using the word cure much too loosely.

Section on Ophthalmology.

FOURTH SESSION (CONTINUED.)

Operative Procedures on the Exciting Eye and the Sympathizing Eye in Cases of Sympathetic Ophthalmia.—John E. Weeks (New York City) cited cases of the disease and the operative procedures he employed in each, classifying them as follows: 1. Cases in which the exciting eye still preserves vision, the sympathizing eye being in the early stage of sympathetic ophthalmia. Mercury, salicylates and potassium iodid were administered and iridectomy performed. 2. Cases in which the sympathizing eye has become quiet, with almost complete posterior synechia, pupil occluded, vision, perception of light, projection good, tension normal or slightly below normal, the exciting eye not a factor. In a case of this character he performed a broad iridectomy upward on the injured eye and later attempted to clear the pupillary area of a pseudomembrane. 3. Cases in which cataract has formed in the sympathizing eye; posterior synechias; eye quiet; projection good; the exciting eye not a factor. Iridectomy was performed in one of these cases by a colleague, later a cataract extraction was done employing the conjunctival flap method. 4. Cases in which, with occluded pupil, total posterior synechia exists in the sympathizing eye. The tension is plus and increasing; projection still good; the inflammatory process in a subacute stage, the exciting eye not a factor. The sympathizing eye should be enucleated under such circumstances.

Discussion.—C. F. Clark opened the discussion, remarking the value of a study of the histopathology of these cases. The benefit derived from the use of the salicylates in this disease, in syphilis, and in all forms of iritis, given until the patient was saturated with the drug, was greatly lauded. To obtain the best results from this treatment a course of calomel, followed by a saline, should precede it, and the patient should be placed at rest in bed and given a hot pack. Stimulants, especially strychnin, should be avoided. He quoted Gifford as being responsible for the introduction of the salicylate treatment in sympathetic disease. L. Connor (Detroit) reviewed the theories of the production of this disease, and believed that the presence of muscular tissue in the ciliary body caused its share, along with other muscles, in affections due to faulty elimination of waste products, and advanced this as a possible explanation of the benefit derived from the salicylates. He said the bacteriologic theory was not conclusive, but that their toxins may be the cause. G. H. Williams (Baltimore) cited a case in which he had used salicylates with fairly good results, and referred to the enormous possibilities of radium in this and other affections involving the anterior segment of the eye. N. L. Wilson (Elizabeth, N. J.) uses saline injections and local treatment, which, if unattended by improvement, is followed by removal. If there is little or no sight, he thought enucleation should be performed. G. S. Savage (Nashville, Tenn.) did not believe in ciliary irritation as a cause, and cited two cases in which the disease occurred after the enucleation of the exciting eye. He doubted the toxin theory, but believed the germ theory to be most accurate. The time necessary for the migration of the microorganisms varied. One case he observed in four weeks, and thought the time possibly depended on the nature of the infecting microorganism. He advised removal of a useless eye after four to six weeks, but cautioned against telling the patient he would be absolutely free from the disease after such a procedure. E. Jackson (Denver) referred to Brown Pusey's suggestion of last year. He accepted the nerve impulse theory, but thought there was some additional factor. The removal of the exciting eye always lessens the danger. He favored irrigation. Sutphen (Newark, N. J.) spoke favorably of the salicylic compounds in all inflammatory cases. He had first used this treatment in glaucoma, but had never employed it in sympathetic ophthalmia. He gives 15 gr. every six hours in glycerin. The theory advanced by Theobald was supported and a case cited to prove the same. Thompson (Indianapolis) agreed with Theobald, but thought there were many causes of the disease to be considered. He cited one case in which the affection appeared 25 years after the receipt of the injury. Ayers (Cincinnati) related a case in which cataract occurred in sympathetic ophthalmia, which was later extracted. He favored delay in some cases. R. A. Randolph (Baltimore) related the experimental side of the question, and stated that the lower animals do not have sympathetic ophthalmia. He believed that experiments of this nature would not contribute much to the subject. In closing the discussion, Veasey expressed gratification at the discussion his paper had evoked, and referred to the salicylate treatment as an old treatment among his Philadelphia colleagues and predecessors. Theobald answered Savage, and attempted to refute the cytotoxin theory of Brown-

Pusey. He favored the use of the salicylates in all inflammations of the eye, and advised employing essence of pepsin as a vehicle, especially when giving large doses. WEEKS said he would not retain the exciting eye, unless there was a possibility of vision being ultimately best in that organ. In his experience, removal of the exciting eye does not immediately stop the process, and often has not influenced it at all.

Methyl Alcohol Intoxication.—FRANK BULLER (Montreal, Canada) by special invitation read this paper dealing with the various features of this affection, remarking the ignorance of the public and legislators regarding the poison. The prominence of its ocular symptoms first brought it to the attention of ophthalmologists. He collected and briefly reviewed the histories of 51 reported cases, and described the various preparations in which the drug was to be found. He remarked the possibility of death in these cases without ocular symptoms, and deplored the widespread ignorance of the toxic properties of methyl alcohol among the profession as well as the laity. In reply to a circular letter sent to prominent ophthalmologists throughout the world, one man said he had never seen or even heard of a case of methyl alcohol intoxication with bad results. Buller observed that most of the cases (48) had occurred in the United States. Indulgence in ordinary alcoholic beverages does not lessen one's susceptibility to methyl alcohol. He considered methyl alcohol intoxication as of three grades: 1. That attended by mild gastrointestinal disturbance and mild intoxication, ending in recovery. 2. That accompanied by dizziness, marked gastric disturbance, with dimness of vision terminating in blindness. 3. That in which there is sudden overwhelming prostration, ending in coma and death. He had also observed that most of the victims were middle-aged males, and that the condition was induced by a debauch, in which some cheap grade of liquor was drunk. The affection offered a great field for educating the public as to the nature of the drug, and the various names under which it appeared in trade. In the cases he had collected, recovery had occurred in only seven. Amblyopia usually began at the end of 24 hours. He referred to the custom of temperate individuals of taking Jamaica ginger, bitters, etc., for various affections, and warned against the possible methyl alcohol poisoning in such cases. The occurrence of cirrhosis of the liver in northern Vermont among abstainers was also remarked. CASEY A. WOOD (Chicago) in a supplementary report, gave an account of 91 hitherto unreported cases. In eight of these, blindness followed breathing of air contaminated with methyl alcohol fumes. In 62 cases death was not preceded by blindness. He referred to the tendency on the part of the western Indians to drink red ink as a beverage and the resultant bad effects. The immunity enjoyed by some persons, especially certain druggists, to methyl alcohol, was mentioned. The most palatable form in which it appeared was Columbian spirits, after consuming which, out of eight persons, three will become blind, and three will die. The diagnosis is seldom difficult, except when other substances, such as quinin, are dissolved in the drug. The visual fields of methyl alcohol intoxication were shown; blotting out of the peripheral field and central scotoma were present in typical cases. He thought that in all cases with central scotoma and gastrointestinal disturbances methyl alcohol intoxication should be suspected.

New Views Regarding the Horopter.—GEORGE T. STEVENS (New York City) reviewed the various views regarding the horopter and made special reference to the doctrine of corresponding points exploited by Helmholtz. He eliminated some of the confusing points and demonstrated the true doctrine of corresponding points and of vertical meridians by means of mathematic formulas. The effects of certain normal adjustments of the eyes on the horopter were also shown. Reference was made to the clinoscope. Torsion was spoken of as a physiologic adjustment and declination as an abnormal adjustment of the retinal meridians.

Discussion.—G. S. SAVAGE (Nashville, Tenn.) attempted to demonstrate the inaccuracy of these views by the diagram of an isogonal circle of Maddox. He also stated that he believed the Helmholtz theory of corresponding points to be the only correct one. He said the planes of a monoscoptor circle were proofs of Helmholtz's theory. Referring to torsion, he showed that it and cyclophoria were identical and due to imbalance of the oblique muscles. In closing the discussion, STEVENS, with reference to the horopter of Helmholtz and Müller, quoted Listing's law.

FIFTH SESSION.

Report of Chairman of Executive Committee on Nominations.—C. R. Holmes, Cincinnati, for chairman; Walter L. Pyle, Philadelphia, for secretary; Melville Black, Denver, for delegate to the House of Delegates, with Hiram Woods, Baltimore, as alternate, were presented for nomination. On motion, the secretary was directed to cast one vote for these members, and they were accordingly elected.

Brief Report of Two Additional Cases of Sympathectomy for Glaucoma.—W. H. MARPLE (New York City) gave the clinical histories of two cases in this paper. In the first, the disease was of the chronic simple form. Iridectomy had been performed in both eyes, but there was progressive failure of vision notwithstanding. Sympathectomy was performed and followed by some improvement. The second was one of acute inflammatory glaucoma. The other eye had been previously lost and a trial was made of sympathectomy, which, however, did not prevent recurrence of an acute attack subsequently. Hoarseness, constriction of the throat, and ptosis followed the operation although in other respects convalescence was uneventful. The essayist laid great stress on the prognostic value of the fields on account of the element of optic atrophy which was not uncommonly associated with glaucoma. He believed that when the fields were concentrically contracted the prognosis from any form of operation was more grave than when the contraction was to the nasal side. From his observations he concluded that sympathectomy was not indicated in acute inflammatory glaucoma and that its only indication was in chronic simple glaucoma. He considered it a harmless procedure and that its results warranted suggesting it in hopeless cases.

Discussion.—W. H. WILDER (Chicago) referred to the cases previously reported by him and favored the performance of sympathectomy. He believed one was justified in performing it first in chronic glaucoma and later resorting to iridectomy in the event of its failure. J. WEEKS (New York City) did not agree with Wilder. He performs sympathectomy only after iridectomy and sclerotomy fail. He related a case in which iridectomy was performed five times before the glaucoma was controlled. In closing the discussion MARPLE said to the effect that he did not see a very brilliant future for sympathectomy and that he preferred to perform it after failure of iridectomy.

The Environment and Visual Requirements of Railway Engineers and Firemen: Personal Observations from an Engine Cab.—NELSON M. BLACK (Milwaukee) in this paper noted the omission by most writers on this subject of any consideration of the environments and conditions under which the enginemen work. His remarks were based on personal observations made from an engine cab in all kinds of weather, at all times of the day and night in traveling over 3,000 miles of railroad. These observations were fully detailed and amply illustrated by photographs taken on the road. The various visible signals were described and also illustrated. Conditions interfering with the proper perception of the signals (with the standard of vision required) such as those existing about the engine, those due to atmospheric changes, and those caused by various reflecting surfaces were discussed. The central scotoma occurring in firemen from the glare of the firebox and its prevention by amber tinted glasses were noted. He incidentally remarked to the effect that the only way in which to determine the true visual perception for color, form, etc., was to examine the man at work. He advised in using the Holmgren's wools for color blindness, not to ask for the name, but to match the colors and in using the lantern test to ask the significance of the colored light seen. The latter should be used only as a control test. As regards wearing of correcting lenses he did not consider them a hindrance but would not advise retaining any employe on an engine with over one and a half diopters of ametropia. The essayist detailed the resolutions suggested by the Ophthalmic Section in 1901, the House of Delegates, in 1902, the American Academy of Railway Surgeons, 1903, and the American Ophthalmological Society, 1901, and noting more or less variance in these rules suggested the adoption of a uniform report as follows:

SECTION 1.—It is essential that railroad corporations should require definite and scientific examinations of the sight and hearing of those employes who will be at all concerned with the active operating of trains, or in giving or receiving signals.

SEC. 2.—That a trained ophthalmic surgeon be selected by each company, who shall instruct and examine the men selected by the company to make these tests, shall recommend the standards and methods to be used, shall see that the equipment furnished to each examiner is sufficient, that it is kept in proper order and renewed when necessary, and who shall be the authority to whom the doubtful cases shall be referred for final settlement.

SEC. 3.—That the hearing be tested by the spoken word of the examiner and by a watch or acoumeter, and that for entrance to the service a candidate be required to repeat correctly words or numbers spoken in an ordinary conversational tone at a distance of twenty feet; or, for reexamination, at a distance of ten feet.

SEC. 4.—The acuteness of vision should be tested by the test types of Professor Snellen, or those which conform to his standards, which should in all instances have the same intensity and source of illumination.

SEC. 5.—There should be two general standards of visual and aural requirements, viz., one for new men hoping to enter the service, and to be actively engaged in the operation of trains, and in giving and receiving signals; and one for those men engaged in similar work who have been uninterruptedly in a company's service for five years, either the company from which employment is sought, or some other company enforcing similar regulations. These latter may be regarded as old employes.

SEC. 6.—The following minimum requirements should be adopted for acuteness of vision:

CLASS A.

Enginemen (road service), firemen (road service):

Entrance to Service.—20/20 in each eye tested separately without glasses and shall not possess more than 1½ D. of apparent hyperopia.

Reexamination of Those in the Service.—Enginemen shall not be retained in their positions if vision sinks below 20/40 in one eye and 20/30 in the other, or 20/20 in one eye and 20/50 in the other, unless such vision can be brought up to standard with glasses. Distance glasses must be worn when on duty, provided such glasses are necessary in order to bring vision up to the required standard. Firemen shall not be eligible for promotion to enginemen if vision sinks below 20/30 in either eye without glasses, and shall not be retained as firemen if vision sinks below 20/40 in either eye without glasses.

Class B.

Passenger conductors, passenger baggagemasters, passenger brakemen, ticket collectors, freight conductors, freight brakemen, yard masters, yard conductors, yard brakemen, yard enginemen, yard firemen, switchmen, draw tenders, engine inspectors, car inspectors:

Entrance to Service.—20/20 in one eye and not less than 20/40 in the other. Tested separately without glasses. Glasses must be worn on duty if they improve vision.

Reexamination of Those in the Service.—Employes shall not be retained in these positions if vision sinks below 20/40 in one eye and 20/30 in the other eye, or 20/20 in one eye and 20/50 in the other, unless such vision can be brought up to standard with glasses. Glasses must be worn if they are necessary to secure adequate vision.

Class C.

Towermen, telegraph operators, station agents, section foremen:

Entrance to Service.—20/20 in one eye and not less than 20/40 in the other. Tested separately with or without glasses.

Reexamination of Those in the Service.—Same as above.

Class D.

Crossing flagmen:

Entrance to Service.—20/40 with both eyes open, with or without glasses.

Reexamination of Those in the Service.—20/50 with both eyes open, with or without glasses.

Sec. 7.—The color perception should be tested by means of the colored worsteds of Professor Holmgren, preferably with worsteds tagged for the purpose of record; also, that in every case an additional test should be made with a lantern showing a number of colored lights, which can be varied in their size and intensity.

Sec. 8.—Reexamination should be made of all such employes every three years; and after any severe illness, or accident, or any occurrence which seems to cast doubt on the visual and aural capacity of the individual. Reexaminations should also be made more frequently on men known to be excessive users of tobacco, or to be suffering from syphilis, albuminuria, diabetes, or acute or chronic eye or ear diseases. They should always be examined before promotion.

Sec. 9.—Men known to be excessive users of liquor should not receive employment for the services above designated (Section 5).

Sec. 10.—Written instructions should be furnished those making the examinations.

Discussion.—Williams (Boston) thought that legislation in this particular was impracticable, as a new Legislature could repeal any laws made to govern this subject by the previous body. He showed that in the States in which it existed it was of little use. The lantern test he employs as a confirmatory test. He believed a high standard of requirements should be maintained for men entering the service. J. H. Claiborne (New York City) referred to the use of lights on ships, and suggested using white or blue in geometric figures, doing away with red and green. He thought there ought to be three men in the engine cab. Lambert thought the examination should be conducted by an ophthalmologist and not by a lay board, and that he should be allowed to exercise his own discretion in accepting men with reduced vision, especially when it was due to ametropia alone. Kirkendall (Ithaca, N. Y.) voiced an opinion that the lantern test was of value only as a confirmatory test. H. V. Würdemann (Milwaukee) believed that the lantern test should be used to confirm the wool test. The final test in examination of the refraction was the use to which the patient puts his eyes, and therefore the man should be examined at work on the train. He plead for legislation and uniformity in the rules and regulations. Todd (Indianapolis) brought up the subject of diplopia in these cases, relating the history of an engineman with perfect vision in each eye with occasional diplopia. Clark (Columbus, O.) urged making of tests for light sense, examining the patient in a dark room and having him count fingers. R. A. Randolph (Baltimore) inquired about the illumination of the station shown in one of the photographs and its distance from the engine. In closing the discussion, Black returned to the subject of legislation. He also stated to the effect that he believed the men should be taught to recognize the lanterns as indicating danger, caution, clear, etc., and not as their colors. He emphasized the necessity of a high entrance standard. White as a signal color was objected to on account of the confusion arising between the lanterns and the city lights. Blue was undesirable, for the reason that the lenses could not be intensely illuminated with kerosene. He thought old employes disqualified for road work should be placed in less responsible positions. That men with errors of refraction were still of value, he demonstrated by reducing his own vision a half by lenses when on the train, and he was yet able to distinguish the signals at a distance of half a mile. He repeated the observation, that the men might fail on the work but pass on the lantern test.

(a) Some New Test Types for the Reading Distance; (b) An Improved Form of Apparatus for Testing the Position of the Axes of the Eyes.—Chas. H. Williams (Boston). (*a*) One degree of visual angle between each size of type, numbered so the reading power can be noted, according to formula: $L = d/D$. L is reading power, d greatest distance in decimeters at which print is read, D is distance in decimeters at which the short lower case letters subtend visual angle of five minutes (shown by numbers printed at each paragraph). Easy to make a quick record. (*b*) Vertical and horizontal arms holding electric lights controlled by a switch; three combinations: 1. Vertical red lines with horizontal green figures. 2. Horizontal red lines with vertical green figures. 3. Red lines and green figures in the same vertical line. Patient looks through spectacles with one red glass and one green. Looking at the apparatus in first or second positions; if he sees the red line at the zero point of the figures it shows there is no deviation right or left or up or down; if the red line comes over one of the figures the number shows the direction and amount of the deviation and the number of the prism needed to correct the deviation. In third position errors of rotation are shown.

[*To be continued.*]

ANNOUNCEMENT.

THE PREVENTION OF TUBERCULOSIS.

BY THE

CHARITY ORGANIZATION SOCIETY,

of New York.

The National Association for the Study and Prevention of Tuberculosis, in cooperation with the Committee on the Prevention of Tuberculosis of the Charity Organization Society of New York City, is preparing a directory of the various agencies existing and projected, in the United States and Canada, which care for persons suffering from any form of tuberculosis or which work in any way for the restriction of the disease.

This directory will include information in regard to hospitals, sanatoriums, dispensaries, and camps, especially designed for tuberculous patients or with especial provision for them, whether public or private; insane hospitals and prisons in which special provision is made for the tuberculous inmates; State commissions and private societies formed for the purpose of investigation or of diffusing information; and a summary of the efforts being made by the Boards of Health in the principal cities.

A tentative list of institutions is given below. It is desired to make this directory as complete and as accurate as possible. Any additional addresses, therefore, or any reasons why institutions that are included should be omitted, will be welcomed. Information about any institution will be considered confidential, if so desired.

Communications should be addressed to

The Committee on the Prevention of Tuberculosis,
105 East Twenty-second Street, New York City.

Hospitals and Sanatoriums.

ARIZONA.

Mercy Hospital, Phoenix.
St. Mary's Sanatorium, Tucson.

CALIFORNIA.

"Esperanza," Altadena.
Health Camp, Indio.
The Barlow Sanatorium, Los Angeles.
The Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia.

COLORADO.

Glockner Sanatorium, Colorado Springs.
Nordrach Ranch, Colorado Springs.
Agnes Memorial Sanatorium, Denver.
The Association Health Farm, Denver.
The Home, Denver.
The National Jewish Hospital for Consumptives, Denver.
Resthaven, Morrison.

CONNECTICUT.

Dr. Brooks' Sanatorium, New Caanan.
Gaylord Farm Sanatorium, Wallingford.

ILLINOIS.

St. Ann's Sanitarium, Chicago.
Cook County Hospital for Consumptives, Dunning.

INDIANA.

St. Rochus Hospital, Fort Wayne.
Flower Mission Pavilion for Incurables, Indianapolis.

IOWA.

Boulder Lodge Sanatorium, Fort Dodge.

LOUISIANA.

Ozonia Rest Cure, Covington.

MAINE.

Oxford Sanatorium, Hebron.

MARYLAND.

City Hospital for Consumptives, Baltimore.
The Hospital for Consumptives of Maryland, Towson.

MASSACHUSETTS.

Boston Almshouse and Hospital, Long Island, Boston.
Channing Home, Boston.
Free Home for Consumptives, Boston.
The House of the Good Samaritan, Boston.
The Holy Ghost Hospital for Incurables, Cambridge.
The Millet Sanatorium, East Bridgewater.
The Cullis Consumptives' Home, Grove Hall, Boston Highlands.
Massachusetts State Sanatorium, Rutland.
Rutland Cottages, Rutland.
The Sharon Sanatorium, Sharon.
State Hospital, Tewkesbury.

MICHIGAN.

The Wayne County Hospital, Eloise.

MINNESOTA.

Luther Hospital Sanatorium, St. Paul.
State Sanatorium for Consumptives, Walker, Cass Co.

MISSOURI.

Emergency City Hospital, No. 2, St. Louis.
Mount St. Rose Sanatorium, St. Louis.

NEBRASKA.

Green Gables, Lincoln.

NEW HAMPSHIRE.

Pembroke Sanatorium for Tuberculosis, Suncook.

NEW JERSEY.

State Sanatorium for Tuberculous Diseases, Glen Gardner, Hunterdon Co.
Memorial Hospital, Orange.

NEW MEXICO.

St. Joseph Sanitarium, Albuquerque.
United States General Hospital, Bayard.
Public Health and Marine-Hospital Service Sanatorium, Capitan, Lincoln Co.
St. Anthony's Sanitarium, East Las Vegas.
St. Vincent Sanitarium, Santa Fe.
St. Joseph's Sanatorium, Silver City.

NEW YORK.

Montefiore Country Sanitarium, Bedford Station, Westchester Co.
Erie County Hospital for Consumptives, Buffalo.
Stony Wold Sanatorium, Lake Kushaqua, Franklin Co.
The Edgemont, Liberty, Sullivan Co.
Loomis Sanatorium, Liberty, Sullivan Co.
Brooklyn Home for Consumptives, New York.
Kings County Hospital, New York.
The Home for Incurables, New York.
House of Rest for Consumptives, New York.
Lincoln Hospital, New York.
Montefiore Home for Chronic Invalids, New York.
Riverside Sanatorium for Pulmonary Diseases, New York.
St. Joseph's Hospital for Consumptives, New York.
Seaside Camp for Tuberculous Children, Coney Island.
Seton Hospital, New York.
Tuberculosis Infirmary of the Metropolitan Hospital, New York.
Sanitarium Gabriels, Paul Smith's.
State Hospital for the Treatment of Incipient Pulmonary Tuberculosis, Ray Brook, Essex Co.
Hill Crest and Uplands, Santa Claram.
Adirondack Cottage Sanitarium, Saranac Lake.
Raymond Cottage, Saranac Lake.
Reception Cottage, Saranac Lake.
The Rumanapp Cottage, Saranac Lake.
All Saints' Home, Priory Farms, Verbank, Dutchess Co.
County Hospital, Yonkers.

NORTH CAROLINA.

Dr. Stevens' Home, Asheville.
The Winyah Sanitarium, Asheville.
Franklin Humanitarian Home, Black Mountain.
Pineshire Sanitarium for Diseases of the Lungs and Throat, Southern Pines.
Southern Pines Sanitarium, Southern Pines.

OHIO.

The Branch Hospital for Consumptives, Cincinnati.
Tuberculosis Sanatorium of the City Hospital, Cleveland.
The Miami Valley Hospital, Dayton.

PENNSYLVANIA.

Switch Back Sanatorium, Lansford.
Southern Mountain Camp Sanatorium, Mont Alto, Franklin Co.
Bide-Awhile Sanatorium, Perkiomenville.
The Henry Phipps Institute, Philadelphia.
Hospital for Diseases of the Lungs, Chestnut Hill, Montgomery Co.
The House of Mercy, Philadelphia.
Lucien Moss Home, Jewish Hospital, Philadelphia.
Philadelphia Hospital, Philadelphia.
Rush Hospital, Philadelphia.
Lakewood Sanatorium, Scranton.
West Mountain Sanatorium, Scranton.
Free Hospital for Poor Consumptives, White Haven.
Sunny Rest Sanatorium, White Haven.

RHODE ISLAND.

State Sanatorium, Burrillville.
Pine Ridge Camp for Consumptives, Foster.
St. Joseph's Hospital, Providence.

SOUTH CAROLINA.

The Aiken Cottages, Aiken.

TEXAS.

Camp Reliance, Comfort, Kendall Co.
Sisters' Hospital, El Paso.

VERMONT.

The Champlain Open-Air Sanitarium, South Hero.

WASHINGTON.

King County Hospital, Seattle.

WISCONSIN.

Wisconsin Dells Sanatorium, Kilbourn.
Evergreen Park Cottage Sanatorium, Lake Nebagamon.
The Wisconsin Health Park Association, Tomahawk, Lincoln Co.

CANADA.

Provincial Sanatorium, Kamloops, B. C.
Provincial Sanatorium, Kentville, Nova Scotia,
Free Hospital for Consumptives, Gravenhurst, Ontario.
Muskoka Cottage Sanatorium, Gravenhurst, Ontario.
Lahl Ghur, Ste. Agathe des Monts, Quebec,

Special Clinics for the Treatment of Tuberculosis.

Baltimore, Md.
  Outpatient Department, Johns Hopkins Hospital.
Boston, Mass.
  Boston Dispensary.
Chicago, Ill.
  Dispensaries of the Committee on the Prevention of Tuberculosis of the Visiting Nurse Association.
Minneapolis, Minn.
  Medical Department of Hamline University, University of Minnesota.
New Haven, Conn.
  New Haven Dispensary.
New York, N. Y.
  Clinic of the Department of Health for the treatment of Pulmonary Diseases.
  Bellevue Hospital, Outpatient Department.
  Gouverneur Hospital Dispensary.
  Post-Graduate Hospital Dispensary.
  Vanderbilt Clinic.
  Presbyterian Hospital Dispensary.
  Harlem Hospital Dispensary.
Orange, N. J.
  Orange Memorial Hospital.
Philadelphia, Pa.
  Henry Phipps Institute.
  Rush Hospital.
Providence, R. I.
  Rhode Island Hospital.
Scranton, Pa.
  Free Dispensary for Diseases of the Lungs.
Worcester, Mass.
  City Hospital,

Insane Hospitals with Special Provision for the Tuberculous Patients.

DELAWARE.

State Hospital for the Insane, Farnhurst.

MISSISSIPPI.

Hospital for Tuberculous Insane, Jackson.

NEW YORK.

State Hospital, Binghampton.
Manhattan State Hospital, East, Ward's Island.
Willard State Hospital, Willard, Seneca Co.

RHODE ISLAND.

State Hospital, Howard.

VERMONT.

Vermont State Hospital, Waterbury.

Special Provision for Tuberculous Prisoners.

Prison Hospital, Frankfort, Kentucky.
State Prison, Stillwater, Minnesota.
Clinton Prison, Donnemora, New York.
State Penitentiary, Columbia, South Carolina.
Wynne Farm, Huntsville, Texas.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

MODIFICATION OF THE URETHRAL SOUND.

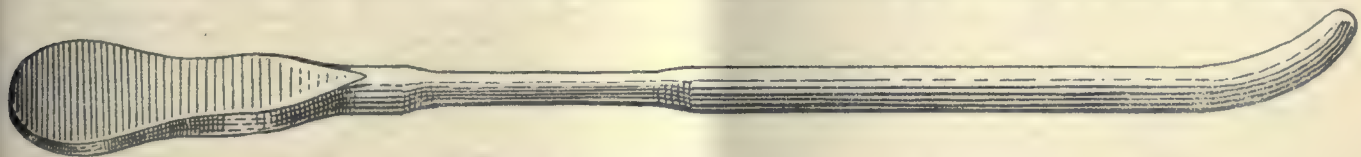
BY

J. HENRY DOWD, M.D.,

of Buffalo, N. Y.

In presenting to the profession a modification of the urethral sound it will be unnecessary to go into detail further than to call attention to a few reasons why the instrument commonly used should be relegated to oblivion and its place filled by the one shown.

Pain.—In the use of the steel sound the patient complains of pain at three points, especially so at the meatus, when it is necessary to use the 30 or 32 F. It will not be argued that the meatus cannot be enlarged, but this is poor surgery, and should not be carried out unless the caliber is below 23 or 24 F. At this caliber dilation to 30 or 32 F. causes but very little pain, provided the instrument is withdrawn at once. The second point of pain is about one and a half inches behind the meatus and is due to two factors: (1) Reflexly by the irritation produced in the prostatic urethra; and (2) from a normal narrowing of the canal at this spot. The third point of pain is in the prostatic region, but mostly in the lower abdomen, directly above the pubic bone, and is due to a preventable cause.



Owing to the tapering point of the ordinary sound, it must be passed at least three inches through a constriction before the latter is dilated to the numbered caliber. If 67% to 70% of strictures are located in the deep urethra, on an average of half an inch in front of the compressor muscle, by a little figuring and reference to anatomy, we find that the point of a sound will extend at least 1 in. to 1½ in. inside the internal sphincter. The bladder is pushed upward on the point of the sound, thus giving rise to the pain complained of.

With the new sound, pain over the pubes is entirely obviated. Pain at the meatus and normal contraction in the canal are only present while the instrument is passing these points. The instrument can be left in the canal for pressure or until spasm relaxes with no discomfort to the patient. As the cut shows, the curve is similar to the Mercer, and it cannot catch in the pouch-like portion of the urethra immediately in front of the compressor muscle. The last, and possibly one of the most important considerations is the ease with which this sound is passed through the anterior urethra after a little practice.

WHAT LABORATORY WORK SHOULD BE DONE BY THE PHYSICIAN HIMSELF.[1]

BY

W. H. PRIOLEAU, M.D.,

of Asheville, N. C.

Specialism in medicine has its drawbacks in proportion to its many virtues. When a specialist locates in our midst, the comfortable feeling that a higher authority is present to whom we can appeal in case of doubt, is truly an agreeable sensation. But while such a state of affairs is full of advantage in times of necessity, at all other times there lurks great danger in his presence, for the tendency is to throw ourselves upon him at the slightest opportunity. Too often we send patients to the specialist whom we could and would treat ourselves if no specialist were at hand. I am a firm believer in specialism, but I also believe in a general practitioner having sufficient knowledge of medicine and surgery to enable him to treat the minor diseases of all organs of the body without consulting a specialist. However in making this statement I must emphasize one essential factor, which is, that the general practitioner know his limitations—better that the physician send all his patients to specialists rather than undertake to treat a patient knowing he has not sufficient knowledge to do so.

However, it is the private laboratory which I wish especially to discuss. In our medical journals we see advertisements of laboratories to which pathologic specimens, urine, sputum, etc., may be sent for examination and diagnosis. These laboratories are of immense value to general practitioners, for there are many cases which demand the services of an expert pathologist. However, as the vast majority of cases do not demand an expert's opinion, but only a little extra work for the physician, one can readily see that if a doctor makes a habit of sending all his analyses and examinations to the laboratory he will soon be in such a position that he could not make an analysis even if he wanted to. A general practitioner should have his office so equipped as to be able to make for himself the ordinary analyses and examinations that occur in his daily practice. For instance, as regards:

Sputum.—He should be able (1) to differentiate *Staphylococcus* and *Streptococcus pyogenes*, the tubercle bacillus, and *Diplococcus pneumoniæ;* also (2) to recognize red blood corpuscles, leukocytes, elastic fibers, pus corpuscles and epithelia.

Blood.—(1) Make the blood count, both red and white; (2) estimate the hemoglobin; (3) recognize the plasmodium of malaria, and *Filaria sanguinis hominis.* But when the Widal test is to be made the blood should be sent to the laboratory, not that the physician could not make it himself if he had the typhoid culture, but because few of us have the culture, and because the laboratory has it, and is prepared for such work. To have the various stains is one thing, but to keep cultures growing is quite another, and only a laboratory properly equipped with an incubator, etc., can do so.

Next as regards the *urine.* Both the chemic and microscopic analyses should be made by us in our offices. The deposit of the 24 hours' specimen should be used for the microscopic examination and the supernatant fluid for the chemic analysis. Doing this we gain a knowledge of our patient's condition, such as no laboratory report can give—we see the conditions for ourselves as they exist.

In examining the urine for pathologic germs, we are chiefly concerned with the tubercle bacillus and the gonococcus. The latter is easily found in the expressed secretion from the urethra, and hence there is seldom necessity for examining the urine. To find the tubercle bacillus in the urine is difficult and if after repeated examinations of the washed centrifuged sediment we cannot find it, then we must appeal to the laboratory for assistance. Send a specimen of the urine to the laboratory, to be injected into a guineapig. In due time the pig will be killed and his organs examined for tubercle bacilli. As with typhoid cultures and the Widal test, so with the guineapig and the tubercle bacillus, we have not the time, nor the apparatus with which to keep the typhoid cultures growing in our offices, neither have we the conveniences for keeping guineapigs.

Feces.—Far too little attention has been paid in the past to the examination of feces. If we examined the feces oftener we would soon realize the importance of such work. Oftentimes we gain information from such examinations, which we could not get elsewhere; for instance we may find segments of tapeworm, a round worm, seat worm, hooklet of *Tænia echinococcus* and the *Uncinaria americana* or *Ankylostoma duodenale.*

Water.—The simpler tests for water can be carried out in the office, for instance the detection of hard or soft water, also whenever the chlorids are in excess. But when we want an analysis of the water to find out the amount of organic matter present or to find if any pathologic germs are in it, then we must send a sample to the laboratory. In case of poisoning when the water is supposed to be the cause, we should not undertake such an examination in our office but submit it to the chemist.

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[1] Presented at the fifty-first annual meeting of the North Carolina Medical Society, held at Raleigh, N. C., May 24-26, 1904.

Milk.—The purity of milk can, for all ordinary purposes, be determined by using the lactometer and the creamometer; for the dilution of milk with water and extraction of cream are the tricks most practised by the dairymen. Milk suspected of holding infectious material, or of containing a preservative, should be examined at the laboratory.

Stomach Contents.—From the test meal and subsequent stomach washing we can gain valuable information as regards the presence, excess, or absence of free hydrochloric acid. By washing out the stomach we may detect the round worm, or possibly a piece of a tumor or some blood-corpuscles. Should the case be one of poisoning, it is wiser to send the stomach washings to an expert, and in case of an autopsy when poisoning is suspected always send the stomach and its contents to a laboratory.

Tumors.—The examination of tumors is not always possible in one's own laboratory; the scrapings may be examined, but when a specimen has to be hardened by freezing or with Condy's fluid before examination, then it should be sent to a pathologist; not that the physician cannot do it himself, but because work such as that takes time and special instruments, such as a busy physician does not have. One is only occasionally called upon to examine a tumor, so it will pay better to give the examination to one who does such work daily, than to go to the outlay of equipping the office for such work. There is and ought to be sufficient work for the expert pathologist, but a physician should be able to do the more simple work himself. By making his own examinations he will be able to tell the condition of the patient according to his own ideas, and also impart the patient's disease to no one else—in other words, keep the patient's secret.

From a financial point it would be the physician's gain to do his own laboratory work, and it would cost the patient less. The specialist should be paid well for his services, and for that reason only such examinations as are worthy of his fee should be sent to him.

One often claims that he is too busy to do laboratory work, and that it takes up too much time. As a matter of fact, laboratory work, such as I have sketched, takes very little time, provided the physician knows how to make the tests and use the microscope. By doing our own work we would become better practitioners, and our patients would be better pleased.

In conclusion I want to reiterate what I have said, viz., learn the simpler methods of making analyses and examinations, use them in your own laboratory and send the more obscure or difficult cases to the expert pathologist and chemist.

MASSAGE BY THE BLIND.

BY

MISS L. D. SWINERTON,

of Boston, Mass.

To the Editor of American Medicine:—The recent editorial in *American Medicine* on the condition of the blind in New York and other States, opens the way for a brief discussion of the practice of massage as a vocation for blind people.

Readers of these columns need not be urged to foster every legal and social measure for the prevention of blindness. They need not be reminded that in every commonwealth there are people who, whether blind or seeing, are dependent upon public aid, and others who, having no faculty for conducting a business of their own, must always be employed by business managers or sit idle. But aside from these, there is a considerable number of blind young men and women who would earn a comfortable living if they were given a fair opportunity.

Since 1883 and 1889, respectively, two young women (graduates of the Perkins Institution and Massachusetts School for the Blind) have been practising massage in the city of Boston. From the first it has been their aim to try any experiment which might test the feasibility of this vocation for other blind persons. The results of their experience suggest the following deductions:

Blind persons who are otherwise normal, who have a good general education, active minds, and a keen sense of touch, may, under proper training, become skilful manipulators. There are many kinds of work which the blind can do accurately, but almost no trade at which they can earn a good day's wages in ten hours, because the sense of touch, which must guide their work, is slower of perception than sight; but in giving massage to the patients beside whom they sit they can work as deftly as other operators, and at the same fees could earn good incomes. Massage, however, is not a trade, and must not be practised in a commercial spirit. Rightly used, it is one item in the treatment of disease, and as such, should only be given when ordered by a physician. Patients who need this treatment, if very nervous or very ill, are frequently unwilling to accept service from an abnormal attendant. Hence, though here is something that the blind might profitably do, they are often prevented from doing it by the unavoidable idiosyncrasies of patients. In private practice, too, they must employ traveling companions, and this involves much expense and responsibility. (The operator, besides paying wages, must be sure that the guide will be honest and orderly in the patron's house.)

But why may not these operators be of great use in the hospitals, in the majority of which there is a crying need for more massage than can be gratuitously given? Few hospitals can or do pay such salaries as would recompense a successful private practitioner, but to the blind, to whom with a few possible exceptions, private practice is less lucrative, a moderate salary and a home at a hospital or sanatorium would be desirable. In a few days such an operator would become familiar with wards and grounds and could go about independently, and patients coming in would accept it as a part of the regime and feel no uneasiness about it. Here, too, the operator (having daily bread provided) would be safeguarded against temptation to quackery and against suspicion of motives in the work.

By this arrangement hospitals could furnish skilled manual treatment as a part of their regular outfit. Even the public ones should do this, for most of their patients are working men and women to whom time and limbs are money, and in a large number of cases massage discriminately and skilfully used hastens recovery, and in certain classes of disorders makes it more complete.

To hospitals which cannot pay this salary, the State or city might be asked to supply it, on condition that preference be given to blind operators. Societies for aiding the blind might help.

If physicians think favorably of this suggestion, may they not do much toward securing its adoption? In so doing they would also, in some measure, prevent the swelling of the tide of osteo and other quacks, who by their insidious advertising are wheedling multitudes away from legitimate medical advice.

Animals Avoid Poisons.—Animals, either wild or domestic, are rarely poisoned. They avoid poisonous plants "by instinct"—whatever that may be. It is believed by some that the sense by which animals detect poison is mainly that of smell, the sense of taste being usually deficient. Carnivorous animals, however, have a kind of half-way sense between taste and stomach-ache which tells them when they have taken anything likely to disagree with them, and they are enabled to get rid of it by the throat with ease. Wolves, tigers, leopards, and other carnivora are difficult to poison because of this ability to get rid of the unwelcome morsels with celerity. Lions, on the other hand, are very frequently poisoned, as they eat voraciously. Cattle, which have four stomachs, are readily poisoned. In common with human beings, animals seem to be affected by poison in certain forms when in a particular condition of health, but at other times can eat the same plant or shrub with impunity. Birds seem to have no discriminiation at all with regard to poisons, probably because they have almost no power to smell, and swallow their food without masticating it. Animals will occasionally fail to recognize the poisonous plants of a strange region. Many poisonous fungi have an odious smell, so that no mammal or bird ever thinks of touching them. One of the most poisonous native plants is the ordinary foxglove, but though it has no unpleasant odor of any kind, for some reason cattle never touch it.—[*Zion's Herald.*]

ORIGINAL ARTICLES

THE RECOGNITION AND TREATMENT OF CHRONIC MYOCARDIAL DISEASE.[1]

BY

A. A. STEVENS, M.D.,

of Philadelphia.

Professor of Pathology, Woman's Medical College of Pennsylvania; Lecturer on Physical Diagnosis, University of Pennsylvania.

The two most important chronic affections of the myocardium are fatty degeneration and fibroid induration. Fatty degeneration is most commonly due to atheromatous stenosis of the coronary arteries, although it is frequently met in acute infections, cachectic states, and mineral poisonings. The term fibroid induration is used to designate a condition in which the walls of the heart are the seat of a diffuse or circumscribed overgrowth of fibrous tissue. This affection also is usually secondary to stenosis of the coronary arteries. Thus, in 18 of 21 cases cited by Steven, these arteries were distinctly diseased.

It sometimes happens that an area of anemic necrosis produced by the occlusion of an artery, instead of resulting in sudden death through a paroxysm of angina pectoris or rupture of the heart, is gradually replaced by a new growth of fibrous tissue. More commonly, however, a slowly developing endarteritis is responsible for the sclerotic change. In some cases the obstruction is chiefly at the orifice of the vessel, the finer branches being only slightly altered; on the other hand, it is not uncommon to find a diffuse obliterating endarteritis with an orifice of nearly normal dimensions. It is questionable whether the term fibroid degeneration can be correctly applied to the fibrous hyperplasia accompanying this slow starvation of the cardiac muscles, since overgrowth of tissue can scarcely be considered a degenerative process. It is urged that it is equally inappropriate to use the term chronic myocarditis to designate an affection which is so conspicuously dependent upon a degeneration of the parenchyma. It is conceivable, however, that the degenerated muscle itself may act as an irritant, and although the usual evidences of irritation may be wanting, this does not become a serious objection to the view that the disease is of an inflammatory character, if with Adami, we regard inflammation not as a series of unvarying phenomena, but as a process, the essential feature of which is reaction to injury.

Fibrous myocarditis is sometimes secondary to chronic endocarditis or pericarditis. In the first instance the papillary muscles are chiefly involved; in the second, the superficial layers of the myocardium. As a primary affection of the heart, chronic myocarditis may result from the reaction of the muscle-substance to toxic agents brought to it directly from the blood. In this way the disease may be directly associated with chronic rheumatism, gout, syphilis, or alcoholism. It is highly probable, also, that the cellular infiltration which has been observed in the heart after typhoid fever, diphtheria, and other acute infections is sometimes followed, at a later period of life, by focal, sclerotic myocarditis.

From what has been said it is evident that either defective or perverted nutrition of the heart may result in either fatty or fibroid changes in its substance. Not infrequently both lesions are found side by side. In some cases they are about equally developed; usually, however, one predominates. As in the majority of cases, it is impossible to differentiate clinically between these two lesions, we shall deal with them conjointly in this paper.

Occasionally chronic disease of the myocardium manifests itself very suddenly. Thus, a man in middle life, apparently in perfect health, is seized with a violent paroxysm of angina pectoris and perishes instantly or within a few hours. As a rule, however, the onset is not sudden, but most insidious, and in consequence there is danger of the early symptoms being overlooked or attributed to a wrong source. In many cases slight breathlessness on exertion is the first symptom to attract the patient's attention. He perceives that he does not breathe quite so freely as formerly when he hurries his steps, climbs stairs, or walks against the wind. At first the dyspnea speedily subsides when he sits down, but as time goes on it does not yield so promptly to rest, and it returns with less and less exertion. Occasionally, and especially in the more advanced forms of the disease, the dyspnea occurs in paroxysms taking the form of cardiac asthma. Such attacks are prone to occur at night, and are often accompanied by cough, frothy expectoration, whistling rales, and great restlessness and anxiety. Cardiac asthma may occur independently of angina pectoris, but not infrequently the attacks of dyspnea and of pain alternate.

In a large number of cases the initial symptom of chronic myocardial disease is precordial uneasiness or distress. It may not be actual pain, but merely consciousness of the heart's action. Some patients describe it as a sense of weight or oppression; others as a sense of weakness or of goneness. Now and then acute pain occurs, radiating to the shoulders and thence down the arm, as in typical attacks of angina pectoris. Occasionally the pain radiates down both arms or is confined to the right arm, or more rarely still it begins in the left wrist, and travels toward the heart. Sometimes between the paroxysms of pain, occurring independently of them, there is temporary or persistent hyperesthesia in certain areas about the head, neck, chest, or arms. Mackenzie[1] has called particular attention to the distribution of these areas. Pronounced hyperesthesia of the skin may be observed over the neck, the left breast, axilla, and inner side of the left arm. At times the skin itself is not abnormally sensitive, but the muscles, especially the pectoral, sternomastoid, and biceps, are tender when slightly pinched. The explanation of these sensory disturbances is that the irritation is transferred from the affected organ through its special nerves to the peripheral termination of the spinal nerves. Now, the special nerves of the heart are the vagus and the sympathetic. The vagus at its origin in the spinal cord is in close relationship with the spinal accessory and second and third cervical nerves, which conjointly supply the sternomastoid, trapezius, the neck, subclavicular space, and shoulder. The sympathetic at its origin is closely associated with the spinal nerves arising from the lower cervical and upper dorsal regions of the spinal cord, which are distributed to the chest, arm, and hand. While pain, tenderness, and hyperesthesia are often induced by other diseases of the chest, such as pleurisy, tuberculosis, etc., this distribution rarely coincides with that which is so characteristic of heart failure. In several cases which I have recently seen, instead of pain or hyperesthesia, there was persistent numbness along the course of the nerves associated centrally with the spinal accessory and the sympathetic. In one of these patients, a woman of 70, with rigid arteries and the usual phenomena of cardiac incompetence, the extreme numbness in the shoulder, arm, and fingers of the left side, was for a long time the most annoying manifestation of the disease.

Two other symptoms of myocardial weakness that are often misinterpreted, are progressive pallor and weakness. These occurring late in life, without obvious cause, should at least excite suspicion. While they may result in some instances from sleeplessness and mental anxiety, they are often due, no doubt, to increased tension in the venous system, in consequence of which the absorption of food is hindered and the flow of lymph into the veins is impeded. The following case will serve to illustrate the diagnostic value of progressive pallor and weakness in connection with sensory disturbances in the area supplied by the second and third dorsal nerves:

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[1] Read before the Atlantic City Academy of Medicine, May 13, 1904.

[1] British Medical Journal, January 5, 1895.

The patient, a man of 63, had been healthy until four months previously, when he was attacked with influenza. After confinement to the house for about two weeks he was able to resume work. His original strength, however, did not return, and I was asked to see him. He was a large man, inclined to obesity. His chief complaints were pronounced weakness and a sense of numbness in the left arm. This numbness would occasionally disappear for short periods and was not associated with any evidence of neuritis. There was no marked dyspnea, and no edema. The appetite was good and there was but slight indigestion. The urine was normal. The arteries were somewhat thickened. The pulse was regular and of good volume. The area of cardiac dulness was not increased, and the sounds were clear. There was, however, some accentuation of the second sound over the aortic cartilage. The skin was decidedly pale. The diagnosis of chronic myocardial disease, based upon the progressive pallor and weakness, the numbness in the left arm, and the accentuation of the aortic second sound, was verified six weeks later, when the patient died in a sudden attack of asystole.

Attacks of syncope, partial or complete, sometimes occur early in the course of chronic myocardial disease. As they are frequently preceded by vertigo, and flatulence with belching, there is some danger of misinterpreting them. During these attacks the pulse is often quite irregular in rhythm. Occasionally, the symptoms conform to the Stokes-Adams syndrome, in which there are in addition to the slowness of the pulse—syncopal, vertiginous, or epileptiform seizures. In the following case syncopal attacks were the initial symptoms of cardiac inadequacy:

In the winter of 1901 a very active woman, aged 67, consulted me about fainting spells which generally came on in the evening, an hour or two after supper. The attacks lasted two or three minutes, and were associated with flatulence and noisy eructations. At times consciousness was only partially lost. On one occasion when she had several attacks in succession, her pulse was 60 a minute and very weak, but regular. There was no dyspnea and no pain. The apex beat was feeble and within the mammary line. The aortic second sound was accentuated, and there was a faint systolic murmur at the apex. The arteries were moderately stiff. As regulation of the diet and the exhibition of remedies calculated to improve digestion produced only temporary improvement, I gave her 1.6 mg. ($\frac{1}{40}$ gr.) strychnin and .24 cc. (4 m.) of the tincture of strophanthus twice a day. Under this treatment there has been a distinct improvement, the syncopal attacks almost entirely disappearing. She has been taking these remedies intermittently for nearly three years, and when I saw her a few weeks ago, she told me that she had had but one attack during the entire winter, notwithstanding the fact that she had been unusually busy.

In this instance the indigestion was intimately related to the syncopal attacks; in certain cases, however, indigestion alone is a prominent feature. While the gastric symptoms are very varied, the most troublesome in my experience, are flatulent distention and noisy belching. The timely recognition of this form of indigestion in elderly persons, and the institution of appropriate treatment may not only serve to remove the immediate distress, but, perhaps, be the means of prolonging life for a number of years.

While edema of the limbs is a prominent symptom of valvular disease with dilation of the heart, it is very rarely marked in chronic disease of the myocardium; indeed, it is doubtful whether it ever occurs in uncomplicated degeneration of the heart. The physical signs of myocardial disease are very uncertain. Not infrequently characteristic symptoms precede any noteworthy changes in the pulse, heart sounds, or area of cardiac dulness. In many cases, however, some irregularity of the pulse will be observed. Of course arhythmia is by no means peculiar to organic heart disease. It may result from indigestion, from various reflex disturbances, from anemia, and from the excessive use of tea or coffee, and may follow certain infections like influenza, which disturb the nervous mechanism of the heart; but when it occurs in elderly persons, especially in the absence of an obvious cause, it should always excite suspicion. The irregularity may be continuous or intermittent, and may affect either the force or the rhythm of the pulse, or both. Only in the advanced stages of mitral stenosis do we meet the extreme irregularity and inequality of the sphygmographic curves that are observed in some cases of cardiosclerosis. Now and then there is a definite arrangement of the irregular beats, as in the wellknown bigeminal pulse, in which the beats occur in couples. This pulse may develop spontaneously as the direct result of the heart lesion, but it should be borne in mind that it is not infrequently produced by the too free administration of digitalis.

Intermission has about the same significance as other forms of irregularity. Like the latter it may be habitual or occasional. A beat may be entirely lost, but sometimes when not palpable at the wrist it is recognizable on auscultation of the heart. At times the beat is lost, both to the hand and the ear, and yet on abortive attempt at systole is recognizable in the sphygmographic tracing. In many cases the patient himself is conscious of the omission, and complains of a throb in the chest at the time of its occurrence. This sensation, however, is excited not so much by the halt in the beats, as by the forcible systole that follows the interruption. Intermissions, especially when they occur in persons of advanced years, and are frequent and prolonged, have in themselves an injurious effect upon the heart. During the intermission an unnatural accumulation of blood occurs in the ventricles and this together with forcible systole which necessarily follows the intermission tends in enfeebled hearts to bring about dilation.

A few years ago I saw a man, aged 40, who was troubled with a persistent irregular intermission of the pulse, which had developed about three years previously. He said that the intermissions themselves did not annoy him, but that they were accompanied by a very unpleasant sensation over the heart. He had been to several able diagnosticians, and all had agreed that there was no evidence of valvular disease. The intermissions had been for many months the only cause of complaint. When I saw him he was suffering from slight dyspnea and vertigo, both of which, however, had developed only within the last few weeks. Beyond the intermission in the pulse there was no sign suggesting organic disease of the heart. The area of dulness was not increased, the sounds were perfectly clear, and only accentuated at the time of the intermission. The appetite was good, the digestion was not deranged, and from his general appearance one would have judged him a healthy vigorous man. With rest and the administration of small doses of strychnin and spartein the dyspnea and vertigo disappeared, but the halt in the heart's action still remained. During the hot weather last summer he had three attacks of asystole, in which there were extreme weakness and irregularity of the pulse, severe dyspnea, pulmonary edema, and cyanosis. During the winter he has been free from such attacks, but he still suffers from intermissions and from dyspnea and vertigo on exertion. When first seen it was difficult to believe that this man had any organic disease of the heart, since for a long time he had no symptoms or physical signs other than the intermission in the pulse; but the slowly developing dyspnea, in conjunction with the arhythmia suggested myocardial disease, and the subsequent occurrence of the attacks of asystole confirmed the diagnosis.

Tachycardia and bradycardia are common symptoms of heart weakness. The latter is more characteristic than the former. In some cases the pulse is habitually slow, 60 or 50 a minute; in others the bradycardia is paroxysmal. In rare instances persistent slowness of the heart's action is associated with syncopal vertiginous, or epileptiform seizures, as in the Stokes-Adams syndrome, of which mention has already been made.

Very often in these cases slowness of the heart's action is more apparent than real. The radial pulse may be remarkably slow, and yet auscultation of the heart may show that the beats are nearly normal in frequency. The explanation of this discrepancy is that some of the cardiac contractions are too feeble to transmit a pulsewave to the wrist. Percussion may reveal no change in the outlines of the heart. When, however, the subjective symptoms are well pronounced, it is not uncommon to find a measure of dilation. When the myocardial disease is unassociated with valvular defects, auscultation may afford but little evidence of its existence. Perhaps the most common auscultatory features are enfeeblement of the sounds at the apex and accentuation of the second sound at the aortic cartilage, the latter indicating an excess of arterial over intraventricular pressure. Infrequently a soft blowing murmur is heard at the apex. This is more often the result of incomplete closure of the mitral orifice, owing to imperfect ventricular systole than it is to organic changes in valve leaflets or to actual dilation of the mitral ring. Anginoid pains are rarely present in cases in which there is pronounced mitral insufficiency. Indeed, as Broadbent and Musser have pointed out, angina pectoris, the result of myocardial degeneration, sometimes ceases when relative mitral insufficiency develops in consequence of dilation.

To sum up, the symptoms to which our attention is first directed in chronic myocardial disease are breathlessness on slight exertion, disturbances of sensation, either subjective or objective, in the region of the heart or along the course of the nerves associated centrally with the vagus and sympathetic, irregularity of the pulse, and accentuation of the aortic second sound. Attacks of syncope, of cardiac asthma, of angina pectoris, and asystole, the Stokes-Adams syndrome, and Cheyne-Stokes breathing are among the more conspicuous manifestations of cardiac incompetency, but they do not occur, as a rule, until the degenerative changes in the myocardium are well advanced.

Treatment.—Attention to the minutiæ of life is of the utmost importance. No one "rule of thumb" can be laid down for every patient. Each individual must be studied as regards the state of the arteries, the character of the pulse, the digestive powers, the existence or absence of any constitutional vice, and the actual condition of the heart, so far as this can be ascertained. Exercise and diet are the points to which attention should first be directed. It is not always necessary that the patient should give up his occupation, but it is imperative that the sum of his exertions should be carefully adapted to the strength of his heart. It must be borne in mind that the fret and worry incident to many pursuits may exert as baneful an effect upon the circulation as undue physical effort. In some cases when the pathologic changes are not far advanced, and particularly if they consist in fatty overgrowth rather than in degeneration of the muscular fiber, graduated exercise, coupled with warm saline baths as in the wellknown Nauheim treatment, have a very salutary influence. When, however, palpitation, irregularity, pain, or pronounced dyspnea follows exertion, absolute rest is essential. In such cases massage is very useful, since it gives the patient the advantages of exercise without throwing any additional strain upon his heart.

As with exercise, so with diet, no hard and fast rules can be laid down. The diet must be carefully adapted to the digestive powers and to the needs of the system. Rich foods, bulky foods, and foods which induce flatulence should be withheld. Eating between meals should be prohibited. The question of the quantity of food is also a matter of great importance. Degenerative changes in the heart usually occur at a period of life when the amount of food can often be considerably restricted without impairing the general nutrition. Chambers, Balfour and others have dwelt upon the advisability of restricting the amount of liquids taken with meals in the case of failure of the myocardium. By this means the tension in the venous system may be lowered and the arterial resistance reduced. If thirst be complained of, it is better for the patient to sip a moderate amount of hot water between meals than to drink copiously during meals. Some judgment, however, must be exercised in the matter of drink, as the amount of liquid required to secure a free evacuation of waste products from the system must vary in different cases.

Tea and coffee should be used very sparingly, if at all. Alcohol, also, is better dispensed with. Smoking should be forbidden. Excesses of all kinds must be rigidly avoided. Constipation must be relieved. When it does not yield to judicious exercise and the regulation of diet, an aloetic aperient should be given at night or a mild saline in the morning. This may be supplemented from time to time with advantage by a pill of blue mass. In many cases no single remedy affords such prompt relief from the general distress as a mercurial laxative.

If there be a gouty diathesis it should be met by appropriate treatment, and if syphilis be a factor antiluetic remedies should be employed.

As to special treatment, strychnin appears to be the most generally useful drug. In doses from 1 mg. to 2 mg. ($\frac{1}{60}$ gr. to $\frac{1}{30}$ gr.) two or three times a day, it rarely fails to be of some benefit. When there is anemia iron is a useful adjuvant. Arsenic in small doses, over long periods, is often of the greatest service. Balfour considers that "arsenic is indispensable in all forms of weak heart accompanied by pain." He recommends it in combination with iron and strychnin, twice a day, after food. Nitrites usually prove very beneficial in cases in which high arterial tension, anginoid pains, or cardiac asthma are prominent symptoms. Huchard and others have spoken in the highest terms of the prolonged use of the iodids, especially when angina pectoris is a feature of the cardiac failure. They are most effective, as Osler has pointed out, in robust middle-aged men in whom the angina is the sole symptom. They are counterindicated when the myocardial disease is associated with advanced arterial degeneration and chronic nephritis. Digitalis is of service in some cases. It must be used tentatively, however, since not infrequently it does more harm than good. The less advanced the degeneration the more likely is it to be useful. Large doses are generally badly borne, but persistently employed in doses of .12 cc. to .18 cc. (2 m. to 3 m.) of the tincture, twice a day, it often exerts a most favorable tonic effect. Even with these small doses of digitalis it may be necessary to guard against the constricting influence of the drug on the arterioles, by combining with it a vasodilator, such as nitroglycerin or sodium nitrite. In some cases the tincture of strophanthus, in doses of .18 cc. or .24 cc. (3 m. or 4 m.) twice a day, proves more efficacious than digitalis. When neither digitalis nor strophanthus is well received, caffein, spartein, or cactus may be tried.

ENLARGEMENTS OF THE LIVER, WITH REPORT OF CASES.[1]

BY

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of Denver, Colo.

I wish to consider some of the diseases causing enlargement of the liver, and their differential diagnosis. In the beginning I would suggest that most of us are not so careful as we should be in mapping out the liver. By careful percussion above and percussion and palpation below we may generally arrive at a fairly correct conclusion as to the size. We must beware, however, of the danger of overestimation of its size in those patients in whom this organ is in apposition with the abdominal wall to a greater extent than normal, owing to its peculiar position; of being misled by the hyperresonant colon, distended with gas, below it; of underestimating its size because of its being crowded up by tympanites, pregnancy, or other causes of abdominal distention, or because of free gas in the abdominal cavity from a perforation of the digestive tract.

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[1] Read by invitation before the Mesa County Medical Society, May 3, 1904.

I shall speak of the causes of enlargement of the liver in the order of their approximate frequency as I see them, placing the ordinary fatty liver first. This is so common that we need only mention its usual clinical appearance, without quoting specific cases. In advanced cases of pulmonary tuberculosis, and especially in the anemic cases, we often find the liver extending two or three fingerbreadths below the ribs, smooth and painless, and without muscular rigidity in the overlying abdominal wall. Enlargement of the spleen is not to be detected and we therefore exclude amyloid disease. In cases of tuberculosis in which fatty liver is definitely made out we may generally base a bad prognosis upon this single feature. In chlorosis and simple anemia the appearances are the same, but the prognosis is good. The large livers of obesity, those of too hearty feeders, and of beer drinkers, all examples of fatty overgrowth, are less easily made out than those of tuberculosis because of the fat in the abdominal walls. A most deceptive thing, unless properly appreciated is the enlarged, fatty liver of pernicious anemia. Twice within a year I have seen such cases, the patients were sent to me with a diagnosis of cancer of the liver. The enlargement may almost reach the navel, is smooth and painless, and generally not accompanied by notable increase in the size of the spleen. The yellow, anemic color of the disease lends weight to the suspicion of cancer of the liver. The absence of emaciation of great degree, of pain and of real jaundice, the smoothness of the liver, and sometimes the duration of the trouble should be noted. The blood-examination settles the question definitely.

I have never seen the large fatty liver of phosphorus poisoning during life, but three or four exquisite specimens that I have studied postmortem, when death had occurred before shrinking took place, left no room for doubt, from their great size, that they would have been easily detected during life.

The large liver of the various forms of cirrhosis is probably next in frequency in this climate. Undoubtedly a cirrhosis with increase in size of the organ is more common from alcoholism than we have commonly believed. I have noted in the course of six weeks, in a county hospital case, a decrease in size so great as to make me certain, when I saw the small liver at the postmortem, that judging from its comparative area of dulness at different periods, it had probably lost two-thirds of its weight. Such rapid change from hypertrophic cirrhosis to the atrophic form is probably not at all rare.

In two recent fairly typical cases of this trouble the liver extended two fingerbreadths below the ribs, with a rounded margin and smooth surface. In each case the spleen was doubled in size and could be easily felt. One patient had no ascites, the other a slight amount if any. Both had been very heavy drinkers. Neither had had hemorrhages. One of the patients seen with Drs. Rice and Garnett at Colorado Springs, had a yellowish-brown color, the other had a sallow color; neither was definitely jaundiced. The former had 2% of sugar in the urine, the latter neither sugar nor albumin. Both had troublesome indigestion with diarrhea. One died from an acute attack of this nature, the other improved amazingly upon stopping his drinking. In neither could any other cause but alcoholism be considered contributory.

In another case seen with Dr. Freeman, the first striking symptom was profuse hemorrhage, from both stomach and bowels. We saw the man only toward the fatal termination of the disease, and inclined to the idea of a duodenal ulcer. The postmortem showed a slightly enlarged and cirrhotic liver, and doubtless dependent upon this, a thrombosis of the superior mesenteric vein, with fatal damage to the affected intestine.

I have recently seen with Dr. W. H. Davis, what we believe to have been an excellent example of malarial cirrhosis of the liver. The patient had suffered fearfully from malaria in Oklahoma at the time of the opening of that Territory to settlement. In 20 months he was obliged to flee for his life, the liver and spleen being enormously enlarged. Four years ago Dr. Davis had treated him for ascites occurring in connection with his large liver, with a most satisfactory result. The patient had continued his law practice in the interval up to the time I saw him. He had been a moderate drinker only. Four severe attacks of hematemesis had occurred in eight weeks, 1½ pints of blood being vomited on one of these occasions, while much was passed by the bowels. There were present jaundice, considerable ascites, slight edema of the legs, considerable enlargement of both liver and spleen, the former being fairly smooth and hard. The case terminated fatally a few weeks later. Only the history of intense malarial poisoning, with recovery from one attack of ascities under treatment, and immunity for four years thereafter, justify the proposed diagnosis.

True hypertrophic cirrhosis, or Hanot's cirrhosis, is rare compared with the form just mentioned. It probably does not depend upon the use of alcohol in many cases. I have recently seen a typical case in a boy of 18, who denied any use of liquor; and many such cases have been reported. A moderate, finally permanent icterus, attacks of pain, great enlargement of the liver, moderate enlargement of the spleen, continuous fever, reaching 101° or 102° daily, and steadily downward course, with emaciation and absence of ascites, characterized this case. Bile is usually present in the stools.

Cirrhosis originating from perihepatitis—capsular cirrhosis—gives the small liver rather than the large one, and we shall not consider it.

Enlargement of the liver from chronic inflammation of the gall ducts, and not due to secondary abscess, is not rare. I saw with Drs. Kleiner and Freeman a typical case in a druggist of middle age. He had a large tender liver, slight jaundice, irregular fever, occasional slight chills, stools but little lighter than usual, and no enlargement of the gallbladder. He lost much flesh, and yet after a course of many months the infection gradually cleared up and he recovered. In a similar case seen with Drs. Van Meter, Conroy, and Freeman, in a strong young man, the gallbladder was drained, for we feared that it was either infected or contained a gallstone. No evidence of either condition was found. The patient gradually improved, then relapsed. He developed an abscess of the liver of the size of an orange; this was opened and drained by Dr. Van Meter. He finally recovered completely and has remained well. I have seen abscess follow such an infection in several cases. In chronic cases cirrhosis cholangica sometimes follows the infection. The moderate enlargement of cardiac cirrhosis, with the slightly sallow tinge of skin so often seen in patients suffering from mitral disease, needs no especial mention here. Of pigmentary cirrhosis of diabetics but a few isolated cases have been reported in America.

The enlargement of the liver, largely due to capsular cirrhosis associated with indurative mediastinitis and adherent pericardium, is not common. Ascites is commonly present. I have recently seen two cases, one with Dr. Greedy, of Denver, in which considerable hepatic enlargement was associated with acute pericarditis. In one of these at least it is likely that the enlargement was due to a precedent mitral regurgitation at least in part.

The enlargement in cancer of the liver is generally quite characteristic. The liver may, as in a recent case seen with Dr. Greig, of Sterling, reach a vertical expansion of nine inches as it touches the anterior abdominal wall. The slight fever of a rapidly growing hepatic carcinoma may even lead to a diagnosis of typhoid fever, as in one case which afterward came under my care. The great size, occasional jaundice, ascites, compression of bloodvessels, nodular feel, emaciation, pain, visible tumors, when placed in proper light, their occasional umbilication, enlarged glands, and often the knowledge of a previously existing cancerous focus commonly lead to a correct diagnosis. Youth must not prevent consideration of this cause of enlargement. I have recently seen with Dr. Rammel a typical fatal case in a woman of 27.

I saw with Dr. Leonard Freeman last year, a man of 26, with a tumor near the left lobe of the liver which we both thought to be undoubtedly gallstone in the gallbladder, but at operation it proved to be a scirrhous cancer. It was removed successfully by Dr. Freeman and the man has remained well and at work ever since. The careful histologic examination of the tumor left no possible ground for doubt as to the diagnosis, the case being a single brilliant exception to the usual prognosis of cancer of liver according to my personal experience. Dr. Freeman will shortly report this case in full, with exhibition of the specimen.

In the case of a man of 50, whom I saw last year, the development of masses of soft, rapidly growing glands in the neck and of several secondary tumors elsewhere led me to believe the immense enlargement of the liver to be sarcomatous, but no postmortem proof could be obtained. The comparative rarity of primary cancer of the liver should be noted.

Amyloid liver commonly follows long-continued disease, especially of bone from syphilis or of lung from tuberculosis, accompanied by suppuration. I see many typical cases from the latter cause, especially in the Denver City and County Hospital, but it is needless to quote specific examples. The history of very chronic course, the profuse expectoration, the concomitant enlargement of the spleen, the frequently associated nephritis, and the frequent presence of cavities in the lung should be mentioned. Two or three of the best examples of amyloid disease I have seen have been connected with syphilis of the sacroiliac joint, notably one seen with Dr. S. D. Hopkins. The smooth and painless enlargement to a degree far beyond that found in a fatty liver, is very striking.

Syphilis of the liver is a not infrequent disease in adults, while the hepatitis of congenital syphilis is fairly common. The stigmata of the latter trouble will be found in association. Perhaps the single most striking feature of the former is the presence of large painless nodules in a large liver, without so much general interference with nutrition as we should expect if it were cancer. Still the resemblance may in certain cases be very close. Thus I saw, with two other physicians, a man of 52, without known specific history. The liver was twice the normal size, and a nodule was felt beneath the tip of the tenth rib. There was no jaundice. The stomach was dilated, and there had been very troublesome gastric symptoms, so that we thought cancer of the stomach possible. The loss of weight of nearly 40 pounds was also suggestive. Although the patient had been a hard drinker, we felt that cirrhosis of the hypertrophic form could be ruled out, in part because of the nodule mentioned. No enlarged glands were present. The presence of normal acidity after a test-meal, reported by Dr. McGraw, was not what we expected, but still, from the loss of weight, the size of the liver and the nodule, we felt fairly certain of the diagnosis.

Small doses of potassium iodid and sodium phosphate were given to help the hepatic function. The patient steadily improved, and in a few months again weighed 175 pounds and was back at his business and has remained comparatively well for a year since. There is scarcely a doubt that the whole trouble was specific.

A more characteristic case I saw with Dr. Ashley, of Ouray, and Dr. Craig, of Denver. A man of 44 had had syphilis 15 years before, and had been fairly treated for it. Ten years after he took the Keely cure for drunkenness, then got married, and two healthy children, still living, were born to his wife. Fifteen months ago his liver enlarged greatly and he suffered much abdominal pain, but got better under potassium iodid and resumed his work. At the time he consulted me he was his usual weight. There was no jaundice, no vomiting, no history of hemorrhages. The liver was moderately enlarged and tender, but no nodules could be made out. There was no enlargement of the speen—a point of importance in the exclusion of alcoholic cirrhosis. One would think here chiefly of two conditions, from the patient's wellknown history. The first one is alcoholic cirrhosis, but he had no stomach symptoms, no enlargement of the spleen, no loss of weight, no hemorrhages, no dilated veins over the abdomen, no foul tongue, and no ascites. The second and more probable condition is syphilis of the liver. Two facts were strikingly in favor of this. He had his normal weight, and he had, 15 months before, suffered in the same manner and had recovered under potassium iodid. He was again placed upon this treatment, but I have not learned the result.

Abscess of the liver, while not regarded as common in this region, is not by any means to be disregarded because of rarity. Especially since the acquirement of our insular possessions, this tropical disease may occur in the practice of the most modest practitioner.

I have recently seen with Drs. Crews, Durbin, Powers, Whitney, and others, a most interesting case with a probable diagnosis of amebic abscess of the liver, but with probably some added condition obscuring greatly the further diagnosis.

When first seen with Dr. Crews we obtained the history of very severe dysentery in southern Texas four years before, so that in three months the patient was carried to the train and shipped to his home in the North. He has had loose bowels ever since, so troublesome as to interfere with his work at times. He had been unable to work for two months when I saw him, and was suffering from daily fever, abdominal pain, ascites, emaciation, and general weakness. Six quarts of fluid had been withdrawn from the abdomen the previous week, but it was full again. Some tarry stools had been passed, and bloody matter had been freely vomited during the 24 hours preceding my visit, probably 40 ounces in all. In the vomitus Dr. McGraw reported blood, pus, bilirubin crystals, and *Amœbæ dysenteriæ.*

The man was moderately jaundiced, and considerably emaciated. Ascites was present, and an extremely large liver. Yet over the epigastrium there was tympany, which had not been the case, Dr. Crews informed me, before the profuse vomiting. The spleen was moderately enlarged and the chest negative. The blood showed a moderate increase in the polynuclear leukocytes only, the eosinophiles not being increased. The granules of the former cells stained with remarkable clearness. Urine negative.

After several weeks I learned from the other physicians called in that the right pleura had been aspirated, several pints of serum being withdrawn. On January 11, two months after I first saw him, the abdomen was opened by Dr. Chas. A. Powers, and much ascitic fluid escaped. Dense adhesions existed back of the gallbladder, but no other cause for the ascites was found. The liver appeared normal, the spleen somewhat enlarged. No tubercles found; no fat necrosis; a few large glands in the mesentery. We arrived at no more definite diagnosis here than probable amebic abscess of the liver with ascites mechanically produced by pressure of the adhesions consequent upon the inflammation. The abscess probably broke into either the stomach or duodenum, and thus the tarry stools and the vomiting of the bloody material were accounted for. None of those who have seen him has offered a better explanation of the subsequent events than that they came from extension of the inflammation about the liver to the pleural cavities and other parts. The patient still has wellmarked ascites, but is improving somewhat in other respects.

In another case seen with Dr. Beatty, a mining engineer, of 29 years, recently returned from Ecuador, complained of dysentery, and of repeated chills with pain in the abdomen. He had suffered from malarial infection and severe dysentery in the tropics during the preceding 15 months. The liver and spleen were enlarged.

I left the city after this single examination, but after my return learned that five separate abscesses, the last a subphrenic one, had opened in the hepatic region during the few months following, and that the patient had eventually recovered. I obtained no report as to the finding of the amebas, but they must almost certainly have been present.

I have seen several of these cases operated with perfect recovery following, when the abscess was single. In two cases of tropical abscess and two of liver abscess secondary to infection following attacks of suppurative appendicitis, seen within a few years, I have known the suppurative process to extend to the lung, with eventual coughing up of much pus, and recovery. In each of the appendiceal cases a cavity remained in the lung in the region of the right nipple, and the shrinking of the right side consequent upon this, in a case seen with the late Dr. Parkhill, produced a marked spinal curvature concave to the right. The patient had a chronic cough with considerable expectoration when I last saw him, but was apparently gaining ground.

About four months ago I saw a patient with Dr. McClannahan of Colorado Springs, which deserves especial mention, as showing how near we may be to an exact diagnosis and yet fail.

A miner of 52 presented the usual signs and symptoms of cancer of the liver. The presence of a large tense rounded tumor mass in the epigastrum, and a temperature of 100° daily, led us to insert a needle into this mass with the idea of determining possible abscess. Pus was withdrawn, and myriads of motile bacteria were present in it, stated by Dr. McGraw to be colon bacilli. Immediate operation was performed by Drs. McClannahan and Martin of Colorado Springs. The lesion proved to be cancer after all, a single nodule having broken down, and undoubtedly having been infected by the colon bacillus from the adjacent intestine. Death resulted after some weeks. Perhaps the presence of a single well-defined nodule here would have prevented the aspiration, and thus the spoiling of a good diagnosis of cancer of the liver.

The moderate enlargement of gallstone disease is not rare. Tenderness over the gallbladder region is common. Jaundice either persistent and increasing in case of complete blocking of the common duct, or decreasing and then increasing with successive changes in position of a ball-valve stone in the diverticulm of Vater, with repeated chills, and other signs of most serious disease, as delirium and great loss of flesh, are distinctive points. The presence of clay-colored stools only a part of the time may be noted. In a recent case seen with Dr. H. H. Martin, although such a ball-valve stone was removed from the common duct, the jaundice did not clear up. No autopsy was held, but we believe that a cancerous obstruction existed below the stone. Persistent delirium characterized this case.

In a case seen with Drs. Law and Weaver, at Greeley, the persisting enlargement of the liver was apparently due to a cholangitis which remained after the passage of a gallstone. Here the first enlargement was doubtless due to a mechanical enlargement from the gallstone obstruction. Infectious cholangitis followed, the gallstone passed, but the inflammatory process in the ducts kept up an enlargement of the liver with tenderness, fever, moderate jaundice, petechias, chills, sweats, and emaciation. Under a light diet and the use of sodium phosphate, tonics, hydrochloric acid, and washing of the stomach because of the concomitant chronic mucous gastritis, the patient recovered in a few months.

I believe moderate increase in the size of the liver, with slight tenderness is almost the rule in catarrhal jaundice. The absence of serious symptoms, the moderate degree of the jaundice, and the absence of enlargement of the spleen and lymph-glands with the recovery in a month or two, confirm the diagnosis. Yet in a physician aged 30 I have seen large veins over the abdomen which made me fear that the disease was more serious. The recovery in six weeks with continued good health since leads to the conclusion that the large veins were an accidental concomitant of the jaundice, or, at least that they were not due to any permanent damage to the vascular systems of this region. In a similar case, seen with Dr. Simon, from the extreme nausea and persistent vomiting we feared serious results, but the symptoms subsided within three days.

Within a year I have seen three cases which, I believe, compel a diagnosis of acute hepatitis. After most careful study, Drs. Cunningham, Kleiner and Hillkowitz, with whom I saw the three patients, respectively, concluded with me that no other diagnosis was possible, and the gradual subsidence of the enlarged and tender liver confirmed us in each case in this opinion. In one case the temperature reached 105°, in another 104°. In the latter case the pulse was very irregular but the heart negative beyond this feature. In each case the free use of calomel and similar depletive treatment were followed by recovery, and all the patients remain well. The much despised term, "congestion of the liver," may yet regain its former popularity.

The enlargement of the liver in the different forms of leukemia deserves mention. It is greater in the lymphatic form, I believe, as a rule. I examined a boy some years ago, whose liver had been twice aspirated on the ground that its size and his persistent fever made liver abscess probable. The slight enlargement of the spleen and of the lymph-glands rendered such a mistake easier. Only by blood-examination and the finding of a great leukocytosis, with predominance of small lymphocytes, did I establish the diagnosis. Under arsenic the boy is still alive, and practically well symptomatically, after seven years, although his blood still shows a predominance of the small lymphocytes.

I have occasionally been led directly to the diagnosis of leukemia in some of its forms by finding dry, sometimes painless friction, over both the enlarged liver and spleen, certainly not a common combination in other diseases.

I have seen but one case here of echinococcus cyst of the liver, but its characteristics were so well marked that Drs. Fleming, DeCunto, Hillkowitz, and myself found it comparatively easy of diagnosis. The man, an Italian miner, in the thirties, complained practically only of the mechanical disturbances resulting from his enormously distended abdomen. A woman pregnant with twins might have given a similar complaint. He looked well, ate well, and slept well. The liver was enormously enlarged and nodular, and a series of tumors could be felt in the abdomen. Cancer of the liver, with which diagnosis he was sent to us, was excluded. We considered only two conditions, syphilis and echinococcus disease. There was no history of infection in either case. No improvement resulting from specific treatment, one of the nodules was aspirated, and the clear watery fluid obtained led us to recommend operation. The urine was negative. The blood showed a considerable increase in eosinophiles, as is often the case. The test-breakfast showed the stomach contents normal. In the course of the next four months Dr. Fleming operated upon this patient four times, making in all seven incisions in the abdomen and one into the right pleura. Enormous numbers of cysts were opened and drained, but his affection was so fearfully severe that as soon as the pressure of one set of cysts was relieved by operation a hundred more began to enlarge, and he eventually died. Many cysts of the liver, omentum, right kidney, and right pleura were opened and drained, or removed entirely.

At the autopsy hundreds of small cysts were still present, affecting almost all the structures of the chest and abdomen.

The large liver of rickets will not commonly lead to error, since it is much less prominent than the other signs of the disease.

The enlargement of the liver in Banti's disease is moderate in most cases, and is entirely overshadowed by the splenic trouble and the other features of this rare disease. The congestion of the organ in diabetes and in gout has long been noted, as has that seen in Weil's acute infectious jaundice. I have not seen the cases ascribed to the congenital obliteration of the gall-ducts.

The gallbladder may be so large as to be palpable, either from the stones it contains, from bile or mucus, or from pus. Courvoisier's statement that blocking of the common duct from stone is not commonly followed by increase in size of the gallbladder, owing to the precedent inflammation and consequent loss of elasticity of its walls seems borne out by the facts. I have seen more than a quart of bile present in the enormously distended gallbladder after pressure had obstructed the common duct. In most cases the contents are rather mucous than biliary in character if the cystic duct be collapsed by pressure. In acute cholecystitis the septic symptoms, tumor, tenderness, leukocytosis, and muscular rigidity ordinarily lead to the correct diagnosis. With prompt operation recovery may be hoped for with much confidence. The possibility of confusion in diagnosis with acute appendicitis is one which I must admit after my experience in a recent case in which the patient was successfully operated upon by Dr. W. B. Craig. The nature of the pain and its location so high in the flank, with the tumor, prevented an error.

SPLENOHEPATIC FIBROSIS WITH A REMARKABLE LEUKOCYTOSIS.

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That group of chronic diseases presenting as most prominent features, lesions in the spleen and liver, is at all times a most interesting study. If we consider the hepatic lesions primary, and the splenic conditions secondary, or at least of later development, we find ourselves discussing a group which makes up the different varieties of cirrhosis of the liver; and while the exact etiology of cirrhosis of the liver is unknown, the whole subject has been quite thoroughly studied and classified. On the other hand, when we pronounce the splenic lesions primary, and the liver conditions secondary or sequent, we come to a group of morbid phenomena concerning which there exists considerable confusion, which, however, is gradually being cleared up by constantly appearing articles summing up our present knowledge and adding recent observations.

We find, then, two groups, one regarded as primarily hepatic, and one as primarily splenic. The pathologic anatomy is essentially the same in both groups, and consists in a greater or less increase in the connective tissue of first one and then the other organ. And it is usually on the quantity and quality of the connective tissue that we assume the disease to be either primary in the liver or spleen. The terms chronic interstitial hepatitis, chronic interstitial splenitis, or chronic interstitial nephritis imply a chronic inflammation involving the connective tissue of the indicated organ. Whether the changes are really inflammatory or degenerative, or hyperplastic, or all three, is still an open question, but the chronicity of the process and the resultant fibrosis, cirrhosis or sclerosis, whichever we call it, are indubitable. Furthermore, in chronic affections of this sort, we expect and find a secondary anemia; and while in fibrosis of the spleen, an organ of supposedly close functional relations to the blood cells, we would anticipate marked anemic features, experience has taught us that the secondary anemia, when the lesion is prominently splenic is not necessarily of a more severe type than in cirrhosis of the liver.

Cases which are apparently frankly hepatic in origin, *i. e.*, any of the typical varieties of cirrhosis of the liver, usually give distinctive symptoms which enable us without difficulty to locate the seat of the trouble. And conversely, cases frankly splenic, usually give symptoms typical enough for a correct diagnosis. It must be emphasized, however, that the blood changes in either case are only those of a secondary anemia, and are not diagnostic. Moreover, when the disease is well established or advanced, we may find symptoms common to both groups. For instance, a case presenting a fairly equal enlargement of spleen and liver, secondary anemia, ascites, and a history of hemorrhages might be very puzzling, especially if no history etiologically suggestive of cirrhosis of the liver be obtainable. Finally, it might be, from the presence of symptoms common to both groups or the absence of symptoms distinctive of one group, a case would be undiagnosable up to the time of death. And even the autopsy findings might fail to classify it definitely. It is such a case which is the subject of this paper, and the notable leukocytosis present only caused additional confusion instead of clearing up the matter.

CLINICAL REPORT.

CASE.—Mrs. B., aged 71, a widow, was first seen by us December 6, 1903.

Family History.—Grandmother and aunt died of carcinoma of the breast. Mother died of carcinoma of the liver. Father was an alcoholic; was drowned. Patient had three brothers and no sisters. One brother died of alcoholism, aged 50. One brother died of heart disease, aged 62. One brother died of "softening of the brain."

Previous History.—Patient was born in England and came to this country when 12 years of age. So far as she can remember, she was healthy during her childhood and young womanhood. She gave birth to eight children, two of whom are dead, one from scarlet fever and one from an accident. The remaining six are in average health. When about 30, when living in New Jersey, she had malaria during two successive summers. She was pregnant during one attack, and gave birth to a child which, she declares, developed malaria when a few days old. After the second malarial attack she changed her residence to Philadelphia, and had no recurrences of the disease, though since that time she has suffered from dyspnea and palpitation on exertion, and has been more or less anemic in appearance. Ever since she can remember, she has had occasional fainting spells. Her habits of life have been good. She has not been a user of alcohol and there is no history of syphilis.

Recent History.—For the past 10 years the patient could not bear her clothing tight around her waist, as it caused her great discomfort. For the past three or four years she has been losing weight, but more rapidly during the last three or four months. Loss of strength has been correspondingly rapid.

About 18 months ago she noticed a swelling at the lower border of the ribs on the left side. Up till four months ago this slowly increased, with occasional intervals, she thinks, when the mass became smaller. In the last four months it has rapidly increased in size with no remissions, until it is quite apparent to the patient as a large swelling filling the left side of the abdomen. The patient also notes a swelling on the right side of the abdomen, but this did not attract her attention as much as that of the left side. She attributes the enlargement on the right side to the fact that some years ago she wore her clothing tight around her waist, and she thinks "the liver was pushed down." She cannot say whether the enlargement on the right side preceded that on the left or vice versa. The abdomen is slightly tender to touch, but she suffers no discomfort, except for a dragging in the lumbar region and a sense of weight and fulness in the abdomen.

The tongue is raw and a little sore. She has had several attacks of nausea and vomiting. The bowels are constipated. There is absolutely no history of hemorrhage, except very slight nose-bleed several weeks ago.

For several weeks, she has had a feeling of numbness beginning in the left hand and extending up the arm to the shoulder and face. When the sensation reached the face, she would lose the power of speech and the face would become drawn. This would persist for about a half hour and then pass away to recur several times in the 24 hours. Altogether, however, the patient is fairly comfortable.

Physical Examination.—The patient, seen in bed, is a thin, sallow little woman with a small chest and an enormously distended belly. The mucous membranes and conjunctivas do not show marked evidence of anemia. There is no edema of the extremities. There is no enlargement of the cervical, axillary or inguinal glands. There is no distention of the superficial thoracic or abdominal veins.

By palpation and percussion, it is easy to make out through the thin abdominal wall two distinct masses which are obviously the enlarged spleen and liver.

The spleen can be traced from the edge of the ribs on the left side as a mass filling the whole left side of the abdomen. On the right, it extends within 2 cm. of the middle line; downward, it extends as far as 9 cm. below the level of the umbilicus in the midclavicular line. The skin is not attached to the mass, which, however, is immovable. The entire abdominal portion of the projection can be palpated and is found to be hard and smooth with a rather sharp edge. There is a notch on the right aspect about the level of the umbilicus. The splenic dulness above begins at about the eighth rib in the midaxillary line.

On the right side, the liver extends almost as far as the level of the umbilicus. The thin, sharp edge can be felt without difficulty. The edge and surface of the liver up to the ribs are firm and smooth. There is very little, if any, tenderness. The liver flatness begins at the fifth interspace above. The gallbladder cannot be made out.

Careful examination of the rest of the abdomen gives negative results. It is not possible to get the slightest evidence of ascites, and the distention of the abdomen is apparently due to the splenic and hepatic tumors and distended gut.

The heart and lungs are negative. The pulse is 92, regular, fairly full and of medium tension. The radial artery is, perhaps, a little stiff, though compressed without difficulty. The systolic blood-pressure is 130 mm. with Stanton's instrument.

The urine is dark amber, clear, acid, and of a specific gravity of 1,024. It contains no albumin or sugar. The bile test is negative. Microscopically, vaginal epithelium, a few round cells and a few hyaline casts are observed.

The temperature is normal in the morning and reaches 99.6° F. in the evening.

Blood Examination:

December 13, 1903.—Hemoglobin (von Fleischl)	48%
Red cells	4,100,000
Color index	.58
White cells	136,000
Differential count (Jenner's stain—1000)	
Polymorphonuclear neutrophiles	89.2
Small mononuclears	1.7
Large mononuclears	2.8
Eosinophiles	1.4
Basophiles	.3
Neutrophilic myelocytes	4.5
Eosinophilic myelocytes	.1

There is some slight poikilocytosis, but deformity and variations in size in the red cells are not marked. There is also but slight evidence of polychromatophilia, most of the cells staining well, and only here and there an erythrocyte taking the basic stain. In the first 500 leukocytes no nucleated red cells are seen; in the second 500, two nucleated reds (normoblasts) are observed, averaging but two in the counting of 1,000 leukocytes. The blood plates are inconspicuous. The white cells are quite typical and transition forms are rare. When there is any doubt, the benefit of it is given to the myelocyte count, so that the percentage of these cells in this and subsequent examinations is too high if anything.

December 26, 1903.—White cells	109,000
Differential count (Ehrlich's stain 500).	
Polymorphonuclear neutrophiles	88.4
Small mononuclears	3.4
Large mononuclears	2.0
Eosinophiles	1.8
Neutrophilic myelocytes	4.4
Differential count (Jenner's stain 500).	
Polymorphonuclear neutrophiles	87.0
Small mononuclears	5.6
Large mononuclears	2.4
Eosinophiles	1.2
Basophiles	1.4
Neutrophilic myelocytes	2.4

The general blood changes are those of the first examination. In the count made from the specimen stained with Ehrlich's stain three normoblasts are noted; in the second count with Jenner's stain three normoblasts and one megaloblast are observed. Polymorphism of the blood is absent.

January 13, 1904.—Red cells	3,578,200
White cells	98,000
Differential count (Jenner's stain 500).	
Polymorphonuclear neutrophiles	93.6
Small mononuclears	2.0
Large mononuclears	2.2
Eosinophiles	.4
Basophiles	.8
Neutrophilic myelocytes	1.0

This specimen shows more evidence of anemia than preceding ones. The red cells vary considerably in size and exhibit some deformities and slight polychromatophilia. Their centers show no paleness. Two normoblasts and one megaloblast are observed. The white cells are still quite typical.

Subsequent History.—On January 4, 1904, the liver is still larger and reaches 3 cm. below the level of the umbilicus.

On January 13 the patient is mildly delirious.

On January 22 the abdomen is flat. The liver can still be felt 3 cm. below the level of the umbilicus, but the spleen seems to have decreased in size, and its lowest limit is near the level of the navel.

On January 26, the patient is sinking, and dies at 11 a.m.

PATHOLOGIC REPORT.

The *autopsy* was held January 26, at 3 p.m., four hours after death, at a private house, under the disadvantages usual in such cases. We were only allowed to remove the spleen entire, small fragments of other organs and tissues being taken for microscopic examination.

The subject was a markedly emaciated and slightly jaundiced old woman, measuring 1.6 meters in length. The skin was dry and wrinkled. There was no edema, eruptions, scars, or bruises. The superficial veins were prominent. The belly was flat. There was outward bowing of the left tibia. Postmortem lividity was noted in the dependent parts. Rigor mortis was slight. The muscles were small and flabby.

The primary incision from sternal notch to pubes showed the subcutaneous fat reduced to a minimum. On opening the abdomen, the enlargement of the liver and spleen at once attracted attention. The liver extended 10 cm. below the costal margin in the right midclavicular line, to the umbilicus in the middle line, and 7 cm. below the costal margin in the left midclavicular line. The distended gallbladder extended 5 cm. below the hepatic margin. The spleen extended down into the left lumbar region as low as the level of the umbilicus. On its right aspect it formed almost a right angle with the margin of the left lobe of the liver. The mesenteric fat was very scanty. There was no evidence of peritonitis. There was no ascites. The diaphragm was at the fourth rib on the right side and at the fifth rib on the left side.

On opening the chest, the lungs were found normal except for very slight scars at both apices and an amount of hypostatic congestion, to be expected in one bedridden as long as this subject. The heart was about the size of the subject's fist. There was a pericardial plaque over the right ventricle. The vessels were prominent and tortuous on the heart's surface. The cardiac muscle was of a good color and quite firm. The walls of the ventricles and the cavities were about normal. The orifices were normal, except the mitral, which admitted but one finger. The chordæ tendinæ of the mitral valve were somewhat shortened. There were arteriosclerotic changes around the orifices of the coronaries and in the ascending aorta, but these were not especially marked. There were no glandular enlargements or other abnormalities in the mediastinum.

The spleen, on removal, measured 20 cm. x 12 cm. x 5 cm., and weighed 680 gm. The surface was smooth and the organ was quite firm, and normal in shape. The capsule was not especially thickened. The firmness of the organ was emphasized on section by the toughness with which it cut and the fact that it did not give at all under the knife. The sectioned surface was dry and reddish-brown in color. A marked increase in the connective tissue was evident from numerous and closely set grayish-white lines and dots. The follicles could not be seen. The splenic vein was distended, but was not otherwise abnormal. The splenic artery exhibited an extreme degree of nodular arteriosclerosis, with numerous semidetached calcareous plates, between which the structure of the arterial wall was apparently normal.

The large liver was smooth and chocolate-brown in color. On section, it seemed to us there might be some increase of connective tissue around the portal areas (perhaps because we were looking for it), but otherwise cirrhosis was not grossly in evidence. The organ cut with some toughness. The lobular markings were rather obscured. Gross specimens preserved in Kaiserling gelatin showed the lobules better, a reddish-brown center contrasting with a light brown periphery. The gallbladder and hepatic, cystic and common ducts were carefully examined, but presented no abnormalities. The portal vein and the superior mesenteric were particularly looked over, but showed no morbid changes. The hepatic artery exhibited the same degree and variety of arteriosclerosis found in the splenic artery.

The condition of the stomach was noteworthy, and this organ closely resembled intestine in size and appearance. It measured 22 cm. in length, but its widest transverse diameter was only 4.5 cm., with variations down to 2.25 cm. Its wall was quite thick, as though due to shrinking from its former normal size. Otherwise, no morbidity could be detected. There was no stenosis at the pylorus or cardia. There was no evidence of malignancy in the stomach or throughout the small and large bowel.

The pancreas was normal in appearance.

The kidneys presented no gross changes, with the exception of a few cysts on the surface of each. The adrenals were normal. The bladder was half full of urine.

The mesenteric and retroperitoneal glands, among which were noted hemolymph-nodes, were normal in size and appearance.

The genitals were atrophic, but otherwise normal.

The bone marrow of a rib and of the left radius was examined. That of the rib was normal. The marrow of the radius was soft, grayish-red, and rather purulent in appearance.

The arteries of the abdomen, including the abdominal aorta, the iliacs, the celiac axis, the splenic, the hepatic, the gastrics, the superior mesenteric, the ovarian and smaller branches, were examined, and all found to be in an advanced stage of nodular arteriosclerosis, with numerous calcareous plates roughening and breaking through the intima. The condition of the coronary arteries, in comparison with those of the abdomen, was remarkably good.

The nervous system was not examined.

The *microscopic* examination was made from sections fixed in Flemming's solution, Zenker's fluid, or formalin, imbedded in celloidin, and stained with Babes' safranin, hematoxylin and eosin, hematoxylin and Van Gieson, Mallory's connective-tissue stain, Weigert's stain for elastic fibers, or the iron stain with potassium ferrocyanid. Smears from the bone marrow and spleen were stained with Ehrlich's or Jenner's stain.

The spleen showed a general increase of the connective tissue, most marked in the reticulum of the pulp, a disappearance of the lymphoid follicles and a chronic passive congestion. Lymphocytes or lymphoid cells were relatively few in number, but spindle cells were quite numerous. Smears from the spleen showed many erythrocytes, very few of which were nucleated. Many other cells were observed, and these were considered to be large and small mononuclear cells, polymorphonuclear neutrophiles, eosinophiles, endothelial cells, and a few myelocytes. A large amount of pigment was present, but did not give the iron reaction.

The liver showed a diffuse fibrosis, the distribution of which was rather peculiar. This increased connective tissue was distributed quite equally throughout the organ and accounted for its size and gross appearance. The columns of liver cells were uniformly separated by connective tissue and a certain amount of blood. The new connective tissue seemed to be at the site of the capillary wall, and was apparently an increase in the thickness of the walls of these minute vessels. These uniformly thickened capillaries were also as uniformly distended with blood cells, in which neutrophiles were apparently as abundant as in the blood spreads examined during life. There were no evidences whatever of the ordinary forms of cirrhosis. There was no interlobular increase of fibrous tissue at all. There was absolutely no new formation of bile ducts. The liver cells were not degenerated to any extent, nor did they show any fatty changes. The center of the lobules showed some pigmentation of the hepatic cells, but this pigment did not give the iron test. There were no lymphoid infiltrations.

The pancreas showed a diffuse increase of connective tissue, both interacinar and interlobular but more especially the former. The connective tissue was of the fibrillar type, poor in cells. The acini themselves showed little change. The islands of Langerhans were surrounded by considerable fibrous tissue, but only in a few instances and to a slight extent were the islands invaded. Hyaline degeneration was not observed. Pigmentation was absent. The bloodvessels throughout the organ including the capillaries of the islands of Langerhans were distended with blood. The microscopic findings contrasted strongly with the apparently normal gross appearance.

The kidneys showed a mild degree of chronic interstitial nephritis. The parenchyma showed but slight degenerative changes. The bloodvessels were distended. There were no lymphoid infiltrations.

Several hemolymph and ordinary lymph-glands showed no special changes.

Smears from the bone marrow showed many red cells, a small number of which were nucleated, numerous neutrophiles and lymphocytes and quite a number of eosinophiles. Myelocytes were observed, but these were not excessive in numbers. Only three or four basophiles were seen, and but one or two giant cells. Pigment was abundant.

The heart muscle was normal as far as the microscopic examination was concerned. There was no evidence of fatty or fibrous change, the striations were well preserved, and the staining properties were unaffected. It was noted that the capillaries were distended with blood.

The arteries were carefully examined. The arteriosclerotic changes were found to occur in patches. Between these areas, the vessel wall was comparatively normal, and the intima and media little disturbed. Sections through the sclerotic areas showed thinning of the media with hyperplasia of the intima, fatty degeneration, necrosis and extensive calcification. At these sites the lumen was distorted, but not especially narrowed. The sections were from various arteries of the abdomen. The vessels of other parts of the body were unfortunately not examined.

Summarizing the gross and microscopic pathologic findings, a general fibrosis seemed to be the constant lesion. This fibrosis was hyperplastic in character, and was most marked in the spleen and liver, though the pancreatic lesions were considerable. The arterial conditions were, indeed, very advanced, but here the degenerative element was in the foreground. The kidneys showed the least amount of sclerosis. There was also general congestion.

Clinically and pathologically, this case presents points worthy of discussion.

In making a clinical diagnosis, the possibilities of leukemia, pseudoleukemia, cirrhosis of the liver, malignant disease, some inflammatory or toxic process, and splenic anemia came to our minds. The suspicion of a leukemia, in which the ordinary white cell count for that disease had been temporarily reduced by some intercurrent affection or unknown cause, came first in our consideration. This suspicion was quickly dispelled by the study of the stained specimen, in which the paucity of nucleated red cells, the low percentage of myelocytes, and the absence of polymorphism of the blood were at once noted. Hodgkin's disease was not strongly thought of on account of the absence of all evidence of enlargement of the lymphatic glands. In considering cirrhosis of the liver, we took especially into account the hypertrophic variety in connection with the absence of ascites and the occasional occurrence of a marked leukocytosis in that form. Hayem noted in one of his cases a high color index; the color index in ours was only .58. Malignant disease was strongly favored by one of us as the best possible explanation of the hyperleukocytosis. An inflammatory process, more especially a suppurative type, was rather discountenanced on account of the chronicity of the disease and the practical absence of fever. A toxic condition would have satisfied us if we could have found some good cause for it. Splenic anemia fitted the case as far as the size of the spleen and liver was concerned, but the leukocyte count and the absence of ascites and hemorrhages discouraged this diagnosis. The number and character of the white cells seemed to throw out of balance all our diagnoses, and at the time of death we had not reached a satisfactory conclusion.

The postmortem aspect of the case and the antemortem phenomena form a composite picture which clears up some questions but leaves others unanswered. We can exclude leukemia, pseudoleukemia, malignant disease and a suppurative process.

Could this be a case of hypertrophic or Hanot's cirrhosis of the liver? We think not. On the one hand, the chronic course, the enlarged liver and spleen and the absence of ascites are clinically favorable to it. The sex and age of the patient are against it. Most cases are in males, either children or young adults. W. H. White believes Hanot's cirrhosis occurs exclusively in children. The cirrhosis present in the liver was certainly monocellular, but seemed to be a marked thickening of the capillaries rather than any extensive production of connective tissue in new sites. There was absolutely no monolobular or multilobular or periportal increase of fibrous tissue, and the development of new bile ducts was conspicuous by its absence. The greenish-yellow appearance of the liver, common in several varieties of cirrhosis, was absent. We think these findings exclude Hanot's cirrhosis, as well as the first or hypertrophic stage of Laennec's cirrhosis.

What as to splenic anemia? There are clinical conditions certainly favorable to this diagnosis—the previous history, the chronic course, the enlarged spleen and liver and the blood condition, exclusive of the leukocyte count. In this case, we consider hemorrhages practically absent. They were present in 24 out of 34 cases of splenic anemia tabulated by Lichty and came from either the stomach, intestine or nose. We also had no ascites. It was present in 7 of Lichty's 34 cases. It usually occurs in the terminal stage of the disease in conjunction with cirrhosis of the liver and jaundice, the complex then constituting Banti's disease. Our case was certainly advanced enough in point of duration, we had hepatic cirrhosis and finally slight jaundice, but ascites was absent. The character of the fibrosis of the liver, however, explains the absence of ascites if we put it on the mechanical basis of portal obstruction. Pathologically, the lesions found in the spleen of our patient correspond very accurately with those of splenic anemia, viz., atrophy and sclerosis of the malpighian follicles and replacement of the pulp by dense fibrous tissue—a fibrous hyperplasia of the spleen. The gross appearance of our sectioned spleen is exactly that given by Banti in speaking of the spleens in his cases as reddish-brown in color on section, with more or less numerous whitish-gray streaks and specks. The hepatic cirrhosis in our cases was peculiar, but we find, in looking up the condition of the liver in splenic anemia, that the descriptions, especially from the histologic standpoint that would classify the cirrhosis, are very poor or entirely wanting; and while the general impression given is that the form found is the atrophic cirrhosis, other varieties are described in some cases and altogether the type is inconstant or at least not satisfactorily determined.

In concluding our clinical and postmortem observations in this case we would at first tend to place it among the splenic anemias, but we are halted by certain considerations. We note that the spleen in this case weighs but 680 gm. In considering splenic enlargement, or the enlargement of any organ, it would, of course, be more logical to regard the weight of the organ in its relation to the body-weight. But this does not seem to have been the rule, and so we must be content with the average weight of spleens in splenic anemia, which we find to be about 1,500 gm. Ours, then, is well under the average. The weight of the liver was not ascertained, for reasons already given, but from its relations and dimensions, it is certain that the organ was much enlarged, as much, or more so, than the spleen. Now, the patient herself, could not say positively, whether the enlargement began on the left or right side; the relative enlargement and degree of fibrosis of spleen and liver are about equal in each organ; and it is impossible to say, either clinically or pathologically, whether the morbid changes began first in the spleen or liver or approximately at the same time in both. In conjunction with this, another interesting point is to be brought to mind. We note that the increase of connective tissue in the liver seems to consist of a marked thickening of the hepatic capillaries, and that, furthermore, many arteries throughout the body show the most extreme degree of sclerosis and calcareous change. This arterial change is remarkably patchy in its distribution. The vessels are comparatively normal between the sclerotic areas, but the degree of atheroma and the number of semidetached calcareous plates on both large and small arteries are as great as we have seen. We regret our observations did not extend beyond the abdominal vessels. We were particularly interested in looking into the condition of the vessels on account of Dock and Warthin's report of stenosis and calcification of the portal veins in two cases of splenic anemia. The venous system in our case was free, but the splenohepatic arterial system, as well as the abdominal arteries generally, showed the most extensive involvement.

We have, then, an approximately equal fibrosis of spleen and liver, together with extensive sclerotic changes in the arteries and a progressively decreasing degree of fibrosis in the pancreas and kidneys. We appreciate the point that the arterial conditions in this subject may be to some extent those of senility, but the process in degree and extent is out of all proportion to ordinary senile sclerosis and is only to be compared with changes at the same time present in the spleen and liver. Is the entire change due to some single, primary, unknown cause? If so, in this case at least, we cannot with good reason call the affection splenic anemia any more than hepatic anemia, or arteriosclerotic anemia, or even, perhaps, pancreatic anemia. There is a great tendency at present to ascribe hepatic cirrhosis, splenic anemia or cirrhosis, or arteriosclerosis to "some toxemia," or to say that the condition found is simply "one expression of a systemic poisoning," and thus remove the liver, spleen or arteries as the seat of the primary condition. It may be said that this only puts the question one step further back, but let us hope it is a step in the right direction. We wish to take Wentworth's good advice and not generalize from one case, but we are impressed with the idea that this is a case in which we cannot name the cause or say that the primary lesion is in the spleen any more than it is in the liver, and we can therefore hardly call the case splenic anemia. And while it is, perhaps, no better to speak of splenohepatic fibrosis, we have not used the title as a name for the disease, but simply to indicate in this instance the organs clinically and pathologically prominent and to suggest the variety of morbid change present.

We have largely left the leukocytosis out of the discussion, as it seems to be foreign to the whole matter. We can in no way account for it. In the first place, it may be said that we took every precaution to avoid mistakes in the count of the number of leukocytes, as well as in the differential count, and had our results confirmed by other observers. Conditions of fibrosis in any of the organs present sooner or later a secondary anemia in which leukopenia is the rule. Splenic anemia typically exhibits a leukopenia, and only rarely is there a leukocytosis. West reported one case with a white cell count of over 50,000, the highest we know of, but the diagnosis of splenic anemia was doubted by Kanthack. Had there been a complicating pneumonia, or peritonitis, or some malignant condition, or had the leukocytosis occurred only as the not unusual antemortem rise, we would not have been puzzled, even though the percentage of leukocytes was high for any of these causes. But this patient was carefully observed for about seven weeks before death, and, as confirmed postmortem, there was no known reason for such a count. There may have been some condition of the nervous system to cause it, but of this there seemed to us to be no good evidence. So far as we are concerned, then, this remarkable feature of the case remains entirely unexplained.

FRAMBESIA: ITS OCCURRENCE IN NATIVES OF THE PHILIPPINE ISLANDS.

BY
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On a recent visit to Benguet Province in the central part of northern Luzon I became interested in a peculiar disease which was called "lepra" by the native Igorrotes, who said that the term had been given to them by the Spaniards.

As I was entirely unprepared for a complete study, and it is extremely difficult to obtain any history, or make complete examinations of these people, the following report is quite meager, but it is interesting since I feel certain that the disease is closely related to if not identical with frambesia.

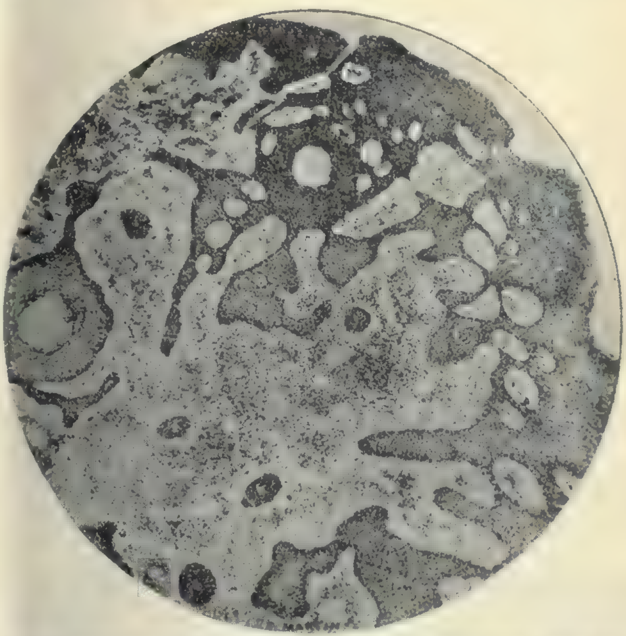
That frambesia or yaws exists in these islands there is very little doubt though it has never to my knowledge been reported. A certain physician in Manila told me that he had in his practice, a case of yaws, of which however, he was not able to keep track. Later, in Baguio, Benguet, I saw with Dr. Thomas of the Civil Sanitarium, two cases, one in a woman of about 30 to 35 years and the other in her son who was about 15; both patients presented small raspberry growths upon the face. In the mother these were situated at the corners of the mouth; in the son, in the nasolabial folds. They much resembled the growth pictured in the atlas of the New Sydenham Society (fasc. xiv, plate B, fig. 8). Both patients showed pigmented scars on the neck and face. Later I searched for these two people in their native town of Agno, Benguet, but was unable to find them.

The patient from whom I procured the tissue which I will describe, I saw one morning, as Mr. Barron, the sanitary inspector of the Province, and I were returning from a long trip in the mountains. As we stopped to rest at a little native village, we noticed that several of the children had peculiar looking, sluggish ulcers on their legs, necks, or bodies, and also showed signs of considerable anemia. We asked concerning this affection and were told that the Spanish called it "lepra," and that many people had it; this was all we could learn except that the sores were not painful, though they showed the effects of scratching, and that they eventually healed. One woman was found who had similar lesions on her neck. Whether she had others elsewhere we were unable to discover. The lesion on the neck (see New Sydenham Society's Atlas, fasc. xiv, plate lxxxv, upper left hand corner of lower figure) was a shallow ulcer with a firm gray base, a well-defined firm margin, a slight yellowish secretion, not surrounded by any appreciable induration, not painful, and situated on the neck just below the angle of the jaw. This was excised and preserved in commercial alcohol. Near it were some pigmented areas, somewhat darker than the normal skin, not appreciably thickened, and possessed of sensation, and which the woman said were at the sites of healed ulcers similar to the ones we saw (New Sydenham Society's Atlas, plate lxxxiv). An infant which the woman carried had similar lesions on its legs, face, and neck. Another child of the same woman, which, however, we did not see, was said to have the same disorder.

The gross appearance of the lesions would lead one to think of leprosy, tuberculosis, epithelioma, syphilis, or yaws. Leprosy I think may be excluded. There were no cases of leprosy among the persons of the pueblo in which these persons lived. There were no anesthesias or leukoplakias in any of the patients examined. The histologic examination was negative. Tuberculosis could be excluded since neither of the lesions nor the scars had the classic appearance of lupus, nor was the histologic evidence sufficient to support such a diagnosis. Epithelioma could only be excluded by microscopic examination. All in all, the cases seemed the most like syphilis. None of the people of the pueblo showed distinct signs of this disease, although, as stated, a complete examination could not be obtained. The people generally are rigidly moral, and rigorous punishment is inflicted upon any who overstep the bounds; but, while they live morally clean lives, their physical surroundings are filthy, which may account for the modification of the frambesial lesion and the predominance of infection. Treatment of course has not yet been tried, so one cannot say what effect mercury or iodids might have, but from the evidence that I have at present, I incline to the idea that the cases seen were examples not of syphilis, but of frambesia.

The tissue was imbedded in celloidin and the sections made later were stained with hematoxylin and eosin, Unna's polychrome blue, Gram's stain, and by the tubercle bacillus methods. Microscopic examination showed that the lesion consisted of a marked hyperplastic acanthosis, with a round-celled infiltration of the underlying, and especially of the perivascular, connective tissues. The first impression was that one was dealing with an epithelioma, but closer examination showed this to be a delusion. The acanthus layer of the skin was thickened and prolonged in strands and columns of bizarre shapes. In many places in this hyperplastic epithelium there were larger or smaller islands of connective tissue, each, apparently, representing the path of a bloodvessel. In the centers of such areas and about the vessel were collections of small round cells and plasma cells. But this small-celled infiltration was most marked in the larger strands of the submalpighian connective tissue. Here the increase of these formative elements was remarkably prominent, and there was throughout the sections the same perivascular arrangement. Within these areas there were occasional leukocytes. There were also fibroblasts in varying stages of development, and a number of plasma cells were present within the round-cell accumulations. At the site of the ulceration the structure of the lesion was modified by the destructive process. Here all the layers were invaded by a multitude of polymorphonuclear leukocytes, the bloodvessels were widely dilated, and there was a certain amount of superficial degeneration, but the structure of the lesion in the not degenerated parts was still perceptible.

So far as the arrangement of the layers of the skin was concerned, there was no distortion. In many parts of the section a peculiar appearance was noted that suggested the overlapping scales of the fish, or the overlapping of shingles upon the roof of a house. This was apparently due to the fact that certain of the acanthus cells took a more intense stain on one side. In the phenomenon (seen best in polychrome blue specimens) the nucleus did not participate. In all of the sections, and these included the whole of the lesion studied, were there no giant cells, no tubercle bacilli, no lepra bacilli, and no evidence of cell inclusions.



A photomicrograph of a section stained with hematoxylin and eosin. Zeiss comp., OC. 6, obj. A. A. This shows the hyperplasia of the acanthus layer of the skin, the dilated bloodvessels, and the perivascular accumulations of small round and plasma cells.

As for the occurrence of such lesions in frambesia, and their distribution, little can be said except to quote from authors who have had considerable experience with the disease. Manson says regarding the distribution of yaws that they may be scattered over the entire body, or the crop may be limited to one or two growths, or they may be confined to a circumscribed region of the skin. Moreover there may be successive crops of yaws evolved, especially when the person affected is debilitated. Morris remarks that the disease in adults is more chronic than in children. When the yaw develops normally it does not ulcerate, but Manson says that the tumors instead of being absorbed may break down and ulcerate, the ulceration usually being confined to the yaw itself, although it may go deeper and give rise to extensive sores. And with the development of the deeper and more extensive forms of ulceration, the typical lesion of frambesia may disappear for a time, or perhaps permanently. In such case the ulcerations are said not to be infective and to not communicate yaws. Such ulcers may persist for years. Nicholls, quoted by Manson, states that ulceration occurs in about 8% of the cases.

There is no histologic description of the foregoing variety of lesions to which I can refer, though from Unna's and Charlouis' description of the typical yaw it is but a modification of that. These writers speak of the true yaw as a cutaneous plasmoma complicated by epithelial hyperplasia and hyperkeratosis. Except that the lesion described is not raised it certainly corresponds in many details with Unna's and Charlouis' description.

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SUBCAPSULAR NEPHRECTOMY FOR PYONEPHROSIS, WITH REPORT OF A CASE AND EXHIBITION OF SPECIMEN.[1]

BY

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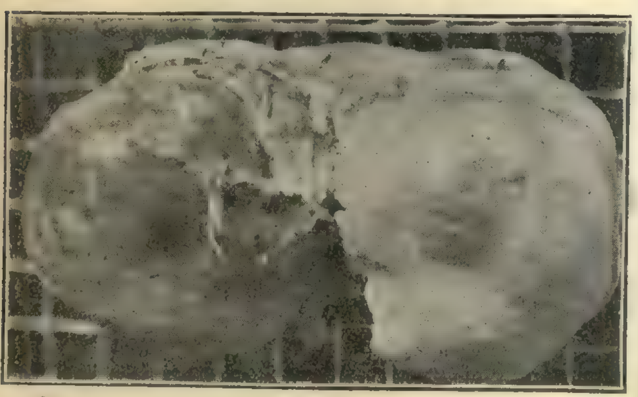
Extirpation of the kidney, or nephrectomy, has long been a recognized surgical procedure, having been formally undertaken for the first time by Simon, of Heidelberg, in 1869, though first practised by Wolcott, in 1861. Simon's operation was done for a urinary fistula, following a wound of the ureter inflicted in removing the uterus and ovaries. (Ashhurst.)

The indications for nephrectomy may be stated as follows: 1. Severe pyonephrosis, if kidney is transformed into a series of pus cavities (calculosis, tuberculosis of kidney). 2. Injuries of the kidney (rupture, laceration). 3. Tumors of the kidney. 4. Incurable ureteral fistula. (Zuckerkandl.) 5. Persistent discharging fistula after nephrotomy and, possibly, (6) hydronephrosis.

I desire to direct attention to one of the methods of removing the kidney, and to emphasize its value *under certain pathologic conditions*. Fenger says: "Total removal of the kidney may be a relatively easy operation when the organ is not enlarged and when it can easily be loosened from the surrounding tissues; as, for instance, in a case of central tuberculosis or of a small malignant tumor. Commonly, however, the operation is difficult or dangerous when the kidney is considerably enlarged or is firmly attached to the surrounding organs."



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The kidneys, as you are aware, are situated behind the peritoneum. The anterior surface of the upper portion of the right kidney lies in contact with the under surface of the right lobe of the liver; below this it is in relation with the descending portion of the duodenum and the upper part of the ascending colon, a quantity of loose areolar tissue intervening. On the left side the upper part of the anterior surface of the kidney is in contact with the under surface of the stomach, and below this with the left extremity of the pancreas, while the lower part is connected to the descending colon by loose areolar tissue, the spleen lying external and anterior. The suprarenal capsules surmount the upper poles of the kidneys. (Gray.)

The conditions that favor the production of pyonephrosis are (*a*) infection, and (*b*) stasis of urine. As a result of infection, pyelitis, pyelonephritis, and pyonephrosis develop. Obstruction without infection results in hydronephrosis, which may later become infected.

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It is not my purpose to enter into the etiology and pathology of these conditions further than to point out that the kidney becomes enlarged—sometimes attaining enormous proportions; that its capsule becomes thickened, and that the perirenal tissues share in the inflammatory process, forming dense and firm adhesions to some or all of the important structures that lie in relation to the kidney. The pedicle of the kidney, composed of the artery, vein, and ureter, under such circumstances becomes stiff and infiltrated with inflammatory products.

The ordinary pericapsular operation of lumbar nephrectomy for pyonephrosis (or even hydronephrosis) requires the separation of the dense, often insurmountable, adhesions to the important structures already spoken of, and the partial delivery, at least, of a large mass through the confined space between the twelfth rib and the crest of the ilium. The separation must be done in the depths of a deep wound, frequently by the sense of touch alone. The pleural or the peritoneal cavities may be opened—dangerous accidents in the presence of pus—the stomach or the colon torn, and the pancreas or spleen injured. The infiltrated pedicle renders manipulation of the mass, in the effort to deliver, exceedingly dangerous. It is very apt to tear, producing frightful hemorrhage from the renal artery or vein. "It has happened to a surgeon as experienced as Billroth to tear the vena cava and lose his patient from hemorrhage, in the effort to remove a pyonephrotic kidney." (White and Martin.) Secure ligation of the pedicle with its very large vessels in the midst of an inflammatory exudate may be difficult to accomplish. The ligatures are apt to cut through the friable tissue with disastrous results.

Subcapsular nephrectomy (or decortication of the kidney) is neither new nor novel, but the ease and rapidity with which it may be accomplished in cases in which pericapsular nephrectomy presents serious difficulties, *i. e.*, in selected cases, render it a procedure of great value. The kidney is exposed by the ordinary oblique incision through the overlying structures. The dense, firm fibrolipomatous capsule is now incised down to the kidney tissue proper. The finger is then swept round beneath the capsule and the entire kidney shelled out down to the hilum in a few seconds. The pedicle may now be ligated or clamped with forceps, which are left in place, within the capsule. Sterile gauze (plain, not iodoform) and rubber drainage complete the operation.

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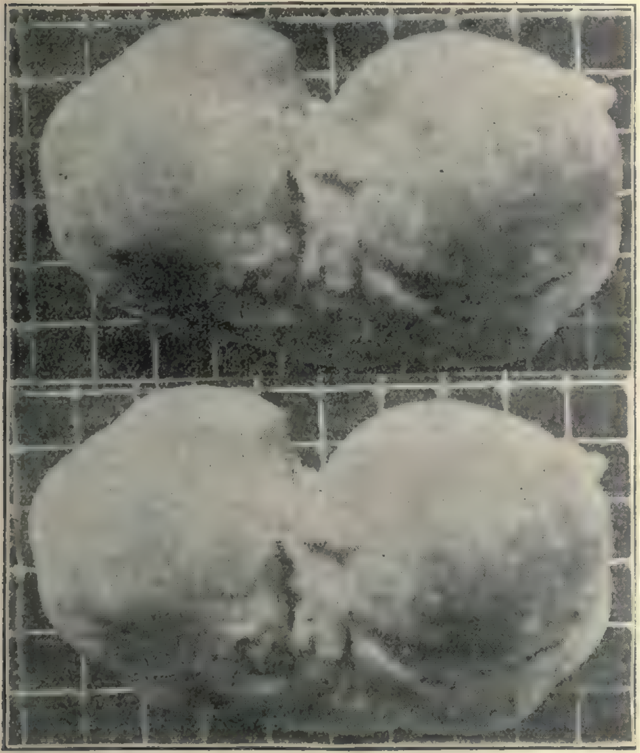
[1] Read before the Pittsburg Academy of Medicine, May 11, 1903.



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In the class of cases which I have alluded to, this operation is immeasurably superior to ordinary nephrectomy. It is speedily performed, and speed is a factor of no little importance in patients profoundly septic as these are. In addition, the numerous dangers attendant upon the separation of the firm adhesions are almost, if not wholly eliminated. There is practically no hemorrhage.

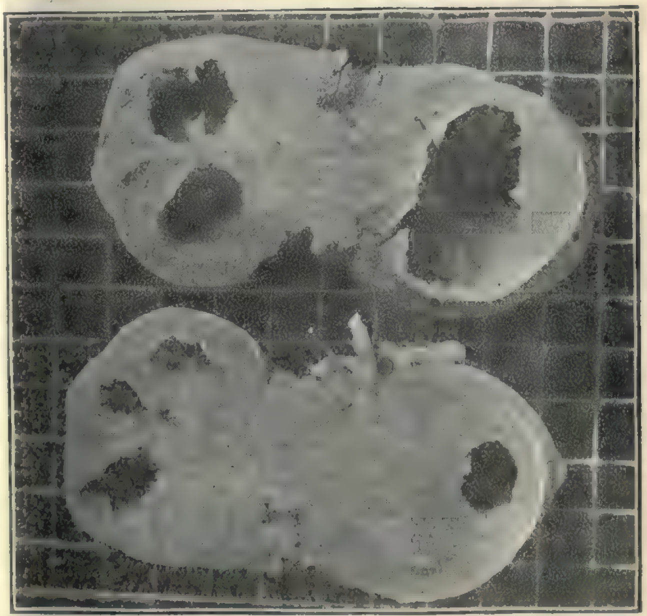
Case.—Mrs. M. C., aged 40.

Family History.—Negative.

Previous History.—One child; no miscarriages; otherwise the history is negative.

Present Illness.—This dates from January, 1901, when she developed frequent, painful, burning micturition. General health was not impaired. The symptoms persisted until the end of April, 1901, then subsided and returned for a period of two weeks in August of the same year. They again returned about November 15, 1901. The patient was seen by her family physician for the first time December 10, 1901, with symptoms as described. The urine was acid and deposited at once a heavy ropy sediment. Local examination revealed an inflamed vulva and urethra and a drop of yellowish material could be squeezed from Bartholin's glands. Gonorrheal infection was denied. Examination of the bladder showed a decidedly inflamed mucous membrane. The general condition was good; there was no fever at any time. With a diagnosis of cystitis, the patient was treated for two months with little improvement. She then entered a hospital, where the diagnosis of cystitis was confirmed and local treatment instituted. Later a vesicovaginal fistula was made for drainage. In a few weeks she returned home materially improved. However, a significant incident happened a week or so before she left the hospital. There was a sudden and sharp elevation of temperature (about 107°), lasting just a few hours and preceded by a chill. This, together with pain in the left loin, which had come on about the same time, excited a suspicion of trouble with the kidney on that side. Shortly after her return home the bladder symptoms again returned in an aggravated form, and so continued. She was admitted to the East End Hospital June 4, 1902. Unfortunately, a portion of her record has been lost, but as I recall the case, there was considerable pus in the urine on admission, and she complained of pain in the left side at times. The vesicovaginal fistula was still open. There was practically no elevation of temperature until June 12, when it rose to 101.6°, only to run again along the normal line for a couple of weeks. By July 16 she had developed a typical septic temperature and a distinct painful tumor could be felt in the left upper quadrant of the abdomen. A diagnosis of pyonephrosis was made and a nephrotomy done August 2, 1902. A large quantity of pus was evacuated from the kidney and two large tubes and gauze were inserted for drainage. At this time there seemed to be sufficient kidney structure left to justify the hope that the process would subside with free drainage. The quantity of pus in the urine markedly diminished; there was free discharge of pus from the wound. The temperature lost its septic character, but did not become normal. On August 17 the temperature curve again assumed the septic type, with sweats, etc. From this time until October 20 I endeavored to persuade the patient to permit the removal of the kidney, to which she finally consented. On October 21, I removed the kidney by subcapsular nephrectomy and inserted gauze drainage. The operation was easily and speedily done, consuming less than 20 minutes in its performance. On account of the septic condition of the patient, I desired to reduce the period of anesthesia to a minimum, and clamped the pedicle with forceps, which were removed at the end of 48 hours. The urine now rapidly cleared up and an examination, November 4, was: Acid, 1,020; no albumin; no sugar; no casts; calcium oxalate; amorphous urates; epithelium (bladder and vagina). On November 11 the temperature became normal, and remained so. A discharging sinus persisted for a time, but had closed when the patient was discharged, well, December 16, 1902. The vesicovaginal fistula closed spontaneously after the removal of the kidney.

There is no doubt but that there are some cases of pyonephrosis in which subcapsular nephrectomy is not feasible and in which the kidney must be torn away piece by piece or by morcellation. I am confident, however, that if an attempt were made to find the proper point for beginning the separation of the capsule, the number of such cases would be small.



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No mention has been made of transperitoneal nephrotomy and nephrectomy for pyonephrosis, as it is a most dangerous procedure and should be abandoned. Tuffier gives the mortality of transperitoneal nephrotomy as 50%, while the mortality of nephrectomy by this route is 43.2%. The mortality of lumbar nephrotomy in 259 cases for pyonephrosis was 23.3%; of nephrectomy, in 112 cases, 35.9%. The mortality of primary and secondary nephrectomy differs markedly in favor of the secondary operation, having been preceded by nephrotomy and evacuation of the pus, as in the case cited. The mortality of primary lumbar nephrectomy (for all causes) was 28.4%, while that of secondary nephrectomy for pyonephrosis was but 12%. "It is safer to postpone total removal till it has been proved that nephrotomy and drainage are insufficient to cure. Not only are these secondary operations easier, but the patient is likely to be in much better condition to stand them." (White and Martin.) Statistics setting forth the mortality of subcapsular lumbar nephrectomy, either primary or secondary, are not available, but for the secondary operation it should not be over 4% or 5%; provided, of course, that the patient has a healthy kidney on the opposite side.

It is not contended that this is a complete operation in, say, tuberculous kidney. Here the ureter and the perirenal tissues are frequently involved, together with portions of the bladder wall. Under such circumstances, pericapsular nephrectomy, with excision of the ureter and the affected portion of the bladder, is demanded. In tuberculosis of the kidney with secondary pyogenic infection, however, as in the case cited, or in primary pyogenic infections of the kidney, nephrectomy followed by subcapsular lumbar nephrectomy is a life-saving procedure. If tuberculous, the ureter and affected portions of the bladder may be removed at a subsequent period, when the patient is in condition to withstand the shock of a prolonged operation.

SURGICAL ASPECT OF A CASE OF JACKSONIAN EPILEPSY.

BY

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of San Francisco.

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G. P., aged 24; single, native of England, occupation clerk, was admitted January 13, 1904, to St. Mary's Hospital under G. Childs-Macdonald. The patient complained of twitching of the right hand and arm and of fits.

Previous History.—About 18 months ago while acting as clerk in a large wholesale grocery store at Cape Town, South Africa, the patient suffered his first attack, which occurred as follows: The work of the day being over, he took his usual afternoon bath, and toward the end of the washing he stooped to get his head under a tap to wash the soap from his hair; the tap was about 2½ feet from the ground; while in this position a peculiar dizziness came over him. His description is somewhat indefinite, but he remembers saying to himself, "if I don't watch it I will have a fit." This queer feeling lasted sufficently long for this idea to pass through his mind, he then noticed that the fingers of the right hand were twitching and the arm raising itself from the side while his head was twisting to the right; when the arm had reached about half way from the vertical to the horizontal, the fingers twitched more violently, the body began to sway and by the time the arm was "up" he lost his balance and fell over, was unconscious for a short time, when he got up he finished washing, went to his room and noticed on looking in the glass that there were several red blotches on his face and that his eyes were very bloodshot. These marks disappeared in about 4 days, and there was nothing left to remind him of this strange illness except a feeling of weakness.

Two weeks later the second attack occurred, presenting the same symptoms as the first; the same thought passed through his mind but he had no other warning; he had similar attacks about every 2 weeks for the next 2 months. Sometimes he was unconscious before falling, at other times not until reaching the floor; the length of unconsciousness lasted from half a minute to half an hour. The third month passed without any attack, after that the attacks occurred every 2 months, the last one on the night of January 1, 1904, while the patient was making a tour of Chinatown with some friends (San Francisco). As on previous occasions, he had felt giddy, but did not recover consciousness so quickly, and he was removed by patrol to the Emergency Hospital. After regaining consciousness he had the twitching and closing of the fingers of the right hand every half hour. The arm raised but the head turned to the right; preceding each twitching the patient felt he was going to have a fit, but did not become unconscious; however, he felt dazed and silly. He remained in the Emergency Hospital 8 days; the attacks for the first few days were at intervals of about half an hour, then every hour up to January 13, when they appeared about every 3 or 4 hours. During this period he understood what was going on around him, would try to answer questions but would fail to do so although he felt he should. He was told to ring the bell and call the nurse when he felt the attack coming on, but he could not do this. He would be thinking about ringing the bell, and knowing he should do so, yet would fail; as he expresses it "he had the power but not the sense."

Physical Examination.—Patient is well-developed and well-nourished; nothing abnormal can be found in any portion of his body.

Nervous System.—There is no paralysis, no amblyopia, no shrinkage of visual field, no hemianopia, the fundus is normal. He sleeps well, has no dreams. Sphincters are normal, urination and defecation normal. There is no paresis, no anesthetic spots.

Urine is a dark amber color, has a strong odor (ammoniac), reaction is alkaline, specific gravity 1,032, no sugar, no albumin. Microscope: Urate of ammonia, few pus cells, mucus.

Circulatory System.—Pulse 90, full, regular. Apex beat half inch inside nipple at fifth interspace, sounds are normal, superficial veins are normal. No examination made of the blood.

Respiratory System.—Respirations 18, breath sounds are normal, no accompaniments, vocal resonance and fremitus normal, no cough.

Digestive System.—Outline of abdomen is normal, no tumors, no abnormal areas of dulness, veins normal. Liver dulness 4½ inches in nipple line, appetite is good. Bowels are regular.

Operation, January 16, 1904. Patient was prepared in the usual manner for trephining; he was then placed on the table and the left Rolandic area mapped out on the scalp. Chloroform was then administered; a slight scratch was made with the knife on the scalp, running downward and forward at an angle of 67°, marking the fissure. A large rhomboid flap was turned down, its lateral edges being parallel to the central scratch before mentioned and equidistant, its length was 3½ inches; a trephine opening was made at the juncture of the upper with the middle third of the fissure of Rolando; this opening was enlarged with the gouge bone forceps until the area of the middle half of the fissure and the corresponding parts of the ascending frontal and parietal convolutions were exposed. The dura bulged into the wound but pulsated. It was freely incised by a crucial incision (St. Andrew's cross) from angle to angle, the bases thus corresponding to the cut edges of the bone, the vertex of the angles being the center of the wound; the four triangular flaps were turned outward, exposing the pia mater and brain. The Rolandic fissure was in the exact center of the wound. The pia mater appeared opaque and gelatinous and on incising it a small stream of clear fluid poured out, about 2½ ounces or perhaps more. The pia then settled down on the brain substance, which appeared normal; palpation revealed no abnormal sensations such as hardness or increased resistance, neither were any of these felt when a cataract knife was passed into the brain in several directions. Two needles attached to a faradic battery were passed about three-quarters of an inch into the cerebral mass at a point considered to be the center for the hand and forearm. When the current was turned on, the fingers flexed into the palm, the wrist on the forearm and the forearm on the arm, showing that the wound was in the correct position.

The opaque appearance of the pia before mentioned disappeared so soon as the fluid had escaped. Nothing more was justifiable at this period, all bleeding points were tied off with fine catgut on a curved needle, the dura flaps were replaced and sutured with similar catgut, and a small rubber drainage put in the wound to reach as far as the edge of the bone; the skin flaps were sutured with silkwormgut. The patient was returned to his bed, and rallied well. On the second day the wound was dressed. There had been considerable oozing through the drain, which was removed. The wound was redressed as before, with sterilized plain gauze. On the third day the patient complained that at times the fingers would slowly close (not twitch) and head turn to right, would remain in this position for a minute or so and then relax. On the fourth morning the muscles of the forearm were completely paralyzed. On the fifth the forearm could not be flexed on the arm, and on the sixth the whole of the shoulder muscles were also completely paralyzed. In the course of a week the power began to return inversely to its commencement. From this on the patient continued daily to improve, until at the time of his discharge, which occurred on February 14, he had quite recovered the use of his limb. There was no return of twitching, fits, or unconsciousness.

Whether the recovery is permanent or not is hard to say. The patient left for his home in England and was referred to a specialist there, so something more may be heard later on. If the symptoms were due to inflammatory effusion in this area of the brain or a deep tumor, it is impossible to say for certain. The apparent complete recovery presupposes the effusion theory, inflammatory or hemorrhagic, though the latter notion would correspond to the history anyway.

The case is extremely interesting. The condition observed while the patient was in the Emergency Hospital might be described as one of "Jacksonian status epilepticus." I have seen similar cases, some in which there were as many as 50 epileptic fits, socalled, in an hour. I remember one instance in which Dr. J. Wyllie, now professor of medicine at the University of Edinburgh, sat beside a patient for two hours at a time and counted the attacks. Some of them would be only a faint general tremor, more perceptible to the touch than sight, but in every instance the patient was profoundly unconscious.

In conclusion, I may add that Dr. William Alexander, in his monograph on epilepsy mentions a case in which no lesion could be discovered except an effusion beneath the pia mater of a clear watery fluid amounting to a pint.

NOTE.—The following excerpt from a letter received recently from the patient portrays his condition at the present time:

> After I left San Francisco I felt splendid until I reached Detroit when I began to feel very shaky, and did not feel at all well until I reached New York, when I began to get better. I left New York for Liverpool and on the third day out I began to feel lightheaded, and the muscles of my right hand began to contract as they used to when I was in the hospital, after the operation. On my arrival in England I saw a doctor who gave me a bromid mixture. About 14 days later I began to feel well again, but I was very weak. After five weeks' stay in England, I left for Cape Town without having seen the specialist to whom you referred me.
>
> My right hand did not improve much on the journey, but soon after my arrival in England I was able to use it a little, and before I left I was able to use a knife and cut up my own meat; when I left I was just able to hold a pen, but it was just about as much as I could do to write my name; this was four weeks ago, and you can judge by this letter how much it has improved. My head is still very tender where you operated, but I suppose it will improve as time goes on. I have not had any fits since I left the hospital, and as I used to have them about once a month and it is now close on five months since you operated, I think I may safely say they are things of the past.

TREATMENT OF CHRONIC INTERNAL HYDROCEPHALUS BY LUMBAR PUNCTURE.

BY

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The hopeless prognosis which is accorded in all cases of chronic internal hydrocephalus has inspired the thought that the treatment herein outlined, may stimulate others toward similar experimentation, and it is with this aim in view that I report the following case. Although the patient died from an intercurrent affection, the progress made in retarding the disease was sufficient to merit the belief that this form of treatment should be employed in these hopeless cases. This view coincides with that of VonBokay,[1] who withdrew 50 cc. to 60 cc. of cerebrospinal fluid at intervals of four weeks.[2] In my case this amount was withdrawn on an average less than once a week.

H. R., a male, aged 20 months, was admitted to my service at the Philadelphia General Hospital, November 30, 1903, at which time the following notes were taken: "The previous history and that of the present illness are unobtainable. The patient is rather poorly nourished, as evidenced by the striking pallor of the skin and mucous surfaces, and the bluish hue of the sclera. The anterior fontanel is open and bulging, the edges of the bones somewhat thickened. The head is scantily covered with hair, and the forehead, conical in form, is prominent, and the sides of the head diverge as they pass upward. The anteroposterior and the biparietal diameters are apparently increased. All the sutures are open, and the interfrontal suture well marked. The bones of the head are soft and pliable. The face seems relatively small. The superficial veins are plainly visible over the region of the temples. The pupils are equal and react to light. The posterior cervical glands are palpable. The chest and abdomen are fairly well developed. There is a slight tendency toward a rachitic rosary. The abdomen is slightly distended, and the superficial veins are visible. The liver is normal and the spleen slightly enlarged. The heart sounds are regular and strong. Venous pulsation is noted in the neck, and a venous hum can be heard in the same position. The lungs are negative. The limbs and joints are normal and the reflexes are slightly accentuated. Examination of the urine is without interest.

On admission the head measured 19 inches in circumference at the level of the occipital protuberance and 11 inches from a point corresponding to the highest point of the auricle of the ear on one side, to the same position on the opposite side. The child was placed on soft diet, was bathed regularly, and given drop doses of Fowler's solution. Lumbar puncture was first performed December 5, 1903, and subsequently as indicated:

December 5	59.2 cc.	(2 oz.)	withdrawn
" 8	74.2 cc.	(2½ oz.)	"
" 12	59.2 cc.	(2 oz)	"
" 17	45 cc.	(1½ oz.)	"
" 28	52.5 cc.	(1¾ oz.)	"
" 29	52.5 cc.	(1¾ oz.)	"
January 9, 1904	52.5 cc.	(14 dr.)	"
" 18	45 cc.	(1½ oz.)	"
" 28	59.2 cc.	(2 oz.)	"

The head measurements follow:

December 19	18¼	inches; circumference	11	inches from ear to ear
" 20	18¼	" "	10¼	" " "
" 21	18	" "	10¼	" " "
" 22	18	" "	10¾	" " "
" 23	18	" "	10½	" " "
" 24	18	" "	10½	" " "
" 25	18	" "	10½	" " "
" 26	18	" "	10⅔	" " "
" 27	18	" "	10½	" " "
" 28	18	" "	10½	" " "
" 29	18	" "	10½	" " "
" 30	18	" "	10½	" " "
" 31	18	" "	10½	" " "
January 9, 1904	18	" "	10¼	" " "
" 14	18	" "	10¼	" " "
" 28	18	" "	10¼	" " "
" 31	18	" "	10¼	" " "

The lumbar puncture was done without local anesthesia, and after each puncture the fontanel became distinctly scaphoid, showing that free communication existed between the lateral ventricles and the subdural space of the spinal canal. The child became brighter, and it progressively improved mentally, taking note of its surroundings and becoming playful. Its appetite improved, and its general health was bettered, its weight at first increased but later remained stationary. Reference to the foregoing table will demonstrate that the circumference of the head was reduced one inch, and the measurements from ear to ear three-fourths inch. Two or three days after puncture the fontanel would be on a level with the top of the head, but the size of the head was never materially increased between punctures. The child contracted measles, which was epidemic in the hospital, and died of bronchopneumonia February 17, 1904.

In conclusion, I would say that I believe the following conditions must be present in each case, before lumbar puncture should be practised:

1. Free communication must exist between the ventricles and the subdural spinal space.
2. The head must be compressible.
3. The bones must be flexible and there must be no evidence of ossification in the fontanel or the sutures.
4. Ossification is usually well advanced after the second year, therefore treatment must be instituted before this period.
5. Lumbar puncture is preferable to direct tapping of the ventricles, as there is an entire absence of all danger of the untoward complications following the latter.

I am indebted to Professor E. E. Graham for permitting me to continue treating this child after the service passed into his term.

Doctors must have Licenses.—Owing to complaints that a number of druggists and physicians are selling liquor contrary to law, William McCoach, Collector of Internal Revenue, submitted the matter to the Department at Washington. The following reply has been received: "The law provides that a practising physician who, without holding the special tax stamp of a retail liquor dealer under the United States Internal Revenue laws, furnishes his patients with distilled spirits, wine and malt liquors under conditions constituting sales of these liquors, directly or indirectly, involves himself in liability to criminal prosecution under these laws, unless he shows that the liquors thus furnished have been compounded into medicines by the addition of some drug or medicinal ingredient. If the liquors are not so compounded he cannot sell them even for medicinal purposes without involving himself in special tax liability."

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[1] Jahrbh. f. Kinderheilkunde, Bd., lvii, 1903. Gould's American Year-Book of Medicine, 1904, p. 295.

[2] I was unaware of the work done by this author at the time I treated this patient.

SPECIAL ARTICLES

SEVERAL POINTS CONCERNING CEREBRAL INVASION OF PATHOGENIC AND PYOGENIC ORGANISMS.

Address in Surgery at the Annual Meeting of the British Medical Association.[1]

BY

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Permit me to refer briefly to several points concerning cerebral invasion of pathogenic and pyogenic organisms. These points have previously been brought to the notice of the profession in various communications by me, especially in a work on "Pyogenic Diseases of the Brain and Spinal Cord," published in 1893, and in the inaugural course of "Lane Lectures" given by me in San Francisco in 1896. Subsequent experience, though modifying somewhat has mainly confirmed and emphasized previous observations.

LOCALIZATION OF BRAIN ABSCESS ARISING FROM PRIMARY PYOGENIC CRANIAL LESIONS.

The first point refers to the localization of brain abscess. Prior to the advent of cerebrospinal surgery in its later development, abscess of the brain was regarded solely as of a pyemic nature, occurring by metastasis, and, owing to the aberrant manner in which abscess formed, its localization was regarded as impossible, except in the few instances where abscess happened to occur in parts which gave rise to functional manifestations. Even when abscess occurred as secondary to a primary pyogenic cranial lesion, some were inclined to believe that the brain abscess was equally due to a pyemic manifestation, and accordingly could occur at any part of the brain, distant from, and without relation to, the primary lesion.

Such was the old view, but early observation showed that this view was untenable. It was seen that all brain abscesses arising from the foci within the cranium were, if not in direct contact with such foci, at least in contact with the infected path which lay between the primary focus and the abscess.

Knowing the primary cranial pyogenic focus, one could count upon the abscess being situated within a circumscribed radius of that point.

Subsequent experience has abundantly confirmed this view and shows that in the great majority of instances in which abscess of the brain has formed from primary foci on the exterior of the skull, the brain abscess is situated in direct contiguity with the infected structures. Anatomic features, or the results of prior pathologic processes, usually determine the particular direction in which the pyogenic organisms proceed from the primary focus to the brain.

If the cerebral abscess remains unrelieved and continues to grow, it may by extension implicate other regions of the brain distant from the primary external focus, even then the contiguity of diseased structure is generally traceable. So that, by way of illustration, if one takes intracranial abscess resulting from ear disease, one knows that such abscess will form within a limited area of the middle-ear, the particular direction of the extension being determined by the anatomic condition of the parts and the direction of the prior pathologic encroachments. The abscess will be found either within the temporosphenoidal lobe contiguous with the infected tissue round the sigmoid sinus or in the cerebrum in touch with the infected path from the tegmen antri or tympani, the pathologic processes having generally prepared the way and having left in most instances an easily traceable path. This being correct, it must be apparent in a case of abscess of the brain that the preliminary investigation is facilitated and the treatment simplified as access to the abscess in either position may be had by extension of the aperture already made in the mastoid.

THE DETERMINATON OF ABSCESS VERSUS MENINGITIS.

Anatomic features are often secondary determining factors between abscess and meningitis, and in the latter case between localized and generalized lesions. If the access of the pyogenic organisms has been by way of the tegmen or the sigmoid, abscess of the brain or cerebellum is frequent; and if meningitis results, it is at least primarily localized, often the result of a soldering process, does not immediately involve vital structures, and is often amenable to prompt treatment.

ABSCESS DOES NOT OCCUR BY PYOGENIC ORGANISMS TRAVELING BY WAY OF INTERNAL AUDITORY MEATUS.

If, on the other hand, the pyogenic organisms have traveled by way of the internal auditory meatus, they occasion leptomeningitis of a serious kind on account of its being basal, early involving the medulla and respiratory centers; and, second, on account of its inaccessibility. Abscess of the brain seldom or never occurs by pyogenic organisms traveling by way of the internal auditory meatus. My own personal observation has never shown me a single instance of such an occurrence, nor would it be likely to occur from the anatomic features of the parts. The brain is kept apart from the original pyogenic focus by the whole length of the internal auditory canal, while the expansion of the brain membranes which ensheath the nerves in the canal dip right into it. The leptomeningitis is thus set up in the canal, and from there spreads over the basal membranes. Collections of purulent matter are frequently in the meshes of the pia and arachnoid, and occasionally they produce a softening and ulceration of the brain surface, but not abscess of the brain.

TUBERCLE OF MIDDLE-EAR EXTENDING TO BRAIN—THE MEMBRANA TYMPANI REMAINING INTACT.

Tuberculous meningitis has occurred in ten cases seen by me, in which the middle-ear was involved without perforation of the tympanic membrane, and in the majority without swelling over the mastoid.

In five the internal auditory meatus was the channel by which the tubercle spread from the middle-ear to the membranes, covering the cerebellar fossa and the basal ganglia, and these parts were so clearly and extensively involved that no attempt was made by way of operation to follow the disease after removing the primary focus from the middle-ear and its adnexa. Those five succumbed to the tuberculous meningitis after various periods, some lingering for months.

In five other cases intracranial operations were performed, as the meningitis was unilateral, and it was hoped to be still localized and to have spread by way of the tegmen. In the first of these that hope was not realized, the disease having spread beyond the possibilities of recovery. In the second the disease had spread toward the base beyond the limits of what was deemed prudent to follow. In this case, though the disease had spread through the tegmen, antri, and tympani, it had advanced too far and radiated in many directions.

The patient improved after the operation, and lived in the possession of a fair amount of health, sufficient to enable him to resume work and have a limited enjoyment of life for three years, with two meningeal attacks of short duration in the interval. At the expiry of this time his health markedly declined, and he died in a fourth attack of typical basal tuberculous meningitis.

In the other three cases which came under observation at an earlier period of the disease, the meningitis was confined to the basimembranes and lateral aspects of the temporosphenoidal lobe, and were dealt with successfully, the patitens not only recovering from the operation, but regaining strength and vigor. The mental capacity of one of these has been sufficient to enable him to gain a foremost place in a large public school.

Another instance of tuberculous meningitis (the eleventh) originating in a tuberculous lesion in the middle-ear without rupture of the membrana tympani, occurred in a gentleman who was only seen by me in the advanced stage of the disease, while comatose, and consequently when the usual avenues whereby information may be gleaned from the patient were closed. The only item of history that could be taken as connecting the ear with the disease was the fact that some months previously, while in Algiers, he had taken cold in the head and had complained of slight pain in his right ear, which passed off in a few days without occasioning any discharge through the external ear. When seen by me, the membrana tympani was intact, but somewhat wash-leather like, and slight wincing was elicited by pressure over the right mastoid region, while like pressure was tolerated over the left mastoid. There was just a possibility of affording relief by operation. The mastoid was found filled with tuberculous granulation tissue, and there was an erosion through the tegmen and the adjacent dura filled with tuberculous granulation tissue. From there the meningitis had spread, radiating over the temporosphenoidal lobe both laterally and basal, and extending beyond the limits of an extensive operation. Temporary relief was afforded, but the generalized meningitis became marked, from which the patient died.

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[1] Oxford, July, 1904. [Published by courtesy of the *British Medical Journal*.]

No doubt, in many of these cases, the tuberculous meningitis would have been diagnosed, but the connection between it and the original tuberculous focus in the mastoid might easily have been overlooked, especially as the membrana tympani was still intact.

Even on postmortem examination, when extension to the membranes of the brain has taken place by way of the internal ear or the sigmoid sinus, a casual examination of the interior of the skull might easily overlook the channels of extension, and therefore the primary focus might remain undiscovered.

Patients affected with tubercle of the middle-ear with rupture of the membrana tympani, are subject to secondary pyogenic invasion, which runs a rapid course, the pyogenic organisms finding abundant pabulum for their development.

MILIARY TUBERCULOSIS FROM MIDDLE-EAR THROUGH SIGMOID SINUS.

Another mode by which tubercle of the mastoid may become a menace to life is by dissemination through the sigmoid sinus to other parts of the body. On many occasions, tuberculous masses of granulation tissue issuing from the mastoid have surrounded the knee of the sigmoid sinus, and in a number the lumen of the sinus has been invaded by the tuberculous granulation tissue. In one of these, tuberculous disseminations occurred in the lungs and afterward in several epiphyses leading to joint disease. In a case of rapid illness from tubercle, resembling an acute infective disease in its rapidity and fatal termination, general miliary tuberculosis was found in the lungs and some of the other viscera. Both mastoids were filled with granulation tissue, but the right sigmoid sinus was penetrated and the aperture was in direct contact with caseating tubercle.

THE RECOGNITION OF A RESPIRATORY AND CARDIAC REFLEX INDUCED BY PERIPHERAL IMPRESSIONS ON THE PUDIC NERVE.

In 1870 a patient who was placed under the influence of an anesthetic, to the extent of abolition of the reflexes, as tested by complete muscular flaccidity and absence of conjunctival reflexes, exhibited an alarming spasm of the glottis at the moment when the sphincter ani was stretched preliminary to the removal of hemorrhoids. At that time it was thought that the anesthetist was at fault in not having placed his patient sufficiently under the influence of the anesthetic.

Further observation showed that, however deeply the patient might be placed under the influence of the anesthetic consistent with safety, this reflex, though modified in degree, was still present, and could be induced not only by stretching of the sphincter ani, but by painful impressions upon the external genitals, and to a less extent on the perineum and lower gluteal region.

No doubt impulses from almost every sentient surface may modify respiration, and so delicately sensitive is the respiratory center to afferent impulses that stimuli too slight to produce any appreciable effect when applied to afferent nerves connected to an ordinary spinal reflex center, may produce powerful impressions on the respiratory center. It is also sometimes observed that violent emotions induced by erratic cerebral activity under the initial stages of anesthesia, may produce profound alterations in the character of the respiratory and cardiac movements. All the reflexes induced by such impressions are, however, rendered inactive by anesthesia. But, the reflexes arising from impressions on the peripheral distribution of the pudic and associated nerves persist while the patient is "under" the influence of the anesthetic.

In many, deep general anesthesia greatly modifies, though it does not altogether inhibit this pudic reflex, but in others the placing of the patient as deeply under the influence of the anesthetic as is consistent with safety, has no apparent inhibitory effect. The degree of anesthesia is tested by complete muscular flaccidity, the abeyance of all ordinary reflexes, and the pupillary stable myosis. It has been observed that when any prior obstruction to respiration existed, such as to induce venosity of the blood, the respiratory center becomes more easily affected by the pudic afferent impulses. While under the anesthetic the pudic afferent impulse produces no response in the lumbar reflex center, the anesthetic seeming to have inhibited its action. On the other hand, the pudic peripheral impression produces an instantaneous response from the respiratory center inducing generally a prolonged tetanic inspiratory gasp, and sometimes a deep stridulous inspiratory effort each time the peripheral impression is repeated. The respiratory response follows—like touching the button of an electric bell.

Though the heart participates in this reflex through the vagus, the effect upon it is seldom the prominent feature, and in the majority is so slight as to be either imperceptible, or to pass unnoticed by the finger of the assistant on the pulse.

In some there has been marked weakening of the pulse, coincident with the manifestations of the laryngeal reflex. In a few the irregularity, the slowing, and the depression of the pulse have been marked, and have constituted the prominent feature, the effects lasting longer and being more serious than induced in the respiratory center, and being accompanied by a livid pallor of the face.

In the neurotic the cardiac effect is more pronounced.

Occasionally the persistence of a reflex under anesthesia, after the ordinary reflexes have been allayed, is to be seen in highly-sensitive inflamed tissue. Parts whose reflex would normally be easily overcome by light anesthesia still have their reflexes persisting. In certain stages of inflammation of a joint, where the whole of the nerves of the part are exquisitely supersensitive, the attempt at movement of such a joint after all the ordinary reflexes have been placed in abeyance induces a reflex spasmodic stiffening of the muscles of the limb, while all the other limbs are absolutely flaccid. In such a case, however, the deepening of the anesthesia speedily relieves the reflex and renders the supersensitive part insensitive.

All these reflex phenomena occasioned by stimulation of the pudic nerve may be prevented or greatly lessened by local anesthesia, induced shortly before the administration of the general anesthetic. For small operations, local anesthesia alone might suffice, but in the majority of instances the combination of local with general anesthesia is safer, as the reflex is more completely controlled.

Opium has also an excellent effect, administered either hypodermically or by suppository.

This reflex is induced by painful impressions affecting the parts supplied by at least three spinal nerves—the second, third and fourth—sacral, principally through the pudic nerve and the perineal branch of the fourth sacral.

This group of nerves is occasionally damaged by injury to the cauda equina or by the pressure of tumors within the spinal canal in the lumbar region, when there ensues paresis or paralysis of the muscles supplied by these nerves, and distressing want of sensation in the parts concerned.

Such patients, beside being affected with paralysis of the muscles, have anesthesia over the lower gluteal region, the posterior aspects of the thigh, the perineum, scrotum, and penis, as far as its root. They generally complain of impotence and want of control over bladder and rectum. The loss of control over bladder and rectum is somewhat variable in degree, depending upon the precise locality of the lesion, in the sacral plexus, as well as upon the degree of pressure.

In several cases seen by me, the "want of control" was somewhat different from that which ensues in ordinary paraplegia. Though immediately following the injury, the patient had no power to urinate or defecate, his evacuations being quite involuntary. Owing to the want of the usual sensation there was no desire to evacuate, even when the visci were distended. Hence, there was overflow of urine of which the patients were unaware. After a time the patients learned that they could control those evacuations by careful watchfulness of new sensations, or at least of sensations which they had not previously noticed, which guided them as to the desirability to evacuate to avoid mishaps. Prior to the injury which produced this localized paralysis, the necessity for the evacuations was indicated by sensations, and was governed by reflex action stimulated by the presence of the contents. After the injury, this local reflex was wanting as well as the sensation, and the patients had to regulate the evacuation by their intelligence and by observation of other phenomena indicating fulness, when by a voluntary effort they were able to produce evacuation. At the same time, the evacuation was accomplished without any of the ordinary sensations, so that the patient was unaware of the evacuation until he saw the result. Thus, in this sense, it is not correct to describe this condition as "want of control." The patient regains control through the sole agency of intelligence and voluntary action, the previous guiding sensations and reflex action being in abeyance. The only want of control lies in his inability to voluntarily arrest the flow, once it has started.

When such patients are placed under an anesthetic, stimuli applied to the pudic nerve distribution do not excite laryngeal spasm, as the conductibility of the afferent fibers is in abeyance.

The impotence in these cases was not due to testicular deficiency, testicular sensation being present and normal; but there was complete anesthesia of the external genitals and loss of localized muscular power.

Operations were performed in two cases which came under observation of lesion in the lumbar region implicating the cauda equina. Both were affected with pudic paralysis, and in one the anesthetic area extended to the back of the thighs and the soles of the feet, showing the further implication of the second and third sacral nerves. These operations resulted in the restoration of function of the bladder and rectum in both, and of sexual power in one and partial restoration of it in the second.

One of the cases was of injury of two months' duration, while the other was of six months, and in the latter the spinal canal was found partly filled with a fibrous tissue mass in which the cords of the cauda equina were adherent on their posterior aspects. It is not desired here to enter into detail concerning these cases further than to describe the phenomena elicited both before and during the operation relatively to the reflex between the parts affected and the larynx.

While under the influence of the anesthetic the somewhat flaccid sphincter ani, when dilated, did not evoke the usual laryngeal reflex, the sensory peripheral parts being paralyzed. After exposing the cauda equina, opposite the second and third lumbar vertebras, and while removing the tumor-like mass of fibrous tissue—and consequently pulling on some of the cords of the plexus—the laryngeal reflex was induced, as evidenced by the prolonged stridulous inspiration and the tetanic-like inspiratory gasp. Later, it was seen that this reflex was elicited only when a special cord of the plexus was touched and along with the manifestation of the laryngeal reflex. On touching this special cord with the electrode there was a feeble response at contraction of the sphincter ani and perineal muscles. Another large contiguous cord when touched induced spasmodic contraction of the muscles of the lower limb supplied by the sciatic, but did not induce laryngeal reflex. None of the other cords on that half of the cauda equina caused respiratory spasm when stimulated, but the corresponding cord on the opposite side did.

Owing to the limited portion of the spinal canal exposed, and the close proximity of the other structures, the various strands of the cauda could not be definitely traced to their origin or distribution; but from the collateral circumstances and the physiologic effect produced on the muscles supplied by the pudic, the cord inducing the laryngeal reflex no doubt received the afferent strands from the pudic nerve through the sacral plexus.

In two cases where the pudic nerve was affected in the manner described, among the minor defects attending their condition the patients asserted that their voices had altered since their injury. There was no available means of testing the accuracy of this statement, though one of the patients operated on remarked, some time after the restoration of the pudic functions, that his voice had regained its original "fulness." Doubtless the restoration of the bodily tone and vigor would have an effect upon the voice apart from any direct nervous influence through the vagus to the laryngeals. The assertion on the part of the patients, however, awakens the thought of the possibility.

The effect of early castration is well known to produce an imperfectly-developed larynx and a high-pitched voice. But the spermatic plexus is totally different in origin from the pudic, being derived from the sympathetic through the aortic and renal plexus. Is it possible that, among the fundamental changes induced by castration, the one affecting the larynx may pass through the pudic nervous mechanism, which must also suffer from the want of development?

THE CHOICE OF SUITABLE MATERIAL FOR LIGATURES AND SUTURES, AND THE REQUIREMENTS OF THE LIVING TISSUE RELATIVELY TO THEM.

Ever since Ambroise Paré introduced the ligature for the arrest of hemorrhage the choice of suitable material for both ligatures and sutures has been the subject of inquiry, and, judging from articles which appear in the medical press, still remains a desideratum. It might be thought a priori that this question would have been easily settled by direct experiment. At present most investigators content themselves by aiming at a sterilized material. This though necessary, is only one of the factors.

Nature shows us in blood clot a material which performs its function of temporary occlusion of a vessel and which thereafter is speedily removed; the initial disintegration, commencing within the blood clot itself, greatly facilitating this process. In animal tissues there are cells, one of whose functions is to remove effete products from the economy. Use can be made of those cells to aid us in the disposal of the foreign bodies introduced as sutures or ligatures. In order to do this effectively the physiology of those cells must be studied. The extent of their power relatively to the removal of the material introduced is gauged and the time which they take to effect the purpose is noted.

On the other hand, it is essential to determine the period necessary to accomplish union between the various tissues operated on so as to decide the length of time the suture ought to be able to resist the action of the living tissues before permitting itself to be absorbed. Attention is first directed to this question.

The object to be obtained by the ligature of a vessel is the occlusion of that vessel by living tissue. This may be attained in various ways, one of the most effective is by making a solution of continuity in the inner coat of the vessel which is attended by rapid regeneration of fixed tissue cells of the parts involved.

It has been suggested that organic occlusion can be accomplished in an artery by mere approximation of the walls of the vessel, so as to close the lumen without rupturing or in any way damaging the vessel wall. If the walls were left undamaged, proliferation of the fixed tissue cells would not result and the lumen of the vessel would become restored. It is possible, however, that without rupture of the vessel wall, a solution of continuity due to absorption or to ulceration might be occasioned by the continued application of the constricting force which would induce tissue proliferation in the vessel wall, resulting in organic occlusion. This is an uncertain mode of attaining the end, and cannot be relied on.

The ligature is applied to a vessel so as to rupture at least the internal coat, and from the wounded surfaces rapid proliferation ensues, especially as the apposed surfaces on rupture are maintained in close apposition by the ligature, and the vitality of the vessel wall is little interfered with.

The material used to effect these two purposes—first the rupture of the internal coat of the vessel, second, the maintenance of the walls of the vessel in contact at the part where the solution of continuity has taken place—is no longer of service after the living organic occlusion of the lumen has been accomplished, and if after that it persist in that position, it remains at best as a useless foreign body which the living tissue may exclude by shutting it off by the formation of an avascular connective tissue, which encapsules the foreign body and so lessens or altogether prevents its power of doing evil. The constricting force of the ligature, if continuous, may cause absorption of the vessel wall, or where the ligature is placed in parts subject to movement it may occasion irritation and be gradually extruded.

The aim in choice of a ligature should be to obtain one which would accomplish the first two objects—namely, to produce a solution of continuity of the internal coat of the vessel and to maintain the parts in apposition for a time sufficient to enable the living tissues to accomplish the organic union of the vessel wall; and third, having accomplished these two former objects, to permit itself to be speedily removed from the tissues without disturbance, its place being taken by a new formation of living connective tissue which would further strengthen the occlusion of the vessel at the part ligated.

Asepticity is by many considered the sole requirement in a ligature, otherwise mechanically suitable, but asepticity is only one of the requirements. A further requirement which a ligature ought to possess, is that it will remain in the tissues for a time sufficient to effect its purpose, and which will then be capable of rapid elimination. The same desideratums are required for sutures.

A material capable of maintaining the tissue in contact, sufficiently strong to enable the tissues to proliferate and to effect a living union of the parts is required, and after this has been accomplished this suture material ought to become eliminated without disturbance of the parts. So that when the mission of the suture has been accomplished, it should no longer remain in the tissues, a useless dead material capable of producing irritation, but should permit itself to be speedily removed.

Some conceive the idea that it would be good to have a material, by the aid of which the parts could not only be brought together, but one which would maintain them in permanent apposition. Such physical union is readily produced between two inorganic substances, such as two plates of metal, but it cannot be obtained between two pieces of living tissue. Living tissue can only be made to adhere permanently by a living bond of union. A suture of dead tissue can only secure coaptation of two living surfaces for a limited period—a period sufficient, in the majority of instances, to enable the living tissues to become united. When such union fails to be produced from any reason, the living tissue gives way by absorption in front of the pressure exerted by the dead suture. This absorption goes on until there is no more traction by the suture—until a position of rest is obtained, when the suture lies loose in the tissues. When this stage has been reached the dead suture is of no further service—it remains at best a useless foreign body, which, if encapsulated, may be innocuous; but its presence among tissues subject to movement is often a source of irritation, and sometimes of danger, to the neighboring parts (as in hernia). It is sometimes extruded from the tissues by a process of molecular disintegration, occasionally associated with abscess formation.

Some surgeons have introduced a wire suture in the belief that they would be able to bring together, and to permanently maintain in apposition, the tendinous and aponeurotic structures in inguinal hernia. The futility of this latter hope may be gathered from the following:

Five cases, in which gold wire was used, which had been operated on by various surgeons, came at a subsequent period of their history under my notice, three for the relief of recurrent hernias and two for hernias which had become strangulated. Of the three former, the wire in two was found to be loose in the tissues and free from the aponeurosis, which it had been introduced to maintain in contact, and therefore its continuation in the tissue was objectless; while the third was imbedded in a granulation mass lying so close to the surface that it was evidently in process of extrusion, having been entirely freed from the structures into which it had been originally introduced. In two cases of strangulation the loop of wire which had originally been introduced through the aponeurosis was found free and hung loose, and the bowel had passed through this loop and had become entangled and constricted as if in a tight ring. In one of these cases perforation had already occurred at the point of constriction by the wire.

Not only do the soft tissues, muscle, aponeurosis, etc., conform to this rule, but bone is likewise subject to it. In the case of bones, such as the head of the tibia and condyles of the femur, steel pins, introduced for the purpose of immobilizing the limb after excision of the knee, are so firmly fixed in the bone, immediately after introduction, and for days thereafter, that their removal presents great difficulties, and in order to accomplish this, considerable force exerted through the medium of suitable instruments is necessary. These pins, however, become loose, from 14 to 21 days thereafter, and so free are they at the latter period that they can be easily lifted from their position by the fingers, the bone having become absorbed round the periphery of the pins. A wire suture, introduced into a hole in a bone just suitable to its size, commences about the same period to have a free space formed round its periphery, which increases in front of it by absorption until no more pressure is exerted by the wire. Once the wire lies loose, the space between the bone and the wire may again be filled with connective tissue.

How long do wounded tissues require to be maintained in contact by adventitious aid before sufficient healing takes place to enable them to do without artificial support? This depends upon the particular tissue involved and upon the conditions under which it is placed at the time.

In a healthy subject, an extensive aseptic wound of the skin brought into apposition without tension and upon which there is no traction, seven to fourteen days are generally sufficient, as the healing process is then well advanced. No doubt the wound may be superficially cicatrized before that time, but union is imperfect, and if the tender cicatrix be subject to traction it would yield. Even when the wound does not open it is liable at that early period to stretch and to leave a broad cicatrix. A cutaneous stitch in such a wound would be required to maintain apposition for a week or ten days. Should there be tension on the part a longer period may be required. In smaller cutaneous wounds, or those well supported by neighboring tissues, a shorter time is all that is necessary. In the case of divided muscles, tendons, or aponeurosis, a suture which would maintain them in contact for three weeks is necessary. In 14 days there is considerable union, but it requires other seven days to enable sufficient firmness to be obtained in the cicatrix to enable it to do without the active support of the stitch. After a period of 21 days the continued traction of the suture causes the soft tissues to give way before it, and this goes on until the suture lies loose and functionless in their midst. It must be borne in mind that when union of aponeurosis or other like structures is dependent upon extensive fibrous tissue formation, such fibrous tissue after its formation is liable to stretch for fully six weeks, and therefore the parts during that time ought not to be subjected to strain.

Fractured or divided bone placed in favorable circumstances heals as readily as aponeurosis, though a longer period is necessary to allow of deposition and fixation of the earthy salts, and to accomplish consolidation. Shafts of long bones subject to powerful leverage require longer fixation than shorter ones not subject to such strain. In many cases one would desire that sutures continue their hold on fracture surfaces for a longer period than four weeks, but at the end of the third week a softening process has begun at the point where the suture has exerted pressure on the bone, and this softening process continues slowly until the bone in front of the pressure is absorbed and the suture lying loose and exerting no further traction on the parts remains there a functionless foreign body. Just how long is required for this loosening process to be accomplished depends upon the bone and the strain that the osseous tissue is subjected to. When the living union of the bone has occurred and the stitch is completely relieved of strain, the metallic stitch may then become encapsuled, and if it lies close to the bone or remains entirely within it, so as not to prove an obstacle to the free movement of the muscles, it may remain innocuous indefinitely; but it no longer holds the bones together. Even in bone one cannot have a stitch which will permanently maintain the fragments in apposition. So that a suture acts in bone in the same way as it acts in the soft parts, only it takes longer in the former to attain a position of rest. The mere presence of a suture in a fracture, unless osseous union has occurred, will not prevent the separation of the fragments. In two cases of fractured patella, which had been seen by me some years after they had been operated on by others, the one had an extensive fibrous union between the osseous fragments, and the bone had freed itself from the wire, which was quite subcutaneous, but was not giving trouble further than irritation. The other fractured patella had healed likewise by fibrous union, and the wire was found free from the upper fragment, but was still adherent to the lower fragment of the patella.

From the foregoing it must be evident that the material to be used for ligatures and sutures, beside being physically fitted to perform its function, requires to be rendered aseptic, and further, requires to comply with a physiologic test. First, it must remain intact in the tissues until its object be accomplished; and second, after that has been attained, it must permit itself to be quickly removed by absorption. Sterilized silk is practically nonabsorbable. It resists the action of the tissues for a very long period—years—and is frequently extruded. Silkwormgut and hair are proof against absorption, and have been removed from the tissues five and seven years after their introduction, and were at the end of that period found to have preserved their smooth surface quite intact. Tendons of deer and kangaroo, though absorbable, resist the action of the tissues for many months. One knows how difficult it is to promote absorption of a sloughed tendon exposed in a wound. Long after the surrounding soft tissues are ready to unite they are retarded from doing so by the presence of dead tendon.

Catgut is one of the best substances generally available for sutures and ligatures, but care ought to be exercised in choosing good material. For ligatures and sutures raw catgut ought to be selected, preference being given to such specimens as present the best physical properties and show that care has been bestowed on its manufacture. It must be evident that the subsequent preparation does not remedy physical defects originally in the gut, such as want of strength or roughness.

When the catgut is selected, it is then placed in a solution prepared for the purpose of increasing the resistance offered by the gut to the action of the living tissues.

As the resistance required varies according to the use to which the catgut is to be put, so the catgut is prepared with various degrees of resisting power, some hanks for rapid absorption and some capable of resisting the action of the tissues for longer periods.

The gut must not be hardened in such a manner as to prevent leukocytal penetration, otherwise it will be too resistant, and in this way may be no better than silk or wire.

Experiments have been made in many directions with the view of obtaining a suitable medium for the preparation of catgut, so as to obtain the objects in view.

One of the best mediums which we have used is obtained by adding an aqueous solution of chromic acid to glycerin in definite proportions. This compound is found to act upon the catgut in the way of increasing its resistance to the action of the living tissue. Though producing a soft, pliable catgut, the degree of resistance imparted to the gut can be varied according to the time which the gut is immersed in the solution. The longer it is kept in the solution the more resistant it becomes. After it has thus been prepared, it is stored in a carbolized glycerin solution. It is ready for use a fortnight after it has been introduced into the storage solution. When kept in this storage solution for a longer period—many months or several years—it becomes slightly more resistant to the tissues.

The catgut is prepared for surgical purposes by steeping it for definite periods in a mixture of chromic acid and glycerin, which renders it sufficiently resisting to the action of the tissues to answer the physiologic tests. If the crystals of chromic acid be added directly to the glycerin, an explosion or violent ebullition ensues. In order to obviate this, an aqueous saturated solution of chromic acid is first made, and this is added to glycerin in definite proportions as follows:

(A) *Solution.*—Chromic acid, 1 part to 5 parts of water. Dissolve thoroughly and only use the clear solution.

(B) *Solution.*—Take 1 part of A solution to 5 parts of glycerin.

This gives rise to a dark greenish or brownish compound with the evolution of heat.[1] This compound is, immediately after preparation, poured over the loose catgut previously arranged in a suitable vessel, all air balls which may be adhering to the gut being carefully removed. The catgut is completely immersed in this solution, and it is kept covered by it (being stirred occasionally) for a period sufficient for the end in view—1 to 96 hours.

The catgut is then removed from this solution, rinsed in sterile water, to free it from the jelly-like compound; stretched and wiped with a sterile hard towel to remove any of B solution that may adhere to its surface. Otherwise, the action of B solution would continue.

After the stretching, the catgut is wound on rods at least three inches in length, and preserved in a storage solution made up of one part of carbolic acid to five parts of glycerin. The gut is ready for use after steeping for a fortnight in this storage solution.

If the catgut is not for immediate use, but for service six months to one year afterward, the storage solution could be made much weaker—say, one part of carbolic acid to 20 parts of glycerin. This retards the hardening that is apt to follow long storage in the strong carbolized solutions.

Just before application of the catgut as a stitch or ligature, it is removed from the storage solution, and dipped in absolute alcohol which removes superfluous glycerin. Dipping in sterile water answers the same purpose, but it softens the gut which is not desirable.

By means of this solution the surgeon has it in his power to prepare ligatures and sutures possessing practically any degree of resistance to the living action of the tissues which he may deem proper for his purpose. Thus, for superficial sutures, in a part not subjected to tension, catgut No. 00 prepared in B solution for one hour is used. Such sutures are capable of holding the tissues together from four to eight days. From 10 to 14 days after their introduction, the portion of the suture which has been left on the outside of the skin is found to have become shed and lies loose on the surface—often along with some desquamated epithelium.

When it is desired to maintain in contact the deeper tissues such as muscles and aponeurosis for about a fortnight, it is usual to employ thicker catgut, such as Nos. 2 to 4 which has been kept in the preparation solution for 48 hours. When the parts are to be maintained in apposition for 21 days the gut—generally Nos. 3 to 6 are kept in the preparation solution for 96 hours, the gut slowly absorbing after that period.

CAUSES WHICH RETARD ABSORPTION OF CATGUT SUTURES.

There are some conditions of tissue which modify the rate of absorption of this sterile gut suture. The greater the vascularity of the part within the limits of health (exclusive of parenchymatous tissue) the quicker will the absorption be, while marked avascularity retards absorption. In youth and full adult life, the rate of absorption may be regarded as normal while in very old and weak people the absorption is appreciably retarded. The variation in the absorption within these limits, however, is not so great as to make a practical difference.

There are several points which influence the duration of the suture in the tissue while still maintaining the parts in apposition.

The first is over-tension of the tissues under the suture, either by over-contraction of the tissues themselves or by over-tightening of the suture at the time of introduction. Both of these retard the absorption of the gut as the compressed tissue acted on by the suture gives way in front of the suture, so that leukocytal penetration of the gut is obstructed. The phrase is used, "The stitches cut their way through."

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[1] This forms chemically a complex mixture, but Mr. Carrick Anderson, Assistant and Lecturer on Chemistry in Glasgow University, assures me that glyceric aldhyde $C_3H_6O_3$ is the principal reagent, and it is possible that traces of unchanged glycerin and chromic acid may both contribute to the effect produced.

Second, the introduction of the gut into tissues deprived of their vascularity or whose vitality is otherwise lowered. The catgut suture remains for long periods unacted on in the midst of a slough, the leukocytes not being able to penetrate the tissue to reach the gut.

Third, repeated movement of a stitch after introduction breaks the connection of the suture with the living parts, and prevents leukocytal penetration. So that, if the catgut thread be moved frequently in the tissues, the leukocytes cannot exert their living action in the gut, and therefore it remains unabsorbed.

Fourth, septicity in a wound retards absorption weakening the tissues and by degenerating and destroying the leukocytes. When gut becomes infiltrated by pyogenic organisms and their ptomaines, as well as by pus corpuscles, it becomes more resistant to absorption and may ultimately be extruded. An impervious suture answers better in the midst of suppuration. It is evident that not only an aseptic suture must be used, but it must be introduced into an aseptic wound before one can secure the advantages of such gut.

If catgut or chicken-bone drainage-tubes[1] be introduced into a collection of fluid in the midst of the living tissue such as blood, serum, or pus, they will remain for weeks macerated but still intact. If the gut or drainage-tube should, however, come into contact with the living tissue at the side of such a collection, some erosion of the part of the foreign body in contact with the tissue would ensue. It is evident that mere maceration in the tissue does not account for absorption of the catgut.

THE MODE OF ABSORPTION OF CATGUT AND CHICKEN-BONE DRAINAGE-TUBES.

Twenty-four hours after the catgut has been placed in the tissues it is found to be surrounded by leukocytes, which closely invest the gut, and thereafter sooner or later, according to its resistant power, gradually erode its surface and penetrate into its interior. The strands of gut in contact with these leukocytes gradually undergo erosion and appear rough and pitted on the surface. At the same time many of the leukocytes in the vicinity of the gut become swollen and take on the color of the catgut. Between these swollen leukocytes and the strands of gut fresh leukocytes appear in the vicinity, gradually taking the place of the swollen cells. The swollen cells seem as if they had absorbed portions of the catgut and were in process of ingesting it. Such swollen cells, marked by their size and discoloration, may occasionally be seen at a considerable distance from the catgut, as if they had wandered from the scene, either by their own ameboid action or were aided or pushed aside by the movements of the fresh cells going to the attack. Occasionally the swollen cells appear so bloated that a doubt arises whether for the time at least their ameboid power had diminished or was in abeyance.

The principal invasion and erosion of the catgut thread is from the periphery, which results in the thinning of the thread, it being by and by attenuated to a mere film, which rapidly disappears. While this peripheral erosion is proceeding the absorption is further aided by the activity of the penetrating leukocytes, which surround and detach minute portions from the periphery, which are speedily devoured. The absorption of the catgut is due to the action of the living cells, and therefore dependent on their presence and on the facilities which are afforded them for acting on the catgut undisturbed.

After absorption of the catgut has proceeded for some time, and while the absorption of other parts of the gut is still proceeding, an infiltration of embryonic connective-tissue cells begins to appear, which forms the nucleus of a new fibrous tissue, which in attenuated form ultimately remains marking the place of the foreign body.

The amount of connective tissue which forms depends somewhat on the vascularity of the living tissue, and on the rapidity of absorption of the catgut. The more rapid the absorption, other things being equal, the less the connective tissue.

The use of material such as has been described is of service in facilitating wound healing. One puts into a wound just such foreign bodies as are absolutely required, and these, while being sufficient to effect the purpose for which they are intended, are afterward speedily removed by the action of the living tissues. In aseptic wounds, before the patient comes out from the influence of the anesthetic, the surgeon has done everything necessary to enable nature to heal the wound. Its first and only dressing is applied. That dressing being of the simplest, a layer of dry sterile gauze or a film of translucent celloidin just overlapping the wound and rendering it impervious. At the end of the period deemed sufficient for wound healing, this dressing may be removed, or it may be allowed to remain until it is shed, when all the external portions of the sutures are found adhering to its surface. What a comfort to be able to say at the end of an operation that in all probability there is nothing further to be done by way of handling or touching the wound, which will not be looked at until it is thoroughly healed.

It is no longer necessary to disturb the patient by dressing in order to remove sutures, which, after they have served their function, will be silently and perfectly removed by the activity of the living cells in the patient's body. A wound which, while being made is painless and remains so throughout, which heals without inflammation or the production of pus and under the dressing applied at the time of the operation, is ideally perfect.

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[1] Although chicken-bone drainage-tubes are here mentioned in relation to absorption, drainage-tubes of any kind have not been used in my practice for many years. If drainage were required for any odd purpose such as serous or other nonpurulent oozing, the chicken-bone drainage-tube would certainly be best.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

July 30, 1904. [Vol. XLIII, No. 5.]

1. Secondary Abdominal Operations. LEWIS S. MCMURTRY.
2. Prurigo (Hebra) as Observed in the United States. WILLIAM THOMAS CORLETT.
3. A False or Cicatricial Keloid. A. RAVOGLI.
4. A Comparison of Phototherapy, Radiotherapy, and High-frequency Therapy in Skin Diseases. C. W. ALLEN.
5. The Developmental Defects of the Skin and Their Malignant Growths. Discussion on Paper by H. G. ANTHONY.
6. The Consideration of Late Hereditary Syphilis. R. R. CAMPBELL.
7. Has Influenza Been a Causative Factor in the Increase of Appendicitis? PHILIP MARVEL.
8. Notes on Vaccine. CHARLES T. MCCLINTOCK.
9. Professor Kitasato's Present Work. DR. MIAJIMA.
10. The Local Use of Quinin in Hay-fever. HENRY D. FULTON.

1.—Secondary Abdominal Operations.—L. S. McMurtry states that the mortality of abdominal operations has been much lessened by making them more complete, requiring fewer supplementary operations than in former years. Ventral hernia, due to suppuration, is prevented by more thorough skin disinfection, improved suture material, the use of gloves, diminished insult to the tissues, the restricted use of improved drainage (rubber covered gauze wick in place of the glass tube). Fecal and urinary fistulas are best prevented by earlier operation in inflammatory cases, greater care in protecting viscera from injury, searching closely before closing the abdomen, and by using the Trendelenburg position for difficult enucleations. The use of absorbable animal ligature does away with secondary operations for the removal of infected silk. Catgut is taking the place of silk for all septic cases. Secondary foci of pus may often be prevented by more thorough separation of adhesions, making pockets of pus in suppurative salpingitis, appendicitis, etc. Postoperative adhesions were formerly due to extensive lavage and mopping and are now lessened by limiting the toilet to the immediate pathologic area. An important advance is in the use of normal saline solution. Only recently surgeons have realized the irritation of gauze in the peritoneum. [H.M.]

2, 3.—See *American Medicine*, Vol. VII, No. 25, p. 976.

4.—See *American Medicine*, Vol. VII, No. 26, p. 1012.

5.—See *American Medicine*, Vol. VII, No. 24, p. 928.

6.—See *American Medicine*, Vol. VII, No. 26, p. 1012.

7.—Influenza and Appendicitis.—P. Marvel gives the history of influenza and appendicitis, reviews the reports of three hospitals, gives the opinions of prominent men with reference to the etiologic connection of the two diseases, and reports several cases of his own. Appendicitis has increased in the past five years much more rapidly than in either of the previous five-year periods studied. The accessory cavities are more frequently attacked, and when diseased, more likely to be aggravated by influenza than by other diseases. There is more than a possibility of the existence of chronic intestinal influenza, and hence a probability of its causative relation to appendicitis. [H.M.]

8.—See *American Medicine*, Vol. VII, No. 24, p. 927.

9.—Kitasato's Present Work.—Miajima points out our personal interest in Japanese serum and vaccine products through the Philippines, which are supplied from this source. He discusses Kitasato's relation to the Institute for Infectious Diseases, the Serum Institute, and the Lymph Institute, his discovery of the tetanus and plague germs, and the application of the laboratory products to diphtheria, tetanus, cholera, hydrophobia, dysentery, typhoid, tuberculosis, and leprosy. The writer describes his own investigations as to malaria, in which he has demonstrated that certain kinds of malaria are propagated by certain species of anopheles. One species is not a carrier of all kinds. *Anopheles sinensis* is the host of the tertian malaria parasite, *plasmodium vivax*, but not of the malignant parasite, *plasmodium precix*. The laboratory at Oshima has produced a serum for the bites of two poisonous snakes, which may soon be offered to the public. The Lymph Institute has discovered that attenuation of vaccine is due to faulty methods of inoculation. The quantity of virus in animal lymph is much greater than in humanized lymph, unless, therefore, it is diluted before inoculation, the very existence of superabundant virus will hinder its growth; the portion of the calf's body inoculated should be small, and the vaccine must be carefully nourished. Lymph thus produced does not deteriorate after passing through 150 calves, but rather has increased its effective power, and the expense of producing it has been reduced to five cents for a tube for five vaccinations. [H.M.]

10.—Quinin Locally in Hay-fever.—H. D. Fulton uses a saturated solution of quinin sulfate in sterile water as a nasal spray two or three times daily at the periods when irritation has usually been at the maximum, applying every four to six hours an ointment containing 30 grains of quinin to an ounce of simple vaselin, this being preferable to white vaselin or albolene. This stops all symptoms of coryza and irritation of conjunctiva and eustachian tubes. Euquinin, which is devoid of unpleasant taste, can be substituted. [H.M.]

Boston Medical and Surgical Journal.

July 28, 1904. [Vol. CLI, No. 4.]

1. Congenital Dislocation of the Hip: I. Report of Orthopedic Staff of Boston Children's Hospital, Based upon Observations on 144 Cases. E. H. BRADFORD, R. W. LOVETT, E. G. BRACKETT, AUGUSTUS THORNDIKE and JOHN DANE. II. Addendum. E. H. BRADFORD. III. Report of Committee of Boston Society for Medical Improvement. DAVID W. CHEEVER, C. B. PORTER and CHARLES F. PAINTER.
2. A Meteorologic Study of the Winter of 1903-4. CARROLL E. EDSON.
3. Implantations of Silver Filigree for Cure of Large Ventral Hernia: Report of Two Cases. H. B. PERRY.

1.—Congenital Dislocation of the Hip.—Bradford, Lovett, Brackett, Thorndike, and Dane make an interesting report based upon results obtained in 144 cases of congenital dislocation of the hip treated at the Boston Children's Hospital. They state that it appears to be safe to claim that for all cases, single and double, under 10 years of age, either by manipulation by the use of mechanical force, or by reduction by means of incision, a complete reduction is possible, and that relapse can be prevented in more than 60% of the cases. For this careful attention should be paid to after-treatment. It is believed by the writers that a higher percentage and at a higher age limit can be expected, if all methods, including the operative in the more difficult cases, are employed. 1. That the position of the limb should be such that the development of a firm cotyloid ligament be favored. 2. That the position of the limb should be such that the capsule should not be unduly stretched in its forward portion. 3. That the position of the limb should be frequently inspected and röntgen ray examinations be made at frequent intervals. Double cases are found to present more than twice the difficulty of single ones, and may require repeated operations to secure equally good results on both sides. It appears to the writers that stretching the tissues by an efficient machine gives in resistant cases an unquestioned advantage, and permits better reduction, with less risks and in older patients, than if operative manipulation alone is employed. A committee composed of Cheever, Porter, and Painter examined and reported upon the cases of congenital dislocation treated at the Children's Hospital during the 18 months preceding January, 1904. There were 21 cases. Ten were apparently reduced, the head being felt in the normal position, and the function of the limb, as evidenced by passive motion, being good; 9 cases were not reduced, the head of the bone being beneath the anterior superior spine and external to the femoral vessels. In these the passive motion was not as good. Two were still posterior dislocations upon the dorsum of the ilium. [A.B.C.]

3.—Silver Wire Filigree in the Treatment of Ventral Hernia.—H. B. Perry reports having implanted silver filigree in the treatment of two cases of large ventral hernia. One was a stout woman of 52 with a large postoperative ventral hernia. She was operated upon and a silver filigree pad 4 in. by 6 in. was stitched to muscles and fascia around an opening of 2 in. wide and 4 in. long. The skin was closed over this and the patient made a good recovery. The other patient was a stout woman of 43, with a large ventral hernia. The hernial opening which was 2 in. by 2½ in. was covered with the silver filigree, as in the other case, and in addition the omentum was stitched, by continuous suture, to the margins of the hernial openings. This patient also made a good recovery. The first operation was in January and the last in March, 1903. Both women have since enjoyed good health and there has been no recurrence and no trouble in any way. [A.B.C.]

Medical Record.

July 30, 1904. [Vol. 66, No. 5.]

1. Age and Youth in Medicine. W. W. KEEN.
2. Observations on Radium. MAX EINHORN.
3. Tic. CHARLES J. ALDRICH.
4. Some Phases of Chronic Laryngitis. Z. L. LEONARD.
5. The Recent Progress in Genitourinary Surgery. MARTIN W. WARE.

2.—Observations on Radium.—Max Einhorn gives a somewhat technical description of the therapeutic application of radium to various viscera of the body and reports in detail the treatment of nine cases of carcinoma of the esophagus with this agent. Of the nine cases six showed improvement of the stricture and the patients could take food better. In three cases no improvement was noticed; in two treatment had not been continued long enough, and in a third treatment had been too irregular. Judging from the few cases that have been treated regularly and long enough, it seems to be demonstrated that a partial shrinking of the tumor causing the stricture is the rule. There were never any disagreeable occurrences incident to the treatment. A diminution of the pains was observed in some cases. While no patient was cured the resultant improvement is esteemed important. Perhaps it will be possible to obtain even a cure in some cases by beginning treatment before the cancer has as yet progressed far. Further research on this subject is desirable. [A.B.C.]

3.—Tic.—C. J. Aldrich objects to the term "chorea," and proposes an original classification of tic into early or evolutional and senile or involutional. Evolutional tic may be divided into degenerative, acquired, and imitative. Evolutional tic is a psychoneurosis externalizing itself in expressed thought or stereotyped movements. Involutional tic is a spasmodic manifestation, usually in the face, due to degeneration of the bloodvessels. Evolutional tic is most likely to develop between 7 and 15. There is an inferior and superior type. In the inferior the intellect is below normal. The superior degenerate often possesses genius. The movements are muscular and purposive in contradistinction to the fibrillary purposeless movements of chorea. They are present only in the waking state and are stereotyped. They may be repressed by will, but this produces an inner unrest. All tics are not stigmas of degeneration. Some follow diseases in early life, acute fevers, rachitis, rheumatism, chore, which cause nutritive depravity inducing changes in the cortex and subcortical brain stations. Imitative tics are rarely progressive. Each of the varieties of evolutional tic may be divided into (1) motor tic, localized and generalized; (2) psychomotor tic, responding to an obsession or caused by coordinate movements associated with intellectual or emotional externalization. The writer names eight groups of muscles affected according to their frequency. [H.M.]

4.—Chronic Laryngitis.—Z. L. Leonard emphasizes the danger of putting these cases off cursorily, for without doubt, a large proportion of them eventually yield to tuberculosis, which proper attention might have averted. Even in the simple catarrhal inflammations rest to the injured part should be insisted on and a sojourn for a time in another section of the country. The hour has passed when attempts to cure a purely local affair by expectorant mixtures taken into the stomach is the routine practice. The treatment should be topical. [H.M.]

5.—Recent Progress in Genitourinary Surgery.—Martin W. Ware calls attention to progress made in genitourinary surgery. Maydl's operation for the cure of ectopia vesicæ, implanting the ureters and their surrounding vesical tissue into the sigmoid, is instanced; likewise the surgical relief of hypospadias; the present treatment for the undescended testicle; torsion of the cord, resembling a strangulated hernia and demanding castration; suture of the accidentally wounded vas, and also its implantation into the head of the epididymis under certain conditions; the new and satisfactory method of relieving hydrocele testis—by eversion of the sac; the revelations made by the endoscope, and the urine separators of various patterns are noted. The tetralogy of cryoscopy, ureteral catheterization, cystoscopy, and urine separation give us the most perfect information concerning renal and vesical function. The recent renewal of interest in prostatic surgery has brought much valuable information. The röntgen rays have added much to the certainty of diagnosis in renal and vesical calculi. [A.B.C.]

New York Medical Journal.

July 23, 1904. [Vol. LXXX, No. 4.]

1. Report on the Curriculums of American Medical Colleges. George W. Webster. (To be concluded.)
2. The Diagnosis and Treatment of Fistula in Ano. J. Coles Brick.
3. Specifics and Specific Methods in the Treatment of Pulmonary Tuberculosis. S. Simon.
4. A Unique Case of Chorea. James T. Wrightson.
5. Original of the Vermiform Appendix: A Preliminary Report. Alfred Moore.
6. Syphilitic Manifestations in the Nose and Pharynx. Paul Turner Vaughan.
7. The Treatment of Crushing Injuries Involving One Articular Surface of an Interphalangeal Joint. John G Sheldon.
8. The Radiant Light Bath in the Treatment of Neuroses. T. D. Crothers

2.—Fistula in Ano.—J. Coles Brick reviews the literature of the subject, and discusses the methods of treatment. The palliative treatment occasionally effects a cure, but usually only prevents the extension of the disease. Local applications of strong carbolic acid, iodin, or chromic acid may be used with good results. The outer opening should be well dilated, the sinus well cleaned, and a small piece of wool saturated in strong carbolic acid with 10% of water, passed to the bottom of the sinus. A drainage-tube, large enough to fill the sinus, is inserted and retained. If the treatment is successful, a shorter tube will be sufficient day by day. Carbonic acid gas has been passed through fistulous tracts with satisfactory results. The operative methods most in use at the present time are excision with the attempt to obtain primary union, and incision, in which union by granulation is sought for. Great care should be taken in making the diagnosis; a moderate degree of tuberculosis of the lungs is not a contraindication for operation if in the operator's opinion sufficient vitality remains to restore the wounded tissue, but ether should not be the anesthetic used; local tuberculous fistulas should be incised with a thermocautery, and early general hygienic treatment instituted; simple incision over a grooved director of fistulous tracts, disregarding sphincters, is poor rectal surgery; every effort should be made to preserve the sphincters, and if cut, they should be cut at right angles to the fibers, disregarding the fistula. The after-treatment is very important. [C.A.O.]

3.—Pulmonary Tuberculosis.—S. Simon maintains that plenty of pure, aseptic air is almost a specific for this condition. We should learn the patient's previous condition of life and correct such faults as may exist in his environment, diet, personal hygiene, breathing, exercise, habits, and dress. Sanatoriums, located favorably, are most desirable, for here the daily life of the patient is regulated under the supervision of a sanatorium physician; but much can be done with home treatment and the intelligent cooperation of the patient. He believes that by aerotherapy, personal and general hygiene, dietetics, pulmonary gymnastics, together with hydrotherapy and the symptomatic treatment with drugs, that the physician of today is curing his cases of pulmonary tuberculosis. [C.A.O.]

4.—A unique case of chorea is reported by J. T. Wrightson in a woman of 21. At the age of six she had a slight attack of chorea. Some months ago she was again afflicted with irregular facial contractions, which gradually increased in severity and distribution, involving, finally, the muscles of the extremities and the muscles of phonation and deglutition. There was absolutely no sleep or rest and the distortions and contortions of her face were appalling. Her tongue was bitten and thickened, so as almost to occlude her mouth. Her muscular activity was so violent as to endanger her life. She had been pregnant about one month, when the condition became apparent. The usual remedies availed nothing, and it was not until sodium salicylate was resorted to, 15 gr. every 3 hours, that a decided change was noticed. She improved rapidly, and in two weeks was able to carry food to her mouth. At this time the left pleural cavity began to fill up. There was no chill, temperature not over 100° F. Within one week there was an exudate of three pints, which was evacuated, and she made an uneventful recovery. She has had no more signs of chorea or pleural exudate, and her pregnancy has continued. [C.A.O.]

5.—See *American Medicine*, Vol. VI, p. 655.

6.—Crushing Injuries of Joints.—J. G. Sheldon reports five cases of injury to the interphalangeal joints that were treated by completely resecting one articular surface. In all these cases a movable joint and a useful digit were obtained. After resecting the destroyed articular end of the phalanx he shaped the end of the bone to fit—as accurately as possible—the opposed intact articular surface. He then closed the new formed joint by the suturing of ligaments, tendons, and fascia with catgut, and applied splints and a moist dressing. [C.A.O.]

7.—The Radiant Light Bath.—T. D. Crothers discusses this subject and concludes as follows: 1. The radiant light penetrating to the deeper tissues of the body is turned into heat or transformed into nerve energy more positively than that of heat from hot air. 2. The clinical effects of the bath prove its power as the eliminating agent and a corrector of neurotic, nutrient and capillary disturbance. 3. In neurotic diseases its action in conjunction with other measures is far superior to any of these means when used alone. 4. The evidence so far points unmistakably to the possibilities that when used in connection with other electrotherapeutic measures it may come into general use and constitute a real advance in the progress of neurologic therapeutics. [C.A.O.]

Medical News.

July 30, 1904. [Vol. 85, No. 5.]

1. Eyestrain and the Psychoses. Charles L. Dana.
2. Migraine and Sick-headache. Colman W. Cutler.
3. The Relation of Epilepsy, Chorea and Other Motor Disturbances of the Nervous System to Eye Disease. B. Sachs.
4. The Eye Symptoms of Hysteria, Neurasthenia and the Traumatic Neuroses. Ward A. Holden.
5. Intrahepatic Cholelithiasis. Edwin Beer.
6. The Value of a Knowledge of Abnormal Mobility of the Iris as an Aid in Diagnosing Diseases of the Nervous System. D. Kerfoot Shute.

1.—Eyestrain and the Psychoses.—C. L. Dana defines two kinds of eyestrain, one the automatic effort of the midbrain and oculomotor nerves to overcome abnormalities of refraction, accommodation, and imperfect muscular balance. This does not involve conscious mental effort except casually. It is mostly subcortical, and is a kind of spinal eyestrain. The second occurs when the eye is more seriously defective or the receiving apparatus of the brain is fatigued. This is really brainstrain, and is the only kind which can do widespread harm. Most minor ocular defects may exist without doing injury. Alienists without exception do not recognize eyestrain even as a contributing cause in producing the major psychoses. The writer has seen a few cases of eyestrain with apparent bad results in students, in whom it has led to a kind of exhaustion psychosis, a close application to books bringing on mental confusion. These cases are rare, however, strain usually showing itself only locally. Nevertheless, it is wise to have the eyes of psychopathic children examined. Gould gives 68 reasons why success is not always obtained in treating the eyes of these patients. Success is generally obtained without treating the eyes at all. [H.M.]

2.—Migraine and Sick-headache.—C. W. Cutler says migraine is hereditary, but it is not more common in those with bad ancestry. The fact that ocular defects are handed down, and that correction relieves the sick headache, forms a fair basis for the assumption that sick headache having all the clinical features of migraine, is often a reflex neurosis of ocular origin. No doubt there are many other sources of peripheral irritation. Is there idiopathic migraine, or can we assume when no peripheral cause is apparent the fault is in our defective means of diagnosis? When a patient is relieved by the correction of half a diopter of astigmatism, the fault is not with the eye, primarily, but with the unstable nervous system which made the patient susceptible, and it is into this that migraine resolves itself. But the fact remains that the disease must be approached at the periphery, and the hope of success increases as our diagnostic and therapeutic measures become more perfect. [H.M.]

3.—Epilepsy, Chorea, etc., and Eye Disease.—B. Sachs holds that the question of paramount importance in motor disturbances is not what causes the individual attack, but what brings about the predisposition to such attacks and the predisposition is the disease itself. These patients should, however, be carefully examined by competent oculists and errors of accommodation, etc., be properly corrected. If ocular treatment were an entirely innocent affair there would be little reason to protest against it, but in some instances more harm is done than good through tenotomies. Habit chorea is entirely distinct from St. Vitus' dance. In these cases it is well to have both ocular and nasal conditions looked into, and it is these that are relieved by treatment. But the relationship between ocular affections and epilepsy, chorea, and convulsive tic must remain a very remote one except in the minds of those who have special axes to grind and a particular therapeutic territory to exploit. [H.M.]

4.—Eye Symptoms of Hysteria, Neurasthenia, and the Traumatic Neuroses.—W. A. Holden states that the symptoms of neurasthenia are those of hysteria also. The cornea may be anesthetic or hyperesthetic, the muscles relaxed or in spasm, there may be retinal fatigue or psychic perversions of visual perceptions. The complaints are of pain, parasthesia, clouds, or bright spots, fading of the image, and diplopia. A fine tremor of the lids is always noticeable. There may be lacrimation and photophobia, drooping lids, and slow reflex closure on touching the cornea or conjunctiva. Uniocular diplopia is characteristic of hysteria, and a valuable sign. Visual acuity is usually normal, but the patient reads slowly. If there is difficulty, the psychic effect of an indifferent glass brings vision to normal. In rare cases, vision in one eye is poor or nil. In rarer cases there is apparent blindness in both eyes, vision returning suddenly in a few days. Anomalies of the fields are most characterstic. Beside contraction of form and color fields, there may be reversal of the latter. The size of the fields varies from day to day. [H.M.]

6.—Abnormal Mobility of the Iris in Diseases of the Nervous System.—D. K. Shute has taken great pains to review a very extensive field of literature, both in ophthalmology and in nervous and mental diseases, in order to show the value of a knowledge of abnormal pupillary actions. He describes in detail the anatomic basis for normal pupillary activity, and the stimuli causing dilation and contraction. In disease dilation or contraction may be either irritative or paralytic. The conditions causing irritation and paralysis he enumerates in full He also discusses the pathologic states causing hippus and nystagmus and slow pupillary reactions; also, Wernicke's pupil symptom, the Argyll-Robertson pupil, the pupillary symptoms in epilepsy, insanity, paralytic dementia, chloroform narcosis, etc. The length and detail of the article render adequate abstracting impossible. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

The Angina Pectoris of Infective Diseases.—An infective (or septic) variety of (pseudo) angina pectoris has been made the subject of a communication to the Paris Academy of Medicine, by Dr. Joseph Pawinski,[1] of Warsaw. His clinical description is graphic and expressive, and accordingly carries conviction to the minds of his readers who are thus enabled to see the patient "in the mind's eye" while scanning the symptomatic details. Like true angina, it usually attacks middle-aged men, and seldom those of the gentler sex. The pain also simulates that of the true "suffocative breast pang," so far as to radiate along the nerves of the left arm during a paroxysm. In addition to the striking difference of circumstances under which this imitative variety of angina is met with, there is found a critical criterion of diagnosis in the matter of response to treatment. The amyl nitrite, sodium nitrite, and nitroglycerin, to the effects of whose administration the symptoms of true angina pectoris are usually found so yielding, appear to have no influence in this infective type. As the name given to this variety by Dr. Pawinski is meant to imply, it is met with in course of an acute infective disease, such as influenza, certain forms of amygdalitis, etc. The name is not meant to convey the implication that the special symptom-group is itself communicable. It appears early in the course of the septic disease which it complicates, and tends to subside with the latter. But some cases have ended in true—and, accordingly, of course, persistent—angina. The writer would explain such by changes in the coronary endangeium, due to the condition of the blood in the original disease. For treatment he recommends hypodermic injections of morphin; also cupping and leeching in the intervals, with application of hot compresses during the paroxysm. Dr. Pawinski's paper is a luminous and instructive one; and there is but one point regarding which we are desirous to set him and his readers aright—that is, the priority of description. On January 24, 1890, the eminent Dublin physician, Sir John W. Moore, read before the Royal Academy of Medicine in Ireland, a paper bearing the title of "Angina Pectoris in the Heart—Palsy of Acute Infective Diseases." It contains clinical histories of three such cases; the first, we believe, to which public attention was drawn. The author is the present leading Irish authority on "The Continued and Eruptive Fevers," a subject on which he has written one of the best existing textbooks.

REVIEW OF LITERATURE

Leukanemia.—F. Parks Weber[2] states that by "leukanemia" is understood a morbid condition in which clinical symptoms found in pernicious anemia are combined with the blood changes and indicate changes in the organs, characteristic of leukemia or pseudoleukemia, whether of "lymphatic" or "mixed-celled" type. He reports such a case occurring in a man of 58, who, until within a year of his death had enjoyed good health. He was admitted to the hospital suffering from anemia, progressive weakness, anorexia, and tenesmus; he died within a month. A necropsy was held, and the main features of the case are summed up as follows: (1) Progressive waxy pallor and asthenia, with maintenance of subcutaneous fat; (2) changes in the red blood-corpuscles rather similar to but not so extreme as those met with in true pernicious anemia; (3) the absence of true leukemic changes in the blood, but presence of slight myelocythemia and presence of inverted portions of lymphocytes to polymorphonuclears, which is found in cases of lymphatic pseudoleukemia (Hodgkin's disease, etc.); (4) no abnormal amount of pigment in the urine; (5) changes found after death in the hemopoietic tissues similar to those which occur in case of "mixed-celled" leukemia or pseudoleukemia; (6) abnormally firm consistence and increasing connective tissue in the bone marrow from the shaft of a long bone; (7) absence of enlargement of the ordinary lymph-glands, but great hyperplasia of the spleen (hemogland) and prevertebral hemolymph-glands; (8) absence of any reaction in sections of the spleen, liver, and kidneys for free iron such as is found in pernicious anemia. Charcot-Leyden crystals were not noticed in the bone marrow. [A.B.C.]

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[1] Revue de Médecine, March, 1904.

[2] British Medical Journal, June 18, 1904.

Brain and Syphilis.—Josef A. Hirschl[1] states that in the second stage of syphilis the brain symptoms, such as headache, vertigo, nausea, neuralgia, transient paraplegias, and sensory disturbances, are due to vasomotor changes in the meninges. The majority of cases of brain syphilis belongs to this third stage, and these are divided into the cases in which the pathologic changes can be designated as specific, and those cases in which the pathologic changes are nonspecific, consisting of a degeneration of the nerve parenchyma or in a nonspecific inflammatory process. To the first belong the gummas and the specific vessel changes; to the latter, those diseases which are termed postsyphilitic, metasyphilitic, parasyphilitic, and of syphilitic origin. To this class belong progressive paralysis; paralysis of the pupillary reflex; optic atrophy; transient paralysis of the ocular muscles; ophthalmoplegia; migraine; epilepsy, and neurasthenia. Sometimes two of these conditions exist at the same time, or a gumma may complicate any of these conditions. Late syphilis has protean manifestations. Every disease of the nervous system following a syphilitic infection is not specific in origin. Hirschl saw a patient exhibiting a specific skin lesion with symptoms of gumma of the brain, which proved on postmortem examination to be a glioma. Visceral syphilis attacks by preference adults of advanced age. The manner of entrance of the infection plays no role in the etiology of syphilitic brain disease. While many of the cases of brain syphilis have not been properly treated, some cases of syphilis after the most careful treatment develop brain symptoms. In a great number of cases of gumma and cerebral arteritis there is a history of trauma. A history of chronic alcoholism is not uncommonly found in these cases. Lead-poisoning only influences specific arteritis. The neuropathic substrata plays no role whatever in the etiology of brain syphilis, but there exists an undoubted family predisposition. Syphilis affects the brain differently in different nationalities. For example, in Japan, the South Sea Islands, in Abyssinia, Persia, and in some other countries in which syphilis is widespread, paralysis is not observed. [J.H.W.R.]

Experiments on Drugs which are Said to Increase the Number of Leukocytes in the Blood.—H. French[2] reminds us that because a given drug will produce an increase of leukocytes, it does not follow necessarily that it will be of benefit in any particular disease. It might be that the increase was necessary in order to neutralize other effects of the drug itself. The experiments reported by the writer were carried out upon himself. For a week previously he counted the leukocytes four times daily in order to find the healthy variations, which ran from 5,000 to 13,000 per cmm. Nuclein, either by mouth or hypodermically, caused no increase. Injections of sodium cinnamate failed also. Collargol was followed by leukocytosis, but the concomitant symptoms render it unlikely to be of benefit to a patient already ill. After injecting 30 mg., sterilized, there was no rise for 10 hours; the leukocytes then reached 14,375, and in 24 hours 16,250. He then began to feel lassitude, pain in the back and limbs, and headache, but without loss of appetite or pleasure in tobacco smoking, thus differing entirely from influenza. The temperature was 99° F. 30 hours after the injection; at 40 hours it was 101°; at 48 hours 100°, and at 60 hours again normal. The head ached on the slightest movement and persisted four days, the first two of which he could not work. The leukocytes reached a maximum of 32,187 at 30 hours from the inoculation, and then rapidly fell to normal. [H.M.]

Deep Abscess of the Abdomen, the First Symptom of Intestinal Carcinoma.—Tuffier[1] reports three such cases. The first case exhibited the signs of a subacute abscess in the right iliac fossa, without any noteworthy gastrointestinal symptoms. The abscess was opened and drained, but subsequently a cancer of the cecum developed. In the second case the abscess was in the right lumbar region, and was diagnosed as perinephritic, but subsequent events revealed a carcinoma of the large intestine. In the third case there was a previous history of chronic dysentery, and the abscess was situated above the umbilicus; later a cancer of the transverse colon was found. The periintestinal suppuration in these cases doubtless arises from a suppurative adenopathy, consecutive to epithelioma of the intestine. The lymphatics of the bowel convey to the lymph-glands not only the carcinomatous elements, but also the pyogenic germs which are always present in the intestine. [B.K.]

Congenital Hypertrophic Stenosis of the Pylorus.—John McCaw and Robert Hamilton[2] state that when a child after the first few weeks fails to gain in weight naturally the first thought is that the food fails to agree with it, and this is probably true; however if there is vomiting, at first only a small quantity being brought up at frequent intervals, and later the intervals increased with a corresponding increase in the amount of vomitus, the tongue being clean and there being no nausea nor bile, then we may suspect obstruction of the pylorus. This is caused by hypertrophy and contracture of the circular muscular fibers. The child being stripped we may be able to outline the dilated stomach and may find its lower border below the umbilicus. Under light chloroform anesthesia the hard pylorus may be made out. A case is reported in which an infant, with symptoms of pyloric stenosis progressively emaciated for several months. Pyloroplasty by the Heineke-Mikulicz method was done, but vomiting continued and after two weeks the child died. Necropsy showed that union was perfect and though a lead pencil could be passed through the pyloric opening yet when the stomach was filled with water none would pass through the pyloric opening; this was caused by a redundant fold of mucous membrane acting as a valve. [A.B.C]

The Formation of Sugar in the Liver.—K. S. Twanoff[3] experimented on the isolated livers of rabbits in order to ascertain the processes taking place in the organ. The method consisted in the passing through the hepatic circulation of Locke's fluid, which is isotonic with blood. The preliminary report on the results of these experiments states that the quantity of sugar contained in the liver shows a considerable increase during the first hour of the experiment. This marked increase is seen in livers of well-fed animals, especially those that were fed on glucose. In livers coming from starving animals, the increase of sugar during the experiment was very small. Concerning the action of poisons on the formation of sugar in the liver it was found that chloroform was without effect in this direction, while strychnin accelerated and quinin retarded the process. The experiments are being continued. [L. J.]

Suprarenal Apoplexy in Children.—Frederick Langmead[4] reports three cases. The first was an infant, 3 days old; birth was normal and at term; the child never breathed properly. On the evening of the third day there was a general convulsion, loss of consciousness, cyanosis, hemorrhage from mouth and nose, death. Necropsy showed neck, head and face covered with purpuric spots. The internal organs were normal except the lower lobe of the right lung which contained a hemorrhage and the two suprarenal bodies; the latter were distended with blood extravasation. The second was a child of 2 months, previously healthy. Breathing became heavy, purpuric spots appeared on buttocks, neck, chest and abdomen, and the child died within 24 hours. Necropsy showed no pathologic condition except hemorrhage into both suprarenals; they were not greatly distended. The third case was a child of 7 months. Previous health good. Temperature suddenly rose to 104°, and there was a general purpuric eruption; death occurred within 22 hours. Necropsy showed all organs normal except the suprarenals; these resembled blood clots in appearance and each was half the size of the kidney. Hamill, who has collected 90 cases in which children died from suprarenal apoplexy, apportions them in three groups: 1. Those in which death occurs during or before labor, due to manipulation and trauma. 2. Those in which it occurs between birth and detachment of the cord stump, due chiefly to infection of the cord. 3. Those dying afterward in which the cause is of an infectious or toxic nature. Of the 90 by far the greatest number belonged to the first group, while only 11 belonged to the last. Langmead thinks the cause is frequently toxic, but it is yet obscure. [A.B.C.]

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[1] Wiener klinische Wochenschrift, April, 1904, p. 465.
[2] Medical Press and Circular, May 11, 1904.

[1] La Semaine Médicale, June 22, 1904.
[2] British Medical Journal, June 25, 1904.
[3] Russki Vratch, May 22, 1904.
[4] The Lancet, May 28, 1904.

Altitude in the Treatment of Respiratory Diseases.—According to F. Dumarest,[1] high altitudes are especially valuable in the treatment of pretuberculous conditions, such as cervicotracheobronchial adenopathies, hereditary tuberculous dyscrasia, specific anemias or pseudochloroses of young girls, and the toxic dyspepsia, which often marks the beginning of a tuberculous impregnation. When the tuberculosis is well developed, and no other organs are diseased, altitude renders great service in its treatment. The forms especially benefited are the fibrous form, the localized ulcerative form with few bacilli, and the superficial form involving the bronchi and larynx. Altitude is contraindicated wherever the respiratory capacity is notably diminished, as by emphysema, extensive ulceration, bronchiectasis, etc.; also by failure of compensation in the heart, or by tendency to congestion of the lungs. Hemoptysis is a contraindication only when due to a congestive tendency; if due to simple ulceration, altitude is more likely to be of benefit. [B.K.]

The Prevention of Infectious Diseases in the Schoolroom.—Hueppe[2] maintains that owing to the fact that some time elapses between the introduction of the infectious material, its discovery, and the institution of disinfection makes the last named process less valuable than is generally supposed. He does not insist upon no disinfection, but in the majority of instances daily cleaning and thorough airing of the schoolroom will suffice. Hueppe says 14% of blindness of youth is due to the infectious diseases of childhood, yet to avoid diseases of the eyes in the schoolroom the above named precautions only are necessary. He believes that those cases of tuberculosis in which there is much expectoration should be reported to the Board of Health. Since in children there is little expectoration, the proper use of their handkerchiefs and thorough daily airing and cleaning of the room are the only feasible procedures; the use of the pocket sputum cup with children is impracticable. Hueppe maintains, children suffering with scarlet fever should be kept from school six weeks; with measles, diphtheria, and mumps three weeks, and with whoopingcough after the whoop disappears. [J.F.]

Influence of Daylight on the Progress of Malaria.—G. Busck[3] discusses at length the view of King that sporulation of the malaria parasite cannot take place in the dark. In Harrington and Leaming's experiments he finds no basis for King's supposition that the parasite requires red light for its sporulation. After referring to the investigations of Tappeiner and his pupils on the question of rendering microorganisms and animal tissue sensitized to light, he advances the proposition that the special effect of quinin upon malarial patients is due to the power of that drug to make the parasites sensitive so that they are destroyed or weakened under the effect of daylight. If these views are confirmed by clinical experiments, they indicate the advisability of treating malarial patients with sun or electric light baths in addition to quinin. [A.G.E.]

Transmissibility of Tuberculosis from Man to Bovines.—Fibiger and Jensen[4] have continued their experiments in connection with attempts to transfer human tuberculosis to bovines and report concerning five cases in which tuberculous material gained from man was inoculated into 10 calves. The results of these experiments were as follows: In 2 cases the human bacilli were almost, if not entirely avirulent for the calves, in 3 cases of slight virulence, in 5 cases of marked or very marked virulence. They also report concerning 213 patients, who came to autopsy, with reference to the frequency of primary intestinal tuberculosis; 116 of them were tuberculous; 11% of those with tuberculosis and 6% of all the investigated cases showed primary intestinal tuberculosis; in children the figures were 18% and 6% respectively. [E.L.]

Abscess of the Rectus Muscle in Typhoid.—W. Mintz and T. Dakilowitch[1] report a case of suppuration of the right rectus abdominis in the course of typhoid fever. The abscess appeared on the forty-first day of the disease. It was opened and the pus examined bacteriologically. Pure cultures of typhoid bacilli were obtained, thus again proving the ability of the Eberth bacillus to produce suppuration without the aid of mixed infection. The examination of an excised specimen of the opposite rectus showed a degenerative metamorphosis going on in the muscular tissue, and the authors assume that a hemorrhage must have taken place in the right rectus, thus affording the bacilli an opportunity of causing suppuration. [L.J.]

Pseudoascites Following Chronic Enteritis.—L. Tobler[2] has seen five cases of ascites in children, which were attributed to tuberculous peritonitis, but were found on operation to be due to accumulation of fluid in the intestines. He believes that these cases exhibit a distinct symptom-complex. The condition occurs in children past the nursing age. Overfeeding seems to be an important cause, especially if the diarrhea resulting from the enteritis is immediately checked by medicines. After the chronic enteritis has continued for months or even years, the abdomen gradually begins to increase in size. Upon examination of the abdomen, fluctuation is usually discovered: this may, however, be entirely wanting. Percussion reveals areas of dulness, which may be in the flanks, as in true ascites, or may be quite irregular in their distribution. The little patients are usually thin and poorly nourished. In diagnosing the condition, fever, continuous pain and the tendency to grow steadily worse, all point to tuberculous ascites; while irregularity in the symptoms and intermissions in the course point to pseudoascites. The condition is due to relaxation of the abdominal walls with enteroptosis. The accumulation of fluid in the displaced intestinal coils is probably due to imperfect digestion, increased secretion and incomplete absorption. [B.K.]

Influence of Salicylates on the Urine.—C. Klieneberger and R. Oxenius[3] find that even moderate doses of the salicylates produce a form of nephritis, which disappears in a few days, even though the administration of the drug be continued. The nephritis is characterized by albuminuria, with the appearance of an abundant sediment in the urine. The sediment contains epithelium from the whole urinary tract, with leukocytes, erythrocytes and various forms of casts. There is evidently a desquamative catarrh of the urinary tract. No other symptoms of the nephritis make their appearance. [B.K.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Traumatic Myosteomas.—L. Cahier[4] reports a personal case and gives an extended study of 133 cases from the literature, considering specially, the pathogenesis and treatment. Of the cases collected, 54 were on the upper extremity, 73 on the lower, and 6 not located by the writer. Of the four theories of origin of muscle ossification—hematic, aberrant sesamoid bones, periosteal fragments, and ossifying myositis—Cahier favors the last. Prophylactic puncture of hematomas is not recommended as a routine measure. Massage is often employed, but this has not yielded constant results; it may cause the disappearance of indurated hematomas, but not of true ossifying areas. It may be distinctly damaging in osseous tumors of the arm in young subjects when there is also injury of the elbow-joint. Not all cases should be operated upon. On those tumors producing symptoms operation should not be done until the tumor is "ripe," that is, when it has become bony throughout; this is necessary to prevent recurrence, which is extremely apt to take place when cartilage is still present. Skiagraphy will decide when the tumor has reached its maturity; several exposures may be necessary at intervals of a month. Cahier advocates removal of the tumor and its capsule. The application of caustics to the wound is not advisable. Slight projections on the humerus or femur need not be removed. Hemostasis should be perfect in order to prevent the possibility of recurrence. Drainage should be dispensed with. Asepsis should be perfect as possible, as suppurative periostitis or inflammation of muscle in a subject possessing myosteoma will almost surely be followed by recurrence. [A.G.E.]

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[1] Lyon Médical, June 19, 1904.
[2] Berliner klin. Wochenschrift, 1904, Nos. 18, 19, and 20.
[3] American Journal of the Medical Sciences, July, 1904.
[4] Hospitalstidende, 1904, No. 1, 45.

[1] Russki Vratch, May 29, 1904.
[2] Deut. Archiv f. klin. Med., Bd. lxxx, p. 288.
[3] Deut. Archiv f. klin. Med., Bd. lxxx, p. 225.
[4] Revue de Chirurgie, March to June, 1904.

The Treatment of Chronic Arthritis by Injections of Vaselin.—Konrad Büdinger[1] injected vaselin into the joints in 9 cases of slight chronic arthritis, in 4 severe cases of arthritis, and in 2 cases in which he employed forced passive movements. He concluded that the measure usually gave good results in slight cases; was followed by improvement in severe chronic cases; and in old cases in which the joints had become immobilized it was a useful adjunct to other measures. Tuberculous arthritis and gonorrheal arthritis are contraindications. Büdinger injects 1 cc. to 4 cc. (¼ dr. to 1 dr.) of warm sterile yellow vaselin into the joints. In most cases there is pain in ½ hour to 2 hours which may last for from 2 to 6 days. There may be some inflammatory change in the joint of the nature of a low-grade synovitis [J.H.W.R.]

Surgical Scarlatina.—Alice Hamilton[2] states that 174 cases of this affection are described in detail in medical literature and casual mention made of many more. She adds 10 cases to this number, from the Memorial Institute for Infectious Diseases, and reviews the writings on the subject. Two points are to be considered: 1. Is the disease reported in the literature as surgical scarlatina really scarlatina? 2. If it is scarlatina, what is the relation between the injury and the disease? Surgical scarlatina is said to differ from medical scarlatina in five ways: 1. The large number of adults attacked. 2. The shorter period of incubation. 3. The absence or mildness of angina. 4. The fact that the eruption begins at the wound or in some other unusual region. 5. The slightly precocious desquamation. Careful examination of the personal and reported cases leads to the conclusion that the eruption in question is often due to septic infection and is not scarlatinal; in cases of undoubted scarlatina there is no convincing evidence that the relation between the wound and the scarlet fever was anything more than one of coincidence. There is as yet no undoubted proof that surgical scarlatina is more than scarlet fever in the wounded. [A.G.E.]

Hernia in a Laparotomy Wound and Malignant Degeneration of the Intestines of the Hernia Sac.—Sperling[3] reports two cases in which a hernia developed; in the one case after suppuration of the wound and in the other as a result of catgut sutures. The carcinoma was observed four and seven years respectively after the myomectomy; in each instance the tumor involved a coil of intestine, the sac and a part of the omentum included in the hernia. Both these patients wore binders for several years. Sperling considers the irritation produced in this manner may have been instrumental in the evolution of the carcinoma. Primary union, exact coaptation of the fascia, prevention of adhesions between the intestines and the wound and the use of unnecessary buried sutures, these are essential factors to prevent the above consequences. He sews up the abdomen with through-and-through sutures, introducing the needle from within. [J.F.]

Surgical Treatment of Dyspepsia.—Roswell Park[4] discusses this term, under certain lesions of the stomach, duodenum, biliary passages and pancreas, lesions that are now thought by the most progressive, but which will, in a comparatively short time, be acknowledged by all to be surgical in nature; that is, best or only to be treated by operative methods. The diagnosis and operative intervention in numerous lesions are considered in detail. In conclusion, Park states that operation is indicated in: 1. Gastric ulcer; either gastrotomy and direct attack or posterior gastroenterostomy. 2. Gastric dilation when internal measures have proved disappointing, and always when pylorostenosis exists. 3. Gastric cancer; early to effect a cure, later a gastroenterostomy to prolong life, in most advanced cases a jejunostomy for temporary purposes. 4. Gastric anomalies. 5. Pyloric obstruction. 6. Duodenal ulcer, cancer or stricture; posterior gastroenterostomy is clearly indicated. 7. Biliary obstruction, all chronic and many acute cases. 8. Pancreatic disease of almost every type, whether acute or chronic. "Finally, in all cases of acute pain in the upper abdomen, accompanied or followed by vomiting, especially of recent or old blood, by tympanitis, muscle spasm and collapse, and in all chronic cases of pain and tenderness in the region described, with a history of recent and particularly of long standing symptoms, of emaciation, dyspepsia and indigestion, with or without perceptible tumor, but with rigidity of the rectus and other abdominal muscles—in all of these, I say, I would urge surgical exploration, after due preparation, and under circumstances which may allow the surgeon to resort to every technic and life-saving expedient known to the art." [A.G.E.]

Surgery of the Prostate Gland.—J. B. Deaver[1] furnishes a complete discussion of this subject, including history, etiology, symptoms, diagnosis, and treatment. Several hypothetic cases are used to illustrate the last point. The Bottini operation is not one for the general surgeon nor for the average patient; with all the advantages claimed for it the operation is first and foremost a makeshift. In Deaver's opinion it should be employed only when prostatectomy is inadvisable or is refused, or when the urethra is freely open to instrumentation, there is no cystitis, and little residual urine. Prostatectomy is the operation of choice in all cases in which it is not contraindicated; the method of Freyer gives a lower mortality than that of McGill. Perineal prostatectomy has a lower mortality than either of the preceding, but the results are not so good. Freyer's operation is the one of choice, but there is a small number of cases in which it is not advisable or even possible. The technic employed by Deaver does not materially differ from that of Freyer. The paper closes with brief clinical notes of 13 cases in which this operation was used. [A.G.E.]

Five Cases of Tuberculosis of the Kidney and Bladder, with Cure.—G. Kapsammer[2] states that the failure of subjective symptoms on the part of the kidney is almost characteristic of tuberculosis of that organ; but disturbance of the functions of the bladder, on the other hand, is almost the rule. The pressure in the bladder is frequently so great that cystoscopy is only possible under an anesthetic. A characteristic symptom is the change in the appearance of the urine. It is often during a single day first clear and then bloody. The microscopic demonstration of the tubercle bacillus in many cases is abandoned, but, on the contrary, experiments upon animals add much light. When one side is diseased cystoscopy shows usually edema, cystitis, or ulceration of the mouth of the ureter on the side of the diseased kidney. Only by means of catheterization of the ureters is it possible to discover whether one or both kidneys are diseased. The possibility of infecting a healthy ureter may be obviated by skill in the operation; by inserting the catheter only one centimeter, and by using a prophylactic injection of 1% bichlorid solution. In cases in which cystoscopy or urethral catheterization is impossible, tuberculin has been injected, and the kidney in which pain is experienced is diagnosed as the diseased one. The author has used this method in one case with disappointing results. In four of the five cases the indications for nephrectomy were △ freezing point; phloridzin +; methyl-blue +. The low "moleculargehalt" of the middle catheterization from the kidneys is accounted for by a reflex polyuria. In general, "lapis instillation" is contraindicated, in fact, in cases with great intolerance for this procedure one should think of tuberculosis. In one case reported, which was treated by injections of bichlorid and guaiacol iodoform, nephrectomy demonstrated a cure. In another case in which the ureter was diseased and a small cavity was present in the kidney, the ureter was removed as far as it was diseased. In one case the entire ureter was removed, and in the other three cases only parts. Kapsammer concludes that it is possible to diagnosticate tuberculosis of one kidney and the functional condition of the other kidney, and based upon these facts operation may be done. [J.H.W.R.]

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[1] Wiener klin. Wochenschrift, No. 17, 1904, p. 470.
[2] American Journal of the Medical Sciences, July, 1904.
[3] Berliner klin. Wochenschrift. 1904, No. 20.
[4] Buffalo Medical Journal, July, 1904.

[1] American Journal of the Medical Sciences, July, 1904.
[2] Wiener klinische Wochenschrift, 1904, No. 16, p. 433.

Fractures of the Skull.—J. S. Horsley[1] alludes to the value of a knowledge of the mechanics of fracture of the skull in assisting to make a diagnosis. The question of compression or concussion of the brain can be of but little service in diagnosing fracture. In simple fractures of the vault, palpation is the chief diagnostic method. In fractures of the base, the kind of violence, its direction and the position of the patient must be taken into account. A point made emphatic by Horsley is that the surgeon should have excellent reason for converting a simple fracture into a compound one. It ought not be done to verify a diagnosis that may be of only academic interest. It is doubtful if a simple fracture with slight depression should be subjected to operation merely to avoid a possible epilepsy. Dural adhesions at the trephine opening will probably cause as much irritation as the depressed bone. In answer to discussion, in which he was accused of conservatism, Horsley said he cannot appreciate as a reason for operating merely the fact that it is not dangerous to do so. It is this sentiment that has resulted in too many abdominal explorations and other unnecessary operations. There are bound to be disagreeable results from any operation. [A.G.E.]

Acquired Diverticulums of the Intestines.—E. Beer[2] reviews the various theories regarding the origin of intestinal diverticulums from both a clinical and experimental standpoint. Distention experiments on the cadaver he considers valueless, because they do not show the weakest part of the living intestinal wall, and he says emphatically that the supposed weakness of the intestine at the mesentery does not exist. He believes the cause to be weakness of the muscle coat of the gut. Two facts regarding these diverticulums are emphasized: (1) Those in the large intestine, particularly in the sigmoid and rectum, are alone likely to undergo extensive pathologic changes, those in the small intestine being comparatively harmless; (2) it is rather the exception than the rule for those in the rectum or sigmoid to give rise to symptoms. From the 18 reported cases these conditions resulted: (1) Stenosis of the sigmoid or upper rectum. From this it follows that the prognosis of chronic ileus due to sigmoid stenosis, even in the presence of a tumor, must be very guarded; (2) perforation into the peritoneum. The important lesson here is to examine the sigmoid in cases of perforative peritonitis of doubtful origin; (3) abscesses or localized peritonitis in the left iliac fossa; (4) perforation into the urinary bladder; (5) mesenteritis; (6) appendicitis; (7) carcinomatous transformation. [A.G.E.]

Radiotherapy.—Lassar[3] inserts the radium on a mica plate into a flexible lead capsule. He uses 1 mg. of radium bromid daily for a half hour fastened by means of adhesive strips to the diseased part. Under such precautions no untoward effects have resulted. He reports a list of cases in which the disease, especially epithelioma, disappeared in a comparatively short space of time. A number were sent home cured in two months. This form of treatment cannot set aside the necessary operation, for, he says, in order that the radium be effective the tumor must be near the skin surface; in recurrent carcinoma of the breast the growth is no longer deeply seated; it is then that radium can be effectively applied to this form of neoplasm. [J.F.]

Irrigation in General Peritonitis.—M. Clinton[4] contributes to the subject of treatment of general spreading peritonitis the history of a case following perforation of the appendix. In addition to the original incision, openings were made in the middle line, on the opposite side, and in both flanks. The belly was flushed with ten gallons of hot salt solution and drainage-tubes put in each incision. Twelve hours later, with the head of the bed elevated, the irrigation was repeated and a considerable quantity of pus washed out. A third irrigation twelve hours later revealed no pus. The patient recovered, although obstruction, due to adhesions, was operated upon a month later. [A.G.E.]

Appendicitis and Its Surgical Treatment.—James Tyson[1] reports the case of appendicitis which completed his conversion. The patient was a young man of 18, in whom symptoms of appendicitis ameliorated rapidly in the course of several days. Dr. Tyson saw him in consultation eight days after the beginning of the attack, and agreed with the family physician that the case was one of appendicitis, of which the symptoms were rapidly subsiding. A surgeon was called, however, and, confirming the diagnosis, thought it better to remove the appendix. Haste was not considered necessary, and operation was deferred three days, until the patient could go to the hospital by train. Previous to operation there were absolutely no symptoms, and they expected to find the remnant of a catarrhal appendicitis. Instead, there was an abscess containing fetid pus, and a gangrenous appendix. This case forces Tyson to the conclusion that all patients in whom the diagnosis of appendicitis is made should be operated on at once, without waiting for a second attack, even though the symptoms subside rapidly. [A.G.E.]

GYNECOLOGY AND OBSTETRICS

Wilmer Krusen   Frank C. Hammond

EDITORIAL COMMENT

Parturition in Madagascar.—The native conduct of the process of parturition in Madagascar has just recently been made the subject of an interesting essay by Dr. Joly.[2] The writer points out the anxious care with which primitive peoples, in all regions of the world, endeavor to shroud the moments of birth and death in an impenetrable veil of mystery. Whether the practice be inspired by modesty or by superstition, the presence of a stranger—especially if medical—is intolerable. This is specially the case with the aborigines of Madagascar. Accordingly, Dr. Joly's information is all second hand; and, even as such, was procured with great difficulty. Till the onset of the first pains the Madagascar woman continues her usual occupation. She then lies down and awaits the arrival of the "sage femme." The latter is a professional midwife and has often to be summoned from a distant village. She is often quite young. She may become the pupil of a recognized practitioner at the age of 9, and may practise independently as soon as she has acquired the requisite skill. Accordingly, she is sometimes not more than 10 years old. It should, however, be remembered that she may be a mother at the corresponding age. In the exercise of her profession she is treated with great respect, and even awe; she is regarded as something of a sorceress. Her orders and prescriptions are implicitly pursued. But the position has its drawbacks. She has no right to refuse her services; she must remain with her patient from her first entrance till the case has fully terminated. If her professional attentions do not appear satisfactory to the friends of the patient, she may be superseded at any moment—without hope of remuneration. She partakes of no food from the moment she takes charge of the case till its termination, she may however drink. She is also continuously watched; being regarded to some extent as a witch—with the power, and perhaps the will, to injure. On this account she is never left alone with her patient. If she is obliged to go out to gather the herbs necessary for the preparation of certain beverages for the latter she is always accompanied by one of the family. And if some accident or complication lead to an unfavorable termination of the case she is sent to rejoin her victim in the other world. Formerly she was sacrificed beside the body of her defunct patient; in the present generation she is slowly poisoned! During the progress of the case the males of the household all retire to a neighboring domicile; the female relatives all crowd into the lying-in chamber. The midwife carefully palpates the external surface of the abdomen, and also makes a careful vaginal examination. She administers refreshing draughts (rice-water, etc.) at intervals to mitigate the pains and "facilitate the expulsion." When the head comes to press upon the perineum, she sits on the bed—in tailor's posture—beside her patient, and applies a *lamba* (pièce d' étoffe) which she retains in position with her foot, while she compresses the abdomen with her hands. When the progress is slow, the assistants aid in the abdominal pressure. Application of a special form of earth ("terre de deliverance") to the genital surfaces, and to that of the abdomen, is also often employed. When the resistance is very pronounced she tears the perineum—in a chosen direction—after carefully anointing with suet, or better, cocoanut oil! When the fetus has been expelled it is allowed to remain in situ till the placenta follows. But if the expulsion of the latter is very slow, the cord is divided, and the infant attended to; the division is usually made with a sharpened piece of bamboo, 15 cc. to 20 cc. being left attached to the umbilicus. The forehead and temples of the newborn are then touched with the bleeding extremity; it is then knotted and dressed—usually with cocoanut oil. The placenta is always carefully examined, so as to make sure that no fragment has been left in the uterus. Serious sequels would follow such complications; blindness, deafness, mania, or even death, would probably be the result. When ordinary pressure fails to bring away the placenta, the patient sits up in bed with the thighs separated to facilitate the effects of pressure. The assistants sometimes grasp her on either side, under the axillas, and shake her—as they would a sack, in emptying it of its contents. When the placenta and membranes have been completely expelled, they are handed over to the father, to be buried with all haste; the health, and even life of the newborn depend on this. They are carefully wrapped up beforehand, their grave has been already prepared, and is exactly located in the direction of the rising sun. It is covered with stones, the larger the better. All these details must be carefully attended to to prevent attacks of convulsions, or even death, of the newborn baby. The mother is encouraged to bleed freely; it prevents serious sequels. A lacerated perineum is sutured with long hairs, inserted with a needle made from a bamboo chip. The parts are then carefully washed with a decoction of special herbs. The midwife repeats this washing at least three times a day. The patient also washes herself after each act of micturition. She is placed on her side and frequently changed to the opposite, but never allowed to lie on her back. Her chamber is carefully closed—to air and light—for eight days. The latter practice is not, however, the general rule; it is said to be derived from that of the creoles. At the end of the second week, there is a special elaborate bath, after which the mother is allowed to go out and take the air. She is not allowed to have sexual intercourse before the completion of a period of three months, in case of a girl; four, in case of a boy.

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[1] Southern Medicine and Surgery, June, 1904.
[2] American Journal of the Medical Sciences, July, 1904.
[3] Berliner klin. Wochenschrift, 1904, No. 20.
[4] Buffalo Medical Journal, July, 1904.

[1] Medicine, July, 1904.
[2] Arch. de méd. navale, t. lxxvii, p. 56.

REVIEW OF LITERATURE

Cervix and Lower Uterine Segment.—O. Scaeffer[1] has for a number of years endeavored to localize the sensitive regions of the uterus, and some of his conclusions are as follows: 1. The inner os uteri is for the sound the most sensitive part of the cavum uteri, and this sensibility to pain extends toward the median line of the lower edge of the hypogastric region, eventually spreading to the sacral or supraumbilical. 2. Much less, yet distinctly sensitive is the upper part of the cervical canal with irritability reaching from the mons veneris and medial inguinal part to the infraumbilical and sacracoccygeal portion. 3. The lower part of the cervical canal is not sensitive like the wall of the portio vaginalis. The upper sensitive zone seems alone to form Muller's ring. 4. The mucous membrane of the vaginal portio is distinctly sensitive. 5. The posterior vaginal vault is more sensitive, with a zone of pain in the always corresponding reciprocal hypogastrium. 6. The sound, penetrating above the inner os uteri, reaches a completely, or almost completely, nonsensitive part of the lower cavity of the uterus, anatomically the lower uterine segment. 7. When the ball of the sound rests upon the base of the uterus, in either horn or in the middle, it arrives at a zone of pain which embraces the infraumbilical regions and reaches to the hypochondriolumbar regions. The base of the uterus belongs to another nerve region from the upper cervical canal and between them lies the described neutral passive portion. This fact is all the more significant as both these first mentioned represent two distinct but unitedly acting centers of labor pain. The less active part lying between is that known anatomically as the lower uterine segment and corresponds to the isthmus uteri. [W.K.]

The Avoidance of Ventrofixation of the Uterus.—F. Spaeth[1] reports three cases, in which after laparotomy, according to Pfannenstiel, and the removal of ovarian cysts and tumors, the retroflexed uterus was restored to its normal position by shortening the round ligaments; and he believes that in those cases in which an abdominal incision is necessary this method is the procedure of the future, as it avoids all the disadvantages and dangers of ventrofixation. [W.K.]

Pregnancy after Removal of Both Ovaries.—W. A. Meredith[2] states that during the past few years a number of instances of pregnancy, originating subsequent to the removal of both ovaries, have been reported in literature. He reports an additional case. The patient was a woman of 35, recently married, when she became troubled with nausea and there was enlargement of the abdomen. At first only pregnancy was suspected, later it was suspected that there was double ovarian cystoma, probably dermoids, complicated by an early pregnancy of some eight weeks' duration. Operation was performed. The probable diagnosis was confirmed, both ovaries were removed and the fallopian tubes were ligated as far from the pregnant uterus as could be conveniently done. It was hoped that a miscarriage would be averted, but this was disappointing, abortion occurring some 48 hours later. The woman was seen a year later, when she stated that for the past three months she had menstruated regularly; a year thereafter menstruation which had been regular failed to appear, nausea supervened, which persisted for 12 weeks, and at the proper time movements were appreciated. She accidentally slipped and fell, which induced premature labor and a five months' fetus was expelled. The patient made a perfect recovery and since then menstruation has occurred regularly. The author believes that the reestablishment of menstruation, followed by pregnancy in this case, is explained by the theory that some portion of ovarian tissue capable of maturing follicles was left untouched by the operation and that the patency of one or both fallopian tubes was subsequently restored. His belief is that the ovarian tissue in question consisted in an outlying portion in connection with the uterine extremity of one or other ovarian ligaments. The probability of there being a third ovary, with its accompanying fallopian tube was not considered likely. [A.B.C.]

The Prevention of Fever during the Puerperium.—P. Zweifel[3] gives a number of statistics showing the reduction of percentage of puerperal fever cases in the Leipzig Hospital during recent years. From 1898 to October, 1903, there was a reduction in morbidity of 9.3%, which he ascribes to the use of rubber gloves; and since in these things only the best is good enough, he holds that their use is indispensable. Another conclusion which he reaches is, that the many cases of fever occurring, although all the usual aseptic and antiseptic precautions have been observed, are due to blood clots remaining in the uterus or vagina and that the cleansing out of these blood clots plays an important part in the prevention of fever. These may be removed from the genital canal by dry aseptic sponges, a method he seems to prefer to irrigation with boiled water or saline solution. The regular washing out of the genital canal before or during labor, as formerly advocated by some writers, as a safeguard against the vaginal germs, he considers as superfluous, but it is essential that all blood clots be removed as they may, and often do become the source of an infection which spreads through the whole organism, prolonging illness and endangering life. [W.K.]

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[1] Zentralblatt für Gynäkologie, May 14, 1904.

[1] Zentralblatt für Gynäkologie, April 30, 1904.
[2] British Medical Journal, June 11, 1904.
[3] Zentralblatt für Gynäkologie, May 28, 1904.

Acute Primary Inversion of the Puerperal Uterus, Reduced by Taxis.—Croft and Muschamp[1] report the case. The patient was a woman of 28, and this was her third labor; the first was instrumental, the second was normal; the whole duration of the present labor was six hours, a midwife only being in attendance. The placenta came away without much pain 15 minutes after the delivery of the child, and the midwife admitted making slight traction on the cord. The binder was promptly applied, but almost immediately afterward the patient was seized with violent after-pains, which continued a day. She did not gain strength rapidly, and on the morning of the sixth day, when straining at stool, there was a sensation of something giving way in the pelvis. Muschamp was called by the midwife, found the patient in a somewhat collapsed condition, temperature subnormal, pulse 120. A vaginal examination revealed the inverted uterus protruding from the vagina. Taxis was applied to the mass, and after 10 minutes the inverted uterus was successfully reduced, irrigated, and packed with gauze. Though the patient suffered considerable shock, she eventually made a successful recovery. It is believed that the partial inversion was produced by traction on the cord, and completed by the severe after-pains. [A.B.C.]

Eclampsia of Pregnancy and the Bossi Method.—Friedrich Wolff[2] advocates the use of the Bossi method for rapid emptying of the uterus in eclampsia in preference to vaginal cesarean section, as recommended by many authors. He considers it just as favorable to the life of the child and much less dangerous to the mother. It has also this advantage, that it can be used by the regular obstetrician, while cesarean section requires an experienced surgeon with assistants, and probably the removal of the patient to a hospital. [W.K.]

Intraperitoneal Shortening of Ligaments with Exclusive Use of Catgut.—Menge,[3] having observed the frequent bad effects of ventrofixation of uterus and the evils resulting from the use of nonabsorbable suture material, is convinced of the advantage of the intraperitoneal shortening of the ligaments which gives the uterus a complete physiologic position, and also of the exclusive use of absorbable material. He describes with illustrations the peculiarities of his procedure. The round ligament is grasped near the middle by forceps, and drawn in front of the anterior lamella of the broad ligament; after the two parts of the loop thus formed are sutured together as usual, the loop at its angle is firmly sutured to the anterior uterine wall near the fundus, and thus the uterus is brought into a position most nearly physiologic. The bladder retains its free action and the adnexa remain outside the operation field. His method has brought uniformly good results, with no disturbance during pregnancy or labor. He employs this method only in cases of fixed retroversion, whereas if the uterus is movable, only the Alexander-Adams operation comes into consideration. [W.K.]

Lactagol a New Lactagog.—Lactagol is the powdered extract of the seed of the cotton plant. It has been used for a long time by farmers as food for milch cows and has been found by them to possess lactogenic properties as proved by various control tests. This observation led J. A. Brink[4] to employ it in the case of nursing women. It is marketed as a fine yellowish powder of pleasant taste; it is insoluble in water, forming an emulsion with milk. He gave it in doses of 10 gm. to 12 gm. (2½ dr. to 3 dr.) daily, observing the desired action usually in from three to four days: in some few cases the milk secretion increased at once. He relates the details of three cases in which the mothers before using lactagol were only able to nurse their children a part of the day, after using it all day. It should not be given to women with atrophic breasts. [E.L.]

Transforming Face Presentation to Occipital by External Use of the Hand.—Since it is an undoubted fact, that there is less fetal mortality in delivering with occipital than with facial presentation, A. Ostricil[1] advocates changing the face presentation to the occipital before delivery by either the Schatz or the Thorn method, according to indications. This does not endanger the mother's life and makes the preservation of the child's life much more certain. He reports a number of cases of rectification of facial presentation and the delivery of living children. [W.K.]

Spinal Subarachnoid Puncture in Eclampsia.—T. A. Helme[2] suggests that eclamptic convulsions are due to cerebrospinal tension and that this indicates intercranial pressure. The premonitory signs of headache, dizziness, irritability and sudden blindness, the clonic, tonic and tetanic spasm, the stupor and coma, all are consistent with the existence of increased intercranial pressure. If this view, that the convulsions and coma are caused by increased intercranial pressure, be correct, then we have a most certain and satisfactory means of obtaining relief, dependent upon the free communication between the subarachnoid spaces of the brain and spinal cord. Helme reports the case of a patient who two hours after delivery suddenly had a convulsion and became entirely blind. The fits occurred at frequent intervals during the day, 15 in 10 hours; her condition grew worse in spite of active treatment; she maintained a semicomatose condition, and it looked as if she must die. Then it was decided to perform spinal subarachnoid puncture in the lumbar region, and 1½ dr. of cerebrospinal fluid was withdrawn, the fluid escaping rapidly, as if under considerable pressure. A hot rectal injection of normal saline solution was also given. Only two slight fits occurred after this; the patient steadily improved and is now quite well, and has completely recovered her sight. [W.K.]

Resection of the Ureters and the Vesical Wall in Cancer Extending to the Matrix.—A. Depage and L. Mayer[3] review the literature of this subject, and describe the technic of ureterocystoneostomy. They conclude that in all cases of cancer extending to the uterus it is advisable to resect the ureters and a portion of the bladder adherent to the matrix. Ureterocystoneostomy is, in their opinion, an operation both efficacious and benign, and is of great advantage in abdominal hysterectomies done for the relief of uterine cancer. When ureterocystoneostomy is not practicable, resource can be had to ureterocolostomy, of which operation the method of Maydl appears to be the one of choice. [J.H.W.R.]

A Case of Chorioepithelioma.—S. v. Zaborsky[4] reports the case of a woman, aged 47, who had had eight normal deliveries, and in March, 1901, a severe hemorrhage, which was undoubtedly an abortion. In April she came to the clinic, and a vaginal examination led to a diagnosis of a cyst. Later, rise in temperature and chills indicated serious complications. The abdomen was opened and the tumor found to be a malignant chorioepithelioma with metastatic growths in vagina and both lungs. Death occurred half an hour after operation. The great malignity of this neoplasm is shown by its fatal termination after only three months' growth. [W.K.]

Ligation of Both Hypogastric Arteries for Inoperable Uterine Cancer.—G. Kosler[5] reports several cases of inoperable carcinoma treated by ligation of the hypogastric arteries, but as the hemorrhages returned in a brief period, except in rare instances, he prefers excochleation and cauterization as a less difficult and dangerous method, and about as effective. It is only in rare instances that the double ligatures may be used to advantage to preserve for a time the life threatened by severe hemorrhage. [W.K.]

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[1] British Medical Journal, June 11, 1904.
[2] Zentralblatt für Gynäkologie, April 16, 1904.
[3] Zentralblatt für Gynäkologie, May 28, 1904.
[4] Deutsche medicinische Wochenschrift, 1904, xxx, 207.

[1] Zentralblatt für Gynäkologie, April 9, 1904.
[2] British Gynec. Jour., May, 1904.
[3] Journal Méd. de Bruxelles, May, 1904, p. 245.
[4] Zentralblatt für Gynäkologie, May 7, 1904.
[5] Zentralblatt für Gynäkologie, April 16, 1904.

American Medicine

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Adolescence is the subject chosen by President G. Stanley Hall for his first book—a two volume, 1,400 page octavo, in which is condensed an awesome erudition, and an earnestness no less worthy of all reverence. *De omnibus re scibili*, certainly, one feels like quoting when plunging through it, even if not *quibusdam aliis*. To attempt any review, at least in the space allotted in the ordinary journal is absurd. As well attempt to review the universe. Here is philosophy, psychology, religion, sociology, pedagogy, medicine, and a half-dozen or more other full-fledged sciences, all rolled into one, fused in a white heat of love and passionate ethics to a pure unity of sentiment and science, all aquiver with life and emotion, even while tossing about the most solemn statistics—they are *vital* statistics, with a will, do not forget—dithyrambic with poetic emotion—great knowledge shot through and through with the scarlet threads of love. Adolescence, this, and not adulthood, not surely senility, and least of all there is about it no flavor of the postmortem table. In this there is a lesson for medical men, as our science too often is senescence, not adolescence. How often is our pathology postmortem—both in fact, and teaching; the beginnings of disease viewed with indifference or scornfully ignored, while the laboratory worker in there goes on gathering slides of tissues dead with the diseases which the youngsters over the wall are making for the laboratory pathologist of the next generation! All pathology begins in physiology, all organic changes in functional ones; the etiology of morbidity is in slight variations from the norm. Dr. Hall has been the first to bring this out clearly in psychology and philosophy, and proud may all Americans be of him and of his book. It is American to the core! Let Dryasdust European professors teach the science of being, the laws of cognition through monotonous centuries, and let them smile—here we see the beginning of a new order of science, and of scientific men. Pathology has become pathogeny, the philosopher has gone to school to the child, and the Bible truth as to becoming as a little child has been, and must more be, recognized as a scientific method and truth.

Philosophy, Hunger and Love.—Dr. Hall, unlike the philosophers generally, has seen that the actual makers and rulers of the world have been love and hunger. While others reasoned them of many things, reproduction and nutrition have been creating the end-products which psychology affected to study, ethics flattered itself to guide, and metaphysics shut its eyes to scorn. Only once before has a capable philosophic mind, and that only for a brief chapter, tackled the question of love in downright earnest. But even then it was only of the metaphysics of sexual love that the pessimist thought, and it was, of course, a pessimist's study, leading nowhither, unless to loathing and suicide. Moreover it was metaphysics and not physics, nescience its result, not science, deduction its method, not induction. And lastly it was of adult or even senescent love that Schopenhauer thought and wrote, while all prophylaxis and ethics would have counselled attention to the adolescent type. And while some others, many of them as morbid minded as their patients, have dealt extensively in psychopathic sexuality, and poorly disguised pornography, Dr. Hall, though the most unshrinking and openeyed of psychologists, can not for a moment be dreamed of as encouraging and teaching a strabismic sexual ethics. He speaks plain language, *e. g.*, about masturbation and other diseases of adolescence, but as he says no child ever learned ill-thought or action from such language when rightly used, and with moral purpose behind it. As to nutrition, it is the most patent and striking of truths which Dr. Hall emphasizes, and makes "the new genetic basis of the psychology of the future." "Nearly three-fourths of the total energy of the body, expressed kinetically, probably goes to digestion, and half the struggle of life is for food;" "there is a trophic or nutritive background for everything," etc.

Breaking Away from the Stereotyped Dead Science of Averages and of Traditional Doctrines.—In his epoch-making book, Dr. Hall has at last broken entirely with the traditionally accepted doctrines of science and psychology, and has taken as his subject the true etiology of our social, medical, and pedagogic diseases—their source in the child. The pathologic section he has given up for the study of nascent sexualism; school hygiene replaces the laboratory slide; physiologic aberration, the surgical disease; school headache, postmortem diagnosis. He has also made a desperate attempt to get away from, at least to put some life into, and derive some lessons from, the sorry figures of morbid and unvital vital statistics. Alas that he has failed, although failure was inevitable! The author has had to rely on the data furnished him by medical statisticians. "Figures can not lie, but figurers do," is an old dictum, and a better one says that, "Figures must be made to open their mouths and speak." The enumeration of the end-products of disease, the platting of morbidity curves and abscissae, tell little except to the acute minded and the wary. Especially is the modern lazymindedness execrable which, without a particle of knowledge, or zeal for knowledge, drops down upon a new view, theory, or statistical table, and cries out: *Exaggeration! Hobby-riding! Abscheulich!* To add the underrater to the overrater and then strike an average; to quote, toploftily, *in medio tutissimus ibis*, and do it all for the sake of the "safety" of the cunning toady *hoi polloi* worshiper—this is a method as common as it is pernicious. To judge from many medical articles their authors never heard of the patient's personality, the beginnings of his sufferings, nor the source of his life-tragedy. All that interests is the "conservatism" and the safety of the averager, and his unwillingness to trace the origin of his dead figures and lifeless opinions into incipient nutritive and genetic processes where originate our often meaningless pathologies and destructive terminal diseases.

Trail-blazing books usually mean tragedies for the blazers, and hardships for the immediate after-comers. They are also likely to be quickly forgotten. If the efforts of the professional opinion-dictators can possibly avail to scorn and sneer them down, they will soon attain their due oblivion, because the next follower of the trail can see the error of the maker of the first route and will be ungrateful enough to curse him for detours and blunders, his failures to see shortcuts so evident to the later settlers. Sometimes, however, the scientific book, and especially the medical one, as is this of Dr. Hall, will not be sniffed out, but persists in being attended to, even if and after it has been killed by grand societies in special sessions assembled, or by reverenced and senescent leaders who have forgotten to lead. This is because the author's eye was fixed, perhaps too fixed, on the distant end of the journey, and because his heart was wrung, perhaps, too passionately, by the woes of his patients. It was the truth that he sought, not the deeper etching of his preconceptions, upon which his mind was bent. It was the relief of suffering that motived his investigation and writing, not the establishment of an already too well-established unscientific scientific doctrine; it was the learning of new truths, even at the expense of unlearning the dear old ones, instead of the delights of criticism and the pleasures of easily satisfied egotism. We notice the beginnings of the attempt to "smile it down" in Dr. Hall's learned critics, but it is fortunate that he is even more patently learned than they, and despite all the mistakes he may have made in this his "first book"—some of which are all too evident—the trail-followers must still look for his blazes, despite their unwillingness and concealed grumblings. The more open minded and generous hearted will "thank for teaching that one word"—adolescence.

The Unity of Medical and Other Sciences.—Physiology, try as it will, cannot get away from medicine. This is because, as so often demonstrated and as often forgotten, all pathology begins in pathogeny, and all pathogeny is aberrant or morbid physiology. The physician has the peculiar misfortune to make his living by the cure of the final stages of disease, the beginnings of which usually lie far back and before he sees his patient. The physician's tragedy is that he is compelled to deal with these end-products of vicious living, these organic and completed processes, while he would like, if possible, to prevent them by righting the functional morbidities which preceded them. Dr. Hall's "Adolescence" illustrates this capitally, and better still illustrates the truth that, analyzed with thoroughness, the logic held through to the uttermost, there is no fundamental distinction between medical and other biologic sciences. Pathology permeates physiology, and is based upon it, while physiology never dares practically to forget the errant and aberrant dangers and trends which characterize the vast bulk of all vital processes. What is most of pedagogy other than the practical psychology of the young? What is practical adolescent psychology other than mental, emotional, and even physical states, a very few of which only can be nowadays called absolutely healthy? Tables of the examination of modern school children by crude and hasty methods have shown as high a proportion as 60% diseased. More and more the world is learning the truth that in one way or another all biologic and sociologic study is medical. The physician is in no danger of being without work if he does run the risk of not being paid for it. He must be invited to every other scientific society, and if he is not there the results are very prone to be faulty or valueless. Dr. Hall has seen this vividly and emphasized it on every page. His psychology, pedagogy, and sociology are profoundly modified by medical study.

Menstruation-mad.—His subject somewhat misled him, and the authorities he was compelled to rely upon still further seduced him from the strict path of scientific virtue; so that, regretfully and carefully as one must state it, the truth will remain that Dr. Hall has vastly overestimated the pathologic factor of puberty and menstruation in adolescence. Like the old physician whose old science and statistical tables were necessarily, perhaps, relied upon—but too trustingly one should add—the learned author is a bit menstruation-mad. Almost every page is drenched in the error, and every conceivable ill or good is traced to the establishment, or the apparently uncaused abnormalism of the genetic function. Even hysteria is approvingly linked to the physiologic ὑστέρα as absolutely as the etymology and false medicine of early times would have us believe; almost every kind, shade, and facet of pediatric disease is looked at from this standpoint, and the whole science of pedagogy is colored a lurid scarlet by this morbid exotic factor. Astonishing gatherings of statistics made by modern special specialists, or by more ancient students, while morbid sexualism too much dominated medicine, are forced to support the contention. But it must all be largely unlearned, undone, and done over again. Every acute-minded general physician not *neugierich* after the nasty, and who deals with the normal school child, knows that puberty and menstruation, although of course having their abnormalisms and diseases, are still vastly less the causes of ill-health than the results of it, and that the exaggeration of the pathogenic roles of puberty and menstruation is an out-of-date error. The old cry of hysteria was itself hysteric, and a flagrant excuse for ignorance and inability to make a more accurate diagnosis.

The Neglect of the Greatest Factor—Eyestrain—in the Study of Adolescence.—The fundamental error of most of our present-day pediatrics is the continuance of the century-long ignorance and indifference to the pathogenic factor called, nowadays, eyestrain. There is a huge literature on the subject, utterly ignored, a literature based upon most careful and accurate clinical observation produced and vouched for by most careful and accurate clinicians. It is as if it did not exist, and the textbooks and unlearned learned articles keep on appearing by the hundred as innocent of these truths as if they had been written a hundred years ago. To recommit this profound blunder in one of Dr. Hall's scholarship is almost a crime. There are the facts; there is the nonmention of them by one almost omniscient. Is it that he wilfully ignored in order to avoid the thorny road of controversy? His bravery throughout his splendid book makes the supposition impossible. It is a mystery, and a pitiful one. Hundreds of oculists know how eyestrain is at its terrible, health-wrecking, life-crippling work among 25% or 40% of school children. Dr. Hall has not heard of it, seemingly. He quotes appalling statistical summaries of the increase of ill-health with each school year; he mentions repeatedly the symptoms of these unhealthy little ones, such as headache, gastric disorders, anemia, nervousness, irritability, sleeplessness, myopia, etc.—all as we now know beyond a doubt due largely to eyestrain—and yet not a line to betray the cause or cure of these symptoms! It is unpardonable, that at least must be said, except that every page of a new edition of his work must be rewritten and the whole aspect of the matter replaced in the light of this great truth let in upon it, and flooding it with a new hopefulness and a justified optimism which Dr. Hall should have been the first to welcome and herald to the world.

The Chief Cause of Spinal Curvature in the Young.—The origin of scoliosis is almost always in youth. In 88% of 300 cases Eulenberg found it to have arisen under 14 years of age, and in Krug's statistics 95% traced the beginnings to the time of adolescence. Probably the remaining percentage up to 99 really began in youth but unnoticed. It is remarkable how many children have malcurved spines unknown either by patient, parent, or physician. The ill-health resulting from the disease is often treated in a hundred ways without a hint of the spinal abnormalism, or the thought of a glance at the back. Teufelsdröck might have claimed that this would not have happened in his tailorless world. The cause of this strangely frequent, more strangely ignored, disease has been credited to a wonderful lot of inconsequent things: To the crossing of the same leg; to standing preferentially on one leg; leaning upon one elbow; tilting the head to one side; school desks; vicious attitudes in writing and reading; sitting on one hip rather than the other; inherited conditions—and what not. These explanations, of course, do not explain anything, and themselves cry out for explanation. They are the names, simply, and excuses for indifference or for inability to discover the genuine etiologic factor. In groping about for an explanation, Dr. Hall, in his great work on adolescence, cites the foregoing pseudocauses and adds another, the excess of nutrition and innervation of one side of the body. "This is to smile," and is of a kind with the antique explanation of right-handedness as due to a better nutrition and development of the left cerebral hemisphere. The scoliotic child, acute minded enough to ask, who made God, would be sufficiently nimblewitted to inquire why she stood on one foot, crossed one leg, etc., by preference, or why she tilted the head to one side, or why one side of the body or of the brain got the more blood, nerve force, etc. "Just growed" is an equally good diagnosis. The great cause of scoliosis, it has been discovered, is a tilting of the head to one side, and the cause of this is an axis of astigmatism about 15° to one side of 90° (rarely 180°) in what has been called "the dominant eye." This one pathologic result of eyestrain is inevitably followed by a dozen other symptoms and secondary diseases; and this one pathologic result is but one of a score of other and equally important results. A new edition, it may be suggested to Dr. Hall, is urgently called for!

The model saloon, which has proved so successful abroad, has at last reached our country. The "subway tavern" was opened in New York, August 2. It is financed by a number of leaders in reform movements in the city. The primary object is to eliminate the element of private profit in the liquor business, and, next, to disassociate immorality from the drinking habit. In Bishop Potter's address he said:

> I belong to a dozen clubs. If I want to go out to dinner or a social evening, I can do so in any one of these clubs. But what of the man who lives in two rooms with five small children? He has no club. He naturally has to go to the saloon. The business man can lunch at the Hardware Club or the Down Town Club, but the poor man, to get his glass of beer with his luncheon must go to the saloon. This is the greatest social movement New York has ever known. It is a movement every one of you must take into account if you would save the republic. The republic is not to be saved by electing this man or that to office, but the work must start and be built up in the home and in places where people gather socially.

What a volcanic eruption will now come from the prohibitionists and antisaloon leagues! The newspaper correspondents are already at work. The first letter of "Indignant" begins as follows:

> With the commendation and approval of one of God's ministers, and fostered by a patronage almost defying failure, another outpost of perdition, on improved and fascinating lines, has been planted in the center of a neighborhood teeming with a population whose gullibility alone must be the only plea for the toleration of such an iniquitous design.

Were it not for the antis, humor would be almost unknown in our modern serious world. But after the volcano has quieted and cooled down it will probably have been found that the cause of true temperance has been greatly helped by the movement and that such taverns must be started everywhere. Whether pure liquor drunk in moderation is harmful or not, there can be no question that bad liquor drunk in immoderation and with the degrading associations of the saloon is much more harmful.

The sanitary investigations of the Illinois, Mississippi, and Missouri Rivers, made by the Illinois State Board of Health, are now complete, and the third and final report has been published. The conclusions reached are essentially those made clear in the first two reports, but may again be epitomized:

1. That the city of St. Louis takes its water-supply a short distance below the mouth of the Missouri river, and on the west side of the river, consequently receiving almost all of its water from the Missouri river.
2. That the water of the Missouri river above the mouth of that stream shows evidence of more serious sewage contamination than does the water of the Illinois river immediately above its mouth, regardless of the burden of Chicago sewage carried by the latter stream.
3. That the water of the Sanitary canal is doubtless purer and better than the water of the Illinois river at low stage.
4. A large part of the contamination of the water of the Illinois river is derived from the village and agricultural drainage, and the sewage and refuse from city and commercial enterprises along its banks.
5. That the water of the Illinois river at its mouth is in better sanitary condition than the water of the Mississippi river, into which the Illinois flows.
6. That the Missouri river drains a considerably larger area than the Illinois, and receives a large amount of animal refuse from the packing industries of Omaha and Kansas City.
7. That the water of the Missouri river is so much more contaminated than the water of the Illinois river that the addition of the Illinois river water to the Missouri river water would improve the quality, rather than further contaminate it.

In addition, it is also concluded that with the completion of intercepting sewers in Chicago, whereby the drainage of the Evanston and Calumet districts has been diverted from the lake into the canal, the lake water will become safe for domestic use. It may be that St. Louis must filter her water whatever the source, or degree of its impurity; it may be that the drainage canal has made the waters of the Desplaines and Illinois rivers purer. We do not doubt these facts, and that they render void the claim of St. Louis against Chicago; but they do not in the least lessen the fundamental contention that the drainage canal was a vicious, expensive, and wasteful method of disposing of the sewage of Chicago.

What Constitutes the Practice of Medicine?—This perennial question was again brought to the front and most satisfactorily answered in the recent trial of a "Doctor" Eldridge, of Philadelphia, who was arrested on the charge of practising medicine illegally. The defense demanded a verdict of not guilty on the ground that the practice of electricity was not the practice of medicine, because electricity is not a medicine. Judge Davis ruled otherwise, stating that the law relating to the practice of medicine requires *qualification* on the part of the practiser, and applies to any one using electricity, clairvoyance or any means whatsoever in the treatment of disease. Under such ruling, the jury promptly returned a verdict of guilty, although the defense has since claimed that such action was because the jury believed that Eldridge had also prescribed medicine for his patients. If all judges interpreted existing laws in this common sense manner there would be little trouble in deciding between legality and illegality in the practice of medicine. Qualification to practise can be based only on a liberal medical education. President Beates, of the State Board of Medical Examiners, who brought Eldridge to trial, very pertinently says: "This whole question centers about, whether anybody has the right to offer his services as physician without being properly educated to treat diseases, and the right, on the other hand, of the public to demand this qualification from any one so doing. It is absurd and ridiculous to attempt to shield from the penalties of the law any one who offers his services as a physician, because, in so doing, he claims immunity from medical law on the grounds that he professes to treat with water, heat, light, faith, pulling, pushing, twisting, rubbing, bending, electricity, or any other subterfuge, and endeavors thereby to escape the necessity, time, labor, and expense of becoming qualified." For the outcome of this case the State Board, the judge, and the jury deserve the thanks of reputable physicians everywhere. We wish they might dispose of many similar offenders.

Convict Farm Work.—An exchange, commenting editorially on this subject, says: Massachusetts is making its first practical experiment of redeeming waste land through convict labor. Fifty short-term convicts are gathered in an industrial camp upon a square mile and a half of forest land at Rutland, 800 feet above the sea level, which they are trying to redeem from useless forest to a useful cultivated condition. The location is a secluded one, thus withdrawing the convicts from the humiliating public scrutiny which would accompany their employment upon the highways. The present force in this initial camp will be increased to 100 as soon as sufficient dormitory accommodations can be supplied. The immediate effect is not so apparent upon the land that is being cleared, as upon the convicts themselves. Those selected for the first experiment are short-term men sentenced for habitual drunkenness and other lesser infractions of the law. They are not hardened and persistent criminals. In this pure atmosphere, with outdoor work, healthful food, and no more apparent restraint than attaches to ordinary farm laborers, they are described as gaining physical vigor, a familiarity with farm work, and a restoration of self-respect which promises much for their reclamation from criminal practices when their sentences have expired.

Food Value of Peanuts and Beans.—The Department of Agriculture reports most interesting experiments made by Professor Poffa, of the University of California, upon men engaged in hard manual labor most of the time, and students working to support themselves while pursuing their studies, says the *Outlook*. The Professor says: "Nuts are the cheapest source of energy, peanuts ranging far ahead." The price, 3.6 cents per 1,000 calories of energy, is at less cost than any animal food or potatoes at 90 cents a bushel. Peanuts deserve special mention because the cheapest domestic nut containing the highest percentage of protein, with maximum fuel value and minimum refuse. Ten cents, for instance, will purchase more protein energy when spent for flour or meal, but these are raw materials, requiring considerable preparation before they are eaten. This is not necessary with fruits and nuts. Ten cents worth of peanuts will contain about four ounces of protein and 2,767 calories of energy. Although peanuts supply protein and energy for a smaller sum than bread, they are outranked by dried beans, which, at 5 cents per pound, will supply for 10 cents over 200 grams of protein and 3,040 calories of energy. If more peanuts and dried beans were used by the fruitarians the diet would be enriched and the cost decreased. Fifteen cents a day was the average cost, with fruit, nuts, beans, and a limited quantity of cottage cheese and eggs.

AMERICAN NEWS AND NOTES

GENERAL.

Yellow Fever Record in Mexico.—News from Mexico, August 4, says: Four cases of yellow fever are reported at Tehuantepec; Vera Cruz has one case in the hospital, but no new cases. Merida had from the fifth to the last of July, 25 cases of yellow fever, one dying and another being cured, leaving the present total 42. There are 34 suspicious cases under observation.

Bequests to Charity.—By the will of Albert Berigny, of New Orleans, $1,000 was given to the Little Sisters of the Poor, $5,000 to the Société Francise dé Bienfaisance, for the benefit of the French Asylum, and $2,500 to the Poor Hospital, all of New Orleans. By the will of Marcus Goldman, of New York, bequests were left to institutions as follows: Hebrew Benevolent and Orphans Society, $1,000; Mount Sinai Hospital, $1,000; Home for Aged and Infirm Hebrews, $1,000; United Hebrew Charities, $1,000; German Hospital, $500; Montefiore Home for Chronic Invalids, $1,000; Hebrew Technical Institute, $1,000; St. Johns Guild Free Hospital for Children, $500; Society for Improving the Condition of the Poor, $500; Children's Aid Society, $500; Hebrew Sheltering Guardian Society, $1,000; Association for the Improved Instruction of Deaf Mutes, $500, and Hebrew Technical School for Girls, $1,000.

Visit from Noted Foreigner.—Sir Felix Semon, D.V.O. Physician extraordinary to King Edward, who is to deliver the address on Laryngology at the St. Louis Congress of Arts and Sciences, will arrive at New York early in September. He will be the guest while in New York of his life-long friend Professor George M. Lefferts, and also of Dr. Emil Mayer, coeditor with Dr. Lefferts of the *International Centralblatt für Laryngologie* of which Sir Felix has been editor-in-chief since its beginning 20 years ago. The American tour which has been arranged by Dr. Mayer, will consist of a visit to Niagara Falls, thence to Chicago, where Professor E. Fletcher Ingals and the western laryngologists will entertain Sir Felix and Lady Semon. At St. Louis the address for which he was specially invited is to be delivered. Sir Felix and Lady Semon then go to Washington, thence to Philadelphia. At Montreal, Sir Felix will take a four weeks' hunting trip, returning to New York City October 31, a week before sailing for home.

Federal Camp for the Tuberculous.—The surgeon-general of the navy has completed plans for an outdoor hospital for the tuberculous. He proposes that men of the navy who are thus afflicted shall not be discharged or become pensioners, but shall be subject to treatment under conditions that promise a restoration to health and a preservation to the service of useful men. Secretary Moody refused to approve the expenditure of money at the abandoned naval station at Port Royal, S. C., although the fine stone buildings there, now going to ruin, could be converted into a hospital at no great cost, and the whole place turned over to the Bureau of Medicine and Surgery as a camp for the treatment of tuberculosis. Surgeon-General Rixey proposes to purchase a farm somewhere near the coast, at an elevation of about 2,000 feet, where naval tuberculous patients may be sent. He may apply for an abandoned military reservation for this purpose. He believes that the camp should not be too far from the coast, or at an altitude which will make it impossible for patients to return to sea duty. He also intends to have the place open to army patients, in return for the courtesy shown the navy at the army sanatorium at Fort Bayard, New Mexico.

Comments on New Theory in Reference to Crime.—The treatment of criminals was discussed recently by Dr. Frederick H. Wines, former secretary of the State Charity Aid Society of New Jersey. He approved of the system of considering the criminal as a type of deformity which could be cured if the proper methods were employed. In part, he said: "There is a desire to eliminate the idea of retribution from the criminal code, that of punishment from the prison, and to convert all prisons into reformatories or places of permanent detention of incorrigibles. The first essential for treatment in a prison, as in a hospital, is an actual diagnosis of the patient's actual condition. The second is that he should be treated by no routine formula, but individually; third he should be kept under constant observation, the result of every prescription and application noted, and the treatment varied as the changes in his condition may indicate. Short sentences cut the process and cure the affectation; long sentences discourage and depress the prisoner. These considerations afford one of many arguments for the socalled indeterminate sentence, with no minimum or maximum limit; it implies that the prisoner will be detained until reformed, and no longer.

Miscellaneous.—**Denver**: A sanatorium for the treatment of pulmonary tuberculosis has been opened in Denver; it was built by Henry Phipps in memory of his mother, and called the Agnes Memorial. There are five buildings in the mission style, in a tract of 40 acres in a Denver suburb, at a height of 5,400 feet. It is for curable cases only, and can accommodate a hundred.—**New York**: The entire village of Dresden has been placed under quarantine on account of an epidemic of **varioloid**, and nearly 500 inhabitants are isolated from the outside world. The State Board of Health has charge of the quarantine.—Dr. James Moores Ball, of **St. Louis**, Missouri, has been appointed Editor of the **Annals of Ophthalmology**. His duties will begin with the October number, and a number of improvements are contemplated by him and others in charge of the journal.—"**Western Medical Review**": Beginning with volume x, number 1, the *Western Medical Review* makes a number of changes. The page size has been changed to 6x9½ inches, and the pages increased from 56 to 100. Under a three year agreement it has become the official organ of the Nebraska State Medical Association, which now numbers 800 members. Dr. H. Winnett Orr remains the official editor in charge.—**Foreign**: Professor G. Gaffky, professor of hygiene in the University of Giessen, has accepted Professor Koch's vacant chair in the University of Berlin.

EASTERN SATTES.

Health Educational League.—One of the factors working for improved public health in Boston is the Health Education League. This organization has issued a series of small pamphlets on the subject of health. It is called, "Hints for Health in Hot Weather," and contains many suggestions calculated to fortify the body against heat and disease; this pamphlet is used by the outpatient department of the Massachusetts General Hospital, District Nurses' Association, and college and social settlements.

NEW YORK.

Editorial Change.—It is announced that Dr. Geo. F. Shrady, who has been editor of the *Medical Record* since its foundation, 38 years ago, has resigned. He is succeeded by Dr. Thomas L. Stedman, his former associate. There is no other change in the editorial personnel.

Walter Reed Memorial.—The New York *Evening Post* of August 3 devotes more than a column of editorial comment to the praiseworthy work accomplished by the late Major Walter Reed and his colleagues in establishing beyond controversy the source of infection in yellow fever. It approves of the memorial to be erected to Dr. Reed, and in part says: Within the century ending with 1898 it is believed that there were more than 80,000 deaths from yellow fever in this country. Nine-tenths of these were of children or of persons in the vigor of life with a long expectation of intellectual and physical productiveness. So much vital capital was destroyed. The 80,000 deaths represent at least 300,000 cases, which imply an annual average of 3,000 separate attacks, one year with another. It is, however, well known that, so far as this country and the West Indies are concerned, the occasion for all this waste of material and vital wealth and strain of anxious sympathy has recently been swept away by the demonstration that the disease is distinctly preventable. This revolution has been effected by the courage, the intelligence, and the devotion of a medical officer of the army and the loyal self-denial of his colleagues and subordinates.

Medical "Malpractice" Suits.—James Taylor Lewis, counsel for the State Medical Association, commenting on insurance against malpractice suits, says: "It is evident that the public is unfamiliar with the fact that in this State the regular medical organization of the State, the New York State Medical Association, is defending all its members from these blackmailing malpractice suits, to which the doctors have been so long a prey. It is unnecessary to say that the State Medical Association does not defend its members against criminal malpractice acts, but does furnish a fighting defense to such suits as are threatened or actually brought, where it is evident to the members of the association's 'council' that the particular applicant for defense has furnished to the patient his very best service, and that such service or treatment was that accepted by the medical profession as the proper treatment of such case. This fighting defense is just exactly what the doctor needs, and when he applies to the association, and I take the matter up to defend, he is not allowed to compromise, or discontinue, or settle his case without my consent or the consent of the association. This work of the association has been copied abroad and in other sister States, and it is evident that the success met with in New York toward stamping out this blackmailing practice of unscrupulous patients assisted by shyster attorneys will bear valuable fruit directly benefiting the public."

PHILADELPHIA, PENNSYLVANIA, ETC.

Infectious Disease Still Decreasing.—There was a further reduction last week in the number of infectious and contagious diseases reported to the Health Department, the figures for the last five weeks being as follows: June 25, 1,600; July 2, 1,317; July 9, 1,088; July 16, 1,139; July 23, 989. This gives an average for these weeks of 1,026 cases, against an average of 2,470 for the 8 weeks ended June 18.

WESTERN STATES.

New Hospital for the Insane in Illinois.—The new $140,000 ward addition to the Watertown hospital for the insane has been opened. The new structure raises the capacity of the institution to 1,200 patients.

FOREIGN NEWS AND NOTES

GENERAL.

Fatalities in the Alps.—Thus far this season it is estimated that there have been 150 deaths in the Swiss and French Alps. The larger proportion of the victims have been amateurs who have attempted ascents without guides. The Government of Switzerland contemplates a law forbidding such attempts, and the fact that a greater number of fatalities has occurred this year than in any previous year will hasten action.

Scottish Vital Statistics.—The annual report regarding the births, deaths, and marriage in Scotland in 1903 states that the population at the middle of the year was estimated to be 4,579,223, the males numbering 2,229,414, the females 2,349,809. The corresponding figures for 1902 were 4,531,299, 2,204,503, and 2,326,796. The increase of estimate, namely, 24,911 males and 23,013 females, in all 47,924, is based on the average annual increase between the census of 1891 and that of 1901. Excess of births over deaths during 1903 amounted to 57,526. The births of 133,499 living children were registered during the year. This is equivalent to a birthrate of 29.2 per 1,000 of the estimated population, and is the same as the birthrate for the year 1902, and is smaller than that for all other preceding years. During the 12 months there were 75,973 deaths, which is equivalent to an annual mortality of 16.59 per 1,000. The actual number is less than in any year since 1896, and the mortality rate is the smallest recorded since the opening of the Register General's office, now nearly 50 years. Compared with the previous year, 1902, the actual number of deaths shows a diminution of 1,973, and the mortality per 1,000 one of 0.61. The marriage rate was 7.06 per 1,000 of the population, which was very nearly the same as for the previous year. The vaccination returns for the year ended December 31, 1902, show that of the 132,360 living children whose births were registered during that year, 112,321 were successfully vaccinated, which is equivalent to 84,860% of those births.—[*London Standard.*]

OBITUARIES.

Orlando Brown, at his home in Washington, Conn., August 3, aged 77; a graduate of the medical department of Yale University in 1861. He was a surgeon in the Federal service during the Civil war and later became inspector of hospitals and superintendent of the General Hospital at Newport News, Va. In 1866 he was brevetted a a brigadier-general for his good conduct in the service, and resigned his position in 1869 to resume the practice of medicine.

Romeo F. Chabert, at his home in Hoboken, New Jersey, August 1, aged 72; a graduate of the New York College of Physicians and Surgeons, 1840; a member of the New Jersey State Medical Society; the founder and consulting surgeon to St. Mary's Hospital, Hoboken; consulting physician to the Bayonne Hospital and for many years a member of the Board of Managers of the State Hospital for the Insane, at Morris Plains.

Frantz H. Coe, from Bright's disease, at his home in Seattle, July 16, aged 47; a graduate of the University of Michigan in 1888; a member of the American Medical Association, president of the State Board of Medical Examiners, and of the Washington State Medical Association. He had been for 10 years surgeon to the Northern Pacific, and Seattle and International railroads.

Harry S. Torrance, of Cripple Creek, Colorado, was killed in a railway wreck near Cameron, Colorado, July 5, aged 35; a graduate of the University of Pennsylvania, Philadelphia, 1890; a member of the American Medical Association, of the Colorado State Medical Society and of Teller County Medical Society.

J. S. Lipman, at his home in Wilkesbarre, August 6, aged 65. He had been for over forty years a practitioner in Wilkesbarre, limiting his work to diseases of the eye, ear, nose and throat. He was admitted to practise on certificate from the State Examining Board of Pennsylvania.

Charles G. Ward, at his home in Utica, New York, July 3, from uremia, aged 49; a graduate of Dartmouth Medical School, Hanover, New Hampshire, 1882. He was formerly visiting physician of St. Elizabeth's Hospital, Utica, and was president of the Utica Medical Club.

Frank Anthony Walke, at his home in Norfolk, Virginia, July 5, aged 73; a graduate of the Medical Department of the University of Pennsylvania, Philadelphia, 1852; surgeon in the United States Navy prior to the Civil war, and in the Confederate service during the Civil war.

A. Carter Webber, at his home in Cambridge, Mass., August 5, aged 78; a graduate of Harvard Medical College and for fifty years a prominent practitioner in Cambridge, having retired from practice four years ago.

William H. Pilcher, at his home in Norwood, Georgia, July 1, aged 75; a graduate of the University of Nashville, Tennessee, 1852. He was twice a member of the Legislature of his home state.

William H. Jarman, at his home in Nashville, Tennessee, July 5, aged 79. He was a physician in the Confederate service during the Civil War, and for many years a practitioner in Arkansas.

A. W. K. Newton, at his home in Boston, August 2, aged 68; a graduate of the Worcester Medical College (eclectic), Worcester, Massachusetts, and for 30 years a practitioner in Boston.

Joseph Bacon Shaw, at his home in Delaware Water Gap, Pennsylvania, July 18, from heart disease, aged 58; a graduate of the University of Pennsylvania, Philadelphia, in 1877.

Abner Smead, at his home in Stewartsville, Virginia, July 24, aged 80; a graduate of the University of Virginia, Medical Department, Charlottesville, 1868.

Orlanda C. Robinson, of pulmonary tuberculosis, at his home in Bethayres, Pa., August 4, aged 44; a graduate of the University of Pennsylvania in 1881.

James B. McElrath, at his home in Jackson Centre, Pennsylvania, June 30, aged 60; a graduate of Jefferson Medical College of Philadelphia, 1871.

Frank H. Oulton, at his home in Moncton, N. B., July 4, aged 54; a graduate of the New York University Medical Department, New York City, 1876.

Patrick G. Jennings, at his home in Melrose Park, Illinois, July 3, aged 47; a graduate of the Laval University, Medical Department, Quebec, 1876.

James Williams, at his home in Nashville, Tennessee, July 5, aged 82; a graduate of Shelby Medical College, Nashville, Tennessee, 1848.

Graigg W. Stewart, at his home in Pickerington, Ohio, July 5, aged 50; a graduate of the Miami Medical College, of Cincinnati, 1870.

Samuel Records, at his home near Lawrence, Indiana, July 8, aged 84; a graduate of the Ohio Medical College, Cincinnati, 1847.

David B. Taylor, at his home in Milbourne, Illinois, August 1; a graduate of the Eclectic Medical Institute, Cincinnati in 1869.

A. C. H. Schneider, at his home in Prospect Park, August 6, aged 26; a graduate of Hahnemann Medical College, Philadelphia.

Felix F. Cassaday, at his home in Philadelphia, Pa., August 3, aged 63; a graduate of the Jefferson Medical College in 1867.

Lafayette Redmon, at his home in Des Moines, Iowa, July 2, aged 71; a graduate of Rush Medical College, Chicago, 1865.

Stephen D. Pollock, at his home in Galesburg, Illinois, July 20, aged 64; a graduate of Bellevue Hospital College, 1871.

Robert M. Stephenson, from pulmonary tuberculosis, at his home in Springfield, July 1, aged 24.

George R. Harris, at his home in Rayne, Louisiana, July 31.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 5, 1904:

SMALLPOX—UNITED STATES.			Cases	Deaths
District of Columbia:	Washington	July 23-30	1	
Florida:	At large	July 23-30	13	
Illinois:	Chicago	July 23-30	5	
	Danville	July 23-30	1	
	Springfield	July 23-30	3	
Iowa:	Clinton	July 16-30	4	
Louisiana:	Baton Rouge	July 23-30	3	
	New Orleans	July 23-30	1	
			Traced to importation.	
Michigan:	At 78 localities	July 16-23	Present.	
Missouri:	St. Louis	July 23-30	2	
Nebraska:	Omaha	July 23-30	2	
New Jersey	Jersey City	July 17-24	2	
New York:	New York	July 23-30	1	
Pennsylvania:	Johnstown	July 23-30	1	
Tennessee:	Nashville	July 23-30	1	
Washington:	Tacoma	July 18-25	2	
Wisconsin:	Milwaukee	July 25-30	1	

SMALLPOX—FOREIGN.				
Austria:	Prague	July 2-16	8	
	Vienna	July 9-16		1
Brazil:	Bahia	July 2-9	8	
	Rio de Janeiro	June 12-26	304	124
China:	Hongkong	June 11-18	1	1
France:	Paris	June 9-16	9	2
Great Britain:	Leeds	July 16-23	6	
	Newcastle-on-Tyne	July 2-9	23	
	Nottingham	July 9-25	20	
	Sheffield	July 2-9	2	
India:	Calcutta	June 18-July 2		2
Italy:	Palermo	July 2-16	11	2
Mexico:	City of Mexico	July 10-17	2	3
Peru:	Arequipa	June 18	Epidemic.	
Russia:	Moscow	June 25-July 9	29	7
	Odessa	July 9-16	1	
	St. Petersburg	July 2-16	9	2
	Warsaw	June 18-25		34
Spain:	Barcelona	July 10-20		9
Turkey:	Beirut	July 9-16	Present.	
	Constantinople	July 3-17		9

Yellow Fever.

Brazil:	Rio de Janeiro	June 12-26	6	3
Costa Rica:	Limon	July 17-23	1	1
Ecuador:	Guayaquil	June 29-July 13		13
Mexico:	Coatzacoalcos	July 9-16		1
	Merida	July 10-23	9	
	Tehuantepec	July 10-23	10	7
	Vera Cruz	July 16-23	3	

Cholera.

China:	Hongkong	June 11-18	3	3
India:	Calcutta	June 18-July 2		39
Persia:	Teheran	June 25-July 9		300 Daily.
Turkey in Asia:		June 28	481	852
Bahrein Islands:		May 1-June 1		1,500

Plague.

Africa:	Cape Colony	June 18-25	1	1
	Durban	May 28-June 4		2
	Johannesburg	June 5-12	1	
Brazil:	Bahia	July 2-9	5	2
	Rio de Janeiro	June 12-26	3	3
China:	Amoy	June 4-25		45 Estimated.
	Canton and vicin.	June 2	Increasing.	
	Hongkong	June 11-18	53	52
Egypt:		June 18-25	36	16
Formosa:		June 11-25	178	129
India:	Calcutta	June 18-July 2		31
	Karachi	June 26-July 3	1	1

Changes in the Medical Corps of the U. S. Army for the week ended August 6, 1904:

The following instructions, respecting the detail of medical personnel and equipment for the field exercises to take place at the Rancho del Encinal, San Luis, Obispo county, Cal., will be observed and the officers will report for duty as hereinafter indicated.

Stephenson, Major William, surgeon, Presidio, to accompany the battalion of the Twenty-eighth Infantry, reporting to the commanding officer, First Brigade, for assignment to duty as brigade surgeon.

Kendall, Major William P., surgeon, Ord Barracks, to accompany the Fifteenth Infantry, reporting to the commanding officer, Second Brigade, for assignment to duty as brigade surgeon.

Edger, Captain Benjamin J., Jr., assistant surgeon, Army General Hospital, Presidio; First Lieutenant E. P. Rockhill, assistant surgeon, Presidio, and First Lieutenant Robert N. Winn, assistant surgeon, depot of recruits and casuals, to accompany the battalion of the Tenth Infantry, Captain Edger and Lieutenant Rockhill to report to the commanding officer, Fifteenth Infantry, for assignment to duty with that regiment.

Truby, Captain Albert E., assistant surgeon, Alcatraz Island, to accompany and for duty with the battalion of the Thirteenth Infantry.

Baker, First Lieutenant Frank C., assistant surgeon, Ord Barracks, to accompany and for duty with the Fifteenth Infantry.

Rand, Captain Irving W., assistant surgeon, infantry cantonment, Presidio, to accompany and for duty with the battalion of the Twenty-eighth Infantry.

The Fifteenth and Twenty-eighth Infantry will move with them a regimental dispensary as directed by the chief surgeon of the department.

Eberle, Harry A., contract surgeon, will proceed to his home, New York City, for annulment of contract.

Straub, Captain Paul F., assistant surgeon, Fort Leavenworth, will accompany Company I, Sixth Infantry, from that post to the Louisiana Purchase Exposition grounds, St. Louis, Mo., and will remain on duty with the company until August 5 when he will return to Fort Leavenworth.

Knapp, Gustav, sergeant first class, depot of recruits and casuals, Angel Island, Cal., will report on the transport Logan for duty on that vessel, upon being relieved at his present station by the arrival of Sergeant First Class Otto H. Hornung.

Ward, John M., contract surgeon, will proceed to his home, Newberne, N. C., for annulment of contract.

Foster, Douglas E., contract dental surgeon, will on his return to Fort Hancock from leave about August 1, proceed with his enlisted assistant and outfit, to Fort Monroe for a tour of duty of two months at that post.

The following changes in the stations and duties of officers are ordered: Captain Guy C. M. Godfrey, assistant surgeon, is relieved from duty at Fort Apache to take effect September 1, and will then proceed to New York City and assume the duties of attending surgeon and examiner of recruits, and medical superintendent of the Army transport service in that city, to relieve Captain Champe C. McCulloch, Jr., assistant surgeon. Captain McCulloch will proceed to Fort Hancock for duty to relieve Captain Basil H. Dutcher, assistant surgeon. Captain Dutcher will proceed to Fort Apache for duty.

Lemmon, Robert, contract surgeon, now at Massies Mill, Va., will proceed to Fort McKinley for duty.

Bevans, First Lieutenant James L., assistant surgeon, is granted leave for twenty days.

Van Kervis, John, sergeant first class, now at San Antonio, Tex., is relieved from further duty in the Philippines Division, and upon expiration of furlough will report at Fort Logan for duty, instead of reporting to the commanding officer, company of instruction No. 2, hospital corps, Fort McDowell, Cal., as previously directed.

Baird, James W., sergeant first class, Alcatraz Island, Cal., will be sent to Ord Barracks, Monterey, Cal., to relieve Sergeant First Class Leo E. Kennedy. Sergeant First Class Kennedy will be sent to the depot of recruits and casuals, Angel Island, Cal., to relieve Sergeant First Class Otto H. Hornung. Sergeant First Class Hornung will be sent to Alcatraz Island, Cal., for duty.

Van Poole, First Lieutenant G. McD., assistant surgeon, now at Vancouver Barracks, will return to his proper station, Fort Stevens.

Wood, O. W., contract surgeon, is relieved from further duty at Fort Stevens and will return to Vancouver Barracks, Wash.

Wickline, First Lieutenant William A., assistant surgeon, and Contract Surgeon Clemens W. McMillan will retain their present temporary stations, Fort Adams and Fort Niagara, respectively, until after the combined army maneuvers in Virginia.

The following-named medical officers will proceed to stations indicated opposite their names, to relieve the permanent medical officers thereat, in time for the latter to proceed, as to be hereafter ordered, to the maneuver camps, near Manassas, Va., and will return to their present stations on the return to duty there of the officers they are ordered to relieve: First Lieutenant Frank W. Weed, assistant surgeon, from Fort McHenry to Fort Howard to relieve Assistant Surgeon Compton Wilson; First Lieutenant Paul L. Freeman, assistant surgeon, from Fort Slocum to Fort Warren, to relieve Assistant Surgeon Thornburgh; Contract Surgeon John F. Jones, from Fort Totten to Fort Terry, to relieve Assistant Surgeon Robbins; Contract Surgeon Harold D. Corbusier, from Fort Mansfield to Fort Greble, to relieve Assistant Surgeon Williams; Contract Surgeon Francis A. Halliday, from Fort McPherson to Fort Screven, to relieve Assistant Surgeon Miller; Contract Surgeon Charles H. Stearns, from Fort Monroe to Fort Washington, to relieve Assistant Surgeon Brooks.

Jean, First Lieutenant George W., assistant surgeon, now on temporary duty at Fort Jay, will proceed to Fort Wadsworth for temporary duty.

Burr, R. T., contract surgeon, is granted leave for ten days.

Gardner, Lieutenant-Colonel Edwin F., deputy surgeon-general, having been found by an Army Retiring Board incapacitated for active service on account of disability incident thereto, his retirement from active service August 3, 1904, under the provisions of Section 1251, R. S., is announced. Lieutenant-Colonel Gardner will proceed to his home.

Raymond, Major Thomas U., surgeon, now on duty at St. Louis, Mo., is detailed to represent the medical department of the army at the meeting of the American Röntgen Ray Society, to be held in that city September 9 to 13.

Changes in the Medical Corps of the U. S. Navy for the week ended August 6, 1904:

Grunwell, A. G., surgeon, ordered to the Dixie—August 1.

McDonnold, P. E., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant from July 2, 1904—August 2.

Changes in the Public Health and Marine-Hospital Service for the week ended August 4, 1904:

Purviance, Geo., assistant surgeon-general, granted extension of leave of absence from June 20 to June 30, inclusive—July 30, 1904.

Banks, C. E., surgeon, granted leave of absence for one month and fifteen days from August 12—July 29, 1904.

Sprague, E. K., passed assistant surgeon, to report to Surgeon G. W. Stoner, Immigration Depot, New York, for duty—July 29, 1904.

Greene, J. B., passed assistant surgeon, upon the return of Assistant Surgeon H. McG. Robertson, relieved from duty at New York (Stapleton) and directed to proceed to Fort Stanton, N. M., as inspector of unserviceable property. Upon completion of this duty to remain at Fort Stanton and await further orders—July 30, 1904.

Lavinder, C. H., passed assistant surgeon, relieved from duty at Delaware Breakwater Quarantine, and directed to proceed to New York (Stapleton) and report to medical officer in command for duty and assignment to quarters—August 1, 1904.

Foster, M. H., passed assistant surgeon, granted leave of absence for fourteen days—August 4, 1904.

Trotter, F. E., assistant surgeon, granted leave of absence for ten days from August 5—August 4, 1904.

Bahrenburg, L. P. H., assistant surgeon, to assume command of service at Delaware Breakwater Quarantine, relieving Passed Assistant Surgeon C. H. Lavinder—August 1, 1904.

Salmon, T. W., assistant surgeon, granted leave of absence for seven days from August 2, 1904, under paragraph 191 of the regulations.

Porter, J. Y., sanitary inspector, to proceed to Havana, Cuba, for special temporary duty, and to inspect the disinfecting steamer Sanator—July 27, 1904.

Brice, J. W., acting assistant surgeon, granted leave of absence for thirty days from September 20, 1904—July 29, 1904.

Foster, J. P. C., acting assistant surgeon, granted leave of absence for thirty days from August 1—August 1, 1904.

Stuart, A. F., acting assistant surgeon, department letter of June 22 granting leave of absence for thirty days from July 1, amended to read twenty-one days—August 1, 1904.

Rogers, Edward, pharmacist, granted leave of absence for sixteen days from August 5—July 28, 1904.

Troxler, R. F., pharmacist, granted leave of absence for thirty days from September 5—August 1, 1904.

Neves, Geo., pharmacist, granted leave of absence for thirty days from August 27—August 1, 1904.

Board Convened.

Board convened to meet at Port Townsend, Washington, for the physical examination of candidates for second assistant engineer in the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Acting Assistant Surgeon W. E. Patrie, recorder.

Promotions.

Assistant Surgeons T. B. McClintic, Joseph Goldberger and W. A. Korn, commissioned (recess) as passed assistant surgeons to rank as such from July 28, July 27 and July 27, respectively—July 27, 1904.

SOCIETY REPORTS

AMERICAN MEDICAL ASSOCIATION.

Fifty-fifth Annual Meeting, Held at Atlantic City, N. J., June 7 to 10, 1904.

[Specially reported for *American Medicine.*]

(*Concluded from p. 229.*)

Section on Ophthalmology.

FOURTH SESSION (CONTINUED.)

The Association of Optic Neuritis and Facial Paralysis.—E. Shumway (Philadelphia), in this paper, briefly reviewed the subject of associated optic neuritis and facial palsy and gave a complete clinical history of a case of right-sided facial palsy with double optic neuritis and followed by partial hemiatrophy of the face and exophthalmos. The essayist discussed the relation between the optic neuritis and facial palsies, and the sensory disturbances in facial paralysis and their consequences. He concluded that the neuritis was probably infectious in origin and retrobulbar in type.

Discussion.—J. E. Weeks (New York City) remarked about the unusual feature of exophthalmos. He cited a case of exophthalmos without optic neuritis or facial paralysis, but accompanied by partial hemiatrophy of the face and iris. In closing the discussion Shumway said his case could not be considered one of true hemiatrophy.

Blastomycosis of the Eyelid.—W. H. Wilder (Chicago) gave an account of this disease and related the history of a case. The gross and histologic changes were illustrated by means of the projector. He emphasized the exemption of the conjunctiva from the disease and the great tendency toward ectropion. The effect of treatment by the use of potassium iodid internally, and the röntgen ray locally was given.

Discussion.—W. A. Pusey (Chicago) spoke of the subject from the standpoint of the dermatologist, but remarked the necessity of its recognition by the ophthalmologist owing to the great frequency with which it attacks the eyelid. He differentiated the disease from lupus, epithelioma, and tuberculosis verrucosa cutis and gave as the diagnostic feature the formation of miliary abscesses. The cause he accredited to a group of fungi, the odii. Histologically, the fungi and miliary suppurative points were to be found in the mucous layer of the skin. General infection followed by death had been reported. The great tendency of the disease to occur in the middle West was especially noted. Elliot showed a slide of a suspicious case for which he desired a diagnosis, but Pusey withheld any opinion. Wilder, in closing the discussion, remarked that the prognosis was not bad except in systemic cases and stated that potassium iodid and the röntgen ray were beneficial and often operation was of value.

The Axis of Astigmatism.—J. H. Claiborne (New York City), in reviewing the histories of a large number of cases, used the expression, "axis of astigmatism," synonymously with the axis of the cylindric glass. He preferred the index of the commonly used spectacle frame, with the circle divided in half, and zero marking the horizontal axis to the left in each eye. He believed in the absence of catastrophism in the axis of astigmatism and that hyperopic astigmatism is an arrest of development and myopic astigmatism an over-development. That the axis does not occur haphazard, but along well-defined lines of regularity was also shown, the exceptions proving the rule. That there is a realm of hyperopic astigmatism and a realm of myopic astigmatism in which the axes recur, was likewise demonstrated; when they lie outside of these realms it is exceptional. Demonstration of the realm in each condition was given. The relationship of the axes occurring in each eye to the axes in the fellow eye and the various possible combinations were given.

The Relation of Corneal Curvatures to the Refraction of the Eye.—Melville Black (Denver) in this paper demonstrated a study of the radii of corneal curvatures of 2,092 meridians. Measurements were made in millimeters with the ophthalmometer of Chambers Innskeep. Two tables were presented which show 1,273 meridians to be hypermetropic in refraction, 509 myopic, and 312 ametropic. These tables showed a very striking relation between the refraction of the eye and the corneal curvatures. As the radius of corneal curvature increases, the refraction becomes more hyperopic, and as the corneal radius diminishes the refraction becomes more myopic. The eyes examined were all under the influence of a cycloplegic.

Discussion.—O. A. Griffin (Ann Arbor, Mich.) gave reasons why the axes retain relation to hypermetropia and myopia, and thought it was largely due to the pressure of the lids on the globe. He remarked that the change of axis was greater in high hyperopia. Bennett (Buffalo) thought there was a realm for axis in hyperopia and myopia, and referred to over 7,000 examinations in which the axes were found in similar regions. He believed there were changes in each decade. Harlan (Philadelphia) referred to his studies of the subject, giving percentages for symmetric and unsymmetric axes in astigmatism. L. J. Borsch (Philadelphia) mentioned a modified Placedos disc for detecting astigmatism, shaped like a square, the configuration of which was subject to alterations in the presence of astigmatism.

An Exact and Secure Tucking Operation for Advancing an Ocular Muscle, Illustrated by Demonstration on a Manikin.—F. C. Todd (Minneapolis) gave a brief review of the various methods of shortening the tendon by folding, detailing the surgical principles involved. The disadvantages of the advancement operations, such as lack of exactness and security of results, difficulty in determining the results until completion of the operation, cutting of the suture in the tendon along its fibers, etc. were related. The essayist then referred to his own operation, giving the various steps in its evolution. The improved instrument was shown. Todd remarked that the instruments bearing his name were imperfect, with the exception of one in his own possession, and allowed the tendon to slip over its prongs; this he had obviated by having the prongs broadened just before the point is reached. In performing his operation he first made a broad oval conjunctival flap with the base toward the inner canthus which was then turned back, exposing the tendon. The underlying attachments were loosened by blunt dissection and the tendon tucker placed upon the tendon, one prong above and the other below it, the one beneath being to the nasal side. The screw at the lower end of the muscle is then tightened and the tendon folded upon itself by the lower prong passing over the upper. The first suture is of catgut, and is made at the upper margin of the folded portion of the tendon, and the second suture, also of catgut, is made at the lower margin, the central part of the fold being untouched. A second set of silk sutures is then introduced. The first suture, carrying two needles, is passed through the lower part of the tendon back of the previously introduced catgut sutures. One needle is then made to pass through the sclera near the corneal margin, the other through the reflected conjunctival flap. Another similar suture is then introduced at the upper part. The ends of these sutures are tied with a slip knot and the instrument removed, after which the position the eye is to occupy is approximated and the sutures securely tied. Cocain should be used preferably, although it does not render the operation entirely free from pain. If chloroform is used, the silk sutures should be tied in a bow-knot, and after the anesthetic has passed off the sutures are to be properly adjusted and securely tied. He believed in high degrees of strabismus; combined with tenotomy, the operation was of great value.

Discussion.—G. C. Savage (Nashville, Tenn.) said Todd's operation was a combination of his and Leglee's. He thought tucking operations were preferable to other methods for shortening the muscles and did not approve of operations in which the muscle was cut in two. He then described his method of tucking a tendon and warned against allowing the sutures to remain in for more than five days, owing to the occurrence of adhesive inflammation at this time. As an advantage of his operation over Todd's, he mentions the ability to raise or lower the attachment of the muscle. He also briefly described Leglee's operation. Wendell Reber (Philadelphia) thought no advancement operation could be considered easy. If the operation was performed for cosmetic purposes only it made no difference whether the muscle was separated or cut loose. He believed the Worth operation to be comparatively easy and of great value. He had used the early type of Todd's tucker and found it very awkward and constantly feared the sutures would give way. L. W. Fox (Philadelphia) said he had performed the operation with failure, owing probably to the style of instrument employed. He had had Todd perform one for him, with every evidence of primary success at least. Wilkinson (Washington, D. C.) said that he would be sceptic of its use when the defect was large. Stevenson (Akron, O.) showed a modification of Worth's operation. He carried his sutures deep in the sclera and had no tearing out of the same. J. E. Weeks (New York City) said that operations in which the muscles are knotted were imperfect. The ideal operation was that which maintained the full diameter of the muscle. The sutures should be attached at the upper, middle, and lower part of the corneal margin. Division of the muscle, in his opinion, did not imperil the result of the operation. He did not believe the position of the eye could be maintained by tucking the muscle and did not favor operations in which the muscle was strangulated. In his operation he employs a quilted suture and goes through the scleral tissue. Plastic inflammation, in his experience, did not present in five days, and it was safe to allow the sutures to remain for seven to ten days. Lambert (New York City) described Rees' operation. L. J. Borsch (Philadelphia) referred to DeWecker's operation. In closing the discussion, Todd said the tendon could be regulated beautifully for the correction of torsion with his instrument by shifting its axis. He does not cut off the muscle, but ligates it, and the redundant part later atrophies. The lump is very small and does not last very long. He rarely uses chloroform, except in very young children. The degree of pain depended largely upon the individual technic of the operator.

Subjective Refraction.—John A. Tenney (Boston, Mass.) in this paper brought forward a new subjective test for the determination of ametropia, in which the state of refraction in an eye may be determined by means of the pin-hole disc found in the trial case, or by a hole in a card. If the opening is held close to the eye and moved sidewise, objects will seem to move, like the light and shadow in the pupil when one uses the concave retinoscopic mirror. If myopia is present the motion will correspond to that of the disc; if there is hyperopia the motion will be contrary. In simple hyperopic astigmatism the motion will be opposite in the meridian of lesser curvature and no motion in the other. In simple myopic astigmatism the motion is contrary to that in the hyperopic variety. When the ametropia is corrected no motion will be seen anywhere. It is understood that the accommodation is at rest in these examinations.

Discussion.—G. C. SAVAGE (Nashville, Tenn,) thought the method was both good and new, and gave his own experience with it. He believed that the judgment of motion and direction were gifts, not acquired, and depended to a large degree on the state of refraction of the eye. CLARK inquired at what distance from the eye should the disc be held. In closing the discussion, TENNEY said the disc should be held very close to the eye, and that patients found it very easy to carry out this test.

Double Radial Rupture of the Iris, Causing a Complete and Well-formed Iridectomy.—S. C. AYERS (Cincinnati, Ohio) reported a case of this character. The injury was the result of the impact of a leaden bullet which was thrown by an air gun and struck the edge of the left lower lid. The iridectomy was as perfect in outline as if it had been done by a surgeon. The lens was opaque. The only parallel case is one reported in 1821 by Bunger. Numerous cases of slight tears of the pupillary margin are on record, as well as a number of more severe lacerations extending to its ciliary attachment.

Discussion.—LOCKEY (Wheeling, W. Va.) related a case of rupture of the iris. L. J. BORSCH (Philadelphia) saw a case with rupture of the eyeball and rupture of the iris, after recovery, from which there remained a vertical coloboma. HARLAN (Philadelphia) thought that ruptures at the periphery of the iris were common, but that radial rupture was very rare, and could often be detected by the ophthalmoscope. In closing the discussion, AYERS referred to the frequency of iridodialysis and radial rupture, and the absence of any proper treatment for these conditions.

This terminated the scientific business.

The Committee for the Report on the Examination of the Eyes and Ears of School Children reported progress. Report was accepted and spread on the minutes.

A vote of thanks was extended to Dr. Brown, of the Geneva Optical Company, the W. T. Keener Company, of Chicago, and the local committee of arrangements.

Rinderpest and Plague to be Controlled in Manila.—The Philippine report shows that the struggle waged by the Bureau of Laboratories against the rinderpest, which threatened to exterminate the draught animals on the islands, has been successful. The veterinarians now have about 75 animals available to furnish a serum for inoculating nonimmune herds. A great demand for vaccine virus also is announced. Until the advent of the Americans no systematic efforts had ever been made to vaccinate the Philippine people. The islands now are declared to be practically free from the plague, as a result, it is said, of the intelligent employment of a plague prophylactic furnished the Board of Health in sufficient quantities. The biologic laboratory is investigating human diseases, and is preparing a work on a method of protective inoculation against Asiatic cholera.

Registered Nurses' Bill.—A bill requiring that nurses shall take an examination under State supervision, and be registered, has been introduced in the Louisiana State Legislature. It is believed that the measure will become a law. In reference to it the *Times-Democrat* says: "The bill provides for the State registration of nurses, and as a matter of course provides penalties for the violation of the law it embodies. The object of the bill is to maintain the high standard of the profession and to prevent incompetent and inadequately trained nurses from having the same standing as those who prove their qualifications by securing the right to register by a rigid examination before an authorized board of examiners. The bill is for the benefit of all the nurses in the State, and has not been framed in the interest of any organization. It embraces nothing in the nature of unionism, and will not have any effect on the salaries paid to nurses for their services in the sick-room. The registration of nurses is required in many foreign countries and in many of the cities of the United States. It has been deemed necessary ever since nursing became a recognized profession. In order that a woman may become a trained nurse she must become a student for two or three years, as is required by the rules of a training-school. After she has been graduated by her school she is given a diploma. This diploma entitles her to practise as a trained nurse. However, under the present conditions, a woman need not have a diploma to practise. She may attend a training-school one year or one month, and then go out into the world and pose as a trained nurse. Of course the graduate trained nurses designate themselves as such, but the public usually does not pay any attention to the title. If a woman says she is a trained nurse, that generally suffices. The graduates of medical colleges, even of the greatest colleges in the world, are required by every State in the Union to undergo an examination by a board free of all alliance to any medical college. The same requirement is sought by those trained nurses of Louisiana who are working for State registration of nurses.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

CASE OF STREPTOCOCCIC INFECTION: USE OF ANTISTREPTOCOCCIC SERUM, WITH RECOVERY.

BY

JAMES A. NYDEGGER, M.D.,[1]

U. S. Public Health and Marine-Hospital Service.

T. J. K., aged 46, was operated on three times for an extensive nontuberculous suppuration of the glands of the right side of the neck, said to have followed an attack of tonsillitis on the same side. The glandular involvement was extensive and necessitated the opening up and curetment of a number of deep suppurating glands and sinuses located in the anterior and posterior triangles.

Following the operation on January 22, 1903, the case progressed satisfactorily, the patient having no increase of temperature or other undue symptoms.

On February 10, near midnight, the patient had a severe and prolonged chill, followed by fever and some nausea. At 5 o'clock the following morning he had a second chill, and shortly afterward I saw him. He complained of considerable pain about the site of the wound and felt generally bad. His temperature at this time was 40.4° C., pulse 118. By the following day there was an extensive and marked redness and slight puffiness of the skin about the site of the operation. On the following day the redness and swelling had increased and extended downward on the dorsal aspect of the chest to below the clavicle in front, and to the whole front of the neck and to the face; the left side of the neck was reddened and acutely painful and sensitive to the touch. The temperature was 40.4° C., pulse 116, and he was delirious. The clinical aspects of the case pointed strongly to a streptococcic infection of the wound. The suspicion was all the stronger for the reason that some known virulent streptococcic cases had a short time previously been in the hospital, though not in the same ward.

Recognizing the gravity of the case, I decided to administer antistreptococcic serum, and accordingly injected a curative dose (20 cc.) under the skin between the shoulder-blades. At the time of the injection, February 13, 6.30 p.m., his temperature was 40.4° C., pulse 118. He was highly delirious and had to be restrained by force to his bed. At midnight, the pulse and temperature were not recorded, as the attending nurse deserted.

February 14, at 8 a.m., 13 hours after the injection, the temperature was 39.4° C., pulse 114. He was still delirious and no improvement was noticeable. At 11.30 a.m., his temperature was 40.4° C., pulse 118 and I injected a second curative dose (20 cc.) in the back, near the site of the former injection. At 6.30 p.m., temperature was 40.4° C., pulse 118. Patient was now more delirious than at any time previous and had to be held in bed. He had hallucinations and said men were trying to kill him. At midnight neither temperature nor pulse was recorded, as the patient was violent.

February 15, at 6.30 p.m., temperature was 38.6° C., pulse 110. His neck, face and scalp were greatly swollen and disfigured. There was an extensive brawny swelling of the upper part of the chest in front and behind.

February 16, at 8 a.m., temperature 38.4° C. At 2 p.m. and 6 p.m. his temperature was again up to 40° C., and at 6 p.m. a third curative dose of the serum was injected in the dorsal region. At midnight his temperature was 40° C.

February 17, at 8 a.m., his temperature was 37.2° C., pulse 96. His mind was now clear and his general condition was improved. There was less redness and swelling of the neck, face and scalp.

For two or three days following there were slight rises of the temperature, then it dropped to subnormal, and the patient made a rapid recovery. He received in all, three injections of the antistreptococcic serum at stated intervals.

If we compare the temperatures recorded at the time of the injections with those taken on an average of from 12 to 15 hours afterward, when the serum had had its effect, the decline becomes more marked after each administration, showing the beneficial effects following the increased amount of serum in the system. Following the third dose the temperature fell practically to normal at the end of the 14 hours and remained there, with abatement of all the symptoms. If we arrange the temperatures in a table the result becomes more striking, thus:

Injection 6.30 a.m., temp. 40.4° C.; 13 hours later, temp. 39.4° C.
Injection 12 a.m., temp. 40.4° C.; 18 hours later, temp. 38.6° C.
Injection 6.30 p.m., temp. 40° C.; 13 hours later, temp. 37.2° C.

In this case the injection of the serum was followed by the most beneficial effect; the fever rapidly subsided, the pulse improved, and the mental signs vanished.

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[1] In the service of Surgeon H. R. Cortes, U. S. Marine Hospital, Baltimore, Md.

As is exhibited in this case, there is apparently no harm done in repeating the injections as the temperature and condition of the patient warrant.

All tests heretofore made with the various serums show that the earlier the injection is made after the infection the better the results. The long series of researches have demonstrated that antistreptococcic serum acts by stimulating phagocytosis and absorption.

An interesting feature observed in the foregoing case in this connection was the regaining of the use of the right arm, which by reason of the cicatricial tissues pressing on the brachial plexus could not be raised beyond 60° from the body. Improvement began in the use of the arm with the subsidence of the streptococcic symptoms and in a short interval it could be carried to almost the vertical position.

The results obtained from the use of the serum in this case tend to make one enthusiastic as to its merit. Still, we should not be forgetful of the fact that however brilliant the results obtained in one case, the second case may prove a complete failure, for we know there are a large number of strains of streptococci, and a serum which will protect from an infection produced by one strain would have practically no effect upon infection produced by another strain. In other words, an infection produced by a particular strain of streptococci will only be affected by the serum produced by the use of that strain.

The absolute harmlessness of the serum and its efficacy in a certain proportion of clinical cases justify its application on a wider scale than at present exists, and which probably follows from lack of knowledge of its full merits.

QUESTIONABLE SCIENTIFIC MEDICAL ADVICE.

BY

WARD BRYANT HOAG, M.D.,

of New York City.

To the Editor of American Medicine:—At one o'clock in the morning, recently, I was called to see a baby who was dying; it died less than five minutes after I entered the home. At 11 o'clock [the family physician told the parents the baby was dying, and that they were at liberty to call any one they preferred.

Only four hours before he had laughed at the apprehension of the parents, regarding the condition of the baby. The history of the case was as follows: Ten months old; bottle-fed on modified fresh milk; well developed and well nourished. Taken sick with diarrhea 10 days before, while in the country. A physician was called at once, who advised a "tonic" and "careful sterilization of milk." After four days' sickness, patient was brought to the city, and in the absence of the family physician, a strange physician was called. He at once washed out the baby's lower bowel, put it on a gruel diet, and gave it one grain of calomel, and followed that with one dram of castor-oil. In the meantime the family physician returned and assumed charge of the case. *Milk diet* was resumed, and more or less medicine was given, with the result that the patient died in less than a week.

My object in writing you, Mr. Editor, is to inquire of you, and the many readers of your valuable publication, whether the advice of the country physician, and the family physician, to continue the milk diet, when there was an infected gut, was scientific medical advice?

Was it not, rather, advice which, if followed, would almost necessarily produce a fatal result?

To my knowledge, nothing has been written during the last ten years or longer, relating to the treatment of diarrheal conditions in infants, that is not absolutely against the giving of milk in any form. Summer diarrhea means the presence in the gut of pathogenic bacteria; milk is the best culture medium that can be put in the bowel to favor the growth of the bacteria already present, and to increase the severity of the infection from which the child is already suffering. The giving of milk in infantile summer diarrhea is just as culpable as not giving antitoxin in diphtheria; one fact is just as firmly established as the other. It is time physicians who care for infants and children recognized the above fact.

Following the simple advice of the "strange" physician, noted above, would greatly reduce the mortality rate in summer diarrhea.—[See editorial under Treatment, this issue.]

ANTISEPTIC TREATMENT OF SMALLPOX.

BY

R. S. WOODSON,

of Fort Clark, Texas.

Captain and Assistant Surgeon, U. S. Army, Surgeon.

To the Editor of American Medicine:—I was much gratified upon reading the article of Dr. Wilson in the June 4 number *American Medicine* on the antiseptic treatment of smallpox. I believe that I was the first to introduce this method of treatment during the epidemic (3,000 cases) of smallpox in the district of Holguin, Cuba, in the winter of 1898 and 1899. This method was rigorously carried out in the Isolation Hospital, City of Holguin (500 beds), under the immediate charge of my principal assistant, Dr. Felipe Veranes, formerly colonel and surgeon of the Cuban army (see *Philadelphia Medical Journal*, November 18, 1899). The effect of the treatment was particularly noticeable among the confluent cases, in which the secondary fever was reduced to a minimum, the horrible stench of such cases entirely eradicated, and the mortality reduced among all cases to 10%. The solution used was mercuric chlorid, 1 to 1,000, twice daily, sufficiently strong to produce pain in most cases, and applied with vigor by stout Cuban nurses, especially selected. No effort was made toward cosmetic treatment, yet the result was excellent.

SUCCESSFUL VACCINATION OF AN ADULT, AFTER NUMEROUS FAILURES DURING CHILDHOOD.

BY

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of New York City.

Attending Obstetrician, New York Infant Asylum.

In *American Medicine*, June 25, 1904, Dr. Bernard Kohn, of Philadelphia, reporting three interesting cases, concludes by commenting on Case III as follows: "The inference cannot be avoided that this is one of those rare cases of natural immunity to smallpox, and hence to vaccination also."

A few months ago I was called upon to vaccinate a young lady who had been unsuccessfully vaccinated several times—so often, in fact, that her family had practically reached the same inference as cited. But it happened that we were having a number of cases of smallpox in New York, and Dr. Delafield's opinion had been asked as to the wisdom of further efforts after so many had failed. His advice was dogmatic: "Keep on having her vaccinated until it does take."

My inoculation produced a typical primary vaccination as pronounced as I have ever seen. I am unable to complete the history as to whether the mother of my patient had been vaccinated or had smallpox shortly before her birth, though if such had been the case I think it would have been recorded. But if the young lady ever had immunity to smallpox and to vaccinia, immunity to the latter had certainly been lost. Dr. Delafield's advice was amply justified, and is generally applicable. Possibly it is true that natural immunity may exist, and yet gradually disappear, like that acquired by vaccination or from an attack of smallpox. The patient in Case III should be revaccinated at least as often as members of the other classes of immunes.

Manila Needs Water-Supply.—Desmond FitzGerald, of Boston, who has just returned to the United States after a prolonged inspection of the Philippines, as a Government expert, will recommend for Manila a new water supply, to cost approximately $2,000,000. There is no system of sewerage, the removal of waste being done by wagons. The obsolete method is one of the great defects of the city, but the streets are kept clean by the Americans, showing a great change for the better over former conditions. Manila, with its population of about 225,000 people, lies but three feet above the level of the China Sea, and is subject at any time to inundation. There is no practicable way to raise the level. The water-supply is poor and inadequate, but things are no worse than they have been for years; on the contrary, the sanitary condition may be said to be improving all the time, and there is, in consequence, a proportionate diminution in sickness.

ORIGINAL ARTICLES

THE SURGERY OF THE FEMALE URETHRA.[1]

BY
ELY VAN DE WARKER, M.D.,
of Syracuse, N. Y.

The urethra in women appears like an insignificant part. Its vital relations are negligible, even its anatomy is relative, and acquires its importance from its relation to a near organ. It is a simple integer in the sum of organs that gain in vital significance the farther they are from their terminal point—the urethra. But it may be said that it epitomizes a large share of the suffering that woman's pelvic organs inflict upon her. At the decline of functional activity of the pelvic organs, when a long earned peace and comfort ought to be assured to the woman, the urethra obtrudes as a source of suffering. The amount of disturbance caused by a simple irritation of the urethra, to the bladder and indirectly to the kidneys, affords striking proof of the validity of reflex disturbance. That these consecutive derangements of the bladder and kidneys are rarely due to an inflammation of an ascending type, will be shown in the course of this paper. Irritative rather than the inflammatory conditions, when existing in the urethra, or at its meatus, may create the most active disturbance. The urethra gains a large share of its importance, therefore, as a center of nervous reflex, in this respect obeying the law that nerve-centers having the widest sphere of reflex activity are situated at or near the natural openings of the body.

The first defect of the urethra to which I shall call your attention is what I prefer to call sacculation. The term urethrocele used by some authors is a misnomer, its cause being mechanical. Inflammation alone is not adequate to produce it, in view of the thinning of the urethrovaginal septum which is so frequently observed. The urethra may be said to belong more to the perineal than to the pelvic zone of organs. Consequently, the walls of the passage depend upon the support of the perineum to a certain extent only, as other causes may operate to produce the defect. I cannot recall a single instance of long existing rents of the perineum, with the patient near middle life, but what a drooping of the urethral wall could be observed. In one of my casebooks I have outlined a pendulous sac, its upper margin defined by the junction of the middle with the upper third of the passage. Residual urine was always present, causing urethritis with drastic strangury. Very much smaller dilations will furnish cavities in which a small quantity of urine will be retained, and which is certain to cause frequent and painful micturition.

Another cause, which generally affects the whole of the canal, is stricture at the meatus of a caliber so small as to need expulsive efforts to overcome the resistance. A urethral opening of from 10 to 13 French scale will offer an obstacle that will require expulsive effort to overcome, accentuated as it so often is by urgent and frequent micturition. The bladder may suffer damage under these conditions, but the urethra, receiving the full force of the expulsive effort, suffers more. Here comes in a singular fact in mechanical pathology. The bladder being a contained viscus and supported on all sides, becomes thickened in its walls. A superficial explanation would be that this is due to increase in its muscular layer, but a careful examination shows that this is not the explanation. The increased thickness occurs in the mucous layer, and is undoubtedly of inflammatory origin. The wall of the urethra being unsupported for about half of its periphery, becomes thinner at the sacculated portions. I take this to mean that the dilation is due to mechanical force rather than to inflammation. I lay stress on this, because our late colleague, Dr. Skene, in his work on "Diseases of the Bladder and Urethra in Women," traces nearly all of these conditions of the urethra to inflammatory action.

Local treatment, aside from antiseptic means, which simply palliate, I have never seen cure the condition. I speak from experience gained from my own work when I say that a plastic operation is necessary. When the perineal body is torn away and the urethra is unsupported and hanging in the vulva the part must be restored and the operation made with the special object in view of giving support to the damaged urethra. Many of the operations devised will not lift the perineal body closely against the middle third of the urethra. By my method this is gained by carrying the flap well above the crest of the rectal prolapse and extending the flap latterly more than would be necessary to give support to the lower segment of the bladder. First, it is necessary to care for the sacculated urethra. We are here dealing with redundant tissue. We can only hope for absorption to a very limited extent, even after the part is supported. In my case I began by removing the mucous membrane and cutting through the muscular layers of sufficient width to obliterate the sac, making due allowance for the contraction that follows repair. This method, while it removed the tangible evidences of sacculation, did not relieve the patient of all the symptoms caused by the dilation. Through the urethroscope I observed that the mucous lining was thrown into folds. A very little reflection would show that this was a necessary result, since the redundancy existed in three layers, while it was obliterated in the outer two only. The operation was extended to include the mucous membrane into the lumen of the urethral canal. The cut surfaces were brought together with interrupted sutures placed close enough to make the urethra water-tight. The use of a self-retaining catheter, which I found added to the suffering of the patient, was thus avoided. The surfaces were brought together over a sound held in the urethra, so as to insure a uniform lumen to the canal. This method I found gave almost immediate relief. In my opinion, confirmed by an ample experience, absorbable sutures ought not to be used in this operation, as they are exposed to the current of urine; and, no matter how thoroughly aseptic when introduced, are quite certain to become contaminated before absorption. Fine silk I found to be superior to any other form of material.

Not until after the plastic operation on the urethra, when the sutures were removed and union found to be perfect, was the final operation made upon the ruptured perineal body. Both operations could of course be made at one sitting, but while certain genital plastic operations appear naturally to suggest the method of multiple operations, in this instance it appeared more prudent to await the result of the operation on the urethra, as this would govern to a certain extent the restoration of the perineal body. I have never had a urethral fistula result, and the functional results have been without fault. This method is needed only in extreme cases. In the minor degrees of sacculation, a restoration of the perineal body, carried out with the purpose of giving support to the middle third of the urethra, will cause the gradual absorption of such redundant surface as may exist.

Prolapse of the mucous lining of the urethra is another condition with which I have had sufficient experience to cause me to dissent from some of the commonly accepted explanations. The condition is a rare one, and, consequently, the defect has not been closely studied. In my cases one condition has always been apparent in the history. For years the patients have complained of urinary troubles of various kinds. Dysuria, dribbling, escape of urine on exertion, were nearly always present. It is probable, therefore, that it is the result of a gradually progressive condition, and in this respect complies with the general law of genital ptosis. In matters of pelvic dynamics, a department of gynecology as yet unstudied, except in a disconnected way, we must abandon inflammation as a general etiologic factor. If inflammation along the urinary exit is present, we have a thickening of the urethral mucosa. In ptosis of this part we find a contrary condition; the mucous lining becomes thin and delicate, almost too attenuated to hold a suture. Such being the condition, as I have observed it, the detrusor urinæ is the part at fault. The strenuous expulsive effort exerted, often attended with an expulsion of urine inadequate in quantity to the force expended in its extrusion, throws the retrusor effort upon the loosely connected mucous lining, which gradually gives way and tends downward toward the meatus. As the process continues, the membrane finally presents as a red and irritated fold at the urethral opening. It follows that we have a complicated condition to deal with. A simple snipping off of the extruded mucous membrane, and suturing the edges to the periphery of the meatus, would fail to cure the condition. After an operation of this kind the patient would present herself a few months later with a recurrence of the prolapse. Several times I have seen it recur, until one would be in doubt from whence such a redundancy of the mucous membrane could come from. I have been led by observation to believe that the hysteric bladder is one of the first conditions at fault. Twenty-five years ago a case occurred that taught me a few facts that I have never forgotten. The patient, a woman, aged about 40, gave a history, extending over many years, of bladder intolerance. She was a member of the Oneida community, and consequently had been under the care of competent experts. She had continued to suffer severe dysuria in spite of the best treatment the country afforded. As there was a considerable prolapsus of the mucous membrane, it was removed, and the edges sutured to the outer mucous covering. She was considerably benefited by the operation. The bladder stress, while lessened, was not wholly relieved. This poor woman visited a drug store and purchased a fatal dose of morphin. The case was promptly turned over to the coroner. At the postmortem examination, at which I was present, I asked that the bladder and urethra be carefully preserved. This was done, and an inspection of the gross and microscopic appearances made. The bladder was absolutely healthy and without a trace of inflammatory action. It was simply an instance of hysteric bladder, and the prolapse of the mucous membrane was the result of the excessive action of the detrusor urinæ. From a study of my cases, the history demonstrates that the prolapse is never acute, but is secondary to other conditions not limited to the urethra, and is chronic and slowly progressive.

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[1] Contributed to a Symposium on the Surgery of the Urinary Tract in Women, held by the American Gynecological Society, Boston, 1904.

The treatment is simple. I have never tried any other method than snipping off the redundant membrane and securing the edge to the external mucous membrane, healing being rapid. I have met recurrences and these were confined to cases in which the predisposing conditions of the bladder were more or less active. Unfortunately these bladder diseases are sometimes most difficult to cure, but until relieved we may expect to meet a recurrence. The operation is necessary, however, as the prolapsus may aggravate the preexisting bladder symptoms, and also for purposes of cleanliness. The stream of urine as it escapes from the muffled opening often feathers, or is diverted so as to soil the outer parts, or the clothing.

Bladder incontinence and dribbling are among the most distressing of urinary defects. While often painless yet the effect on woman's pride and self-respect is serious. In this contribution to the discussion we are concerned only with urethral conditions which result in these symptoms. Imperfect control of the escape of urine is sometimes a lifelong affliction. Laughing, coughing, sneezing, sudden changes in position may cause a gush of urine. The bladder may be nearly empty when this occurs without the usual sensation of voiding urine. I have never been satisfied with the usual explanation given for this symptom. That it is always a deficiency of the sphincter vesicæ is more than doubtful. The vesical extremity of the urethra can readily be narrowed. I have done this by removing an elliptic flap through the muscular layer on the vaginal surface and suturing the edges together. The result is a considerable narrowing at the urethrovesical junction. I have traced good results to this method, but I never knew them to be lasting. The other plan was to violate my rule never to apply destructive caustics to the urethra. They are uncertain in their effects and the applications are difficult to limit and control. In the few instances in which I have tried caustics the applications were made through a urethroscope; a small bead of caustic was fused upon the point of a probe, invented by the late Dr. Lent, of Cold Spring on the Hudson, for this purpose. Two or three linear applications were made at, or slightly above, the urethrovesical junction. These applications were always followed by pain and strangury. This method produced some improvement, but the effects were not permanent. Systematic writers offer very few practical suggestions for the treatment of this condition. Journal articles are frequently met in which the authors extol some nearly infallible methods of treatment, never afterward heard from, as they certainly would have been had they possessed any merit.

The other phase of urinary incontinence, or dribbling, has caused me to believe that we are dealing with a neurosis, instead of a local organic defect. The frequent association of dribbling with attacks of hysteria, points to the powerful influence of functional nervous disease upon the urinary tract. These organs are within the zone of hysteric disturbance. In fact, we do not need anything more marked than what may be called the hysteric temperament to find the kidneys secreting enormous quantities of fluid of a specific gravity as low as 1,002. Such a condition often marks the occurrence of a nerve storm, which without the polyuria would have escaped notice. The urinary tract in this relation may be said to be the storm center of hysterogenesis. If I am right the intractable nature of the difficulty is explained and the case belongs to the neurologist, rather than to the surgeon.

There are other instances of defective bladder control that are easily cured when the cause is understood. The urethral stricture, when of small caliber, is very frequently associated with dysuria and dribbling. It is difficult to understand why a stricture located at the meatus should involve the sphincter vesicæ. We find the same symptom in the male from stricture situated in any portion of the canal. Dilation is the only method by which the retaining function of the part can be restored. Caruncle and neoplasms of the urethra may cause lack of control. The practice of applying caustics to the base of caruncles when located at the meatus is a bad one. Damage to the urethra from cicatrices is most difficult to relieve, especially when the result of the imprudent use of caustics.

Fissure, in my hands, has always been cured by dilation. I have always used the finger as the instrument for this purpose. Unless the finger of the operator is too large one is safe against incontinence or rupture. It is regretted that solid caustics are recommended in Skene's book in the treatment of fissure. In addition to being inefficient, the use of caustics is a relic of primeval surgery.

Urethral polypus deserves a brief reference. The true mucous polypus must be comparatively rare. I have never seen but two examples. The condition had been overlooked in both cases as a cause of strangury and incontinence. The growths were too friable to twist off, as recommended by some surgeons. Had the growths been so firm as to allow removal by this method, it would have been a very crude proceeding, as a stump must have been left which would have made recurrence quite probable. A pair of slender probe-pointed scissors is an excellent instrument for this purpose. The connection of the growth should be cut away deeply so as to insure against its renewal. Other forms of newgrowths of the urethra I have never seen.

Stricture of the urethra is in my experience very common in women. My views upon this subject have been regarded by some as radical, but if so, the facts warranted a firm expression of opinion. Dr. Howard Kelly in his "Operative Gynecology" says of my work that "confirmation of these important conclusions is still wanted from other clinicians." Unfortunately, Dr. Kelly quotes from my first article upon this subject and not from the more elaborate paper published in the *Medical Record* in 1890, and read before the section on Obstetrics and Gynecology, American Medical Association, at Nashville, in May of that year. If other clinicians have not confirmed my conclusions, Dr. Kelly has done so, for the section given up to this subject in his comprehensive treatise is more elaborate than is found in the work of any other systematic writer, even in special volumes, such as those of Drs. Winckel and Skene. This liberal and copious treatment of the subject leaves only one phase in suspension between us, namely, that stricture of the urethra in women is the analog of the same condition in the male.

The time allotted will not permit me to explain the pathology and causes of stricture in women and I will only give in outline the facts presented and the treatment advised in my paper in the *Medical Record* of August 23, 1890. Since the publication of that paper I have been more firmly convinced of the truth of my contention. The causes may be summarized: That any condition that tends to produce a long-continued irritation of the urethra may cause linear or annular thickening of the mucous lining and thus lead to stricture. Gonorrhea in the male, from its tendency to become chronic, is a frequent cause of stricture. Specific inflammation of the urethra in women does not present the same clinical picture. The attack on the urethra is generally secondary to a prior invasion of the vagina, where the gonococci have expended their greatest virulence. In the majority of cases of specific vaginitis, treated by recent methods, the disease does not extend to the urethra at all, and when present, is generally of short duration. While specific urethritis may produce stricture, it must be an infrequent cause, and is not the important factor claimed for it by Herman[1] and by Fissiaux.[2] I name these authors because they are the most frequently referred to even at the present day. Traumatism, the other factor alleged by the authors and duly followed by others, is next in frequency. Injury to the urethra sufficient to cause obstruction is not a true stricture. This may appear like splitting hairs, but when it comes to the treatment it will at once appear to have considerable value. All gynecologists know that injury to the urethra from parturition, unless it produces fistula, is extremely rare. In 30 years of gynecologic surgery I cannot recall a case. Injury from other causes has occasionally been met. In one case the urethra was severed transversely with a severe lacerated wound to near parts, requiring many ligatures to pumping vessels, which healed without causing stricture. In another case the woman fell upon a small stick, which penetrated the pelvis, tearing one side of the urethra and lacerating the vesicovaginal septum. In this case stricture did not follow healing of the urethra.

The point of contention is the existence and clinical importance of stricture of large caliber in women. This is a condition so easily proved that it appeals to one's sense of the ludicrous that there should be any dispute upon the subject at all. This difference of opinion turns upon the method of exploration. Even our best writers do not advocate a method of exploration that will bring out the facts. Kelly advises that the urethra "be calibrated with bougies." Skene, following Winckel, directs that "the passage be explored with the sound, using one so large that it will not pass, thus locating it, and then by using a sound that will pass through it, the extent of the obstruction may be known." By this method of exploration you would learn the caliber of the obstruction, but you would never know when you had passed through and reached the proximal side. If general surgeons were to write upon male stricture and advise such a method of exploration there would be very few strictures that we would know much about. It is by methods such as described that the period of error has been prolonged. There was a time within the memory of many of us when our knowledge of stricture of the male urethra was rudimentary, and concerning which careful instruction had been given for generations. Then came a time when by the use of instruments of precision we gained a more perfect and wider range of knowledge. Previous to this period the general surgeon gave about the same instruction concerning exploration of the male urethra that Dr. Skene had given for that of the female. It cannot be disputed that so far as stricture of the female urethra is known and treated, it stands today where the surgery of the male urethra did a generation ago. I date our present knowledge of strictures in the male, of large and small caliber, their number, location and extent, their consistency and dilatability, together with the caliber of the passage yet in a normal condition, to the invention and general use of the exploratory bulbs and urethrometer. If we trust urethral exploration to the sound, we simply learn that we have to deal with a narrowed passage and we overlook obstructions of large caliber entirely; whereas, if we explore with the bulbs we learn not only all that the sound can reveal, but also the extent and number of the constricted points, their firmness and dilatability and the differential diameter.

I do not think my contention an unreasonable one when I state that the female urethra demands the same care and exactitude of exploration that we give to the male parts; and, if made with equal care the average clinician will be convinced, with myself, of the existence of strictures of large caliber in women.

Some attention has been given to the subject of the normal lumen of the female urethra. I do not understand how a solution of this question can throw any more light upon a strictured condition than a knowledge of the average diameter of the vagina would upon the understanding of atresia of that passage. The question is not as to the normal diameter of any particular passage, but is it free from contracting bands or inflammatory deposits that diminish its size, be it large or small? The extreme dilatability of the female urethra gives less need than in the male to establish the law of average. In my own observations to test the caliber of the normal urethra I noticed the liability to error from the extreme dilatability of the passage when in a healthy condition, an error more difficult to guard against when using the urethrometer than the bulbs. I have therefore abandoned exact measurement for the exploring bulbs and have always found them a safe guide in detecting constricting bands. In exploring for strictures I use a bulb equal to the full capacity of the normal urethra that will slip over obstructions. Sometimes the bands are arranged in groups and the bulb will slip along in a series of jerks; but usually one or two obstructions are found in the middle to the outer third of the passage. The lumen of the normal urethra is not the same throughout its length. It is contracted at the meatus, expanded in the middle portion, and contracted again toward the bladder, hence the bulb will move with more freedom in one portion of the urethra than another. Symptoms of functional disturbance due to stricture have their periods of exacerbation and intermission. A patient will give a history of dysuria with intervals of relief lasting for days or even weeks. Oftentimes the patient rises in the morning in a comfortable condition, with a renewal of the urinary symptoms during the latter part of the day. The control is sometimes impaired, the patient being obliged to respond promptly to the inclination. In strictures of large caliber the symptoms do not appear to depend upon the extent to which the lumen of the canal is encroached upon, but rather upon the degree of irritation existing.

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[1] Trans. London Obstetrical Society, 1887, p. 27.

[2] Annales de Gynécologie, January and March, 1879.

The form of stricture most frequently met, and one that causes the most active symptoms, is the annular stricture of the meatus. It is a firm ring situated at the verge of the opening. It offers quite a solid resistance to the introduction of the exploring bulb, which sometimes has to be pressed firmly against the contraction before it yields, and what is even more characteristic, offers about an equal resistance on withdrawal. It is generally necessary to dilate the stricture up to the normal size in order that a bulb may be passed to test the condition of the urethra further up. The dilation of the stricture at the meatus is painful. It is better to divide the obstruction and keep it dilated until the incision heals, as the tendency to contract is fully equal to its dilatability. Very small strictures near the meatus are rare. These strictures more often cause retarded flow than retention. Women are so frequently the subject of urethral and bladder symptoms, that the condition is nearly always explained otherwise. What in man would lead to a urethral exploration, even on the part of a very ordinary surgeon, is overlooked in women, except in cases of exceptional severity.

A condition is sometimes met which is usually described as eversion of the mucous membrane at the meatus. This, in my opinion, is a form of stricture. Persons treated for such have made lasting recoveries. Its prototype in the male is the fusiform stricture of Otis. In women it is seen as a rolling out of the mucous lining which presents at the meatus as a red irritable margin. When a bulb, that will pass the opening, is introduced the membrane is pushed before it, the resistance ceasing when the bulb passes the ring. On withdrawing it, its shoulder is caught by the ring of mucous membrane which is drawn out to its former position, and gives considerable resistance to the withdrawal. All of these obstructions at the meatus are more frequently met in married women, at or past middle life. I have been led to believe by a careful study of the condition that the functional use of the parts is the most frequent cause.

Polypoid growth of the urethra must be comparatively rare. In 30 years, during the latter part of which period conditions of the urethra and bladder received careful attention, I have seen but two cases. Both of these were of the mucous type. Cases in which the fibroid element predominated must be still more rare. From a histologic point of view this would be a logical conclusion, as it would be difficult for a neoplasm at this point to have a fibroid derivation. Both of my patients passed through the hands of very competent surgeons. One growth had its origin near the neck of the bladder. The urinary stress had been of a most painful character for many months. The second case showed itself as a very vascular tubercle in the cleft of the meatus, which had been cauterized repeatedly. A slender probe-pointed scissors snipped the pedicle deeply in the surrounding mucous membrane. There was no return of the growth.

Caruncle of the urethra is a common occurrence. An instance of this growth as figured by Kelly in plate IV, Vol. I, of his work I have never seen, and I conclude, which may be wrong, that this form of the growth is not frequently met. Those that I have seen were attached by a broad base to the margin of the urethra, sometimes in clusters but more often discrete. In cases in which there is dysuria, a condition very commonly found at the meatus may lead the inexperienced observer into error. I refer to the tabs or flaps that very frequently occur at this point. They appear as duplicatures of the mucous membrane, and are pale and insensitive. They show a great variety of forms. Sometimes there is but one flap attached to the lower margin and often bifurcated, or lateral to the opening, which gives it a ramiform shape. They offer no obstacle to the escape of urine and do no harm. Under the condition stated I have known these to be scissored away under the idea that they were caruncles. In removing caruncles, although they bleed freely at first, especially when growing above the meatus, I have never seen a case that firm pressure would not relieve. Unless the scissors are applied deeply at the base, these growths may recur. If, however, removal is complete the cure is effectual.

Malignant disease of the urethra is fortunately rare in its primary form. One case that I had an opportunity to observe in its later form, began at one side of the prominence of the urethra, invaded the meatus and extended upward into the clitoris and nymphas. Several surgeons who saw it called it tuberculous. It was, however, an epithelioma of the adenoid type. It was removed by a free dissection of the urethra, clitoris and nymphas, having quite a surface to granulate as it could be but partly covered by a flap. The disease continued, the patient dying three months after the operation.

Secondary cancer of the urethra is more commonly observed. Cancerous infiltration of the anterior vaginal wall from disease located in the cervix uteri is the more frequent form. These cases are of no interest to the surgeon, except from the anxiety that he cannot help feeling lest the urethra become closed by the diseased mass of infiltrated tissue about it. This I have never seen occur. It is surprising how well the urethra preserves its function in these cases. Even dribbling does not often occur and micturition may be painless. I have more often seen this vaginal extension of the disease with implication of the outer surface of the urethra in cases of recurrence of the disease after hysterectomy than when this operation was not made. Other varieties of malignant disease of the urethra I have not seen.

FISTULA IN ANO.

BY

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Fistulas in ano, not due to ulceration and perforation of the rectum, follow or are the result of abscess. Abscesses in the region of the anus and rectum are classified according to their anatomic location, as superficial, ischiorectal, and pelvic. The superficial variety of abscess is not commonly followed by chronic fistula, as the abscess is limited in extent and only involves the skin or mucous membrane about the anus and rarely the muscular fibers of the sphincter. Infection of the ischiorectal fossa resulting in abscess, is practically always followed by fistula in ano if allowed to take its own course and the pus to find an exit for itself.

The causes which are active in the formation of these anal or perirectal abscesses are those which release the microorganisms that swarm in the healthy bowel. Therefore, anything which causes a break in the continuity of the lining membrane of the bowel favors infection of the surrounding tissues. Traumatism, either from horseback riding, bicycling, kicks, blows, passage of foreign bodies, *e. g.*, fish bones, sticks, pins, seeds, etc.; treatment of hemorrhoids by injection; improper use of the rectal syringe; exposure to cold from sitting on wet grass or cold stones; suppuration around the prostate gland or in a lymphatic gland, are the exciting causes of abscess, and hence of fistula. Ulceration and perforation of the mucous membrane of the bowel from pressure of impacted feces, foreign bodies, give rise to fistula.

There are three forms of true fistula in ano: (1) The complete, in which there are two openings, one in the gut and one on the surface of the body; (2) the incomplete external fistula, or the external blind; (3) the incomplete internal, or the internal blind fistula. There is a variety of fistula about the anus which is superficial, the tract being short and superficial and not passing through the sphincter, the external orifice being close to the margin of the anus.

In true fistula in ano the external opening of the complete or external blind variety is at a distance of an inch or more from the anal margin. The opening is marked by a bunch of granulations, and escaping from it can be seen a thin pus, which excoriates the surrounding skin. There is usually a thickening and induration of the skin and superficial fascia about the opening. The internal opening of the tract can be felt or seen, as it is either surrounded by a bunch of granulations or by a depression due to a considerable loss of tissue by ulceration. It is not always possible to map out the course of the tract, as it is deeply situated and does not always run a straight course.

Frequently the tract runs superficial from the external opening to the margin of the sphincter and then dips deeply, passing through the sphincter and by the side of the bowel to a considerable depth. It is not uncommon to meet multiple sinuses, the branches of which, however, communicate with the main fistula. There may be several sinuses opening externally, but communicating with the main tract, and there may be several independent fistulas. As a rule, the fistula is confined to one side of the anus, that is, the internal and external openings being on the same side. However, a variety known as the horseshoe fistula is met when the tract surrounds a half or more of the anus, having one or more external openings.

The diagnosis is comparatively easy. By introducing a probe into the external opening and a finger in the rectum the tract can be readily felt. If the fistula be incomplete external, the point of the probe can be felt through the thin mucous membrane. If it be complete, the probe will enter the rectum; the internal opening is almost invariably just inside of the internal sphincter, though a sinus may extend some distance further up along side of the bowel.

The internal blind variety can be diagnosed by feeling the opening surrounded by granulations or by a sulcus, due to the ulceration, or by the use of a speculum in the rectum an escape of the pus can be seen if pressure be made externally. A probe bent to an acute angle can be engaged in the orifice and directed into the tract, indicating the course of the fistula.

The internal blind is the most painful of all varieties of fistula. This is readily understood when we consider the fact that the feces entering the tract and the pus collecting at its bottom soon fill up the fistula; this will cause intense pain until emptied either by pressure or position.

It must not be forgotten that all sinusés in the neighborhood of the anus are not fistulas in ano. Caries or necrosis of the tuber ischii, abscess within the pelvis and proceeding from hip-joint disease may give rise to a sinus, opening near the anal margin. A curious and rare form of fistula about the anus is caused by a tuft of hair (pilonidal fistula), cases of which have been reported by J. M. Warren, Lamadrid, Gaston Wyesh, and John Ashhurst.

It is possible in many instances to prevent the formation of a fistula in ano by the prompt opening of an abscess or threatened abscess of the ischiorectal fossa. It is wise to err on the safe side and open early, even though suppuration has not intervened, for by so doing many fistulas will be prevented and the patient relieved from the pain and long convalescence of abscess and fistula. If pus be present, the advisability of immediate and free incision is unquestionable.

The methods of treatment consist of the use of stimulating applications, *e. g.*, silver nitrate, tincture of iodin, zinc sulfate, etc.; the use of a ligature, preferably rubber, tied so that it will strangulate, and finally, by daily tightening, will cut through by ulceration, leaving a wound which must be kept open and allowed to heal from the bottom out; and third, by incision. Operation upon fistula by incision is the method adopted by practically all surgeons of today. Before describing the technic, there are several points to be considered:

Shall we operate on tuberculous patients? This is a question which should be decided for each individual case; but as a general rule, I would say, operate, unless the patient is in the last stages of pulmonary tuberculosis. In cases of advanced constitutional involvement, if the fistula is causing great distress, I would not hesitate to incise the tract, probably under local anesthesia. The fact that a patient has tuberculosis, is not in itself a counterindication to operation for the relief of fistula in ano.

In benign stricture of the bowel, associated with fistula, the stricture should be dilated before any attempt is made to operate for the fistula.

In malignant disease of the rectum with fistula, nothing whatever should be attempted, directed against the fistula. Operation here, short of entire removal of the growth, is positively counterindicated.

The technic of the operation of choice, namely incision, is quite simple, although it is an operation which is often incorrectly and incompletely performed.

If the fistula be complete, a groove director is inserted into the sinus through the external opening and gently guided until its tip protrudes through the internal opening into the rectum. By either depressing or elevating the handle of the director with the finger in the bowel to guide the point, it protrudes through the anus. With a narrow-bladed bistoury placed in the groove of the director the portion of tissue, including the sphincter muscle, raised on the director is cut through. If there be more than one tract communicating with the main sinus each should be divided by the same method. The tough gristle tissue surrounding the sinus should be carefully and completely excised with a pair of scissors or thoroughly cureted away until healthy tissue is reached.

Some surgeons advocate the closure of the wound by deep stitches, claiming that healing by primary union results. The great probability of stitch infection from the close proximity to the anus renders this procedure in my judgment unwise. The wound should be allowed to heal by granulation. To secure prompt healing from the bottom of the wound with a minimum amount of scar tissue, it is necessary to pack the wound lightly. Cotton wool, lint and gauze are the best materials. Sterile oil and antiseptic oily preparations by stimulating healthy granulation hasten healing. The wound should be dressed after each act of defecation. If the edges of the wound be separated by the sterile finger at each dressing healing from the bottom can be secured. A tightly packed wound is painful, will cause some tenesmus and will prevent the formation of healthy granulation. Patients who have been operated upon for fistula should be confined to bed, as walking and sitting interfere with healing. This is not an office operation and should only be performed under surgical surroundings, and with rare exceptions a general anesthesia should be employed.

The external blind variety is operated upon the same as the complete, excepting that the point of the director must be forced through the mucous membrane of the gut at its thinnest portion. In the internal blind fistula the point of the director can be engaged in the opening in the bowel by means of a speculum or by the sense of touch; its tip must follow the sinus until it reaches a point nearest the skin, then the incision is made the same as in the other two varieties, except that it is made in the reversed direction.

Incontinence follows this operation at times, but fortunately is very rare. If it does occur, it can be overcome by one of various methods. Dissecting out the severed ends of the anal muscle and stitching them together, or a series of burns by a cautery knife, radiating like the spokes of a wheel may be made, the subsequent contraction restoring the anal opening.

It is well known that loss of sphincter action does not necessarily mean incontinence. The following case will illustrate:

Miss G. Carcinoma of the anterior wall of the rectum involving the posterior wall of the vagina and about a half inch of the anus.

Three inches of the rectum, one inch of the anus and the entire posterior wall of the vagina were resected by Murphy's operation. The cut ends of the sphincter were stitched together and the bowel brought down and stitched to the repaired anus. The stitches gave way anteriorly, due to unavoidable infection, although the posterior layer held. The patient recovered without any sphincteric action, and she informs me that only when suffering from watery diarrhea does she lose control of her bowels. She has gone a year without return. The growth was a glandular carcinoma.

THE REPORT OF EXPERIMENTS TO DETERMINE WHETHER PLASTER-OF-PARIS CONTRACTS OR EXPANDS IN SETTING.[1]

BY

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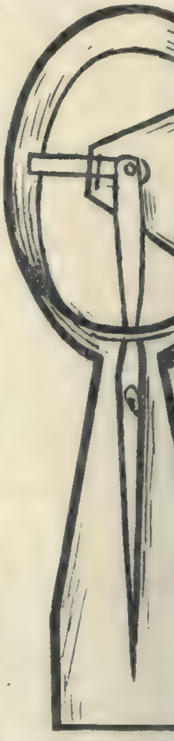
The contraction or expansion of plaster-of-paris during the process of setting has always been an undetermined point, and among writers upon the subject the matter is rarely alluded to, and even if mentioned, there is no definite statement. That it, or the body material with which it is incorporated, contracts in setting, is firmly believed by the majority of general surgeons and practitioners, and in consequence of this belief, many refrain from using it. The accidents which occasionally occur in its use are always ascribed to the contraction of the plaster, and when such results are published they militate against its employment by others, and so deprive the surgeon of a most useful assistant and the patient of a most helpful remedial agent. It is needless to say, that the real cause of the unfortunate results has been the careless or ignorant method of application on the part of the surgeon, and he may expect such until he familiarizes himself with its use and action. The medicolegal aspect of such cases also furnishes to many a cause for hesitation, as damages have been awarded (and properly so, in many cases) against physicians for injuries received by patients from pressure of plaster splints. Brains and common sense are two essentials in the successful use of plaster-of-paris, and if one has these, and will utilize them, the confidence engendered thereby will prevent misapplication.

At a symposium on plaster-of-paris during a former meeting of the American Orthopedic Association, opposite views regarding this question were expressed by several of the members, and it occurred to me that the determination of the matter would be of sufficient value to repay the time and labor necessary to the same. Experiments were therefore begun with pure plaster of two kinds, with body materials, and with plaster bandages made up from both varieties of plaster and two body materials, and the effect of salt and alum upon the setting was also noted. These have been tabulated together with other facts of interest and importance. The appliance used in the experiments was devised by me, the idea originating with the ordinary dynamometer used for testing the grip of patients, and is shown in the accompanying illustration.



	Variety.	Body.	Temperature of water.	Salt or substance.	Time in setting.	Contraction.	Expansion.	No change.	Amount.	* Note.
1	Dental.	None.	65°	None.	2 minutes.		Yes.		1/120 inch.	12 hours.
2	Medium.	"	65°	"	8 "		"		1/96 "	12 "
3	"	"	65°	Salt (4 dr.—1 qt.).	4 "		"		1/96 "	12 "
4	"	"	110°	None.	5 "		"		1/110 "	†10 "
5	Dental.	"	70°	"	3 "		"		1/96 "	12 "
6		Gauze.	72°	"	20 minutes drying.			Yes.		12 "
7		Crinoline.	65°	"	1 hour drying.			"		12 "
8	Dental.	Gauze.	70°	"	5 minutes.		Yes.		1/120 inch.	2 "
9	"	"	100°	"	3 "		"		1/108 "	2 "
10	Medium.	"	100°	"	12 "		"		1/108 "	12 "
11	Dental.	"	65°	Salt.	1 "		"		1/96 "	10 minutes.
12	Medium.	"	65°	"	4 "		"		1/96 "	12 hours
13	Dental.	"	100°	"	1 "		"		1/96 "	10 minutes.
14	Medium.	"	100°	"	3 "		"		1/108 "	5 hours.
15	Dental.	"	80°	None.	2 "		"			‡12 "
16	Medium.	"	80°	"	5 "		"			‡12 "
17	Dental.	"	80°	Salt.	2 "		"			‡24 "
18	Medium.	"	80°	"	3 "		"			‡24 "
19	Dental.	Crinoline.	100°	None.	5 "		"		1/120 inch.	12 "
20	Medium.	"	100°	"	9 "		"		1/108 "	10 "
21	Dental.	"	70°	Salt.	3 "		"		1/96 "	5 "
22	Medium.	"	70°	"	6 "		"		1/96 "	5 "
23	Dental.	Gauze.	80°	Alum.	3 "		"		1/96 "	12 "
24	Medium.	"	80°	"	6 "				1/108 "	10 "

* Length of time the bandage was allowed to stand. † No change after the first half hour. ‡ These tests were made with a round smooth stick instead of the dynamometer, hence no register or estimate of the amount of expansion, though it was sufficient to allow the plaster to be slipped off the stick.

While the actual expansion universally observed was very slight, amounting to not more than a ninety-sixth inch, yet it is sufficient to prove that there is no cause for the fear that pressure sores may develop from contraction of the plaster bandage, which fact in itself is of no small import to the profession at large, as it will serve to make the users of this agent more cautious and more intelligent in their methods of applying it.

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[1] Read before the American Orthopedic Association, at Atlantic City, N. J., on June 10, 1904.

ILLUSTRATIVE CASES OF MYELOGENOUS LEUKEMIA: PRELIMINARY REPORT.

BY

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It is my object to present a history of three cases of myelogenous leukemia, and to call particular attention to the treatment which has been and is being carried out in two of them.

CASE I.—R. R., a male, aged 61, was admitted to the medical service of St. Luke's Hospital, October 18, 1903. Family history negative.

History.—He denied venereal disease, had had typhoid and influenza, the latter three or four times. Ten years ago he slipped and "strained his left side," and has had some soreness in the region ever since. For three years he has been troubled with frequency of urination. For the past three weeks he has been getting weaker and is now suffering from dyspnea and cyanosis.

He appears fairly well developed and nourished. His right eye is artificial, the left reacts normally. His tongue is slightly coated. Pulse is 136, regular, equal, of low tension and small volume, arteries are sclerotic. Heart outline is obscured by surrounding dulness. Apex beat is heard with maximum intensity at end of sternum. A soft systolic murmur is heard at end of sternum and right second interspace. Sounds are rapid and weak. Right lung is hyperresonant, vocal fremitus and breath sounds exaggerated. Left lung is dull throughout its entire area excepting the supraclavicular, infraclavicular and suprascapular regions. Vocal fremitus is lost and vocal resonance much decreased over entire dull area. The abdomen is prominent; a tumor is palpable continuous with splenic, cardiac and pulmonary dulness, filling the left side of the abdomen and extending well over into the right superior and inferior quadrants. Feet are somewhat swollen and edematous. Prostate gland is enlarged. Catheterization immediately after urination results in only a few drops of highly colored urine with a thick sediment. The urine is acid, with a specific gravity of 1,022, no sugar, a trace of albumin, the sediment consisting of amorphous urates, hyaline and granular casts, uric acid crystals, and some squamous epithelial cells. A blood-examination reveals 3,860,000 red cells; hemoglobin, 75%; leukocytes, 45,400, of which 55% were polymorphonuclear neutrophiles; 13% lymphocytes; 25% myelocytes; 7% eosinophiles; no nucleated red cells, no poikilocytosis.

Magnesium sulfate was administered, strychnin and digitalis were given, and hot compresses applied over the bladder to relieve the pain and tenesmus with which he suffered. Anuria became a distressing and prominent feature, and repeated catheterization being futile the encroachment of the tumor mass on the pubic region making it impossible to tell whether or not the bladder contained urine, hypodermoclysis of salt solution was resorted to which was followed by voluntary and fairly copious urination.

On October 25 the leukocytes had increased to 89,400, of which 57% were polymorphonuclears, 6% lymphocytes, 10% eosinophiles, 27% myelocytes, with a few normoblasts visible.

October 27, the morning of the day he died, the red cells numbered 4,130,000; hemoglobin, 70%; leukocytes, 98,000; polymorphonuclears, 59%; lymphocytes, 11%; myelocytes, 27%; eosinophiles, 3%. Since his entrance dyspnea has been a constantly distressing symptom, his respirations ranging from 26 to 40, his pulse from 100 to 136. The entire course was afebrile. He became progressively weaker from the time of his admission, and died on the evening of October 27.

Autopsy.—The liver weighed 2,430 gm. The cut surface was of a pale brownish color; consistency rather soft. Microscopically, the capillaries were everywhere dilated, and contained great numbers of leukocytes, especially myelocytes. The liver cells contained a small amount of brown pigment.

The lungs weighed 276 gm. and 253 gm., respectively. They showed moderate anthracosis and the cut surface was somewhat edematous. Microscopic sections showed distention of the capillaries of the trabeculas, which were filled with blood, and showed many white cells, especially myelocytes.

The heart weighed 360 gm. It was large, pale, and flabby; both auricles and ventricles contained postmortem clots.

The kidneys weighed 148 gm. and 153 gm., respectively; the pelves and ureters were much dilated. The pelves contained a number of adherent antemortem clots, with a quantity of brownish semifluid material. The cortex was diminished on both sides; the capsule adherent in spots. On section were seen many good-sized areas in the cortex, consisting of cellular connective tissue; in many places the connective-tissue stroma of the cortex was increased; also there were areas in which the tubules had entirely lost their lining epithelium and were filled with coagulated fluid. In other places the epithelium of the tubules showed necrosis and disintegration.

The spleen weighed 2,430 gm.; its capsule was thickened and its substance very soft and friable. Microscopic section showed many areas of intense hyperemia under the capsule. The spleen substance was heavily infiltrated with myelocytes; in spots there was some brown pigmentation of the cells of the spleen pulp.

No examination was made of the bone marrow.

CASE II.—Mrs. B., aged 29, was referred to me by Dr. H. M. Sherman, October 9, 1903. She was born in Tennessee, and her family history is unimportant. She has always led an outdoor life. She had scarlet fever when a child, and when 12 or 13 had malaria. She lived in Tennessee and Kentucky before coming to California a few years ago. She has not felt well since her last child was born, five years ago. Menses were always normal, up to the month before coming to me, when she had menorrhagia. One year ago she noticed a swelling in her abdomen, and she has grown continuously weaker. In appearance she is tall, looks pale, and more than the stated age.

Physical Examination.—There is prolonged expiration at the apices of both lungs posteriorly. The heart boundaries are at the third rib above, 2 cm. inside the mammary line at the left, and 4.5 cm. from the sternum at the right. A soft systolic murmur is heard, most distinctly at the pulmonic orifice, and the second pulmonic sound is much accentuated.

The abdomen presents a full rounded prominence occupying the left superior and inferior, and right inferior quadrants. Splenic dulness extends up to the seventh rib. A dull mass continuous with splenic dulness extends to a distance of 7 cm. below a transverse line drawn through the umbilicus, and 6 cm. to the right of the median line. The liver is not enlarged downward, its upper border is at the fifth rib. This mass is tender on palpation. The veins of the legs are distended, and there are ecchymotic spots on the body.

Blood-examination showed red cells 4,200,000, hemoglobin 60%, leukocytes 240,000 of which 70% were polymorphonuclear neutrophiles, 8% lymphocytes, 20% myelocytes, and 2% were eosinophiles, two nucleated red cells were seen; no poikilocytosis.

A diagnosis of myelogenous leukemia was made, Fowler's solution in increasing doses was prescribed, and the husband informed of the grave and heretofore hopeless prognosis. Senn[1] having reported a patient successfully treated by the röntgen ray, this treatment was begun with this patient October 19, the splenic tumor being exposed to rays emanating from a medium high vacuum tube, at an averaged distance of 10 inches, for from 15 to 20 minutes daily. October 24, after six treatments the splenic mass had decreased 2 cm. in its transverse measurement, and the leukocytes had decreased to 132,000. The patient felt better but complained of considerable thirst since the beginning of treatment. November 5, she complained of chills, fever, and anorexia, and had been coughing for three days. There was dulness at the right apex, and faint rales over both apices behind. Temperature was 100.4°, pulse 94. Rest in bed and appropriate treatment was instituted. No tubercle bacilli were found in her sputum. She recovered uneventfully and röntgen ray treatments were resumed after a lapse of 10 days. Fowler's solution was at this time discontinued.

December 11, the leukocytes numbered 100,800 (with a differential count as follows: Polymorphonuclear neutrophiles, 52%; lymphocytes, 1%); myelocytes, 41%; eosinophiles, 6%; one nucleated red cell was seen. The spleen was felt 2 cm. to the right of the umbilicus.

January 11, 1904, the leukocytes had decreased to 80,000, the myelocytes being only 27%, and on February 11 the leukocytes numbered 77,000 with a relative count of myelocytes of only 15%, many of them having a large indented nucleus. There were 4% of eosinophiles, some of which were eosinophilic myelocytes. There was no change in the number of red cells. The spleen extended only to the median line, and below to a distance of 6 cm. below the umbilical line in the left inferior quadrant.

March 11, the red cells had decreased to 3,500,000; hemoglobin, 60%; and the leukocytes had increased to 117,500 (with polymorphonuclears 58%, small lymphocytes 3%, large lymphocytes 5%); myelocytes, 33% (and eosinophiles 1%); a few nucleated red cells were seen. At this time the patient complained that for the last two weeks she had been having chills, occasional attacks of vertigo, headache, and loss of appetite, with considerable tenderness on pressure over the spleen. Treatments were temporarily stopped, she was put to bed, and the apparent toxemia treated with cathartics, and small doses of strychnin. At this time an examination of the spleen showed some enlargement; it extended 4 cm. to the right of the median line, and 8.5 cm. below the umbilical line at its lowest point. This condition lasted a week, during which time there was a slight febrile reaction (the temperature reaching 99.5°.)

March 19, röntgen ray treatments were resumed, and have progressed without interruption to the time of writing.

April 1, a blood-examination showed 3,680,000 red cells, hemoglobin, 70%; leukocytes, 88,000; polymorphonuclears, 64%; small lymphocytes, 5%; large lymphocytes, 4%; myelocytes, 21%; transitionals, 4%; eosinophiles, 2%; an occasional nucleated red cell was seen. This differential count, as the others, was based on a count of more than 500 cells. Her spleen was felt in the median line, and was about 5 cm. below the umbilical line.

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[1] Medical Record, August 22, 1903.

She says she feels well, her appetite is good, and her face has lost its worn look.

From the beginning of treatment to April 1, she received 125 röntgen ray treatments, averaging 17½ minutes for each exposure. There were four intervals when treatment was suspended for 10, 2, 5, and 7 days respectively. On a few occasions a slight reddening of the skin over the exposed part was noticed, but aside from that there was nothing but the characteristic bronzing. The increase in leukocytes and the decided increase in both the relative and actual number of myelocytes, together with the increased size of the spleen noticed on March 11, is interesting. A number of the exposures immediately preceding that date had been made with a tube of a lower vacuum, and consequently producing rays of less penetration. This error in technic has, of course, been corrected. Also at this time the patient had considerable mental worry, which had produced sleeplessness. The febrile attack which she had in March was probably a toxemia due either to the absorption of the hyperplastic splenic tissue or to some intercurrent infection.

The urine, which was examined from time to time, presented nothing interesting except a faint trace of albumin.

Case III.—S. H., seen in consultation with Dr. F. W. Simpson, of San Francisco. This patient was a male, aged 60, a mechanic, born in Canada. Family history, habits, and previous history are unimportant.

About 15 months ago he began to have a tired feeling toward evening, which continued to increase, accompanied by a general weakness. Three weeks later he began to notice slight edema of the ankles in the evening. About this time he complained of fulness and discomfort in the epigastric region, especially after eating. He next noticed a bronzing of the skin, especially the exposed parts. He was first seen by Dr. Simpson in November, 1903. He was of ordinary stature, medium development, poorly nourished, with dry skin. Temperature 97.8°.

His lungs were normal. Cardiac areas were normal; a hemic basal murmur was present. There was edema of both lower extremities. The abdomen was distended; liver slightly enlarged; spleen enlarged downward, extending through the left hypochondrium into the left lumbar and umbilical regions to within 3.75 cm. of the umbilicus.

December 22, urinalysis showed acid reaction; specific gravity, 1,020; urea, .015%; a trace of albumin, a few hyaline casts, mucous strips, a few white blood cells, and amorphous urates.

Blood-examination at the same time showed red cells 2,450,000, hemoglobin 50%, and leukocytes 250,000, of which 51% were polymorphonuclear neutrophiles, 4% were small lymphocytes, 3% were large lymphocytes, 38% were myelocytes, and 4% were eosinophiles. A diagnosis of myelogenous leukemia was made, and Blaud's pills, with Fowler's solution in increasing doses, were ordered. Röntgen ray treatment was begun on December 7, 1903, commencing with daily exposures of 15 minutes each, gradually increasing to 20 minutes, using a medium high vacuum tube at an average distance of 10½ in., the rays being confined to the area immediately over and about the spleen. A steady and progressive diminution in the size of the spleen was noticeable from the first. After 36 treatments the organ disappeared beneath the costal arch. Four weeks after treatment was begun a blood-examination revealed 3,000,000 red cells, hemoglobin 60%, leukocytes 82,500. Differential: Polymorphonuclears 77%, small lymphocytes 2%, large lymphocytes 1%, myelocytes 18%, eosinophiles 2%. Two weeks later (January 17, 1904) the leukocytes had decreased to 52,000, though the actual number of myelocytes remained about the same. At this time the iron and arsenic were stopped, daily exposures of the röntgen ray being continued. January 31 (two weeks later) the red cells were 3,350,000, hemoglobin 65%, leukocytes 26,000, with polymorphonuclears 56%, small lymphocytes 15%, large lymphocytes 2%, myelocytes 24%, eosinophiles 3%. Urinalysis on the same date revealed no albumin, but a few hyaline casts and amorphous urates. On February 8 treatments were reduced to alternate days, because of extreme bronzing and looseness of the skin over the splenic region, and continued so until the end. February 14 the red cells numbered 3,600,000, hemoglobin 70%, leukocytes 15,000, polymorphonuclears 68%, small lymphocytes 8%, large lymphocytes 2%, myelocytes 20%, eosinophiles 2%. Two weeks later the blood for the first time failed to show an improvement over the preceding count, the leukocytes numbering 19,000, the relative percentage of myelocytes remaining about the same. Röntgen ray treatments were discontinued on February 20, and the last blood count (March 13) showed 3,600,000 red cells, hemoglobin 80%, leukocytes 12,600, polymorphonuclears 62%, small lymphocytes 20%, large lymphocytes 4%, myelocytes 12%, eosinophiles 2%.

He received in all 61 treatments. After the thirty-sixth treatment the spleen disappeared beneath the costal margin, and by the forty-fifth treatment was normal in size and position. The liver has also decreased. He began to improve in his general condition from the beginning of treatment and the edema had entirely disappeared by the fourth week. His appetite has improved, his digestion is good, he sleeps well, and has had a gradual return of strength. At the present time he is able to return to his business, and claims to be stronger than at any time for the last two years.

It will be noticed that in Case III, in which the patient is symptomatically cured, and in Case II, in which the patient is improved, there has not been a great improvement in the red cells, the last blood count in the former showing 3,600,000, while in Case II there has been an actual decrease, the red cells at the beginning of treatment numbering 4,200,000, while at the last examination they were only 3,680,000; the hemoglobin ratio has, however, decidedly improved.

The knowledge derived from the textbooks regarding the histogenesis of leukocytes is both fragmentary and misleading. Much confusion has arisen regarding the classification of leukocytes, and in the light of the most recent investigations we must discard preconceived ideas to a very large extent. Thus the conception of the transition from young to old cells through small and large lymphocytes, polymorphonuclear neutrophiles, and eosinophiles, must give way in the light of the investigations of Pappenheim, Walz and Grawitz, Michaelis, Wolff, Taylor, and others. To enter into a discussion of this work is beyond the confines of this paper, and after all, we find these authorities at variance to such an extent, that our conception of the pathology of leukemia is for the present hopelessly tangled up. As a result of these investigations however the following theories may be presented:

1. The large mononuclear leukocyte (larger than the large lymphocyte, from which it is further distinguished by having "an excentrically situated, pale, irregularly spheroid or ovoid nucleus, and a relatively large amount of slightly basophilic nongranular protoplasm") is the mother cell, ordinarily capable of further differentiation into either the ordinary basophilic cell, or into a neutrophilic myelocyte.
2. The two forms of leukemia, lymphatic and myelogenous, are closely associated, and probably forms or stages of the same disease.
3. Lymphocytes are formed in the lymphoid tissue of the bone marrow, and not exclusively in the lymph-glands as formerly supposed.
4. Myelocytes are formed in the bone marrow, and are the parent cells of the polymorphonuclear neutrophiles.
5. In myelogenous leukemia, myelocytes are cast into the blood circulation in all probability because of increased activity of the myeloid tissue of the marrow, which is the only tissue primarily affected in this disease.

Of course, this conception of the pathology of the disease under consideration reduces the treatment here advanced to the role of empiricism, because the splenic enlargement is the result of the leukemia and not the primary lesion. It is contended that this splenic enlargement can be accounted for, because of the function of the spleen in its relation to erythrocytic hemolysis. This function has not been proved however, and besides, we are confronted by the clinical results obtained by Senn, and more recently by Brown, who reports a case of myelogenous leukemia treated by röntgen ray for eight months, with a return of the leukocytes and the spleen to normal. It cannot be argued that this result is due to medication, for Brown's patient, as well as the patient in Case II of my series, had no arsenic for the greater part of the time. It would seem, therefore, that the röntgen ray, penetrating the structures of the spleen or other tissue, was capable of producing tissue changes, which alter, temporarily at least, the symptom-complex of this disease. The effect of the röntgen ray on the deeper structures however, being to a great extent unknown, and as we are confronted by difficulties when we come to consider the etiology of the disease, equally as perplexing as those which meet us when considering its pathology, and as we know the tendency of this disease to improve and to relapse at times entirely uninfluenced by any form of treatment, the note of warning sounded by the *Journal of the American Medical Association*, editorially, in a recent issue is certainly both timely and necessary. Commenting on cases reported by Senn and Brown, undoubted cases of the myelogenous type of leukemia, in which cure was apparently accomplished by this treatment, it urges caution lest we prematurely call these patients permanently cured. On the other hand, we are now utilizing forces as therapeutic measures heretofore undreamed of. These measures demand critical investigation on the part of the medical profession, and if they are to be kept out of the hands of the quack and charlatan, then scientific men must take them up.

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CASE OF ACUTE SUPPURATIVE PANCREATITIS, DEATH IN 66 HOURS: REMARKS.

BY

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Cases of fulminating suppurative pancreatitis are sufficiently rare to warrant the report of the following case. I was called to see the patient by Drs. Harris and Radcliffe, of Bourbon, Ind., and I am indebted to them for the history of the case prior to and after my visit, and for the report of the postmortem findings:

Mrs. W., aged 22, has been married three and a half years. She has had one child and one miscarriage. She had typhoid fever five years ago, and had been having boils for four or five weeks prior to her present illness. She has had frequent attacks of quinsy. Her family history is good. She was taken suddenly with pain in the belly and vomiting at 3 a.m., and was seen at 11 a.m. of the same day, when it was found that she had a temperature of 104° F. and a pulse of 110. She was menstruating (regularly) when she was taken sick, but the flow stopped within 12 hours after the onset of the illness and did not return. At midnight she went into a state of collapse. It should have been stated that the pain at first was general, but most severe in the epigastrium and lower abdomen.

I saw her with Dr. Graham, of Chicago, and her attending physicians, at 5 a.m. (22 hours after the onset of her illness), when her pulse was 160 per minute, temperature 105.8° F. The abdomen was greatly distended and very tender. A bimanual examination revealed nothing, except greater tenderness in both ovarian regions than elsewhere. She had complained considerably of pain here prior to this illness. Her bowels had moved since the attack, the passage being black and grumous. Microscopic examination of the stools showed a very few red corpuscles. Her lips were not pale.

At the consultation, pancreatitis, obstruction of the vessels of the mesentery, ruptured ectopic pregnancy and bowel obstruction were discussed, and it was finally concluded that while a positive diagnosis was not possible, the probabilities were in favor of a ruptured tubal pregnancy. I advised an immediate operation. Dr. Graham advised waiting. The other physicians were divided. The result was that no operation was done. Death occurred 66 hours after the onset of the illness. Postmortem examination 11 hours after death revealed the abdomen bathed in pus. The head of the pancreas was about one-half destroyed. The uterus and appendages, the spleen, the liver and the hollow viscera, were normal.

Remarks.—It would seem that as there was no metrorrhagia, no history of a missed period, and no blanching of the mucous membranes, a diagnosis of tubal pregnancy with rupture or abortion might have been ruled out. But, as against this, there was the history of the one miscarriage of pain and tenderness in the pelvis, together with the fact that at the onset the pain was greatest in the pelvis, and that the tenderness was greatest here even when she was seen by me. The high temperature also indicated a septic process, but as it came on suddenly without any previous symptoms indicating any serious intraabdominal trouble, it was thought that this might be a nervous pyrexia. It was highly probable, I think, that the infection was carried to the pancreas by the blood stream from one of the boils. I can conceive of no pathologic condition that would give rise to such a train of symptoms as was present in this case that would not demand an immediate celiotomy. Unquestionably, many patients presenting such a train of symptoms will die, though operated upon early, but the operation will not kill them, and it will give the best chance for recovery in all cases, and the only one in most cases.

A PLEA FOR THE MORE GENERAL USE OF ETHER, WITH DESCRIPTION OF THE DROP METHOD OF ADMINISTRATION.*

BY

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In presenting this paper, it is my intention to discuss a technic for the administration of ether, suitable for the warmer climates and higher altitudes, as well as the cooler climates, and which eliminates practically all of the disagreeable features connected with the administration of this anesthetic when given by the socalled closed method. There is nothing new or original in what I am about to say, but it is the result of experience with about 300 cases, in 100 of which accurate records were kept.

The routine use of chloroform is the result of habit, and probably also of the ease with which it is administered and with which the patient takes it. Still, if ether is properly given, and the patient well prepared, it will be taken just as easily, and with much less danger. It took an average of 11 minutes to produce surgical narcosis in the 100 cases of which I kept notes. In 40 chloroform anesthesias it required an average of 6 minutes to induce narcosis. So there is not much difference in the time required to produce anesthesia with either drug. By using 10 to 20 drops of the oil of gaultheria on the mask, for 3 minutes before beginning with the ether, we avoid the disagreeable odor of the ether, and the gaultheria also exerts a local anesthetic effect on the nasal mucous membranes, so the patient does not cough and gag. The use of morphin in nervous and alcoholic patients is also of benefit.

Ether is, of course, counterindicated in asthma, advanced pulmonary tuberculosis, chronic bronchitis, and marked arteriosclerosis.

Kidneys.—I do not think its effect on the kidneys is more harmful than chloroform. In only one case did I find albumin present afterward and not before, and this was in a sclerotic man of 50. Carl Beck, of New York, reports finding albumin in 9% of 300 cases. Körte found albumin in 1% of 600 cases. In the majority of cases the presence of albumin is due to a faulty technic, or a careless selection of cases.

Lungs.—Mikulicz[1] reports 1,007 laparotomies, in which a general anesthetic was used; 7.5% of these were followed by pneumonia, with a mortality of 3.4%; while in 273 laparotomies done under local anesthesia, there followed 13.8% cases of pneumonia, with a mortality of 4.8%. Rumboll, of London, reports 1,300 ether anesthesias, with only one case of pneumonia. In my series there occurred no pneumonia or bronchitis directly due to the anesthetic. A female patient, aged 35, developed a pertussis on the second day after a celiotomy for a large tuboovarian cyst; this was followed in two weeks by a rightsided lobar pneumonia. This was surely in no way due to the anesthetic, as the period of incubation in pertussis is from 7 to 10 days. The patient recovered both from the operation and the pneumonia perfectly. L. E. Holmes,[2] in speaking of pneumonia occurring after operation, says: "It is more correct to speak of such cases as postoperative pneumonias. Statistics show that before the days of general anesthetics, pneumonia occurred as frequently or more so after operations than at the present time. If pneumonia is more liable to follow the use of ether than chloroform, which is a question, the difference is so slight that it does not begin to counteract the much greater danger when the latter is administered."

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* Read at the annual meeting, Texas Medical Society, 1904.

Pneumonia, then, is not necessarily due to the anesthetic. The lowered temperature and exposure during operation no doubt contribute to the production of a bronchitis or pneumonia. The operating-room should always be warm, and the patient surrounded with hot water bottles and well covered with blankets.

The comparative mortality of these two general anesthetics alone should decide which one to use always, regardless of the trouble we have in administering it. Bouffleur reports his findings from the statistics of 500,000 ether, and 1,000,000 chloroform anesthesias. In the former the rate was 1 to 16,768, in the latter 1 to 3,355. Gurlt's statistics, based on 157,815 war cases, give a mortality for chloroform of 1 to 2,899. The statistics given at the thirtieth annual German Medical Congress in Berlin in 1901 were for ether 1 to 5,000, for chloroform 1 to 2,023. These are, however, the highest figures I have ever seen. The mortality of different reporters will vary, unless many, many thousand cases are considered, but we may safely say that the mortality from ether is 1 to 15,000, and for chloroform 1 to 3,000.

We should bear in mind that when the heart ceases to beat when chloroform is being given, it is almost impossible to start it again, while in ether narcosis, the heart continues to beat a long time after respiration has ceased.

Preparation of Patient.—Patients should, if possible, be in the hospital several days before the operation. Castor-oil, 45 cc. ($1\frac{1}{2}$ oz.), is given in beer foam a day before operation, followed by light diet. No breakfast is given on the day of operation, though a cup of coffee is permissible. An enema is given a half hour before going on the table. A half hour before the anesthetic is started the patient is given .6 mg. ($\frac{1}{100}$ gr.) of atropin sulfate hypodermically. This prevents the excessive secretion of mucus which is so troublesome in ether anesthesias. It is also a good heart stimulant. If the patient is very nervous, or is an alcoholic 8 mg. to 16 mg. ($\frac{1}{8}$ gr. to $\frac{1}{4}$ gr.) of morphin sulfate is given along with the atropin. Professor Landau,[3] in his clinic, uses 16 mg. ($\frac{1}{4}$ gr.) of morphin and 1 mg. ($\frac{1}{64}$ gr.) of scopolamin, which is somewhat similar, though I have never used the latter drug.

Before the patient leaves the table it is good practice to give an enema of normal salt solution, of 500 to 1,000 cc. This allays thirst and is of value when much blood has been lost. When a patient has been asleep 25 minutes or longer, it is my custom to wash out the stomach, first with a warm solution of sodium bicarbonate 4 gm. to 1 liter (1 dr. to the quart), followed by warm normal salt solution. This is done before the patient leaves the table. The stomach tube is readily passed through the nose, with the patient in the Trendelenburg position to avoid regurgitation of fluid into the trachea. This generally brings away some ether and bile. It usually stops altogether, or lessens materially, the postoperative vomiting. Dr. Gunby,[4] of Sherman, Tex., was the first to employ this measure as a routine. A gag should always be at hand. The simplest, least expensive and one of the most efficient is the one suggested by Prince.[5] It consists of a hardwood lath 10 in. by $1\frac{1}{2}$ in. by $\frac{1}{2}$ in. with beveled edges. This can be inserted in between the teeth, then easily turned on edge, thus forcing the jaws apart without injury to the teeth. A tongue forceps is also necessary in rare instances. Those of Mellish's, shaped like a double vulsellum are best. They do not compress or tear the tongue, nor do they slip. However, a tongue forceps is rarely needed by the skilled anesthetizer.

If the patient stops breathing early in narcosis, which is not uncommon, simply withhold the ether for a moment or two. Later on if he stops breathing, it is generally due to some mechanical disturbance such as the presence of mucus, or the tongue falling back. The lower jaw should be firmly locked upon the upper, and held there during the entire anesthesia. Vomiting may often be controlled by steady pressure on the left phrenic nerve as it lies on the scalenus anticus muscle between the two heads of the sternocleidomastoid. This should be done on the first signs of vomiting. Joos, of Switzerland, was the first to advocate this measure. Prince[6] was successful in 213 cases out of 225 in which he tried it. If respiration ceases during anesthesia, drugs are not of much avail. The patient's head should be lowered and artificial respiration commenced at once, first expelling any ether-laden air which may be present in the lungs or bronchi, then simply follow the method of Sylvester. Dilation of the rectum or of the cervix is of decided value, also the application of strong ammonia to the nose. Rhythmic traction on the tongue should be resorted to if necessary and massage of the heart may be tried also. Any mucus in the pharynx should be carefully sponged out. Strychnin and digitalin may be given during the anesthesia as the pulse indicates.

The eyes should be protected by a large moist cotton compress. It is not necessary to take the corneal reflex. A dangerous conjunctivitis may often result from the dirty finger of the anesthetist. White[7] says that "as yet we have no reliable sign as to when the patient is asleep." Still, if the pupils are contracted and the muscles relaxed, we are generally safe in allowing the surgeon to proceed with his work. Morphin and atropin do not affect the condition of the pupils during anesthesia. A widely dilated pupil is a sign of extreme danger, and demands the instant withdrawal of the anesthetic.

When I first began using ether in this altitude (3,700 feet) I tried the ordinary Esmarch inhaler, but evaporation was so rapid that it was impossible to get the majority of patients asleep, even with the use of excessive quantities of the anesthetic, so at the suggestion of E. J. Mellish, I tried the Laplace inhaler, which is really a modification of the Esmarch. It consists of a wire gauze base, shaped so as to fit the face snugly; over this folds a cap of metal, which has a slit a half inch wide, running lengthwise and crosswise, through which the ether is dropped; they also allow air to pass through to the patient. I use five or six layers of gauze on the wire base, changing it, of course, with each anesthesia. The mask being of metal, may be boiled or scrubbed.

I have also had a thumb piece attached to the left side of the mask, to facilitate holding it in place when the patient struggles. This inhaler has the advantage of being simple and easily cleaned. It takes only an instant to insert fresh gauze, no scissors or apparatus being required as in the Allis inhaler. It is suitable for chloroform as well as ether. It allows the patient enough air, so he does not get the smothering sensation, as with the socalled closed inhalers, with which the patient is put to sleep by the carbon dioxid, more than by the ether. I only used an average of 170 cc. of ether to produce and maintain narcosis, lasting an average of $69\frac{1}{2}$ minutes. Prince,[8] using the ordinary Esmarch inhaler in Chicago, used 180 cc. of ether to produce and maintain narcosis for 46 minutes.

With this mask I use the drop method, that is, I allow the ether to drop on the gauze drop by drop, regulating the size and rapidity of the drops. A simple drop bottle is made by cutting two V's in a cork in opposite sides. A piece of absorbent cotton long enough to reach the bottom of the bottle is placed in one V, and allowed to protrude about an inch, the other V serves for an air vent. The rapidity of the drops may be regulated by inclining the bottle, though it should never be tipped enough to allow the ether to run from the opening in the cork. The size of the drops may be regulated by twisting the cotton wick fine or coarse. Another method which works equally well and does not spoil the cork is to place a match in the neck of the bottle beside the cork, so that it will not fit too tight, and then place in the cotton wick.

If the foregoing technic is carefully followed in giving ether, the patient will take it as easily as chloroform, and with much less danger. With chloroform death generally occurs early in narcosis. Efforts at resuscitation are usually futile. It requires an extremely small amount to produce death after the patient is once asleep, so the anesthetizer who uses chloroform should be especially expert and careful. With ether the heart generally continues to beat after respiration has ceased. It takes a relatively large amount to produce death after the patient is once asleep, therefore it does not require as skilful an anesthetizer.

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SPECIAL ARTICLES

THE GROWTH AND DEVELOPMENT OF THE OXFORD MEDICAL SCHOOL.[1]

BY

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I have chosen as the subject of my address this evening the growth and development of our Medical School. I was led to choose this subject by remembering that since the last visit of our Association to this city in 1868 great changes have occurred, especially so far as the teaching of science is concerned in this University, and more particularly those branches of science connected with the early training of the student of medicine. New professorships have been established, a band of readers, lecturers, and demonstrators has been organized, buildings have been erected and fully equipped, with the object of encouraging students of medicine to join the University for their early scientific training. Again, I remembered that the members of this Association a quarter of a century ago keenly interested themselves in the Oxford Medical School, and took active measures to bring about the changes to which I shall refer.

Twenty-four years ago, in 1880, when our Association held its annual meeting at Cambridge, the then president, Sir George Humphry, in one of the most eloquent and forcible addresses ever given to the Association, used these words:

> Has there not through the whole period of our academic history been enacted a divorce, a most unnatural divorce, between body and mind—that is to say, between the nurturers of the one and the cultivators of the other? Has not Cambridge more than any university, with perhaps one exception, banished medicine from its walls and the men of medicine from its schools? Can good reason be shown why medicine has been allowed to profit so little by the accumulated liberality of many generations, which has given such impulse to art and literature, to classics and theology, mathematics and philosophy, to astronomy and logic?

He pointed out that originally the faculty of medicine had been placed on par with those of divinity and law, and the provisions for teaching and graduating in all these faculties had been made alike.

A little later Humphry gave what was probably the correct answer to his inquiry. For he showed that the College of Physicians in London, founded by the influence of Linacre, with the privilege of licensing practitioners throughout the kingdom, became in time the successful rival of the old Universities of Oxford and Cambridge. As London grew in size and importance the influence of its college increased, and in a short time little was left to the universities beyond the function of giving a preliminary training to the few who could avail themselves of it. In no other European country are there competing corporations similar to our Colleges of Physicians and Surgeons, having power to grant licenses to practise. In other countries the universities are the only avenues to medicine.

THE REVIVAL OF A MEDICAL SCHOOL IN OXFORD.

Why should not the Universities of Oxford and Cambridge take their proper share in the training and education of medical students? This question had for some years previously occupied the thoughts and minds of many earnest men at both universities. Science had already obtained a sound footing. At Cambridge the Honor School of Natural Science had been established as far back as 1851, at Oxford in 1853, while at Oxford the University Museum—the center for scientific work—in which our sectional meetings will be held this week, had been built, thanks, very largely, to the influence and exertions of the late Sir Henry Acland.

A correspondence had been carried on in the *British Medical Journal* for a considerable period, on the subject of the Oxford Medical School, under the title of "A Lost Medical School."

So long ago as January 5, 1878, an anonymous correspondent, signing himself "A Member of Convocation," wrote a long and bitter letter, complaining of the way in which the study of medicine was entirely overlooked at Oxford. As a medical school, Oxford, he declared, had within the preceding quarter of a century entirely ceased to exist. No teaching in the preliminary subjects of medicine was being given, and the medical faculty had recently lost even its nominal existence, and now appeared under the head of physical science and mathematics. He attributed this decadence largely to the influence of the then regius professor of medicine, and to the professor of physiology. They were ably defended by several of their old students, who showed how much the teaching of natural science at Oxford owed to their personal efforts. The controversy on medical teaching at Oxford was carried on with vigor for many months by many writers, and while all, or nearly all, were in favor of making adequate provision for the teaching of anatomy and physiology at the University, some were most anxious to establish a complete medical school, declaring that in many of the most illustrious medical schools in Germany the hospital population was not larger than it was at Oxford. Fortunately, the subject was not allowed to remain simply a subject of controversy. Our Association took it up, and we find that the then chairman of our Parliamentary Bills Committee, Mr. Ernest Hart, at a meeting of the committee in 1879, read a memorial, which it was resolved to send to the Hebdomadal Council, to the House of Commons, and to the recently appointed University Commission. It was published in the *British Medical Journal*[1] just a quarter of a century ago, and signatures were asked for.

This memorial, after pointing out all the advantages likely to follow the establishment of a medical school at Oxford, urged the immediate constitution of a thorough medical curriculum (on the same basis as the medical schools of other English centers), in the following subjects at least:

1. Human anatomy.
2. Physiology.
3. General pathology.
4. Materia medica.
5. Clinical medicine and surgery for beginners.
6. State medicine, including medical jurisprudence and public health.

The memorial was signed by upward of 2,000 members, including a large number of highly influential and wellknown persons; it was forwarded in due course not only to the House of Commons, but also to the Hebdomadal Council of the University, and by them referred to a committee which had been appointed to consider the subject of medical education.

A little later another petition was drafted on very similar lines by an entirely different body of men, and was sent to the Commissioners who were at the time engaged in investgating the affairs of the University. The petition was signed by a large number of London teachers. I will give you a few names: Lord Lister, the late Dr. Bristowe, Sir Wm. Broadbent, Sir Lauder Brunton, Sir Samuel Wilks, David Ferrier, and many others. Oxford graduates in medicine signed it, among others Dr. Southey, Dr. Payne, Dr. Corfield, Dr. Bridges, Dr. Long Fox. It was signed in addition by a very considerable number of the resident professors and graduates, many of whom, I am glad to say, are living with us in Oxford at the present time.

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[1] President's Address delivered at the seventy-second annual meeting of the British Medical Association. Published by courtesy of the *British Medical Journal.*

I have not been able to find that the University Commissioners ever published a report, though the evidence of witnesses was published in a voluminous Blue Book, but it is certain that they considered the petitions favorably.

In November, 1882, Professor Burdon Sanderson was appointed to the newly-founded chair of human physiology and histology at Oxford, a first step toward the establishment of medical education in Oxford on modern lines.

ITS DEVELOPMENT.

Having elected a professor of physiology, it was found necessary to build him laboratories and class-rooms for the purpose of teaching, and on June 5, 1883, the members of Convocation were asked to grant a sum of £10,000 for this purpose. The resolution met with keen opposition, partly on the ground that vivisection would be practised, and partly on the ground that the expenses were beyond the existing resources of the University. The resolution was carried by the small majority of three votes.

On February 5, 1884, a decree was submitted to Convocation to empower the Curators of the University Chest to raise a sum not exceeding £10,000 to defray the cost of the erection of a laboratory and class-rooms for the professor of physiology. A circular had been sent round to those believed to be opposed to vivisection, and only to those, calling upon them to show by their votes their determination not to permit experimental researches in Oxford. There spoke in favor of the resolution Dr. Liddell, the then dean of Christ Church, and the late Sir H. Acland, and against it the late Professor Freeman and the present Bodleian Librarian; placets, 188; nonplacets, 149; and so the decree was carried. Having built the laboratories and lecture rooms for the professor of physiology, it was found necessary to ask for an annual sum of £500 for three years to defray the cost of heating, lighting, water-supply, the salary of a demonstrator of histology, and other incidental expenses. This was an opportunity not to be missed; the antivivisection party, who had loudly contended that the last vote was not representative, at once began an active campaign.[2] A circular headed "Vivisection in Oxford," signed by Mr. Ruskin, Professor Freeman, four heads of Houses, five professors, and a number of fellows, was widely distributed, calling upon Convocation to forbid the establishment of a center of vivisection in Oxford. This gave rise to a counterblast in the form of a circular, signed by the dean of Christ Church, 14 heads of Houses, the regius professor of divinity, Professor Max Müller and a large number of tutors and fellows.

The question came before Convocation on March 10, 1885. There spoke in favor of the grant Dean Liddell, Sir William Anson, and Sir Henry Acland; against the grant Canon Liddon and the then Bishop of Oxford, Dr. Mackarness. Others attempted to speak, but were not given a hearing. One enthusiast in all sincerity, and with much earnestness introduced, I suppose, the most fantastic argument ever put forward in favor of vivisection, namely, that the Gaddarean miracle sanctioned it, inasmuch as it was a wellknown fact that swine in swimming crossed their forelegs, and in so doing cut their own throats. The question was then put to the vote, and was carried by a majority of 168 in a house of 656. Since this division the antiphysiologic party, as they were called, have not, as far as I am aware, been in evidence in any meeting of Convocation.

In the same year, 1855, the faculty of medicine, which had been merged in natural science, was recreated, and Mr. Arthur Thomson, senior demonstrator in anatomy in Edinburgh University, was elected lecturer in anatomy. It needed a man of resolution and fixed purpose to cope with the situation, for when he took up his work in Oxford Mr. Thomson found himself with three students and a small wooden shed in which to teach anatomy—a great contrast to his Edinburgh experience. A sum of money was immediately collected by members of the University interested in the development of the school, and a small temporary lecture-room and a dissecting-room were built. In the following year the curators of the University Chest built, at a cost of £500, a temporary iron-roofed building with rather more accommodation. By 1891 the lecturer's class had grown from three to 67. A sum of £7,000 was now asked and obtained from the University to provide a permanent home for the teaching of human anatomy, and the present excellent building, in which the section of anatomy will be held, was built. In a year or two, largely owing to the success of Mr. Thomson as a teacher, the lectureship was converted into a professorship.

In 1886 a most important statute was passed, by which students in natural science were exempted from the first public examination in classcis known as Moderations. This measure enabled students of medicine, after passing their preliminary examinations known as Responsions, which might be passed before coming into residence, to devote their first year in Oxford to the study of the preliminary subjects in natural science, and so another and most important barrier to the establishment of a medical school disappeared.

In 1891 Sir Henry Acland, who had always interested himself in the study of pathology and bacteriology, inaugurated a new department in bacteriology, and appointed, first, Dr. Menge, of Munich, to take charge of it, and later, in turn, Dr. Bertram Hunt and Dr. Ritchie.

In 1895 Sir Henry Acland retired from the regius professorship, and Sir John Burdon Sanderson was appointed to succeed him, Professor Gotch, professor of physiology in the University of Liverpool, and formerly lecturer in physiology at this University, taking Sir John's chair.

In 1896 the new regius professor, in an open letter to the President of Magdalen, pointed out that the time had come when Oxford medical students should have the advantage of two new departments—pathology and pharmacology—both well within the scope to which Oxford had restricted itself in the building up of the medical school, and in the following year William John Smith Jerome was appointed lecturer in pharmacology and materia medica.

In May, 1898, in spite of the impoverished condition of the Universiiy Chest, Convocation passed without dissent a decree empowering the University to spend £7,500 in erecting new laboratories and lecture-rooms for the joint use of the professors of botany and comparative anatomy, Sir William Anson showing that this expenditure was rendered necessary by the increase in the number of medical students.

In 1899 a generous medical student, Mr. Ewan Frazer, offered the University a sum of £5,000 toward the expenses of building a pathologic laboratory. This sum was accepted, the University at the same time agreeing to supplement it with another £5,000, and to make an annual grant of £250 for upkeep.

Two years later, in October, 1901, the new pathologic laboratory was opened, and at the opening ceremony Dr. Ritchie, reader in pathology, pointed out:

> That, in addition to giving those who were seeking degrees the opportunities of acquiring the necessary knowledge in pathology, it was the desire of the University to provide opportunities for those who wished after graduation to return to Oxford to prosecute researches in pathology and bacteriology, and to this end there had been provided a special room for experimental pathology. In view of the fact that much of the pathologic work of the future must be in the direction of the chemic examination of the products of disease processes, a chemic research laboratory had also been provided.

Already the importance of our new pathologic laboratory has been recognized, as a generous donor, Mr. Philip F. Walker, has quite recently endowed a studentship of the annual value of £200, the holder of which must devote himself to original research in pathology. Who can doubt that this studentship will result in the production of much good work, as we all know that many a man eagerly anxious and in every way fitted to carry on investigations of the utmost importance to mankind is prevented from doing so by want of means.

I must not omit to mention that in 1901 the Drapers Company presented to the University the magnificent medical library, which you will find in close proximity to the museum buildings, and which will ever remain as a memento of their generosity.

In 1902, Mrs. Ogilvie gave to the University a sum of £7,000 for the purpose of creating a readership in ophthalmology, to be held by the senior surgeon to the Oxford Eye Hospital, and this readership is now held by the president of the section of ophthalmology, Mr. Doyne, to whose untiring efforts for many years past we largely owe the excellent Eye Hospital which now exists in this city.

ITS PRESENT STATE.

You are now in a position to judge to what extent the desires expressed by the British Medical Association in 1879 have been fulfilled. It asked that at least human anatomy, physiology and general pathology, and materia medica might be properly taught. You will find that for many years past adequate provision and suitable accommodation and apparatus have been provided for the teaching of these subjects, and that at the present moment they are being taught by professors, readers, and lecturers whose ability and fitness for their important duties cannot be questioned. The Association desired that provision should be made for the elementary teaching of clinical medicine and surgery. In 1883 the existing Litchfield Clinical Professorship was split up into a Litchfield Clinical Lectureship in medicine and one in surgery, and from that date to the present, students are taught in the wards of the Radcliffe Infirmary the bare outlines of clinical diagnosis in medicine and surgery, and are thus fitted to take immediate advantage of the most advanced teaching and the excellent clinical material they find awaiting them at the large metropolitan hospitals.

Yet it would appear from the questions so often asked that little is known by the general public of these important changes which have been carried out here during the past quarter of a century. Less than six years ago a member of our Association, living not much more than 50 miles from this city, was reported to have used these words in an address he was giving at the opening of a medical school in the west of England: "Oxford still misapplies its medical endowments and declines to reorganize its medical faculty." And again, in the same address: "You must go to either Oxford or Cambridge, where the demon of athletics reigns supreme, and where professional studies are depreciated if not despised." Had he taken the trouble to inquire he would not have so glaringly displayed his ignorance, for he would have found that medical students at Oxford and Cambridge were as keen and as steady workers as any in the country, and that every possible facility and encouragement were being given them for the proper carrying on of their work. A further study of a list of prizes gained and important professional posts held during the last few years by past Oxford and Cambridge students would have proved to him that the time spent at these universities was not wasted.

THE MAKERS OF THE REVIVAL.

The building up of a modern medical school, the outlines of which I have very briefly sketched, will always be associated with the names of a few earnest workers. Time will only allow me to mention a few of the most prominent.

When Dr. Acland returned to Oxford in 1845 as Lees reader in anatomy, he found that in spite of the efforts of Buckland, Kidd, and Daubeny, and, too, in spite of the great men who had lived in and influenced Oxford thought during the two previous centuries, scientific studies at the University were almost extinct. The University had not a single laboratory for students of science, and indifference and even open hostility to all subjects connected with science marked this period. It is true that for a time Dr. Buckland had attracted large audiences to his lectures on geology, but in 1845 these classes ceased to exist. "Buckland," said Gaisford, dean of Christ Church, "has gone to Italy, so thank God, we shall have no more of this geology." Two years later Acland first broached the subject he had at heart—the collecting together of all the departments of the natural sciences under one roof, and drew up a memorandum on the subject dated July 27, 1847, which was signed by Charles Daubeny, professor of chemistry and botany; P. B. Duncan, keeper of the Ashmolean Museum; Robert Walker, reader in experimental philosophy; and Henry Wentworth Acland, Lees reader in anatomy. This was the origin of the University Museum in which we hold our sectional meetings during the week. Dean Buckland had been asked to sign but refused. "Some years ago," he said, "I was sanguine as you now are, as to the possibility of natural history making some progress in Oxford, but I have long come to the conclusion that it is utterly hopeless."

It is impossible for me to dwell on the struggle to which the suggestion gave rise or to the enormous amount of time and labor freely given by Acland in gaining over others to his way of thinking. It was not until June 20, 1855—eight years later—that the foundation stone of the museum was laid by the Earl of Derby, chancellor of the University. Every one admits that Acland was the originator of the scheme for a museum of the natural sciences, and was the life and soul of the movement. It is doubtful whether any other man in the University could have brought the same influence to bear as Acland, the friend of Dean Liddell, Dr. Pusey, and Mr. Ruskin. An admirable account of the struggle, with the names of many others who wrought and thought and toiled for the same end, may be found in Atlay's "Life of Acland."

As Acland hoped, the building of the University Museum, furnished with proper apparatus, gave a great impetus to the teaching and study of the natural sciences in the University. Nor was the influence confined to Oxford. I have more than once heard Sir George Humphry say that Acland's success at Oxford gave an enormous impetus and encouragement to the study of the sciences at Cambridge and to the efforts then being made there to develop the medical school.

Professor Burdon Sanderson was appointed to the newly-founded chair of physiology in 1882. In the leading article in our journal on his appointment these words were used:

> Dr. Sanderson has a grand opportunity. He has sacrificed much in order to take up the noble work of organizing a real school of medicine at Oxford. Success in such a work would be the worthy achievement of a lifetime. There will be a universal feeling of confidence that the man who has now put his hand to the plough will not turn back, but will finally surmount every difficulty to his own high honor and to the great gain of the profession of medicine.

All of us present this evening will be able to realize during the coming week, if we have not already done so, how fully Sir John Burdon Sanderson has repaid the confidence reposed in him, and how nobly and successfully he has carried out the work he took in hand some two-and-twenty years ago.

To Professor Thomson, who was appointed Lecturer in Anatomy in 1885, and who was at the time described as a consummate anatomist and a most gifted teacher, we owe a great deal, for I am sure that many generations of students would acknowledge that not only his skill as a teacher, but the friendly interest he has taken in them, has done much to encourage the pursuit of medical studies in the University. Great praise must also be given to Professor Gotch, who came first as a lecturer on physiology under Dr. Burdon Sanderson, and more recently succeeded to that chair. Many others there are connected with the teaching of the preliminary subjects in medicine, whose names will be gratefully recalled by our medical graduates.

The school owes much, too, to others in Oxford interested in medicine, though not themselves medical men. I will recall the names of Dean Liddell, Dr. Jowett, Professor Bartholomew Price, and Mr. Alfred Robinson, all of whom are no longer with us. I will not attempt to enumerate the many good friends and supporters she has at the present time in Oxford, lest I omit the names of some whose names I should least wish to pass unnoticed. Lastly, our school will always be under a deep obligation to those medical graduates in London who for many years have given up much-needed hours of their scanty leisure in order to attend the meetings in Oxford of the board of the medical faculty. We all of us realize that their ripe experience as teachers and examiners, and as men engaged in the practice of their profession, must be of the greatest possible value in helping the board to decide from time to time on its course of action, and I for one should much like to see our board strengthened by a larger number of London teachers than it has at present.

THE INFLUENCE OF THE SCHOOL.

Now let us ask ourselves whether the advantages claimed more than a quarter of a century ago as likely to accrue by associating the Universities of Oxford and Cambridge with medical teaching have in any way been achieved?

For some years a considerable number of medical graduates has been passing forth into the larger world, after spending three or four of the most impressionable years of their lives at one or other of the two Universities. Have they benefited? I cannot for one moment doubt that the majority of these graduates if appealed to would declare with no uncertain voice that they recognized fully that their mixing with men of their own age, who were taking up other subjects for their life-work, and interesting themselves in other mental pursuits, had done much to widen their own general culture, and to develop in them interests outside their own professional work.

Has the University benefited? I think so. The establishment of the medical school on a modern basis has introduced into the University a body of students starting their university career with a definite object in view, and compelled by the very nature of the case to lead a steady, strenuous life, for no student can hope to pass his professional examinations without a due amount of steady work.

But to my mind, the greatest advantage to be noted has been the influence the university student has had on the other medical students of our great metropolitan schools. All of us are familiar with the Bob Sawyer type of medical student as depicted by Charles Dickens—that is to say, we are familiar with him in fiction—but I rather fancy as a living type he has for many years ceased to exist. Many of us can remember the time when any more than usually disgraceful outbreak of rowdyism in London was invariably attributed, rightly or wrongly, to medical students. But this is a matter of the past. The medical student of a quarter of a century ago undoubtedly bore a very bad character in the eyes of the public; he no longer does so. Why the change? I should attribute it, I believe with truth, largely to the influence of the university graduates who have come among them. These university graduates are older men, and have long passed their first experience of freedom from school discipline; have more settled purpose in life, have a clearer and better idea of what is so difficult to define, but so easy to recognize—good and bad form. It is these older students who, in recent years, have largely dominated the standard of life at our London schools, and their influence has been all for good.

Lastly, let me point out that if the standard of general culture is distinctly raised by all the advantages of a university education, as we believe it is, then as the number of those participating in this education is increased the status of the medical profession is certain to be raised. There are some, I know, who do not wish to see a large medical school at Oxford. They argue that the standard should be a high one, and only men of quite exceptional ability should be encouraged to seek the Oxford D.M. degree. Surely this is a somewhat selfish and exclusive policy. Every one would agree that the standard should be high. Some, and I trust most of us, would wish that it should not be too high for the man of average ability with the capacity for work well developed. To such men every encouragement should be given to participate in all the advantages to be gained by a few years' experience of university life.

EARLIER BENEFACTORS.

I pass now from Oxford of today to Oxford of the past, and will recall the names of a few of our greatest men, members of our own profession, who have been associated with the University.

I first mention Linacre, who at the age of 24, in 1484, was elected a fellow of All Souls, and was incorporated a D.M. of the University on his Padua degree. While at Oxford he seems to have devoted most of his time to giving lectures in physic and to the teaching of Greek. Not only was he a profound scholar and a successful physician, but he was also a member of the clerical profession—indeed, the last few years of his life were entirely devoted to clerical work. His wealth was very largely acquired by his numerous ecclesiastical preferments. He bequeathed considerable sums of money to both Oxford and Cambridge for the purpose of encouraging the teachers of medicine, but unfortunately, owing to the imprudent management by his trustees, a good deal of this money was lost. We still have the Linacre Professorship of Comparative Anatomy to remind us of one of our oldest and most distinguished benefactors. It was mainly due to Linacre's efforts that the Royal College of Physicians of London was founded in 1518, he being elected the first president. It was probably due to his influence, too, that a statute was passed in Henry VIII's reign that no person should practise as a physician or surgeon until examined and approved by the bishop of the diocese in which he lived, who was to call to his assistance expert persons in the faculty. This privilege of the bishops continued for a very long period.

For some years Harvey, the discoverer of the circulation of the blood, dwelt at Oxford, where he worked at anatomy and made many dissections. He was incorporated a D.M. of the University, and in 1645 by royal mandate was made warden of Merton College, but did not retain the post long, as the following year, after the surrender of the city to the Parliamentarians, he returned to London.

It was while Harvey was at Oxford that another great anatomist who studied under Harvey was preparing himself for future fame—Thomas Willis, well known to all of us by his description of the anatomy of the brain, and more particularly by the circle of Willis. Willis was born of Oxfordshire parents within a few miles of our city, and for many years practised his profession in a house opposite Merton College.

Associated with Willis was Christopher Wren, the architect of St. Paul's Cathedral. Born in 1632, Wren left school at the age of 14, and was engaged by Sir Charles Scarburgh to act as his assistant and demonstrator at his lectures on anatomy at Surgeon's Hall, London. Three years later, at the age of 17, he was entered as a fellow commoner at Wadham, and at 21 was made a fellow of All Souls, and at 28, Savillian professor of astronomy. It was while at All Souls that he made elaborate drawings to illustrate Dr. Willis's work on the anatomy of the brain.

In 1679 he made experiments which led him to the invention of a method for the transfusion of blood from one animal to another. It was at the age of about 30 he began to follow the profession of architecture, and one of his first works was this Sheldonian Theatre, the first stone of which was laid in 1664 and completed five years later. At the age of 9 he was capable of writing an elegant Latin letter to his father, but it was science and mathematics that attracted him. A splendid mathematician, a great experimentalist, always working out the most difficult scientific problems, a distinguished astronomer, and a famous architect, all combined in one. No wonder that Barrow described him as a boy a prodigy, as a man a miracle, nay, even something superhuman. He died aged 91.

It was about this period that the Royal Society sprang into existence, largely, as is asserted, by the influence and cooperation of Oxford men. About 1648 Willis, Seth Ward, Robert Boyle and other members of the University, distinguished in theology and science were accustomed to meet in the rooms of Dr. Wilkins, the warden of Wadham, for the purposes of discussion. Ten years later the majority of them had left Oxford and taken up residence in London, where they organized the Royal Society in 1662.

I now mention our greatest benefactor, John Radcliffe, who was born in 1650 and died in 1714. At the age of 15 he became an undergraduate of University College, ten years later he took his B.M. degree and his D.M. at the age of 32. For nine years he practised as a physician in Oxford, and we are told that he incurred the anger of the older practitioners in the town because he paid so little regard to professional conventionalities. In 1684 he moved to London, and his apothecary tells us that he had scarcely been in town a year before he was earning more than 20 guineas a day. His lively conversation, it was said, soon made him the most popular physician in

London. We are told that he succeeded more by his ready wit than his learning, for while at Oxford his library consisted of some phials, a skeleton, and a herbal. In 1692 he lost some £5,000 owing to the capture by the French of a ship in which he was interested. When his friends condoled with him he replied that it did not matter, for he had only to go up 250 pairs of stairs to make himself whole again. If this be true, the physicians' fees in those days would seem to have been very much higher than at present. At any rate, we can admire his philosophic way of putting up with a financial loss—a little more work will put me right again.

If it be true that his witty tongue helped him to succeed in his profession, it is also certain that it lost him many influential patients. Early in his London career he gave great offense to the Princess Anne by neglecting to visit her when sent for, and by saying that her illness was nothing but the vapors. I suppose in these days we should give the disorder a longer and more classic name. Later, he greatly offended King William III by telling His Majesty, after inspecting the King's swollen ankles, that he would not have the King's two legs for his three kingdoms; a remark so free that the King never saw him again. A few months before his own death he fell into great disgrace, because, when summoned to attend Queen Anne in her last illness, he delayed his visit, and was said to have replied, that as he understood Her Majesty's case was desperate, it would be best to let Her Majesty die as easily as possible. This sounds rather brutal, but it was said in reference to the Queen's wellknown great antipathy to him, and Radcliffe urged that he feared his presence would do more harm than good.

In 1695 the King offered him a baronetcy, which was declined. We are told that though rough in manner and fond of flattery, he was generous to those in need, a good friend, and a munificent patron of learning. He died in 1714, and lies buried in St. Mary's, our University church. Although he was given an almost royal funeral by the University who benefited so greatly by his bequests, his grave was left more than 100 years unknown and unnoticed. In 1819, during some alteration in the church, on disturbing the pavement his coffin was discovered, not even a slab marking the spot where he was buried. A simple engraved slab now marks the spot, near the north entrance. During his life he gave largely to his old college and to several charities, and at his death he left by will his Yorkshire estate to the masters and fellows of University College forever, to be held in trust for the founding of two Radcliffe Traveling Fellowships, the overplus being paid for the purpose of buying perpetual advowsons for the college. In addition he left £5,000 for the enlargement of the college, and £40,000 for the building of a medical library. With money derived from his estates two other buildings were erected in this city by his trustees, the Radcliffe Infirmary and the Radcliffe Astronomical Observatory, and money was further granted toward the building of the College of Physicians in London.

The Radcliffe Library, in Radcliffe Square, completed in 1747, is one of the most conspicuous buildings in this city, and doubtless will be visited by all of you.

It was in this building that your first meeting at Oxford was held in 1835, on your third anniversary. In it you will find a very pleasing portrait of Radcliffe, painted by his friend, the King's painter, Kneller. I cannot refrain from recording a passage of wit between these good friends. They lived in adjoining houses, and for the sake of convenience Kneller had allowed Radcliffe to make a doorway in his garden wall; in course of time this doorway became a source of great annoyance to Kneller, as Dr. Radcliffe's servants frequently used it to gain entrance to his garden and pick the flowers. At last, in a fit of anger, Kneller wrote to Dr. Radcliffe, and told him that if he could not control his servants he should be obliged to take the door away and brick the aperture up. Radcliffe at once sent his servant to Kneller to tell him that he might do what he pleased with the door so long as he did not paint it. Kneller having received the message, was equal to the occasion, and at once replied, "Go tell Dr. Radcliffe, with my services to him, that I can take anything from him but physic." Fortunately for Oxford, Radcliffe was not happy in his love affairs, for we are told that after passing many years for a misogynist, the result of an early disappointment, he again in his old age fell in love with the daughter of a wealthy citizen, but the match was eventually broken off—a very short time before the appointed wedding day; had it not been we might well have lost our library, our infirmary, and our observatory.

Thomas Sydenham (1624-89), who has always been regarded as one of the chief masters of English medicine, was also connected with the University. His career at Oxford was certainly a chequered one. At the age of 18 he entered as a fellow commoner at Magdalen; a few months later he joined the Parliamentary forces and fought against the Royalists; four years later, 1646, when Oxford and the other royal garrisons surrendered, he resigned his commission, and was on his way to Oxford when he chanced to meet with Dr. Thomas Coxe, who was attending his brother, and who persuaded him to take up medicine. He then joined Wadham College, and the following year was elected to a fellowship at All Souls. In 1648 he obtained his degree of B.M. in a very irregular manner, as he was created B.M. by command of the then Chancellor of the University without having taken a degree in arts and with little knowledge of medicine. For a time he studied at Oxford under the regius professor of medicine, whose lectures, we are told, consisted merely in reading the ancient medical classics. Again he joined the army, and became a captain of a troop of Parliamentary Horse. On one occasion he was left on the field of battle among the dead, and lost, as he tells us, a great deal of blood. On another occasion he nearly lost his life at the hands of a drunken soldier, who broke into his bedroom at night and discharged a pistol at his breast. Fortunately the soldier's left hand was interposed and was shattered by the bullet, while Sydenham escaped unhurt. Having again retired from the army he studied medicine at Montpellier, and a year or two later began practice in London. In 1676, at the age of 52, he incorporated as M.B. at Pembroke College, Cambridge, on his Oxford degree, and immediately took the M.D. of that university. It is supposed there were political reasons for his not taking the Oxford degree. By his methods of studying disease and by his masterly description of diseases Sydenham is admitted to have made an epoch in medical science. In 1894, a life-sized statue of Sydenham was presented to the University Museum by Sir Henry Acland and others.

Time will not permit me to mention others who attained the highest positions in the medical world. I can only draw your attention to the fact that during the first century of the existence of our College of Physicians, of the 34 presidents whose names are recorded, 21 were graduates of the University of Oxford.

There are, however, one or two other benefactors whose names I must mention, such as Dr. Mathew Lee, of Christ Church, who, after practising some years in Oxford, went on to London, became a fellow of the College and in turn censor and Harveian orator; was for some years physician to Frederick, Prince of Wales, and died in 1755. He bequeathed a sum of money to be held in trust by the dean and chapter of Christ Church for the purpose of paying a reader in chemistry and one in anatomy.

Lord Litchfield, by his will dated 1772, left money for the foundation of a professorship of clinical medicine in association with the Radcliffe Infirmary. He stipulated that the professor was to be elected by Convocation, that he was to visit his patients daily from November to March, and was to read a lecture two days a week; and further, he provided that if the professor neglected his attendance he was to forfeit a year's stipend to the infirmary, and to pay £5 to that institution for each lecture omitted. I am much afraid that this most wise stipulation was never really enforced. In 1883 this professorship was converted into a lectureship in medicine and in surgery.

Dr. George Aldrich, by his will dated 1803, left a sum of money for the endowment of a professorship of the practice of medicine, which professorship goes to increase the very inadequate stipend of the regius professorship.

THE FUTURE OF THE SCHOOL.

I have this evening spoken of the past benefactors to medicine in this University, and of those who in our own generation have helped to keep the lamp of medicine burning; but what of the future? We all of us realize that the provision which has to be made for a modern scientific education is of necessity a costly undertaking, involving the building and upkeep of museums and laboratories, in addition to the supply of costly apparatus, and last, by no means least, the adequate endowment of professorial chairs, readerships, and lectureships. I should wish more particularly to emphasize this latter point, because for many years past the amount of work done in the way of lectures and instruction in the scientific departments of this University by some of our professors, readers, lecturers, and demonstrators for a totally inadequate remuneration is well recognized and much deplored by all who are interested in the teaching of science at Oxford. Fortunately, the urgent need for fresh endowments and the appeal to persons of wealth and position in this country has been made by the most influential men of the day. May I quote the words of the patron of our Association—His Majesty the King? In his gracious reply to the loyal address of the sister University, on the opening of the new science buildings at Cambridge on March 1 of the present year, he made use of these words: "The older universities must receive new endowments, if education within my realm is to be kept at its proper standard of efficiency."

Less than a fortnight ago a most influential deputation, on which both Oxford and Cambridge Universities were represented, waited on the Prime Minister to urge the Government to give substantial money grants to the various universities throughout the country. While receiving a sympathetic audience from both the Prime Minister and the Chancellor of the Exchequer, the members of this deputation were very plainly told by the latter that the Government would not be able to find them the money.

Our University owes its existence to generous benefactors in the past, and one can but hope that in the present and in the future these new endowments of which His Majesty spoke, and of which the University now stands in such urgent need, will be forthcoming. We have seen in the last decade large sums of money given or bequeathed for the endowment of education in many of the big provincial centers, Liverpool, Manchester, Birmingham. One can admire and understand the local patriotism which incites such gifts, but one finds a difficulty in understanding how it is that a university such as this, with its noble traditions and its long roll of illustrious dead—a university which for many centuries has been, with the sister University of Cambridge, the acknowledged training school of the leaders of thought and action in this country—fails to appeal to those fortunate individuals who are in a position to do their country and education a service and to enroll their names in that imperishable record of benefactors whose memories we honor and extol. Surely the explanation must be that the needs, the urgent needs, of the University are not widely known and are insufficiently recognized.

PREVIOUS MEETINGS OF THE ASSOCIATION IN OXFORD.

In conclusion, let me turn from the subject of the Oxford Medical School to that of our own Association, and let me refer very briefly to past meetings of the Association in the city. As most of you are aware, the Association was founded at Worcester, in 1832, chiefly by the energy of Mr. (afterward Sir Charles) Hastings. I am glad to note that at the first meeting Dr. Kidd, the regius professor of this University, was present and was elected a member of the first Council. Three years later the Association held its first meeting at Oxford under the presidency of Dr. Kidd; the Council met the day before and arranged all the details of the meeting, which was attended by 300 members.

The chief meeting was held in the Radcliffe Camera, the dome-shaped building to which I have alluded, and one or two incidents connected with this meeting are worth recalling. The address in medicine was delivered by Dr. Pritchard, and the University conferred on him the degree of M.D. Although this same Dr. Pritchard had studied in Oxford, he had been unable to take his degree because he was a Dissenter. The conferment of the degree in this way was taken at the time as a proof that a more liberal spirit was beginning to exist in the University. The regius professor pointed out that such a degree could not be procured by any ordinary medical student with less than 11 years' classic servitude, and application—mark the words classic servitude, as they imply that even in those days some students did not take kindly to the classics.

The chief attraction of the meeting was the public performance of lithotrity by Mr. Costello before a very crowded audience in the Town Hall, the school of anatomy not being sufficiently large for the spectators. You will notice that at that time a dissecting-room seems not to have been thought an unsuitable place for a surgical operation.

It was remarked at the time that not a single Oxford graduate in medicine attended to support the regius professor of medicine.

The second meeting of the Association at Oxford, which now numbered 1,630 members, was held in July, 1852. Dr. Ogle, the regius professor, was the president, and the meetings, which extended over two days, were held in the House of Convocation. On this occasion the honorary degree of D.C.L. was conferred on three members, Sir Charles Hastings, the founder; Dr. John Forbes, of London; and Dr. John Conolly, of Hanwell. In the evening of the first day, the Association was entertained in the Radcliffe Camera by Dr. Acland.

Another sixteen years passed, and in 1868 the Association visited Oxford for a third time. It had now grown to a total membership of 3,672, of which some 500 attended the meeting. Dr. Acland, the regius professor, presided, the general meetings being held in the hall of Christ Church, while the sectional meetings, of which there were five, were held in the University Museum. Among the sectional secretaries on that occasion, I find the name of W. S. Church, M.A., B.M., now president of the College of Physicians, who has kindly undertaken to give the address in medicine tomorrow evening. I am glad to add that the three local secretaries, Dr. Gray, Dr. Tuckwell, and Mr. Edward Chapman, now a member of Parliament, are all living. The honorary degree of D.C.L. was conferred on the following members: Sir Charles Locock, the Rev. Samuel Haughton, M.D., Dr. Gull, Mr. James Paget, Mr. John Simon, and Mr. James Syme.

Today our Association numbers over 19,000 members, and we are expecting more than three times the number who visited Oxford in 1868. More than this—and it is, I think, a matter for hearty congratulation—the influence of our Association has grown world-wide, for since 1868 branches have been formed throughout India and in nearly all of our colonies. This truly remarkable growth of our Association in magnitude, power, and influence has been due to the fostering care and unremitting labor of many workers. Into our hands they have entrusted a great inheritance, and it will be our duty to see that no negligence nor unwise and ill-considered action on our part tend in any way to jeopardize its further growth and development and power for usefulness.

REFERENCES.

[1] April 26, 1879.
[2] Ibid.: Vol. i, 1885, p. 548.

OUR SANITARY NEEDS, WITH SPECIAL REFERENCE TO THE NATIONAL HEALTH.*

BY

SIR WILLIAM SELBY CHURCH, Bart.,

President of the Royal College of Physicians of London; Consulting Physician to St. Bartholomew's Hospital.

I feel very deeply the honor which your Council has conferred on me in requesting me to give the address in medicine at this meeting of the Association, and feel still more deeply the difficulty of the task—a difficulty which arises not only from my own incompetency, but also from the vastness and complexity of the subject.

MEDICINE IN 1868.

Medicine having for its object the mental and bodily health of mankind is closely interconnected with the varying circumstances that bear on the conditions under which we live. The prosperity of the nation, the conditions under which the labors of the population are carried on, the state of commerce and of the arts and sciences, all react on the health of the people, and nothing which concerns the life of the nation is foreign to the subject. Every advancement in science and its application to the arts has a bearing on medicine. To pure science it is directly indebted for means by which the various organs of the body can be examined, the presence of disease demonstrated, the changes in our bodies accompanying disordered health recognized, and, perhaps, more important than all, the exact methods of science point out the way in which the more complex questions presented in living bodies should be studied. It would occupy too much time, even if I were competent for the task, to trace a portion of the benefits which the exact sciences have conferred on clinical medicine during the years that have passed since the Association last met in this university city, a meeting at which addresses which still stand out as memorable among the numbers which have been given on similar occasions were delivered by Acland, Rolleston, and Gull, who will for many years yet to come be remembered not only as ornaments of our profession, but as having done much to promote medical and scientific knowledge—leaders to whom we can still look for guidance for the manner in which the different subjects they treated of should be approached.

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* Address in medicine, at the annual meeting of the British Medical Association, at Oxford, July, 1904. Published by courtesy of the *British Medical Journal.*

The meeting of the Association in 1868 is for another reason of unusual interest, for it may be taken as marking the date of the parting of the ways. Up to that period our conceptions of the causes of morbid changes in the body had not undergone any great modification from the views held by the originators of pathology—Morgagni, Hunter, Baillie, Carswell, and others. Our knowledge of the infective processes leading to inflammation and suppuration may be said to have been at that time nonexistent. The symptoms and course of the specific fevers, as well as the circumstances under which they occur, had been thoroughly recognized and worked out, but we were still ignorant of the true nature of the specific poisons on which they depended. Medicine remained open to the taunt to which Bacon 200 years before had given utterance: "That it had rather professed than labored and yet more labored than advanced, as the pains bestowed thereon was rather circular than progressive, for I find great repetition and but little new matter in the writers on physic."[1]

It was in the year preceding the Oxford meeting that Lister read at Dublin his paper on the "Antiseptic Principle in the Practice of Surgery,"[2] founded on the results of his treatment of compound fractures, abscesses, and wounds[3] during the preceding three years. It was at this time also that the infectivity of tuberculous matter began to be generally recognized; 20 years before, Klencke[4] had produced tuberculosis of the lungs and liver in rabbits by inoculation with human tubercle, but he did not pursue his investigations, and his experiments attracted little notice, and it was not until Villemin's work in 1861,[5] and the account of his numerous and careful experiments published in 1868,[6] that attention was again drawn to the subject. Villemin's work was carried on by Sir J. Burdon Sanderson,[7] late regius professor of medicine in this University, who explored and demonstrated the channels by which the tuberculous process is disseminated within the organism, yet many years had to elapse before Koch, in 1882, demonstrated that the presence of the tubercle bacillus in all tuberculous degenerations was the essential element.

THE GROWTH OF BACTERIOLOGY.

I have thought it desirable to remind you thus very briefly of the position in which medical knowledge stood in 1868, before drawing your attention to some of the remarks made by Sir W. Gull, in his address on "Clinical Observation in Relation to Medicine in Modern Times," which he treated with the breadth of view and felicity of generalization which was characteristic of his mind and teaching. It was the adaptation of Pasteur's work and discoveries to medicine, and Koch's demonstration of the bacillus of tubercle in 1882, which led to the revolution which has taken place in our conceptions of the nature and cause of many forms of disease. While I have no intention of attempting to review the changes that the last 35 years have witnessed, it may be nevertheless instructive as well as interesting to turn to some of the passages in Sir William Gull's address, and mark how great is the gulf which separates the medicine of the present day from that of our immediate predecessors. In speaking of fevers Sir William Gull[8] said: "In the consideration of these, smallpox stands first, since through vaccination we have clearly demonstrated, at least for one form of fever—and it seems but fair to infer the same for others—that recovery and subsequent immunity are produced by a process of impregnation and assimilation, and not, as is still maintained by some, of elimination;" while rejecting the theory of zymosis, by which he says "we are carried back to the days of ignorance when concoction and maturation were made to explain whatever was obscure," he suggests that "what really constitutes the specific character of each fever is the attendant tissue change which, when completed according to the special poison, is followed by convalescence"—although, I think it is pretty clear that he contemplated by tissue changes an alteration in the solid tissues of the body, his words do not inaptly apply to the changes which we believe are undergone by the blood. In his Harveian oration, delivered two years later, he again refers to the subject of infectious diseases, saying "that they spread by emanations from the sick must have been long known, and that such emanations are of a solid nature we may infer from the fact that they may be dried and conveyed from place to place, but in what state, whether as amorphous material or as germs we know no more today than was known a thousand years ago."[9]

How different is the position now! Already we are acquainted with the specific organisms which are the *causa causans* of many of the febrile diseases, and can safely assume that the others in which we have not yet discovered the microorganisms, are due to similar agency. How much more hopeful is the outlook now than when Gull said, "It is now universally acknowledged that the art of medicine is all but powerless in controlling the large class of diseases called zymotic! It may be there do not exist nor may ever be formed by art antidotes to their poisons. But should it be otherwise, my duty at this moment still seems clear—that I ought not to stir up your minds to search for such secrets of nature. Upon this search too much time has already been wasted, and an incalculable amount of life has been lost. Specifics will no doubt continue to be sought after, but preventive medicine will more largely obtain the suffrages of the best informed members of our profession."[10] Truly, as he says in another place, "the knowledge which seems exhaustive today, may in the changing circumstances of the world be defective tomorrow." For it now seems probable that most if not all of these diseases, as we already know of some, bear with them their own antidote, and that as Sir John Sanderson has said, "Every injurious substance which is capable of being assimilated (in the physiologic sense) by a living cell is also capable of exciting in it an abnormal reaction antagonistic to the first."[11]

I have not the requisite knowledge to enter into the most interesting but most difficult subject of immunization and the phenomena presented by the agglutinative, bactericidal, and hemolytic properties of the blood-serum under certain conditions. The investigations which have been so actively carried on in recent years in these directions have greatly increased our knowledge of the blood and its component parts, and we trust they may lead to still further advances in the field of serum-therapeusis—a field which offers a hopeful prospect for enabling us to counteract the bad effects to which specific disease-producing organisms are capable of giving rise in the living body.

INTERNAL SECRETIONS.

Another most important step onward in our physiologic knowledge and its application to the treatment of disease was made when we became acquainted with the connection existing between that group of symptoms which we now call myxedema and disease of the thyroid gland. Sir William Gull himself, in 1873, was the first to draw our attention to the cretinoid state supervening after adult age,[12] but it was from the researches of Ord, Reverdin, Kocher, Horsley, and Murray that the existence of what are spoken of as internal secretions of glands was suspected and proved.

The brilliant results from the administration of the thyroid gland or its extract in myxedema raised our hopes and expectations that we might, by the administration of other glandular extracts, obtain benefit in those morbid conditions in which it appeared probable that an internal secretion bears a part. As yet these expectations can hardly be said to have been fulfilled. Neither in diabetes nor in morbus Addisonii has the administration of the pancreas or the suprarenal glands been followed by any marked or constant beneficial effect on the disease. The researches of Schäfer and Oliver have proved the physiologic action of the extract of the suprarenal glands to be both constant and powerful, and further researches may lead us to a better knowledge of the physiologic functions of the internal secretions and enable us to make therapeutic use of them. Hitherto we have used these glandular extracts to supply the place of the normal secretions which we have inferred might be absent owing to disease being present in the secreting organ. Is it not possible—nay, probable—that it is not this simple absence but rather the presence of a vitiated secretion acting prejudicially on the organism which produces the evil with which we have to contend?

Further observations by Dr. Oliver [13] show the remarkable effects which are produced on the blood-pressure by the administration of small doses of creatinin, uric acid and its compounds, glycogen, xanthin, and the purin bodies contained in food; while equally active depressors of arterial pressure are found in bodies so closely allied by chemic composition to those which increase it, as are creatin, hippuric acid, and hypoxanthin.

TROPICAL MEDICINE.

In other lines of research the progress made is not less remarkable. The ancients were well acquainted with the commoner forms of intestinal worms, although they were ignorant of the remarkable phases presented in their development. They have left us full and accurate descriptions of the clinical symptoms produced by them and the means which should be adopted for their cure.[14] Until a very few years ago we could hardly be said to possess more knowledge than our predecessors of the part played by the animal kingdom in the dissemination and propagation of disease in man. It had long been recognized that man shared with animals the liability to be affected by certain maladies—for example, rabies and glanders—but no suspicion existed of the important part which the lower orders of creation play in the maintenance and diffusion of some of the most widespread and deadly of the diseases which affect man.

Slowly and gradually the natural history of malaria and yellow fever has been worked out. M. Laveran in 1880 first discovered and described the organism of paludism in the blood, and his discovery, like that of the tubercle bacillus by Koch in 1882, forms an epoch in the history of medicine. Laveran's observations were carried on by many others, of whom I must mention Marchiafava, Bignami, Celli, and Golgi, who, together with many other distinguished Italian scientists, did so much to make us acquainted with one portion of the life-history of the malarial parasite, many years before its complete life cycle had been discovered by the suggestions and reasoning of Manson, and the laborious and persevering investigations of Ross. Already the work done, mainly under the auspices of the Liverpool and London Schools of Tropical Medicine, has begun to bear fruit not merely by increasing our knowledge of malaria and certain other forms of tropical disease, but by having in the short space that has elapsed had a marked influence in diminishing sickness and mortality in places which were so deadly to European life, that trade could hardly be maintained with them. Nor is it only in these hot-beds of fever that beneficial results have been obtained, as Professor Boyce's account of antimalarial measures taken at Ismailia shows. The result of the sanitary work put in action by the authorities of the Suez Canal has been eminently satisfactory. The attacks of malaria in a population consisting of about 1,900 or 2,000 Europeans and 7,000 natives have fallen from 2,089 in 1897 to 209 in 1903, and the mortality has correspondingly lessened. These highly satisfactory results have been obtained at comparatively small expense, the Canal Company having expended £4,400 in filling up and draining the marshy ground, while the special antimalarial forces—the Drainage and the Petroleum Brigades—have together cost £720 a year, figures which contrast most strikingly with a previous "expenditure of £15,000 on works designed with the intention of improving the sanitary condition of the town and £13,000 in medicine and medical attendance,"[15] without the production of any beneficial results.

The mystery surrounding the sleeping-sickness of Africa has been partially dissipated by the discoveries of Castellani, Bruce, and Nabarro, and the remarkable life cycle of the trypanosome is in a measure unraveled. A similar chain of events appears to occur in Texas fever, and probably in other morbid states the lower forms of animal life play a much more important role than is yet recognized. Recent investigations by Leishman, Donovan, Ross, and Christophers tend to show that the condition of chronically enlarged spleen and cachexia we have been accustomed to ascribe to malaria is more probably dependent on another distinct microorganism.

Interesting as is the connection which we now know exists between the lower forms of life and the presence of disease in man, I must not occupy your time by further reference to it, and I must pass by the additions to our knowledge of the nervous system and its disorders, of the blood, and of the application of electricity in its various forms to the diagnosis and treatment of injuries and disease, for it is not my intention to attempt to review the progress of medicine during the years that have elapsed since the Association last met in this place.

THE PRINCIPLES OF PREVENTIVE MEDICINE.

It appears desirable that I should remind you thus briefly of some of the more striking changes which have taken place in our conceptions of diseases, their causes, effects, and our means of opposing them, for events crowd so rapidly on our notice in these days that we are apt to forget how short a time has elapsed since the veil was raised, and we began to see—dimly, it may be—the connections which exist in disease as well as in health between man and his surroundings. Herbert Spencer's "environment" and Darwin's "survival of the fittest" depend to a great degree on forces which, when these phrases were first made use of, were not present to the minds of their inventors.

The exact knowledge, based on scientific research and demonstration, that we now possess of the cause and nature of disease has greater influence on preventive or State medicine than on clinical treatment. Recognizing the sources of our ills we are in a position to avoid and guard ourselves against them. To the general public the advances made are most palpable in the triumphs of modern surgery, which is in some danger of being led into excesses by the impunity with which operative measures can now be undertaken. This knowledge of facts in the place of the theories of former days leads me on to a consideration of the position in which medicine has stood in the past and that which it should now hold in relation to the public and the State.

IN GREECE AND ROME.

It is to be regretted that we know so little of the position that the practitioners of medicine held in the State in the Greek and Roman worlds. In Greece, at the period of its highest intellectual activity, we know, from the references made to physicians by Plato and others, that they were men of learning and possessed of considerable influence. From Plato, also, we learn that there were two or more distinct classes or grades of practitioners, for in the Laws the Athenian asks Cleinias: "You are aware that there are two classes of doctors?" *Cleinias:* "Yes, and did you ever observe that there are two classes of patients in States—slaves and freemen; and the slave doctors run about and cure the slaves or wait for them in the dispensaries . . . but the other doctor, who is a freeman, attends and practises on freemen?" and the Athenian stranger goes on to describe the differences in the mode of practice of these two classes of doctors.[16]

From this passage, also, we learn that the Greek cities at that time possessed dispensaries—*ἰατρεὶα*—places where the slaves and probably the poorer citizens were wont to consult the doctors. From another passage in the Gorgias, it appears that in the Greek cities there existed medical officers who were appointed by the municipality; for, when speaking of the power of rhetoric, Gorgias says "that if a rhetorician and a physician were to go to any city, and had there to argue in the ecclesia or any public assembly which of them should be elected State physicians, the physician would have no chance." *Socrates:* "You were saying, in fact, that the rhetorician will have greater powers of persuasion than the physician, even in a matter of health." *Gorgias:* "Yes, with the multitude." *Socrates:* "You mean with the ignorant."[17] I fear we know to our cost that in matters of health the rhetorician and the politician are still not infrequently of more influence with the multitude than the physician.

Very little is known of the position of medical practitioners in Rome during republican times; the wealthier Roman families appear to have kept in their retinues slaves or freedmen who had received some instruction in medicine and surgery, most probably, in some of the Greek colonies in Italy, but in Imperial Rome we know that in medicine the larger cities possessed some municipal organization similar to, if not identical with, that which had been in force in earlier Greek times. Before the time of Antoninus Pius (A. D. 136), recognized medical practitioners were exempt from ordinary civil obligations and local taxation, but their numbers had so largely increased by his time that it became necessary to limit the number of recognized practitioners in each city who should enjoy this immunity; and Pliny, who seems to have had nearly as bad an opinion of our profession as Cato, complains that the law unduly safeguarded physicians, and that they alone could kill a man with impunity.[18]

The disorganization, which after the fall of Rome affected every community in Western Europe, envelops the subsequent position of medicine in obscurity. During these unsettled times the doctors appear to have been attached to persons rather than to communities; and this condition prevailed to greater or less extent until comparatively recent times, and is even now perpetuated in the honorary posts attached to the royal families.

Time does not permit me to sketch, however briefly, the steps by which in this country the medieval guilds of barbers, barber-surgeons, and surgeons became gradually developed into the surgeons of today.[19] The better regulation of the profession in this country may be said to date from the institution of the Royal College of Physicians in 1518, which was entrusted with the general supervision of all persons not graduates of the two English Universities of Oxford and Cambridge, who should practise physic throughout England, and to the granting of a charter by Henry VIII to the barber-surgeons 22 years later.

THE BRITISH MEDICAL ASSOCIATION AND MEDICAL LEGISLATION.

Sir John Simon in his most interesting work on English sanitary institutions,[20] has a chapter entitled "Growth of Humanity in British Politics"—in it he traces the influence of the religious revivalism under the Wesleys, and the noble work of Howard in arousing among the better informed classes a humanitarian spirit which has been one of the many factors, and perhaps the most powerful, which have led to the reformation of the criminal code, the abolition of slavery, the Factory and Sanitary Acts of the nineteenth century. During the earlier part of the nineteenth century it was gradually brought to the attention of thoughtful men that steps should be taken to regulate the education and the practice of medical men. The first result was the passing of the Anatomy Act, in 1832, which was followed by the appointment, in 1834, of a committee of the House of Commons to inquire into "the laws and usages regarding the education and practice of the various parts of the medical profession in the United Kingdom." No report was presented by this committee, although it took a great deal of evidence, part—that relating to Scotland and Ireland—was never printed, and is supposed to have perished when the Houses of Parliament were burned. Mr. Warburton, who acted as chairman of the committee, introduced in 1840 a bill into the House for the registration of medical practitioners, but found little support. Sir James Graham and Mr. Manners Sutton prepared and brought in a bill, four years later, "for the better regulation of medical practice throughout the United Kingdom." The government of the day declined to interest itself in the bill, and no further action took place until this Association—then called the Provincial Medical and Surgical Association—under the leadership of Sir Charles Hastings, brought the subject under the consideration of Lord Palmerston in 1853, and of Sir G. Grey in 1855, in the hope that the Government would promote the bill which the Association had prepared. Neither minister would undertake to bring it in as a government measure, and a private member—Mr. Headlam, M. P. for Newcastle—in 1855, and again in 1856, introduced a measure which represented the views of the Association. By the influence of Mr. Cowper, then president of the Board of Health, the House of Commons referred the bill to a select committee—a proceeding which eventually resulted in the Medical Act of 1858, which has been productive of incalculable benefit both to medical education and to the public. This Association may well take pride in remembering that this was accomplished mainly through its influence and action.

POOR LAW AND PUBLIC HEALTH LEGISLATION.

Contemporaneously with the awakening of public opinion to the necessity for a reform in the constitution of the medical profession, by which the public might be able to discriminate between those who were and those who were not legally qualified to practise, the need for increased legislative power for sanitary purposes was recognized. The public mind had been aroused by the ravages of cholera, which spread through the land in 1831-2, and to a less degree in 1848-9; while the revelations of the conditions under which the laboring poor were living, contained in the reports of Drs. Neil, Arnott, Kay, Southwood Smith, Mr. Chadwick, and others to the Poor Law Commissioners appealed to all but the most thoughtless, and prepared the way for sanitary legislation.

I am not forgetful that from the earliest periods of civilization it has been recognized that large centers of population have necessitated laws and regulations for the prevention of nuisances and the removal of refuse. These were among the most important duties of the Aediles in Rome, and in the records of medieval London are constant references to the removal of nuisances, the cleansing of the streets, and the necessity for "avoiding the filthiness that is increasing in the river and upon the banks of the Thames to the great abomination and damage of the people."[21]

The dissolution of the monasteries and other religious foundations in the sixteenth century led to the whole country being flooded with pauperism, for however self-indulgent the ecclesiastics may have been, they had always exercised supervision over the poor on their estates, and administered relief as required to those who were in the employment of the religious houses or of their numerous tenants.

This deplorable condition of the nation gave rise in the early years of Elizabeth's reign to our present Poor Law, and during her reign, and that of her immediate successors, very stringent acts of Parliament and municipal regulations were passed not only for the removal and prevention of nuisances, but also dealing with vagrancy and mendicity, and provision for the relief of pauperism and the care of the impotent poor. From that time onward numerous local acts on a variety of subjects bearing on the national health were added to the statutes, but no comprehensive scheme was instituted until we come down to the Victorian era, and the passing of the Public Health Act of 1848 may be taken as the date of the rise of a fresh branch of medicine—preventive or State medicine.

It was then that the State publicly recognized what Hobbes 200 years before, when writing "of the Commonwealth," had indicated as the function of the governing power.

> The office of the sovereign (be it Monarch or Assembly) consisteth in the end for which he was entrusted with Sovereign Power, namely, the procuration of the safety of the people, but by safety here is not meant a bare Preservation, but also all other contentments of life which every man by lawful Industry without danger or hurt to the Commonwealth, shall acquire to himself.[22]

The health of the people, both bodily and mental, is the principal asset of the nation. Without a vigorous and energetic population no nation can make progress, and coincident with the cessation of progress is the commencement of decadence. We have heard of late very much about the deterioration and degeneration of our population. I cannot venture to express an opinion on such a complex and difficult subject, but I can safely say that there exist no standards by which our present can be compared with our past condition, and I greatly doubt if those who talk and write so volubly on the subject are acquainted with the reports made to the Poor Law Commissioners 60 years ago. The present state of our population is serious enough, and it behooves us all, doctors and laymen alike, to do what we can to ameliorate, if we cannot remove, the conditions which militate against the health and happiness of the population.

Steam and electricity have revolutionized the world, and the conditions of modern life are now entirely different from those prevailing during the first decades of the last century. The food, clothing, housing, and circumstances under which large numbers of our population work, are very different now in both our rural and urban populations to what they were then. Are the changes calculated to benefit the physical and mental condition of the people? or have all our boasted improvements proved snares and delusions? These questions are fraught with the greatest importance to the nation; questions which, in the absence of any known standards for comparison with the past, it is difficult, if not impossible, to answer. I trust that the committee of the Privy Council on the physical disability of recruits, now engaged in framing its report may urge on the government the desirability for a physical census of the nation being taken, and renewed from time to time; and that the physical condition of the children in our primary schools should be watched, recorded, and reported on as regularly and carefully as their educational progress. It is only by information of this sort, collected by competent persons and duly weighed by those capable of forming an opinion on the medical aspects of the question, that improvement can be hoped for.

THE CODIFICATION OF PUBLIC HEALTH LAW.

I have already alluded to the Public Health Act of 1848 as marking the introduction of preventive or State medicine. Since that date numerous royal and other commissions have been engaged in the investigation of a very large number of subjects bearing on the national health, with the result that from that time to the present the Legislature has been continually occupied in passing new measures for the furtherance of health or the amending of old ones.*

A certain amount of consolidation of the sanitary law was affected by the act of 1875, but the mass of sanitary legislation and the involved nature of it prevents the public, and I might say the profession also, from being able to follow it. Its complexity in part arises from different departments of the central Government being responsible for the means which are taken for safeguarding the public health.

Legislation at the present time appears to me to be in advance of administration, and it is not so much fresh legislation that is needed as the simplification and codification of the existing law. The administration of the law cannot be much in advance of the knowledge and feeling of the public, and while giving full credit to municipal and other sanitary authorities for the good work already done and the efforts they are now making, the medical officers of health throughout the country are painfully aware how great is the ignorance shown by the mass of the population of the principles on which the public health depends, and how great is the necessity for educating the general public. to a proper appreciation of the elemental facts of sanitary science.

The all-important part that microorganisms play in the putrefaction and decomposition of organic matter and in the production of disease was unknown when sanitation first seriously occupied the attention of the Legislature. The air, the earth, and the waters all teem with them; and although we recognize in some our deadliest foes, we must not forget that it is due to the beneficent action in their countless millions of other members of this group that we mainly owe both the purification of the water we use and the earth we live on; if it were not for their action we should be smothered by our own refuse. As a consequence, this increase of knowledge has rendered it necessary for those who hold important positions in connection with preventive medicine to have special preparation for their work. The need for this was foreseen by Sir Henry Acland, who, in his address, remarks that:

> The Government will have to define the duties to be discharged by public health officers or other officers of public medicine, and the General Council of Medical Education will be able to direct the education of those who aspire to the performance of the duties so defined.

The General Medical Council and the educating bodies have fully acted up to this expectation of Sir Henry's, and the universities and diploma-granting corporations have established special courses of instruction and special examinations requiring a very high standard of professional knowledge from those who desire to qualify themselves for holding responsible posts in preventive or State medicine, which is now justly regarded as the highest branch of our art.

Does the large body of highly-qualified officers of health, and do the medical officers of the Local Government Board possess the influence in the Government and in the country which they ought to own? I fear not; neither in the Government nor in the country do they hold the position they are entitled from their high qualifications and the importance of their duties to command. Your president last year directed your attention to the need for reform both in the central authority, that is, the Local Government Board and in the local authorities.

THE INEPTITUDE OF THE TREASURY REPORT.

During the past year your Council and its Medicopolitical and Public Health Committees have been engaged in framing a bill, which it was hoped might be brought before the consideration of the Government. I am afraid from the nature of the report of the Treasury Committee appointed to consider the position and duties of the Board of Trade and the Local Government Board there is not much prospect of the importance of the Public Health Department of the board receiving any increase either of power or payment. The health of the nation, on which its success and prosperity depends, is thrust into the background with the remark that the president of the board "has the advantage not only of the medical officer of the board, but also of the general administrative experience of the permanent secretary." In an article in the *Times*[23] upon the report the writer remarks: "The commercial community cannot hope to exercise the influence due to its position in national life so long as its official representative is treated as of second-rate importance." These words appear to me to apply with even greater force to the Department of Public Health in the Local Government Board.

THE DUTIES OF THE LOCAL GOVERNMENT BOARD AND MEDICAL OFFICERS OF HEALTH.

I do not think that there would be any advantage in my dwelling on the terms of the bill your Council proposed, but there are certain points in connection with it that should be continually pressed upon the attention of the president of the Local Government Board and the Government:

1. That while the administration of sanitary legislation must be left to the local authorities, the central authority should act as an advisory as well as a supervising authority.

2. That both in the Local Government Board and in the local authorities the medical element should have greater weight and authority than at present, and that the medical officers of health throughout the country should be responsible to the Local Government Board as well as to the local authority and hold their office during the pleasure of the Local Government Board and not at the will of the local authorities.

3. That steps should be taken by which the medical officers of health and the Local Government Board which at present is the department mainly charged with supervising the administration of the Sale of Food and Drugs Acts, should undertake further duties of supervision and watchfulness in relation to the purity and wholesomeness of articles sold for food.

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*Of these the most important have been the act of 1858 by which the powers then vested in the Board of Health were, together with other powers, transferred to the Privy Council; that of 1871, when the Local Government Board was instituted, vesting therein certain functions of the Secretary of State and Privy Council concerning the public health and local government, together with the powers and duties of the Poor-Law Board; the Public Health Act of 1875, the amendment of the Medical Act, 1866, and the Local Government Acts of 1888 and 1894.

NEED FOR SUPERVISION OF THE SALE OF FOODS.

The need for such increased supervision was forcibly brought to the attention of the commissioners appointed to inquire into arsenical poisoning. At the present moment there are no means by which the officers, medical or other, of county, borough, urban or district councils who are responsible for the local administration of the acts relating to the sale of food can enter the premises and obtain information concerning the nature of foodstuffs or the process of their manufacture. At present the maker of a foodstuff sold under a fancy name—Grape Nuts, Force Food, etc.—is under no obligation to submit to any authority the composition of its ingredients. It is only after the foodstuff has been placed on the market that any control can be exercised by samples being taken for analysis, which, although, showing the absence or presence of deleterious matter, gives but little guide to the suitability and value of the preparation as a food. The enormous bulk of these fancy and largely advertised foods on the market, both home made and imported, renders it essential that further power in the supervision of food should be placed in the hands of the health authority.

RURAL HYGIENE.

The necessity for sanitary regulations being so much greater in large towns with their dense populations, manufactures, and difficulty in disposing of their refuse naturally led to the earlier efforts in the direction of improved sanitation being especially directed to their most urgent needs, and hence it has arisen that the methods of sanitation applicable to large towns have been accepted by the public as the only ones, and are imitated in rural districts to the great loss and harm of the community.[24] It is greatly to be regretted that Mr. Chadwick's doctrine that not only domestic sewage but that all sorts of refuse are best removed by the scour of running water has received such general adoption. While the advantage of the present system of sewerage, although ruinously expensive, is undoubtedly very great in our large towns, and must perhaps be perpetuated, it is not in accordance with common sense that it should be recklessly applied throughout the country. The disposal of the liquid sewage not only of our large towns but of our villages, villa residences, and country gentlemen's houses, has become a most difficult problem for modern sanitarians. No one has any more justification in injuring his neighbor by wilful or culpable negligence of sanitation, or by the means he takes to protect himself from the evils he has created, than he has in appropriating his neighbor's goods or trespassing on his premises. "In rural and semirural districts the individual ought no more to ask others to keep him clean than he asks others to feed him or clothe him."[25] The conscience of the public and of the individual needs awakening to the immorality of injuring the public weal for private convenience. We daily see instances of small towns and villages expending vast sums of money in systems of sewers and sewerage works. A system of sewerage necessitates a constant water-supply far in excess of the needs of the inhabitants or domestic use; it introduces a source of danger of pollution for the springs and wells of the locality, and renders necessary the introduction of waterworks to supply uncontaminated water—if, haply, such can be found—brought, it may be, from a distance, and entails a heavy and permanent charge on the locality. The interest of the money thus spent would, in many instances provide for the necessary expenses which a proper system of scavenging would entail.

URBAN HYGIENE.

Is the Local Government Board, and are our urban and rural sanitary authorities really guided by their sanitary officers in these matters? It is hard to believe it, for one sees around one in the metropolis, and in our provincial towns and rural districts numberless instances of divergence from the principles of sanitary science. The enormous value of land in London and our large cities has led to a remarkable change in the character of their buildings. At the very time that it became generally recognized that fresh and moving air was one of the necessities for healthy life, and while vast sums are being paid for securing open spaces and widening streets, the private speculator is allowed to erect huge piles of bricks and mortar which effectually block the currents of air which are required to freshen and vitalize the atmosphere of our crowded streets and thickly populated courts. Is this wise? Is it in accordance with our present knowledge? The Tudor and Jacobean architects understood much better the principles necessary for healthy life; we can have no better examples than those around us here. The colleges are laid out with spacious quadrangles freely admitting air and sunlight, surrounded by sets of rooms which are for the most part open to the air on both sides, and seldom more than three stories in height. The greatest enemies that the disease-producing microbe has are air and sunlight—some of them are deprived of vitality and their power of evil by a few hours' exposure to sunlight. What chance has the microbe of meeting these conditions in the piles of brick and mortar which are now built around central wells, into which a few rays of daylight struggle by means of glazed tiles, and to which the purifying and cleansing action of a brisk wind can never reach?

We see equally regretable proceedings, although of a very different kind, going on in the outskirts of London and our large provincial towns, and I regret to say in many of our rural villages. Rows and rows of houses—what are often termed "workmen's houses"—are erected on the plan of third-rate London streets; no ground round them, no gardens; the minimum space allowed by the sanitary authority of the district is all that intervenes between them and a similar row, and unfortunately sanitary authorities in their by-laws have based them on ones which may be applicable to London, but are calculated in suburban or rural districts to reproduce all the evils of the town. Sewers and waterworks are provided at the expense of the district, not for the benefit and advantage of the inhabitants, who would rejoice in a piece of garden ground and space around their homes, but to allow the landowner and builder to make more money out of the ground surface at their disposal, to the hurt and damage of the district and the nation.

In the decennial supplement to the Registrar-General's report for 1895, Table R shows that the rate of mortality in England and Wales is in proportion to the density of the population, the districts most densely populated having a mortality two and a half times greater than those more thinly inhabited. The mortality per 1,000 living being 12.70 in districts with 138 persons to a square mile, and 33.00 in the most densely populated having 19,584 to the square mile. The corrected deathrate for "urban England" being 22.32, while that for "rural" was 16.95. Infant mortality is by universal consent among sanitarians taken as a measure of the salubrity of a district, and an examination of Tables S and T of the Registrar-General's report shows how excessive is infant mortality in "urban England." Taking the report for 1901, we find the infant mortality of the whole country is 166 in every 1,000 births for males under 1 year of age, and 136 in every 1,000 births for females of the same age, the urban deathrate being 180 for males and 149 for females, the figures for "rural England" being 136 and 107 respectively.

Table Q shows the same in a still more striking manner; the agricultural counties of Herts, Huntingdon, Wilts, and Westmoreland, in which there are no large towns and no crowded industries, stand lowest, with an infant mortality not exceeding 100, while Northumberland (182), Durham and Lancashire (179), Nottingham (172), have the highest infant mortality of all our counties, London (149) and Middlesex (130) holding intermediate positions.

Other factors beside density of population undoubtedly have a share in producing these results; but there can be no doubt that density of population is one of, if not the most, important of the causes producing this deplorable sacrifice of life.

Very interesting figures are given by Dr. Sykes in his "Milroy Lectures, 1901," showing that while the general and infant mortality in the Peabody and Model Buildings in St. Giles's is much below that of London generally, as would be expected from the class of persons inhabiting them and the supervision to which they are subjected, the deathrate from certain infectious diseases was in excess of that of London, demonstrating the risk which is run by aggregating, even under favorable conditions, a large population under what may be considered one roof.

The phrase, "back to the land," has of late been much in the mouths of many would-be philanthropists and politicians, and much has been written on this theme in the ephemeral literature of the day. I fear that as a remedy for physical deterioration or agricultural depression it must be regarded as utopian, even the powers of the Legislature cannot prevent the course of economic laws from taking effect; but the Legislature might, I venture to think, do much which would aid in preventing the continual growth of known and acknowledged evils. It is the province of the Legislature, as Hobbes said, to procure the safety of the community, even if it interferes with the freedom of individual action; it is done every day in connection with infectious disorders and with the approval of the public. Our sanitary authorities, guided as they now should be, not by theories of disease, but by facts capable of scientific demonstration, should have the power to restrain both individuals and public bodies from perpetuating and increasing evils, which threaten materially to injure our welfare and prosperity as a nation. Overcrowding, whether of houses or localities, should be more stringently dealt with; facilities should be afforded for the removal of certain trades and manufactures from crowded centers, and public money should be expended in affording ready means of access and communication with them.

Hitherto, our modern facilities of locomotion, telegraphic and telephonic communication, have had the effect of increasing rather than relieving the congestion of our central districts, whereas they might be used for the opposite purpose, and enable many of our trades and much of our business to be carried on outside the limits of our towns.

Rural sanitary authorities should be taught to shun, instead of imitating those methods of sanitation which have been found by experience so costly, so difficult to manage, and so productive of harm.

I wish, Mr. President, that I had been able to bring before you the question of the national health in a manner worthy of yourself, this great audience, and the subject; it is one of supreme importance, far transcending the ordinary political issues of the day. I have endeavored to point out the need there is for us all to use every means in our power to educate the public in this most vital question, to impress upon them that sanitation is no longer a matter of medical opinion, but is based on facts arrived at by the instrumentality of scientific methods and capable of being scientifically demonstrated. Legislation, however good, cannot be effective unless it has the willing concurrence of the people. Finally, I would urge that this powerful Association should use its influence to impress both the public and the Government with the desirability of a physical census of the nation being taken from time to time, and the necessity for the registration of the physical condition of our children on whom the future of the country and the empire depend.

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[11] Presidential Address, Clinical Society Trans., 1903, p. 7.
[12] Trans. Clinical Society, Vol. vii, p. 180.
[13] Oliver-Sharpey Lectures. Lancet, April and May, 1904.
[14] Paulus of Aegineta. Book iv. Secs. lvii, lviii, lix.
[15] Report by H. M.'s Agent and Consul-General on Egypt and the Soudan, April, 1904.
[16] Book iv, 720, Jowett's Trans.
[17] Gorgias, 456, Jowett's Translation.
[18] Nat. Hist., c, xxx, "Discunt periculis nostris et experimenta per mortis agunt medicoque tantum occidere impunitas summa est."
[19] For much interesting information on these points, vide South's Craft of Surgery, and papers by D'Arcy Power, F.R.C.S., in the Medical Magazine, 1899.
[20] 1890.
[21] Order of Edward III, 1357, vide Sir J. Simon, p. 40.
[22] Hobbes's Leviathan, chap. xxx.
[23] June 14, 1904.
[24] For a striking instance, vide Rural Hygiene, third edition, p. 293, G. Vivian Poore, M.D., 1903.
[25] Poore, Rural Hygiene. Third edition, p. 213.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

August 6, 1904. [Vol. XLIII, No. 6.]

1. What is the Proper Surgical Treatment of Suspicious Tumors of the Involuting Breast? J. Clark Stewart.
2. Hyperidrosis Pedum and Its Treatment by Baths and Permanganate of Potash. Ludwig Weiss.
3. Röntgen Ray Therapy in Skin Diseases. George E. Pfahler.
4. The Cutaneous Manifestations in Diabetes Insipidus: Reports of Three Cases. A. W. Brayton.
5. The Physiology of the Middle-ear. J. Holinger.
6. Another Member of the Dysentery Group. C. W. Duval.
7. Vital Action of the Dental Pulp. R. R. Andrews.
8. Pulp Degeneration. Eugene S. Talbot.
9. Tuberculosis in the Jewish District of Chicago. Theodore B. Sachs.
10. The Diagnosis of Scarlet Fever and Scarlatinoid Affections. Jay F. Schamberg.
11. The Technic of Wounds Incident to Laparotomy. Henry O. Marcy.

1.—See *American Medicine*, Vol. VII, No. 24, p. 923.

2.—See *American Medicine*, Vol. VII, No. 24, p. 929.

3.—See *American Medicine*, Vol. VII, No. 26, p. 1012.

4.—Cutaneous Manifestations in Diabetes Insipidus.—A. W. Brayton reports three cases. When a patient complains of dry mouth, scanty saliva, a harsh and irritable skin with a generalized pruritus intensified at night, and also complains of night thirst, we may find a urine of low specific gravity and great quantity, and that he is not suffering from diabetes mellitus, but from the much rarer diabetes insipidus. The skin complications of the former are more serious, boils, carbuncles, pruritus, chronic eczema, gangrene, etc. Diabetes insipidus must be distinguished from the polyuria of hysteria and chronic interstitial nephritis. It results from vasomotor disturbance of the renal vessels from aortic aneurysm, abdominal tumors, tuberculous peritonitis, lesions at the base of the brain, cholera, anemia, whoopingcough, etc. Heredity plays a part. The patient may be well nourished, with an ordinary or an enormous appetite. The future course depends largely on the primary trouble. In idiopathic cases the results are inconsequential. [H.M.]

5.—See *American Medicine*, Vol. VII, No. 26, p. 1009.

6.—Another Member of the Dysentery Group.—C. W. Duval describes a probable member of the *B. dysenteriœ* group, differing from other strains in its action on lactose and litmus milk. The distinctions in cultural features are in conformity with the variations in agglutination reaction. It is identical in morphology and its action on mannite, dextrose, dextrin, and the more common culture media with the Flexner-Harris strain of *B. dysenteriœ*. The bacillus is agglutinated in high dilution with the blood of typhoid fever patients, also with the blood of rabbits immunized against typhoid. Likewise *B. typhosus* is agglutinated with the blood of rabbits immunized to this organism. Though it possesses properties in common with the typhoid bacillus it has more in common with that of dysentery and is rightly considered a member of the latter group. [H.M.]

7.—Vital Action of the Dental Pulp.—R. R. Andrews states that when the tooth is fully formed the principal function of the pulp is the vitalization of the dentin by means of the fibrils, which penetrate every portion of the matrix, and it may again assume formative function whenever causes for repair demand this. The healed dentin retains its discolored appearance, but becomes nearly as dense as normal. The formative cells nearest the point of repair fill with glistening globular bodies and the tissue about it shows increased vascularity, and in the canals opening toward the area of irritation there are minute glistening granules, being carried outward toward the lesion. These are similar to minute bodies found in the tissues when the matrix was developing. We also find the protecting consolidation in teeth that are worn down, usually in the mouth of old people. Such teeth are not liable to decay, except under very unfavorable circumstances. The dentin was meant to be at all times a living tissue, and the mission of the pulp is not gone after full formation of the tooth. Its restoration to a healthy condition is among the highest acts of professional skill. It is unfortunate that so many have to be destroyed. [H.M.]

8.—Pulp Degeneration.—E. S. Talbot names two forms of degeneration, physiologic and pathologic. The latter must result from the former. The nerves and vessels of the pulp are reduced, as age and exostosis lessen the size of the foramina. There can be no collateral circulation. It is subject to injury from systemic disease through the blood current, and thermol changes from without modify its circulation. Beside nerve-end degeneration it is subject to inflammation resulting in abscess, arteriosclerosis, endarteritis obliterans, thromboses, embolism, cloudy swelling, fatty mucoid, colloid, hyaline and amyloid degeneration, pulp stones, neoplasms, and fibroma. These degenerations are the cause of decay from diminution of tooth vitality. [H.M.]

9.—Tuberculosis among the Jews.—T. B. Sachs states that the socalled immunity of the Jews varies with economic and hygienic conditions, though unsanitary conditions are mitigated by certain features of Jewish life such as early marriage, chastity, rarity of syphilis and alcoholism, easy access to medical aid, tendency to consult a physician for trivial ailments, careful selection of meat, its thorough cooking, etc. His statistics do not correspond with those of Billings and lead to the conclusion that tuberculosis is very prevalent among the Jews due to unsanitary home and factory life; and that it is on the increase. A campaign of education has begun. [H.M.]

10.—Diagnosis of Scarlet Fever and Scarlatinoid Affections.—J. F. Schamberg emphasizes the difficulty of diagnosing mild cases. In no other acute disease are so many errors made. We may have it without eruption, without fever, and without sore throat; the tongue often is not characteristic. The author has seen the strawberry tongue in scarlatiniform erythema during the course of smallpox. Scaling is often more extensive in desquamative scarlatiniform erythema than ordinarily in scarlet fever. In scarlet fever the time of the onset of scaling, its mode of progression, and its persistence are of more diagnostic importance than its mere occurrence. It is usually seen first on the face from the fourth to the sixth day, on the latter day it begins on the neck and chest. The hands scale from the twelfth to the fourteenth day, the feet perhaps not till the third week. Scarlatinoid eruptions begin more quickly, especially on the hands and feet, the invasive symptoms are often extremely mild, the patient does not feel ill, the temperature elevation is slight, the throat may be reddened but the tonsils and uvula are not swollen, and there is no exudate; the strawberry tongue as a rule is absent. The eruption may begin anywhere, it may be patchy, or irregular, or diffuse. The significant feature when the rash is pronounced is that it is out of all proportion to the constitutional disturbance. [H.M.]

11.—See *American Medicine*, Vol. VII, No. 24, p. 924.

Boston Medical and Surgical Journal.

August 4, 1904. [Vol. CLI, No. 5.]

1. Operations upon Benign Diseases of the Stomach at the Boston City Hospital and Massachusetts General Hospital, 1898–1903 Inclusive. F. B. LUND, E. P. JOSLIN, and F. T. MURPHY: I. Introduction. II. Operations for Chronic Gastric Ulcer, Pyloric Obstruction, and Acute Dilation of the Stomach. III. Operations for Perforation of Gastric Ulcer. IV. Operations for Gastric Hemorrhage. V. General Conclusions.
2. The Union of the Teachings in Cystoscopy and Microscopy. FRANK M. JOHNSON.

1.—Surgical Treatment of Benign Diseases of the Stomach.—The paper is a report by F. B. Lund, E. P. Joslin, and F. T. Murphy of the results of operations in benign diseases of the stomach at the Boston City Hospital and Massachusetts General Hospital between January, 1898, and January, 1904. The following table is a summary of cases and results:

	Number of cases.	Deaths.	Well.	Relieved.	Not Rel'd.	Secondary operat'ns.
Chronic ulcers	21	5	7	4	5	8
Pyloric obstr'c'n.	21	5	9	3	4	2
Acute dilation	1	1	. .	. .	. .	. .
Perforation	18	13	5	. .	. .	2
Hemorrhage	10	10	. .	. .	. .	1
Total	71	34	21	7	9	13

Conclusions are as follows: 1. Surgical intervention in gastric hemorrhage should be considered, even before it is urgent, and the surgeon should jointly with the physician watch the course of the patient. Cases of gastric hemorrhage should be seen, as a rule, by a physician as well as a surgeon. Operations upon females under 30 should be most conservatively advised, since death under medical treatment is rare. Time should not be lost during an operation in seeking the bleeding point, but gastroenterostomy should be performed. 2. Mortality in operations for perforation of the stomach is chiefly dependent upon the length of time between perforation and operation and the virulence of the infection. House officers should report suspected cases simultaneously to the physician and surgeon on duty. 3. Patients with chronic ulcers of the stomach or strictures of the pylorus should be jointly watched by the physician and surgeon. Postponement of operation after it is indicated is dangerous. 4. Errors in methods and surgical technic were made, which in subsequent operations will presumably be avoided. This accounts for about half of the deaths. [A.B.C.]

2.—Cystoscope and Microscope.—F. M. Johnson makes a strong plea for the use of both cystoscope and microscope in all genitourinary troubles. With all the valuable information obtained by the microscope it yet needs to be reinforced by the cystoscope. Parenthetically he advises lavage of the pelvis of the kidney in chronic pyelitis, pyelonephritis, irritative oxaluria and lithemia. [A.B.C.]

Medical Record.

August 6, 1904. [Vol. 66, No. 6.]

1. Rectal Constipation in Women. GRACE PECKHAM MURRAY.
2. Hypodermic Injection of Strychnin Nitrate in the Treatment of Progressive Muscular Atrophy. SANGER BROWN.
3. The Clinical Features of the Epidemic of Dysentery at Tuckahoe, N. Y., during the Summer of 1902. OLIVER L. AUSTIN.
4. Use of Series Spark-gaps for Röntgen Ray Work. L. WEISS.
5. A New Operation for Pyothorax. SPENCER GRAVES.
6. A Case of Foreign Body Remaining in the Lens of the Eye for Six Years with the Lens Otherwise Clear. FRANK N. LEWIS.
7. A Case of Chronic Fibrinous Bronchitis, with Especial Reference to the Treatment of This Disease. W. MOSER.
8. Fibrils and Ganglion Cells. V. BIART.

1.—Rectal Constipation in Women.—Grace P. Murray says rectal constipation in women may be due not only to the ordinary causes of constipation, but to others peculiar to sex. The various malpositions of the uterus often are a cause, constipation and conversely a loaded rectum may cause malposition of the uterus and ovarian derangement. A form of rectal constipation which has received little recognition is that which occasions and is the result of the pulling down of the rectovaginal septum, thereby forming a pouch, changing the direction of the intraabdominal rectal pressure to that of the vaginal, which is at right angles to it, and making it difficult for the rectal sphincters to relax to void the contents of the bowel. Cathartics may be useful in those cases in which the obstruction is due to inflamed and displaced organs or neoplasms, but would be useless in those cases in which there has been a displacement of the rectovaginal wall. In such cases, glycerin or gluten suppositories, or injections of small amounts of olive oil, or glycerin, may be employed. The use of daily enemas is to be reprehended from every point of view. The use of bougies or dilators may prove beneficial. For constipation of purely rectal origin, massage, electricity, and measures designed to improve peristaltic action are of no avail. [A.B.C.]

2.—Strychnin Nitrate Hypodermically in Progressive Muscular Atrophy.—S. Brown has had some highly satisfactory results from this treatment. For an adult the dose should be a twenty-fifth grain daily for six weeks, resumed after an interval of two weeks, and so on until several courses have been taken. This seems to give better results than a larger amount. No other form of strychnin than the nitrate given hypodermically, and not even the nitrate itself given by the mouth can influence the course of the disease favorably. In rapidly advancing cases the writer's success has been least; perhaps in these a smaller dose should have been employed. [H.M.]

3.—Dysentery.—O. L. Austin states that the origin of the Tuckahoe epidemic has not been discovered. Its most interesting features were its extent, the abrupt onset of marked symptoms without prodromas, the great prostration almost at the outset, the severity and long duration of many cases, and the marked value of colon irrigations and a narrowly restricted diet as remedial measures. While uncleanliness undoubtedly increased the number of cases, it seemed to exert no influence on the severity of the individual case. The disease did not select victims of diminished vitality. In 85% diarrhea was the first symptom. The duration was from five days to nine weeks. When a patient was seen within the first few hours of the onset, active catharsis, fasting, and absolute rest frequently seemed to abort the disease and end it within three or four days. When no symptoms but a slight fecal diarrhea remained, three or four full doses of powdered opium were given. Water and tea were freely permitted, but no food except a little rice water diluted with lime water and small doses of whisky. Castor-oil proved the best cathartic. When a case was seen late, colon irrigations had the greatest curative effect. For cleansing, decinormal salt solution and for astringency, tannic acid were used. The temperature was made as high as the patient could tolerate without decided discomfort. The lightest cases were given a saline irrigation after each movement and always three daily. In more severe cases the saline was followed by an antiseptic solution night and morning. When the stools were exceedingly frequent, a saline was given every three hours, followed by a quart of water containing 2 dr. to 4 dr. of tannic acid. Stupes and morphin were used for pain. [H.M.]

5.—A New Operation for Pyothorax.—Spencer Graves has used with success and recommends the following operation in lieu of the mutilating operations of Schede or Estlander: Removal of the entire rib anterior to the opening for drainage, which should be as near the posterior wall of the suppurating cavity as possible, the purpose of this being to prevent deformity; and resection of rib above or below, for adequate drainage in some recent cases of empyema. Removal of entire rib, if necessary two ribs (except the head), with resection of one for drainage in chronic cases, for the purpose of contracting suppurating cavity, which persists because of the thickened pleura and unexpanded lung. The rib removed should be the one passing over the center of the cavity, or one a little below this point. The sixth rib will be the one most generally resected, if but one. [A.B.C.]

New York Medical Journal.

July 30, 1904. [Vol. LXXX, No. 5.]

1. The Removal of Obstructions and Cicatricial Contractions of the Nose by the Plastic Method. JOHN O. ROE.
2. Lentigo: Unilateral Distribution. Report of a Case. JOHN IRVINE MCKELWAY.
3. Some Notes on Riggs's Disease and Its Treatment. GEORGE F. SOUWERS.
4. A Consideration of Some Points in Obstetrics. HELEN HUGHES.
5. Report on the Curriculums of American Medical Colleges. GEORGE W. WEBSTER. (Concluded.)
6. The Regulation of the Röntgen Ray Tube. J. SHERMAN WIGHT.
7. Reflections on the Financial Status of the Medical Career. NATHANIEL G. PRICE.

1.—Plastic Removal of Nasal Obstructions.—J. O. Roe advocates the removal of obstructions and cicatricial contractions of the nose by the plastic method. He says that in the treatment of contracted conditions of any portion of the nasal passages, if we attempt to enlarge the passage by simply cutting out the inside of the contraction, we not only fail to obtain the desired result, but the effect is to increase the difficulty by reason of diminishing the amount of skin or mucous membrane on the interior of the ring, so that when healing takes place the opening becomes smaller than before the operation. In dealing with such contractions, therefore, not only must we increase the extent of skin surface or mucous membrane, but we must interpose on one side of the passage at least an unbroken surface of skin or mucous membrane to prevent the union of the surfaces. This is particularly true if the contraction is located in one of the angles of the passages. Roe shows by diagrammatic illustrations the different steps in the operation. The flaps are stitched into place with fine horsehair sutures. Sometimes the coaptation and union of the flaps are facilitated by gentle pressure from the packing of the nostril for a few days and the aseptic condition of the nostril is also thereby more easily maintained. The packing employed should be cotton previously soaked in a 1 to 3,000 bichlorid solution and squeezed nearly dry before inserting. The operation for the removal of synechias is performed in a similar manner, by utilizing the mucous membrane of the band for covering the denuded surface on one side of the nostril where the band has been cut away. In case of bony or cartilaginous spurs or other excrescences on the septum, the periosteum or perichondrium, as the case may be, is raised from the part to be excised and after excision the membrane is replaced, covering the denuded surface. [C.A.O.]

2.—Lentigo.—J. I. McKelway reports an interesting case in a female of 37. The entire left side of the body, from the roots of the hair to the knee, was more or less thickly covered with freckles, varying in size from that of a pin head to that of a pea; a few were even larger. No freckles were to be found to the right of the median line, on her face, chest, or abdomen, or right thigh. The case is of interest because of (1) The unilateral distribution of the disease; (2) its occurrence in a woman with dark complexion and dark hair and eyes; (3) the length of time that the condition had existed (9½ years at least) without any appreciable change in the intensity of the pigmentation; and (4) the fact that she was not a patient who spent much time out of doors, and was therefore exposed but little to the sun. [C.A.O.]

5.—Curriculums of American Medical Colleges.—G. W. Webster submits a comprehensive account of the work done in 124 colleges in the United States. The results shown in the tables are interesting, important, and startling. They show a woful lack of uniformity in regard to the relative importance of each study, as measured by the time devoted to it by the several colleges of this country, and demonstrate the need of this kind of investigation, and constitute a strong argument in favor of revising and standardizing the medical curriculum. The standard curriculum which was unanimously adopted is as follows: (*a*) The course shall consist of four terms in four separate calendar years; (*b*) each term shall consists of 30 weeks of work, exclusive of holidays and of at least 5 hours of college work each day, and 30 hours in each week, or 900 hours of actual work; (*c*) the entire course of 4 years shall consist of not less than 3,600 hours of actual work; (*d*) this should be a standard of *required work*. Any *elective* work should be *in addition* to the above; (*e*) the average time devoted to each subject in the curriculum should be approximately the average time now devoted to it as shown in this report; (*f*) clinical work should constitute at least a fourth of the total number of hours in the four-year course. Webster says that the adoption of a standard uniform curriculum will be in the interests of an improved, as well as a higher standard of medical education. It will add symmetry to the course. It will give to each subject that relative importance which rightfully belongs to it, and no more. It will enable students to receive due credit for work done in any recognized school which adopts and conforms to this standard, thus enabling them to take the first two years in institutions remote from large cities, going to the latter for the last two years of clinical instruction. It is the most important single step toward future inter-State reciprocity on a rational basis. It will result in closing up some inferior schools of low grade. It will serve as a basis for reform in State Board examinations. A uniform standard will be set up for the whole country, instead of the heterogeneous regulations of State authorities. [C.A.O.]

Medical News.

August 6, 1904. [Vol. 85, No. 6.]

1. Conservatism in Otology. GORHAM BACON.
2. Intrahepatic Cholelithiasis. (Concluded.) EDWIN BEER.
3. Observations on Dilation of the Stomach and on Gastroptosis. ROBERT COLEMAN KEMP.
4. Experiments to Determine the Value of Collargolum and Antistreptococcic Serum in Infected Wounds of the Eye. J. H. CLAIBORNE and E. B. COBURN.
5. Puerperal Sepsis. SWITHIN CHANDLER.
6. Vaccination and the Law. NELSON G. RICHMOND.
7. Dipsomania and Its Treatment. WILLIAM LEE HOWARD.

1.—Conservatism in Otology.—Gorham Bacon says not long since, aurists were removing the ossicles to improve the hearing in cases of catarrhal deafness, but it has been found that this is practically useless; likewise electrolysis which was vaunted for the same purpose, has been practically abandoned. There has been, and still is too great a tendency to operate—especially to operate early rather than try conservative treatment. It is particularly the treatment for chronic purulent otitis media that operation is too frequent and too indiscriminate. In many instances in this affection, cure can be effected without operation. There are cases that demand radical operation, but they are fewer than most aural specialists appear to think. A number of illustrative cases is reported. [A.B.C.]

2.—Intrahepatic Cholelithiasis.—Edwin Beer states that in the intrahepatic ducts gravel or bile-sand and real calculi may be found together, or either may be found without the other. Occasional discussions on intrahepatic cholelithiasis have appeared in literature for more than two centuries, but probably the total of reported cases would not exceed 150 cases. Stimulated by the relatively few cases reported, Beer began an investigation of the frequency of occurrence, causation, structure, and composition of intrahepatic calculi. The paper completed in the present issue is a result of such study. The paper is exhaustive, but too technical to lend itself to valuable abstract. It should be read in full. [A.B.C.]

3.—Dilation of the Stomach and Gastroptosis.—R. C. Kemp notes that we find both hyperacidity and hypochlorhydria with either of these conditions. The latter are progressive degrees of atonia gastrica. In cases without symptoms nature has provided some compensation. In 40% of the writer's cases of atonia gastrica, splashing sounds were absent. In dilation the lesser curvature maintains its relation to the diaphragm. With gastroptosis the entire organ sinks, and in aggravated cases the lesser curvature looks to the right, the greater to the left, and the pylorus may often lie below the umbilicus. Dilation may follow chronic gastritis without obstruction. Acute dilation may follow acute inflammation from errors of diet, abdominal section, typhoid, migraine, pneumonia, etc. It has preceded epileptic attacks. It may follow convulsions in young children from overloading the stomach. Such attacks repeated predispose to epilepsy. Acute dilation from indiscretions may cause pseudoangina. Chronic dilation may be due to chronic gastritis, atonia gastrica, and "bolting" of food. It is one of the causes of intestinal disturbance with convulsions. Spasm and stenosis of the pylorus are additional causes. Kemp advises lavage only for excessive mucus or much retention of food, with fermentation. Each case should receive appropriate treatment. He believes gastroptosis the chief factor in mucous colic, and invariably applies abdominal support, advising the belt devised by A. Rose. In some cases we secure the same results by "putting on fat." Transillumination is the best method of locating the organ, and inflation with water the next. That the lower border of the stomach, when the patient is standing, is always at the same level whether full or empty, can be demonstrated by the author's stomach whistle, used in connection with a stethoscope to determine the points of greatest intensity in the sound. He employs fluorescent media for transillumination. [H.M.]

4. — Collargolum and Antistreptococcic Serum in Infected Wounds of the Eye.—J. H. Claiborne and E. B. Coburn find that collargolum is ineffectual in preventing the spread of purulent processes in the eyes of rabbits, whether used intravenously or by injection into Tenon's capsule. Antistreptococcic serum does not appear to exercise any favorable influence in purulent processes in rabbits' eyes. Conclusions drawn from these experiments should not, however, stand in the way of treatment of similar ocular infections in human beings by these means. [H.M.]

5.—Puerperal Sepsis.—Swithin Chandler makes reference to the high mortality in puerperal sepsis and states that even hysterectomy for this condition has been practically abandoned. He then explains a method of surgical treatment which in his hands has yielded good results. It is as follows: Make an incision posterior to the cervix in the posterior vaginal wall; then pass a pair of long blunt-pointed forceps, slightly curved, in the cervical canal, into the cavity of the uterus; puncture the posterior wall in the center near the top of the uterus. Then introduce a strip of iodoform gauze through the posterior vaginal opening previously made, clasp the gauze with the forceps and drag it through the uterine wall and out through the vagina. Repeat this by puncturing the uterus on each side, but posteriorly and just above the middle of the body, drawing the gauze through in the same manner as in the first attempt. Thus, the uterus is treated as an infected organ deserving heroic treatment. The advantages of this method are: It is conservative, it is easily performed, it gives drainage to an infected organ and parts, it recognizes a true condition and treats it accordingly. Four cases are reported in detail. Attention is called to the fact that rapid respiration is the best danger signal in puerperal sepsis.

7.—Dipsomania.—W. L. Howard considers this a symptom of functional neurosis, the periodic psychic explosions being caused by accumulation of autotoxic material, this being primarily due to an unstable nervous organization allowing faulty metabolism. The latter is a factor in causing inhibitory insanity. There is an uncontrollable desire for narcotics, and alcohol is most easily obtained. One must draw a sharp line between dipsomania and inebriety in order to successfully treat the former. After a few weeks of constant drinking, the inebriate will have delirium tremens, the dipsomaniac mental freedom and physical comfort. The victims are generally those who work at continuous nervous pressure. There is temporary disturbance of the the cortical cells from toxins. Cases must be studied individually. The patient must be impressed with the sympathy and understanding of the physician. Generally, proteid diet must be avoided, with Turkish baths for elimination and large doses of nitrate of strychnin; at first $\frac{1}{20}$ gr. every four hours, and later $\frac{1}{30}$ gr. three times daily for two years, with six-week intervals after each month of administration. Suggestion in all cases is of great value. [H.M.]

CLINICAL MEDICINE

David Riesman A. O. J. Kelly

EDITORIAL COMMENT

Aerophagy.—The unconscious deglutition of atmospheric air is an item of neuropathic symptomatology which has from time to time secured the recognition of observant clinicians, but which has hitherto not been granted much space in medical literature. It is, however, in some cases a troublesome—and even aggressive—symptom. In 1814, Desjardin, in a thesis on intestinal gases, referred to swallowing of air, and mentioned the case of a young man who thus distended his stomach enormously for the purpose of avoiding the conscription. In the following year, the celebrated physiologist, Magendie, pointed out that the habit could be readily acquired by practice. Indeed, one of the effects of the all-devouring conscription of the great Napoleon appears to have been the genesis of a widespread diffusion of aerophagy. On the fall of the great conqueror, its prominence naturally subsided. In 1868, Willième, in a thesis on "essential dyspepsia," stated that the very numerous and rapidly repeated eructations of some persons were really but the "alternatives" of the swallowing of atmospheric air. In 1870, Luton, in discussing the incessant eructations of some neuropathic and hysteric patients, pointed out that they were merely produced by the swallowing of air, as the bruit of its entrance into the esophagus could be distinguished as well as that of the exit. He afterward indicated the employment of esophageal auscultation as a means of recognizing the act. In Damschino's *Leçons sur les maladies de l'estomac* (1880), the deglutition of air is referred to as a rare phenomenon, and observed only in hypochondriacs. Bouveret (of Lyons) appears to have been the godfather who gave the symptom the name by which it is now recognized—aérophagie hystérique.[1] In 1891, Drs. Mathieu and Follet made a luminous communication on the subject to the Société Medicale des Hôpitaux de Paris, and the former has returned to the discussion in the beginning of the present year.[2] He makes four clinical varieties of aerophagy: (1) Slight; and (2) grave of neurodyspeptics; (3) spasmodic of the highly neurotic and hysteric; and (4) secondary or superadded to some grave form of gastropathy. In the production of the characteristic bruit, the patient closes the mouth, inclines the head forward, and performs a movement of deglutition, which is accompanied by the sound which is mistaken for that produced by eructation. If a lighted match or candle be held close to the mouth during the act, the flame is not moved, as it would necessarily be by the latter process. Observers have generally believed that the acts of deglutition and eructation of air succeeded alternately in aerophagy, but Dr. Mathieu has arrived at the conclusion that in the graver cases the air passes along the whole length of the digestive tube. He has seen—in consultation with M. Roux—a very nervous female patient who, without marked trouble of deglutition or abdominal tympanites, "émittait presque sans interruption, par l'anus, des gaz inodores." The gaseous emissions of the 24 hours were reckoned by thousands. In the milder forms of aerophagy the process usually begins after a meal, and continues for a variable time. The movement would undoubtedly appear to be initiated by the feeling of gastric distention and malaise of the neurodyspeptic at this period. It is different, of course, in the advanced hysteric. Drs. Mathieu and Follet, in their memoir above referred to, pointed out the occasional existence of a very interesting variety to which they have given the epithet of "aérophagie *à déclanchement*." In cases of this type the aerophagic crisis may at any time be invoked by pressure on definite points of the cutaneous surface—varying with the individual. Those hysterogenic points may be met with at epigastrium, suprasternal fossa, either iliac fossa, either ovarian point—even on the cranial vertex, surface of the forearm, etc. One patient could produce the aerophagic crisis at will by epigastric friction. Pressure or friction applied by another did not evolve the phenomenon. Accordingly the result must be looked on as one of autosuggestion. Dr. Mathieu finds the occurrence of aerophagy extremely frequent—104 in 1,800 consecutive patients. The great majority, of course, are likely to pass unnoticed. He has been fortunate enough to be able to cure the condition—with few exceptions—by education of the patient, and showing her (or him) what really takes place, and how to avoid its recurrence. (We may observe that he is to be congratulated, as we have known neurotic patients—especially females—become hopelessly rebellious under educational treatment!) Holding the mouth open is a most important adjunct, as air can hardly be swallowed while that condition is maintained. Mild gastric sedatives, such as codein and laurel water have been found useful. Morphin to be used, but in rare instances. The heroic (antihysteric) treatment by complete isolation has been found effective in some of the most aggravated cases.

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[1] Revue de Méd., February, 1891.

[2] Gazette des Hôpitaux, January, 1904.

REVIEW OF LITERATURE

Nervous and Cardiac Arythmia.—E. Rehfisch[1] contends that arythmia of nervous and cardiac origin can be differentiated by the difference in the length of the individual pulse waves. Few people have absolutely regular pulses, and in 100 healthy individuals examined by him he found differences amounting to as much as 31% in unfavorable cases; in functional nervous cases this difference was never greater than 36%. On the other hand, cardiac cases, on account of the existence of extra systoles and dropping of pulse-beats, showed differences of 120%. In healthy individuals and in nervous patients the arythmia depends upon the close relation between the vagus and the respiratory center, (diminution of blood-pressure during inspiration, increase in the number of pulse-beats during it, and prolongation of pulse period during expiration); it is a respiratory arythmia. After infectious diseases, the arythmia frequently depends upon cardiac affections. He shows the interdependency of the vagus center and respiratory center by means of pulse tracings, also of the different types of arythmia after infectious diseases. In a case of meningitis during the state of pneumogastric irritation the difference was only about 35%. The arythmia of neurasthenics may show a difference of 40%, but it is not necessarily of cardiac nature. He discusses increased irritability of the heart in nervous subjects, which forms the first stage of cardiac neurasthenia, and during which arythmia is not often noted. In the second stage of cardiac neurasthenia, the stage of muscular disease, arythmia is always present. Rehfisch says that the neurasthenic with a healthy heart can easily be told from the neurasthenic with a diseased heart, by making them climb up and down a chair several times, and then noting the differences between the pulse waves. He sums up his conclusions concerning the differences between nervous and cardiac arythmia into the statement, that the former shows slight differences in length between successive pulses, the latter large differences, and that arythmias being due to extra systoles in nervous patients, are often the forerunners of organic disease. [E.L.]

Pulsation of the Wall of the Thorax.—Joseph Sailer[1] has collected 97 cases of this condition, three of which are too incomplete for statistical purposes; to the 94 he adds a personal case. He prefers the following clinical classification: 1. Diffuse pulsations of the thoracic walls. 2. Circumscribed pulsations with tumor formation. 3. True expansile pulsation of the whole thorax. The case reported by Sailer was in a male negro of 30; there was distinct expansile pulsation over the whole left thorax. Autopsy showed a ruptured aneurysm of the ascending and transverse portions of the arch of the aorta and left hemothorax. Sailer discusses the various theories regarding the cause of pulsation and gives this summary of the entire subject: Pulsation of the wall of the thorax may be due to disease of the heart or bloodvessels; may be idiopathic, that is, not the result of any definite cause; may be due to pleural or pericardial adhesions; to accumulation of fluid in the pleural cavity, or to abscess of the wall of the thorax. When pulsation occurs as a result of accumulation of fluid in the pleura, the left side is affected in the majority of cases. The patients are usually males, and less than 40 years of age. The mechanism depends in all probability upon the presence of a positive pressure in the pleural cavity, with tension of the mediastinum. [A.G.E.]

Gastric Hyperacidity and Its Treatement.—C. von Noorden's[2] paper is confined to a consideration of that form of hyperacidity which occurs without anatomic disease of the stomach or without causative systemic disease. He has often found a high degree of hyperacidity without any symptoms which would point to it. In order to produce gastric dyspepsia there must also be present an increased irritability of the gastric nervous system. At least two-thirds of the author's cases of hyperacidity were accompanied by constipation, but it is doubtful if this symptom can always be attributed to the anomaly in the gastric secretion. Constipation often precedes hyperacidity. Simple treatment of the constipation by means of laxatives is not sufficient to influence the gastric secretion. The hyperacidity is often accompanied by a condition of poor nutrition, which must be remedied before the stomach will return to its normal condition. [B.K.]

Unusual Course and Sudden Death during Typhoid Fever.—H. Curschmann[3] cites cases which illustrate peculiarities in the course of typhoid fever. The ambulant cases are always atypical; their peculiarity depends either upon the method of infection, the individual's powers of resistance, or the subjective sensibility against symptoms. He cites light cases in which diagnoses of influenza, simple cold, gastrointestinal catarrh, chlorosis, cerebral and cardiac neurasthenia were made. Several ambulant patients even perform work, which would be incredible but for his examples. Accidents are more common in ambulant cases than in patients treated from the beginning. Complications may come on without warning. In all cases the patients have been ill longer than thought by their friends. In obscure peritonitis of sudden onset, typhoid peritonitis due to perforation should be thought of as a possibility; the perforation may be situated in the appendix. He cites such a case in an ambulant patient. Other sudden deaths were due to a pulmonary embolus, the patient having been diagnosed as ill with influenza; suppurating metrophlebitis and sepsis due to abortion caused the death of a patient ill in her fourth week. He also discusses the fulminating or hyperpyrexial, and the hemorrhagic type; both are rare, and almost always fatal. [E.L.]

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[1] Deutsche medicinische Wochenschrift, 1904, xxx, Nos. 11 and 12, 382 and 427.

[1] American Journal of the Medical Sciences, August, 1904.
[2] Zeit. f. klin. Med., Bd. liii, p. 1.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, No. 17, 609.

Congenital Dilation and Hypertrophy of the Large Intestine.—L. Kredel[1] says that this malformation occurs much more frequently in male children than in females. It is characterized by a swelling of the abdomen with marked constipation. The condition may be marked at birth, or may develop more or less gradually. Meteorism is often a marked symptom, and inflammatory diseases of the large intestine may be produced later. These developments sometimes lead to perforation. In other cases the children show signs of intoxication and become cachectic. In still others intestinal obstruction occurs. On examination of the abdomen, the hypertrophied and dilated coils of intestine may readily be made out. Borborygmus is frequent and very loud. The prognosis varies with the degree of development of the condition at birth. Death occurs from acute or chronic obstruction, acute colitis, cachexia, etc. The author describes three cases of his own, all of which were typical. He considers the condition to be one of pure congenital malformation, a form of local giant growth of the colon. The treatment should consist at first of high enemas of large quantities of water. Surgical intervention should be reserved for cases which exhibit obstinate obstruction, or which develop inflammatory and ulcerative conditions of the colon. [B.K.]

A Case of Splenomegaly Resembling Banti's Disease, Apparently Due to Malaria.—S. S. Cohen and R. C. Rosenberger[2] gave this summary of their case which occurred in an Italian girl of 14. History of chills and fever in Italy two and a half years ago. Irregular fever, subsiding in hospital (acute bronchopneumonia); greatly enlarged spleen and liver; melanoderma; hemic murmur; nasal, pulmonary and gastrointestinal hemorrhages; marked anemia with low hemoglobin content; variable leukocyte count; malarial organisms found with difficulty and only after the administration of quinin. The case was one of splenomegaly with blood changes and symptoms resembling those of Banti's disease, but apparently due to malaria which, according to Osler's dictum, would prevent it being placed in that group of cases. The case suggests many questions. If the organism had not been found would the case have come into Osler's group, and is it now to be excluded? Were malaria parasites in the blood of reported cases at an early stage or would active doses of quinin have driven them into the peripheral circulation even when no history of malaria was given? From the findings in this case and in other cases of chronic malaria, Cohen is convinced that the possibility of malarial infection in the group of cases under discussion must be admitted; with this admission, until the definite etiology is established for the anemia splenica of Osler, cases conforming clinically to the type may usefully be studied together. [A.G.E.]

Liver Pulsation and the Compensation of Valvular Insufficiency.—Volhard[3] demonstrated liver and vein pulsation in two cases; one was in a man of 33, the other in a girl of 19. He points out the slight cyanosis, the dyspnea, and the depression of the left side of the thorax and the slight bulging of the right, with each heart's action. The chest movements are systolic in point of time, because, he says, there is a synchronous filling of the veins of the neck, due to the accumulation of the blood in the right auricle as it returns from the right ventricle. Volhard says he is dealing with an organic tricuspid insufficiency, which disease he regards as being rare. He says the relative insufficiency on the other hand is frequently seen. The border of the right auricle in organic insufficiency never extends farther than three fingers' breadth to the right of the sternum, because in this condition the auricle has time to hypertrophy, while in relative insufficiency the auricle may reach to the mammary line. Of most importance is the synchronous vein and liver pulsation; the liver, owing to the congestion, is enlarged, so that the lower half of the thorax is asymmetric; with all this, there is in his first case, which has been under his care for five years, no ascites. Volhard does not agree with authorities who say compensation in this condition is of short duration only, because he has studied one case for five years in which compensation is still good. The heart's action is maintained by the fact, that the right ventricle is in a position to get rid of a large amount of blood quickly, which is accomplished by the condition of the auricle and the veins, of which the former alone can hypertrophy, but so soon as the veins lose their elasticity compensation fails. [J.F.]

The General Physician and Eye Lesions.—E. J. Gardiner[1] mentions the perplexity caused by obscure cases of socalled neurasthenia for which no well-defined cause can be ascertained and which apparently defy all forms of treatment. When the physician has exhausted his resources he turns to the specialist for help, but shall it be to the neurologist or the ophthalmologist? Gardiner is a believer in specialties, but he insists that the general practitioner should know enough to recognize certain anomalies of the eyes, if present, and thus be able to send his patient to the right consultant. With four lenses, a Maddox rod and a test card the physician can determine what for him is the main object, if his patient's eyes are normal. Directions for the use of the simple outfit are given. [A.G.E.]

Congenital Pulmonary Stenosis with Persistent Ductus Botalli.—Th. Petrina[2] observed such a case in a man of 24. He suffered no inconvenience from it until his twentieth year, although even as a boy he was not permitted to do gymnastic exercise. Since his twentieth year he had pneumonia, two attacks of bronchitis, and inflammatory rheumatism. Loss of compensation developed suddenly while climbing a mountain. The diagnosis of congenital pulmonary stenosis in his case was based upon a loud systolic buzzing noise heard and felt best over the sternal attachment of the third rib on the left side, pulsation visible and palpable at that point, marked dilation and hypertrophy of the right ventricle, prolongation upward of the cardiac dulness from the fourth rib to the manubrium in the form of a broad band; this was also recognized by the röntgen rays and was believed to be the pulsating pulmonary artery. The persistence of the ductus Botalli was based on a loud systolic murmur heard best to the left side of the vertebral column on a level with the third and fourth thoracic vertebras, cyanosis of the visible mucous membranes and the cheeks only on marked bodily exertion, and absence of the second pulmonary sound. [E.L.]

Urotropin as a Preventive of Scarlatinal Nephritis.—From his observations concerning the administration of urotropin in scarlatina, Buttersack[3] believes that it is an almost certain preventive of nephritis. It may be given in all stages of the disease, even in beginning renal inflammation. In fact, if the urotropin is not given from the start, its administration should be commenced so soon as the urine examination shows the slightest trace of albumin. [B.K.]

Examination of the Heart.—F. A. Hoffmann[4] prefers the finger and pleximeter examinations to all other methods, but for absolute certainty that such outlines are correct, and for special scientific purposes only, röntgen rays are of advantage, and then only when interpreted by an expert. The percussion of the sternum deserves special study, as it has a resonance of its own; he advises its percussion from above downward and to note where its own resonance terminates and the dulness begins. If the dulness begins at the fifth rib or below, the lung being normal and the heart in normal position, the heart is not enlarged; if between the fourth and fifth cartilages, it may be enlarged; if at the fourth, especially in tall individuals, or above it, it is enlarged. Phonendoscopy he found an aid in the clearer discernment of many sounds, but usually it is more disturbing on account of sounds peculiar to itself. He discusses the behavior of the individual cardiac sounds in health and disease. He says: Marked accentuation of the first sound at the apex is due to (*a*) Basedow's disease, and nervous conditions in general; (*b*) mitral stenosis; (*c*) disturbed compensation in the presence of valvular disease; it is a symptom of no value in arteriosclerosis. Marked weakness of the first sound at the apex is noted in (*a*) myocarditis, synechia or pericardial effusion; (*b*) mitral insufficiency; (*c*) disturbed compensation in valvular affections; (*d*) fatty heart. Marked accentuation of the second sound at the apex is due to: (*a*) Marked accentuation of the second sound at the base; (*b*) in fatty heart it is relatively strong, the first sound being weak. Marked weakness of the second sound at the apex is noted in myocarditis, synechia and pericardial effusion; the first tone is usually also very weak, sometimes both sounds are inaudible. Marked accentuation of the first sound at the base, when not due to accentuation of the first sound at the apex, must first be carefully studied and compared with postmortem observations before its meaning can be outlined. Weakness of the first sound at the base is directly connected with weakness at the apex. Marked accentuation of the second sound at the aortic orifice means increased activity of the left ventricle; this is heard especially well in some cases of aortic stenosis. Accentuation of the second sound at the pulmonic orifice means increased activity of the right heart. Arteriosclerosis may be present, but not necessarily; the accentuation is not due to the sclerotic wall of the artery, nor is the peculiar note of the second sound with its deep vibration a sure sign of arteriosclerosis; its presence may lead us to suspect it, and points to abnormal tension of the aortic wall. Marked weakness of the second sound over the aortic cartilage to its absolute absence is found in both aortic stenosis and regurgitation, but its exact meaning is not determined. In infectious diseases, if associated with weak pulmonary second, it is a very unfavorable sign, meaning great cardiac weakness. Marked weakness of the second sound at the pulmonary orifice in mitral disease is a sign of deficient compensation. Weak basal sounds in comparison with those at the apex are found in drunkards. Marked weakness of apical sounds in comparison with those at the base are found in fatty myocarditis. [E.L.]

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[1] Zeit. f. klin. Med., Bd. liii, p. 9.
[2] American Journal of the Medical Sciences, August, 1904.
[3] Berliner klin. Wochenschrift, 1904, Nos. 20 and 21.

[1] Chicago Medical Recorder, June 15, 1904.
[2] Prager medicinische Wochenschrift, 1904, xxix, No. 8.
[3] Deut. Archiv f. klin. Med., Bd. lxxx, p. 356.
[4] Deutsche medicinische Wochenschrift, 1904, xxx, No. 17, 612.

Therapeutic Application of Blood-letting.—W. Bruner[1] believes that blood-letting should be employed oftener than is done at present. Its action is a mechanical one; the resistance of the circulation is diminished, the demands on the heart lessened, and the latter is enabled to contract much more energetically and with more effect. Blood-letting is indicated in many cases of croupous pneumonia, emphysema, and heart disease, where circulatory obstruction imposes increased demands upon the heart-muscle. It is also employed in apoplexy, to reduce arterial tension and brain pressure. In uremia and eclampsia it has its greatest usefulness, the purpose being to remove toxic substances from the body. [B.K.]

Endocarditis and Tuberculosis.—The occurrence of acute endocarditis in patients suffering from tuberculosis has been looked upon as due to the tubercle bacilli or their toxins. Igar Wokatch[2] reviews the literature and reports original cases. From his investigations it appears that acute endocarditis is very rare in miliary tuberculosis (3%). In the lesions of the endocardium in tuberculous patients neither tubercles nor caseating foci could be found, and the author is therefore inclined to deny the ability of tubercle bacilli to produce acute verrucous endocarditis. When the latter complicates tuberculosis, we may safely assume a secondary infection. [L.J.]

Embolism and Thrombosis of the Mesenteric Vessels.—K. Osswald[3] reports two cases. The first is that of a paralytic of 36, who suffered from a febrile intestinal catarrh with vomiting. After four days this was improving, when a mild exertion suddenly caused collapse, vomiting, fall of temperature, followed by death four hours later. The autopsy revealed an embolism of the superior mesenteric artery and branches, with thrombosis of the vein and its branches. The result had been hemorrhagic infarct of the whole small intestine. This combination of embolus in the mesenteric artery with thrombosis of the vein is exceedingly rare. It was impossible to determine which condition developed first. The second case was that of a man of 49 who had had a febrile enteritis with meteorism six weeks previously. Suddenly the meteorism recurred, with repeated vomiting, subnormal temperature, complete intestinal obstruction, fecal vomiting, and death on the third day. The autopsy revealed hemorrhagic infarct of the upper and middle parts of the small intestine, as a result of embolic obstruction of several branches of the superior mesenteric artery. The source of the embolism could not be found in either case. These cases differ from most others in the absence of the colicky pains which usually precede the development of the other symptoms. [B.K.]

Spontaneous Recovery from Ruptured Aneurysm.—N. S. Ferry[1] reports a case of aneurysm of the aorta in a man of 58 that ruptured into the left lung, causing a profuse pulmonary hemorrhage. The patient lived two years and then died from a second hemorrhage. The left lung contained two large communicating cavities or sacs making up the aneurysm proper and a smaller cavity bounded by freshly torn lung tissue. Over the smaller of the two sacs was an area of scar tissue where the sac had almost reached the pleura; this was undoubtedly the site of the first rupture and had healed. Ferry finds but eight similar cases in literature and appends brief notes. [A.G.E.]

Tetany and Hyperacidity in Carcinoma of the Stomach.—G. Honigmann[2] reports a case in which the patient had suffered for many years from socalled "nervous hyperacidity." An acute attack of gastrointestinal catarrh was followed by atony of the stomach with hypersecretion, which gradually improved under treatment. The patient was rapidly gaining weight, when suddenly the clinical picture changed. A moderate gastric hemorrhage was followed by complete atony of the stomach, while the hyperacidity changed to anacidity. At the same time attacks of tetany developed. Operation was performed, and a cancer of the pylorus discovered, with recent metastases to the mesenteric glands. A gastroenterostomy was done, which relieved the tetany; but the patient's condition became worse, and he finally died. At autopsy no traces of gastric ulcer could be found, and there was only moderate stenosis of the pylorus. The sudden change in the symptoms seemed referable to the hemorrhage, which was probably caused by growth of the cancer into a branch of the right gastroepiploic artery. This also led to the metastases to the mesenteric glands. The consequent generalization of the carcinomatous process led to the alterations in the clinical picture. The tetanic attacks were probably due to a combination of distention of the stomach, with changes in the mucous membrane, and the effects of the carcinoma poison on the system. [B.K.]

The Present Status of Streptococcus and Tetanus Antitoxin Injections.—Victor C. Vaughan[3] gives an excellent critical review of the literature on these subjects. His opinion regarding them is contained in the conclusions: 1. We must know more about streptococcus toxin than we do, and must be able to prepare a soluble streptococcus toxin before an antistreptococcic serum of value can be prepared. 2. There is no satisfactory proof that any of the antistreptococcic serums now employed by the profession have any therapeutic value. These preparations are not fraudulent, nor are they made for the purpose of deceiving. On the other hand, they are made with the very best of intent, but no one at the present time possesses sufficient knowledge of streptococcus toxin to make them of value. 3. There is at present no satisfactory method of standardizing antitetanic serum. As it has been shown to be harmless, there is apparently no danger of using too much. 4. The prophylactic value of antitetanic serum has been abundantly demonstrated, and prophylactic doses should be given whenever the surgeon is called upon to dress a wound which, in his opinion, might be infected with tetanus bacilli. Such dose should be repeated on the third, fifth and seventh days after the receipt of the wound. [A.G.E.]

The Occurrence of Pentosuria.—Bial[4] reports four such cases, three of which were from the same family. The urine of these patients reduced Fehling's and Nylander's solutions but did not turn polarized light, and would not react positively to the fermentation test. Each of these patients had been told at one time he had sugar in his urine. Most of them were sent to him with the diagnosis of diabetes. He calls attention to the fact that the diagnosis can be made by the practitioner, and that a spectroscope is not necessary to determine the condition. The chemic tests, such as the orcin reaction, Fehling's, and fermentation, are sufficient. Bial and Blumenthal regard this condition as an anomaly in the metabolic process. [J.F.]

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[1] Zeit. für klin Med., Bd. liii, p. 326.
[2] Dissertation, Moscow, 1904.
[3] Zeit. für klin. Med., Bd. liii, p. 308.

[1] American Journal of the Medical Sciences, July, 1904.
[2] Zeit. für klin. Med., Bd. liii, p. 347.
[3] The Physician and Surgeon, May, 1904.
[4] Berliner klin. Wochenschrift, 1904, No. 21.

Spastic Pyloric Stenosis and Intermittent Gastrectasia.—G. Korn[1] describes in detail five cases of spastic pyloric stenosis and intermittent gastrectasia, and points out the extreme variability of the clinical picture. During the attack the symptoms do not differ from those of an organic stenosis, but the very next day the patient may not complain of anything. A disposition to new attacks, however, remains, and if these attacks occur sufficiently often, hypertrophy of the pylorus will follow; connective-tissue proliferation and organization will, in time, give rise to an organic stenosis. The diagnosis can only be made by exclusion, and even then some time must elapse before the diagnosis can be considered certain. The prognosis of single attacks is usually good; the possibility of organic changes for ultimate prognoses must be kept in mind. Concerning treatment, the author recommends conservative measures, such as are employed in the treatment of gastric ulcer, especially as an inflammatory or ulcerative state very often forms the basis for the spasm; if complications arise, a gastroenterostomy or jejunostomy must be considered. [E.L.]

Diabetic Neuritis.—F. W. Pavy[2] makes reference to various local manifestations which may occur in diabetes, such as local gangrene, socalled perforating ulcers, flushing or blanching of a part, due to vasomotor disturbances, etc. Particular reference is paid to the neuritis of diabetes. The prevailing opinion is that the neuritis is due to some unknown toxin manufactured within the system, which acts similarly to that of diphtheria, variola, septicemia, etc., or similar to lead, alcohol, or arsenic taken within the system. Authorities are quoted sustaining the common view that the neuritis is not at all due to the sugar present. This Pavy controverts, holding that in no instance does the neuritis fail to disappear when once the sugar is controlled. Disappearance is not always immediate, because the nerve tissue must have time to overcome the irritation, but it is reasonably prompt. That acetone is not responsible for the neuritis is shown by the occurrence of neuritis when no acetone is found, while sugar is always present if neuritis exists; though, of course sugar may be present and there be no neuritis. This is particularly true in young subjects. Hence Pavy believes sugar alone is responsible for the neuritis of diabetes, and once the sugar is controlled the neuritis will disappear. [A.B.C.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

EDITORIAL COMMENT

Prophylaxis against Postoperative Peritonitis.—The attention of practical men has been hitherto so largely centered upon curative procedures that prophylaxis has been neglected. In surgical treatment too great reliance has been placed in the efficacy of asepsis and antisepsis because of an inadequate appreciation of the defects in operative technic, so that well-grounded discoveries by laboratory workers have been given insufficient clinical trial in many instances in which the value of the application of underlying principles was obvious. The knowledge that certain benign foreign substances when injected into the peritoneal cavity were capable of inducing an increased resistance to subsequent local infection, is of long standing. Durham[3] had warmly advocated the introduction of this procdure into surgery as a means of preventing postoperative peritonitis, but this has only recently been done, albeit through somewhat clearer understanding of the fundamental principles, although great effort has been directed toward the development of curative procedures. Mikulicz-Radecki,[1] in the Breslau clinic, has applied with excellent results the principles derived from animal experiments conducted at his instance by Miyake. Working with the hypothesis that local and general hyperleukocytosis through increased bactericidal action or more active phagocytosis, or both, would produce an increase of resistance, neutralized nucleic acid, was found to be efficacious, while not in itself being inhibitory to bacterial growth. Single interperitoneal injections protected guineapigs from 16 to 20 times the minimal lethal dose of an organism, repeated injections raised this resistance to 40 times the given dose. This action is known to be nonspecific, but varies in the degree of protection with the virulence of the organism used, and with the natural susceptibility of the animal thereto. Intraperitoneal injections were found to be inapplicable clinically, so that the effects of subcutaneous injections were studied. Thus the resisting power of the peritoneum was increased 16-fold to 24-fold after single, and 32-fold after repeated hypodermic injections. Observations upon man then determined the proper dosage of the nucleic acid and the time elapsing to the development of the maximum hyperleukocytosis. There was a temporary hypoleukocytosis immediately following the injection, as was observed in the animals, who show a decreased resistance during this period. Operations were therefore performed on the rising leukocyte wave, the increase varying from 9% to 452% of the leukocytes previously in the circulation. With proper dosage no ill-effects were shown. A slight increase of temperature occasionally with rigors, but without malaise, follows the injections. Mikulicz-Radecki expresses much satisfaction with the results obtained in 45 cases, where infection of the peritoneum seemed certain, and where the operations were of some magnitude pylorectomies, enteroanastomoses, nephrectomies). Seven of these died, but none from peritonitis, though two recovered in spite of this complication. Moreover, the convalescence seemed to be more satisfactory than in cases not previously injected. So few observations were not claimed to establish the value of this innovation, particularly as the abdomen had been thoroughly flushed with salt solution, just before closure, as has been so enthusiastically advocated and experimentally justified by Clark and Norris.[2] However, no bad effects were manifested, and all the evidence at hand, experimental and clinical, warrants faith in the efficacy of this procedure, and the simplicity of its application indicates the wisdom of its general adoption, till its worth shall have been determined. It seems not impossible that other substances than nucleic acid may be found to be more efficacious, and that there may be a wider range of application of this principle to other infectious processes.

REVIEW OF LITERATURE

Tumors of the Chiasm.—Otto Kiliani[3] reports the case of a tumor at the base of the brain. The diagnosis was tumor of the hypophysis, making pressure on the chiasm; operation and death. The difficulties in this case led Kiliani to suggest a route for reaching the chiasm. A Wagner flap is formed on the frontal bones with true omega shape, the base of which is a half inch behind the coronal suture, the indentation of the omega is exactly in the median line to avoid the frontal sinus. The dimensions of the flap are: Median line 5 in. (lateral diameters being 5½ in.), width 7 in., base 3½ in. The skin incision severs the temporal arteries, and the opening of the skull is made with the electric motor, which follows closely the line of the omega, the distance of the horizontal branches from the orbital margin being three-fourths inch, then going upward to avoid the frontal sinus. After a number of experiments on the cadaver, Kiliani can do the bone cutting in eight minutes. After breaking the flap the longitudinal sinus, which is here small, is ligated. The plan then is to lift up the frontal lobes and gain access to the chiasm. [A.B.C.]

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[1] Deutsche medicinische Wochenschrift, 1904, xxx, 10 and 11, 344 and 380.

[2] The Lancet, July 9, 1904.

[3] Durham: Med. Chir. Transactions, London, Vol. xxx, 1897.

[1] Mikulicz-Radecki: The Lancet, July 2, 1904.

[2] Clark and Norris, Jour. Am. Med. Assn., Jan. 30 1904.

[3] Annals of Surgery, July, 1904.

Suture of the Brachial Artery.—Gaston Torrance[1] reports that a youth of 17 had his left arm badly crushed midway between the shoulder and elbow, by the wheel of a mining car. The muscles were lacerated and the bone exposed. Ordinary treatment was instituted and the wound was doing nicely, when suddenly, on the seventh day, there was profuse hemorrhage from the wound. A nurse quickly applied a tourinquet above the wound, and the patient was soon seen by Torrance. The wound was reopened, and the artery showed a funnel-shaped ulcer, which had perforated the vessel wall, the opening being as large as a pencil point. Blood spurted out at each beat of the heart; the radial pulse was absent, and the hand cold and edematous. Attempt at suture was decided upon. The first suture was placed with the forearm extended, but it tore out. The forearm was then flexed and a fine silk pursestring suture was introduced, which on being tied, closed the opening entirely. A muscle graft covered the suture. The hand and arm were dressed on an internal angular splint for two months, the patient being kept in bed two weeks. The wound healed readily, and the patient slowly recovered the use of his hand and arm. [A.B.C.]

Value of the Imperfectly Descended Testicle.—Edred M. Corner[2] says the most important function of the imperfectly descended testicle is its socalled internal secretion; it rarely or practically never produces spermatozoa. If allowed to remain in the malposition, it will become sclerotic, atrophic, and often cause pain, all of which he believes is occasioned by torsion of the cord, which may be gradual. Corner has performed 30 operations for imperfectly descended testicle, and in 16 instances with history of more or less painful attacks, torsion of the cord was found. His conclusions are: 1. Orchidopexy is applicable only in mild cases, and even here may not be necessary. 2. Orchidectomy is justified only under certain pathologic conditions—torsion, severe neuralgia, extreme atrophy, etc. 3. Replacement in the abdomen is indicated in far the majority of cases, and should always be done before puberty, and at least up to 20; the earlier the operation the better. 4. No operation may be called for when the testis is within the abdomen, or fairly within the scrotum. 5. Operation is demanded in most instances on account of the secondary changes of an inflammatory or sclerotic nature in the testis; also, hernial sac is found in about 70% of these cases; hence, if hernia does not actually exist, it may suddenly descend and produce dangerous strangulation. [A.B.C.]

Points in the Diagnosis of Appendicitis.—W. Blair Bell[1] calls attention to some points in the diagnosis of appendicitis, often unrecognized or misinterpreted. In acute appendicitis he believes appendicular colic one of the first signs that an appendix is liable to give further trouble. The patient is usually in previous good health, apt to be constipated; he is suddenly seized with pain in region of the appendix. This lasts from a half hour to three hours and on disappearing leaves tenderness for a few days. Cutaneous hyperesthesia in the distribution of the right eleventh dorsal nerve is of value as a positive but not as a negative sign of acute appendicitis. It is often not present, and some assert that if present and then disappears it indicates gangrene or perforation. Bell lays down the rule that in general rigidity of the abdomen consequent upon acute lesion, the site of the lesion is situated beneath that area of muscular rigidity which is the latest to relax as anesthesia progresses. In inflammation of the right iliac region of females we are not sufficiently careful to exclude tubal or ovarian disease. Bell believes that "chronic appendicitis" does at times exist and that it is usually secondary to a chronic typhlitis, caused by chronic overdistention and constipation. [A.B.C.]

Primary Cholecystectomy.—Howard Lilienthal[3] reports a series of 42 cases in which he has performed primary cholecystectomy. According to Courvoisier, the first cholecystectomy on the human subject was performed by Langenbuch in 1882. Lilienthal believes the operation, in the majority of cases, to be safer than any other operation upon the bile passages, even when complicated by jaundice or grave sepsis, and when such procedures as appendicectomy, choledochotomy, gastrorrhaphy or duodenorrhaphy must be performed at the same time. Contraindications to the operation are: (1) Extensive malignant disease involving the gallbladder and other viscera; (2) cholecystitis with large perforations and abscesses; (3) cases of known hemorrhagic tendency; (4) moribund patient. The operation is described in detail, and is simplified, according to the author's view, by having an enameled iron piece about six inches wide, forming a part of the table, and which may be raised or lowered at will. This replaces the sand-bag. Lilienthal believes the operation is as safe as that for appendicitis; that it is neat, accurate, thorough, and almost certainly prevents a recurrence of the trouble. [A.B.C.]

Formalin-Gelatin a Disinfectant Protective Skin.—A. E. Wright,[1] under the general title of "Pathologic Suggestions," states if we take a 15% to 20% gelatin, liquefy by heat and add 1% to 2% of formalin, we have a substance which if immediately painted on a moist surface will adhere firmly to it, forming a tenacious, elastic and insoluble skin, which is admirably adapted as a protective, and as a hemostatic agent. Wright has painted this preparation on the bleeding gums of a hemophiliac, with entire success, when both adrenalin and ferric chlorid had failed. Painted on denuded skin surfaces, it furnished an antiseptic and insoluble coating, which protects the underlying tissues, and is not removed by ordinary washing. Experimentally he has found pyogenic organisms of the skin rapidly devitalized under this antiseptic coating. When painting this substance over a denuded surface, pain is prevented by first painting on a film of simple gelatin and, when dry, following with the formalin-gelatin. [A.B.C.]

Intermittent Hydrops of the Joints.—Howard Marsh,[2] in his Hunterian lecture, reports two cases. A man of 38 received an injury to the knee. Some effusion followed, but under ordinary treatment he apparently recovered. Several months later there began to be periodic attacks of pain and swelling in the knee; at first the periods were several weeks apart; later they occurred every night. The pain was intense, and the swelling marked; both subsided during the day. There was no effusion into the joint, only a vascular turgescence and engorgement of the synovial membrane and skin edema. All resources in treatment having been exhausted, and a careful inquiry having elicited a history of repeated attacks of malaria, the patient was put on quinin, and complete recovery followed. Another patient was a woman of 28, who for 18 months had a recurring, painful, and swollen knee every 14 days, the attacks lasting for three days. There was effusion into the joint. Quinin had no effect, but arsenic continued for several months gradually effected a cure. Marsh does not believe malaria was responsible for the condition in the first case. Quinin and arsenic are the two best antiperiodics regardless of the cause. Brackett and Cotton[3] report 43 clear cases of intermittent hydrops of joints. The etiology in these cases is unknown; treatment is empiric. [A.B.C.]

Anatomy and Surgery of the Internal Derangements of the Knee.—Benjamin Tenney's[4] is an exhaustive article, replete with photographic illustrations, and based on a study of 150 dissected joints. The first part of the article is devoted to the anatomy of the joint; the latter part to pathologic conditions and treatment. Internal derangements of the knee, classified accordingly to their frequency, are: 1. Tabes from the lubricating surface, under which Tenney states that the most frequently injured among the joints dissected were the infrapatellar pads. It was noted in 100 of his 150 joints. 2. Erosions of cartilage, seen most frequently on the articular cartilage at the back of the upper surface of the external tibial tuberosity. 3. Damaged and displaced semilunar cartilages; these presented the most striking pathologic condition of the joints examined. 4. Ruptured ligaments. These occur but rarely, unless in conjunction with more serious injury. 5. Free and loose bodies in the knee-joint, occurring twice in his 150 dissected joints. 6. Villous, or papillary synovitis, no instance of which was noted in his series. Suture of damaged semilunar cartilages has been done, but removal of the damaged and loosened part is far better. Tenney has collected 297 reported operations for the removal of loose bodies in nonpurulent knee-joints since 1895; six resulted in ankylosis, and there were no amputations and no deaths. In opening up the knee-joint the skin incision should not follow the line of incision into the capsule; to do so increases the chance of infection. [A.B.C.]

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[1] Annals of Surgery, July, 1904.
[2] British Medical Journal, June 4, 1904.
[3] The Lancet, June 4, 1904.

[1] The Lancet, July 9, 1904.
[2] The Lancet, June 4, 1904.
[3] Boston Medical and Surgical Journal, Vol. cxlv, p. 484.
[4] Annals of Surgery, July, 1904.

Early Diagnosis of Cancer of Rectum and Sigmoid by Palpation and Endoscopy.—Th. Rosenheim[1] insists that bimanual palpation and endoscopy are the best means for diagnosis at our command. To perform endoscopy of the rectum and sigmoid, instruments varying in length from 10 to 14 inches and supplied with a small electric bulb are necessary; with the patient in knee-chest posture, they are usually inserted very readily. An illustrative case is reported in detail. Endoscopy should be employed in every suspicious case, as palpation usually fails in early cases, even with the patient narcotized. He describes his method of bimanual palpation; the patient lies on his right side, with the pelvis elevated, and the limbs drawn up; the physician stands on a stool examining with his left index finger in the rectum and the right hand pressing downward from above. Tumors situated above the third sacral vertebra cannot usually be discovered by palpation. He gives the details of three such cases which could not be diagnosed even with the patient in narcosis. He concludes by again impressing the value of endoscopy in all doubtful cases, and states that its negative results can be as much relied on as its positive; the endoscopic picture is absolutely diagnostic. [E.L.]

The Imperfectly Descended Testicle.—E. M. Corner[2] completes an interesting article on this subject, and concludes as follows: 1. Orchidopexy is only applicable in mild cases of imperfectly descended testis, and perhaps even then it may not often be necessary. 2. Orchidectomy is only justifiable under special pathologic conditions, as torsion, severe neuralgia, extreme atrophy, etc; and in older patients, that is after puberty and a possible and problematic period of testicular activity and spermatogenesis has passed, say from 23 upward. 3. Replacement in the abdomen is indicated in far the majority of cases, and should always be done before puberty, and perhaps up to the age of 20. It would appear the earlier the operation is performed the better should be the result. 4. No operation may be called for in mild cases when the testis is close to the bottom of the scrotum, or when the testes are restrained within the abdomen. 5. Operative interference is demanded in most cases on account of the secondary changes of an inflammatory and sclerotic nature in the testis, which the position of imperfect descent leads to. There is the frequent coexistence of hernia with this condition; and in patients in which it does not often or has not previously come down, the narrow opening or neck of the sac may cause one of the most dangerous varieties of strangulation. [A.B.C.]

Combined Transverse and Longitudinal Incision in Laparotomy.—Lewis A. Stimson[3] reviews the literature concerning transverse incisions in laparotomy and describes the method which he follows. Briefly the line of incision is a shallow transverse curve, concavity upward, which crosses the median line 3 cm. or 4 cm. (1¼ in. or 1½ in.) above the symphysis pubis. The lateral extension is toward the anterior superior spine on either side, but stops well short of it; occasionally a total length of 7.5 cm. (8 in.) is sufficient, but this depends on the thickness of the abdominal wall and the intent of the operation. The skin, aponeuroses of the external oblique and internal oblique are thus divided and dissected free from the pyramidales and recti muscles and the flap thus formed is turned upward. A longitudinal incision now made between the recti muscles opens into the abdominal cavity. This longitudinal incision may be extended to the umbilicus. The advantages of the operation are: It is easy of execution, ample for any abdominal work that can be done through an incision below the umbilicus, easy of repair, and affords apparently complete protection against postoperative ventral hernia. [A.B.C.]

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[1] Deutsche medicinische Wochenschrift, 1904, xxx, Nos. 11 and 12, 377 and 422.

[2] British Medical Journal, June 4, 1904.

[3] Annals of Surgery, August, 1904.

Treatment of Hemorrhoids.—Proebsting[1] claims that the rectum is never completely emptied by defecation in persons suffering from hemorrhoids. He says that the retained feces are responsible for the spasm of the sphincters and other annoying symptoms. To remedy this he recommends an enema of cold water to wash out the rectum after defecation. If this cannot be borne, on account of a tendency to intestinal catarrh or prostatic and vesical disease, lukewarm water may be used. [B.K.]

Results in 125 Cases of Sarcoma.—Andrew J. McCosh[2] discusses sarcoma at length, reports several cases in detail, and gives results in the series. The youngest patient was 4½ years and the oldest 58; the greatest number occurred between the ages of 30 and 40. Of the 125 patients, 27 have disappeared and 98 have been followed; of these, 51 died of recurrence or metastasis; the average duration of life of these 51, from the appearance of the first symptom until death, was 25 months—maximum, 96 months; minimum, 4 months. Five others are still alive with metastases and will soon die; 2 others have but lately been operated upon; 39 patients have survived operation one year or longer. Among the 98 patients, 56 had what was considered complete operations, and 42 had what was considered incomplete operations. Of the 56 so operated upon, 14 have died of metastases and 38 are alive after a year or more. One out of the 42 (incomplete operations) had a period of suppuration which resulted in a cure. The number of cases of the several varieties of sarcoma is given, together with the various parts of the body affected, with the relative expectancy of life. There were 11 amputations of the thigh for sarcoma of the femur or head of the tibia or fibula; of these patients, 6 are dead and 5 have escaped the 4-year limit. McCosh considers amputation through the thigh as good as disarticulation at the hip-joint. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

Wilmer Krusen   Frank C. Hammond

REVIEW OF LITERATURE

Carcinoma and Tuberculosis in the Same Uterus.—J. Wallert[3] adds three cases of associated carcinoma and tuberculosis of the genitalia to the small list recorded thus far. In the first patient's case the carcinomatous masses were found accidentally in the mucous membrane removed by curetment on account of tuberculosis. Carcinomatous alveoli were found in the midst of the tubercles. The second patient had a genital tuberculosis secondary to a pulmonary affection. The disease had spread to the tubes and uterus by way of the peritoneum. The cervix was, as is unusual in this disease, markedly diseased. The vagina contained no tuberculous masses. In addition, the cervix was the seat of a carcinoma, which originated apparently in the glands of the cervix. The tuberculous disease having invaded the paracervical tissue had apparently existed longer than the carcinoma, which had not yet reached the outer layers of the uterine wall. The third patient died of pulmonary and meningeal tuberculosis. The autopsy revealed, in addition, an advanced adenocarcinoma of the cervix and uterus and a small tubercle in the mucous membrane of the fundus uteri. In this case the accidental coexistence of the two diseases could not be denied, but in the second case it must be supposed that the proliferating granulations produced in the cervical glands by the tuberculous disease acted as agents of predisposition for the formation of the carcinoma, especially as the patient possessed already a hereditary predisposition to the disease. [E.L.]

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[1] Zeit. f. klin. Med., Bd. liii, p. 58.

[2] Annals of Surgery, August, 1904.

[3] Zeitschrift für Geburtshülfe und Gynecologie, 1904, l, 248.

Hernia of the Uterus Through the Inguinal Canal.—J. H. Jopson[1] reports the case. A negro woman of 27 had noticed a small right inguinal hernia as long as she could remember. She was married and had three children, no miscarriages. The small hernial tumor always disappeared on lying down. She had never worn a truss. A week before her admission to the hospital the tumor rather suddenly became larger, caused pain, and confined her to bed. A physician sent her to the hospital, where she was first seen by Jopson, who made a diagnosis of omental hernia. Operation was performed, the usual incision being made. The hernial sac was opened, and a pear-shaped mass exposed. During manipulation the mass split, and some free pus escaped from its interior. Presently an ovary was discovered, and it was then ascertained that the hernial mass was the uterus turned forward, the supravaginal portion running downward, backward and inward to the cervix. Removal of the infected uterus was deemed necessary. This was done, together with the prolapsed ovary, the supravaginal portion being anchored in the external abdominal ring. Recovery was complete. [A.B.C.]

Syphilitic Changes of Vagina and Vaginal Portio.—J. H. Rille[2] thinks the rarity of primary affection of the vagina is conditioned upon the firmness of the epithelial plate cells, the protective coating which the secretions form and which, perhaps, make effective the virus, and finally through the displaceability of the vaginal walls. In the majority of cases the primary syphilitic affection upon the vaginal walls has the appearance of the socalled pergament sclerosis. A higher grade of induration is rare. The points of induration are usually about the size of flaxseed, though they have been observed the size of a mark, often covered with a red-brown serous fluid, or a yellowish-white exudate. Most frequently the primary affection is localized upon the posterior vaginal column, and is usually of brief duration. Secondary syphilitic exanthema of the vagina is rare, also tertiary syphilis which assumes the form of gummas, or knots, developed beneath the mucosa, or in form of tumors on the vaginal walls or vaginal fornix, and appears by preference on the posterior commissure and navicular fossa. The occurrence of primary syphilis of the vaginal portio is not rare. It usually occurs on the anterior cervical lip, sometimes extends into the wide open cervical canal, and assumes the form of circular or semicircular ulceration. The appearance of typical cases is characteristic, being that of a plainly diseased or damaged substance covered with a brown-red or partly greyish-white shining surface, from which trickles a serous fluid which mingles with the secretions of uterus and vagina, and is not further noticed. The soft chancre is easy to differentiate. The variety known as the raised soft ulcer has also been observed. The hard chancre of the vaginal portio may become an obstruction in delivery. The treatment is vaginal irrigation, iodoform tampons, and painting. Secondary and tertiary syphilis of the portio are quite rare, and often the diagnosis can be made only by exclusion. [W.K.]

Cervical Dystocia: Congenital Incomplete Transverse Closure.—André Ferrand, in a *Thèse de Paris*, 1900, covers the nine cases to date. The present paper adds three cases. Alberto de Bustamente[3] recommends dilation with the instrument devised by Bossi. Betancourt has used it to facilitate delivery in cases of placenta prævia. The advantages of the Genoese treatment are rational and resulted favorably in the writer's experience with his three cases; however, the fetal mortality was 67%, unavoidable because of premature labor. [T.H.E.]

Lilliputian Delivered of a Living Child by Cesarean Section.—L. H. Bernd[4] reports the performance of a cesarean section upon a woman of 20, 115 cm. (46 in.) high, and weighing 28 K (62 pounds). She was rachitic. Labor was induced with the intention of delivering the child by forceps, but these could not be applied. Cesarean section was then performed, the Porro operation being employed. The child was living, but died on the second day. The mother made a perfect recovery. Bernd states that the case is unique as being the first instance of the birth of a living lilliputian child of lilliputian parents, the father being but three inches taller than the mother. The Cuban dwarf, Chiquita, was three inches shorter than this patient, but her husband was large and the baby was born dead. [A.G.E.]

Extract of Placenta a Galactagog.—L. Bouchacourt, some time since, drew attention to this. Recent experiments by Chaleix-Vivie[1] using the fresh placenta of the sow from which to prepare a glycerinated extract, confirm its effect. That of the sow is preferred because of its considerable size, and the fact that the sow is little likely to be subject to transmissible disease. This danger obviated, the extract must be prepared by maceration in a neutral glycerin, after the material has been reduced to small particles; the extract should be pasteurized and preserved in suitable ground-glass stoppered receptacles. The dose is from two to six teaspoonfuls daily, in cold water. It is considered that a teaspoonful shall equal 1 gm. (15 gr.) of the fresh tissue. After a few doses a marked increase in the milk secretion, as well as actual organic hypertrophy takes place. [T.H.E.]

After-treatment of Abdominal Section.—L. E. Burch[2] says the three most prominent symptoms after section are backache, thirst, and nausea. It is a mistake to tell patients nothing can be done for the first. Do something; tell the nurse to rub the back with alcohol or place a small pillow beneath it, elevate or depress the knees, smooth out the clothes. Hypodermics of water often give relief, as mental therapeutics are usually successful. In severe cases, the patient may be turned on the side, even during the first 24 hours, but, as a rule, this is not best. Thirst may be relieved by a salt solution enema while the patient is under the anesthetic; after consciousness is regained, cool water should be allowed in moderation. Withholding water is barbarous and without reason, except in cases of peritoneal sepsis, where rapid absorption is desired. In the treatment of shock after section three measures are preeminent, heat, normal salt solution, and adrenalin. In conclusion, the following points are emphasized: Avoidance of opium and the early movement of the bowels in desperate cases; absence of all relatives and friends from the sick-room until the crisis has passed; administration of water in almost satisfying quantities from the first; early propping up in bed, especially of old people; avoidance of milk as diet until the sixth day; the use of a saline enema at the completion of every abdominal operation for the relief of thirst. [A.G.E.]

Application of Pessaries and Their Dangers.—H. MacNaughton Jones[3] states that a very large proportion of retroversions can be cured by the aid of a pessary, and a smaller number can be cured of complicating conditions as well. The pessary must be mobile, and never so long as to put the vagina on the stretch; otherwise, it loses its distinctive character of a lever and degenerates into an ordinary ring pessary. It should impinge on the soft parts only, and take no bearings on the solid structures of the pelvis. If the upper and back part of the vagina is relaxed, the uterus will slip back over the pessary into retroversion, just as though it were not there. Overdistention of the vaginal walls by too large a pessary leads to an atonic muscular condition and subsequent relaxation of the vesical and retrorectal supports. The use of the stem is hazardous, requiring strict injunctions as to rest and supervision. It should be removed before the menstrual period. A string should be attached, and the patient taught to remove it herself on the least indication of pain, chill, or malaise. Conditions which contraindicate the use of any pessary, are displacements associated with endometritis before the latter is cured, those complicated by adhesions, adnexal tumors, inflammation of ovaries and tubes, tumors in Douglas' pouch, and cases in which the displacement recurs when the pessary is removed, or even with it in situ. Sometimes it is impossible to detect these complications without an anesthetic, which should be used whenever doubt exists. [H.M.]

Intrauterine Injection.—P. Zweifel[4] reviews the dangers of intrauterine injection, classing them as threefold: The introduction of air, the absorption of the poison, and septic infection; and refers to cases in which in spite of the greatest precautions to guard against these dangers the injections were followed by alarming results: Fainting, nausea, attacks similar to eclamptic convulsions, and changes of temperature. He considers chlorin solution the most dangerous. In all intrauterine injections in gynecologic cases he advises the minimum measure of fluid made practicable by a graduated syringe. Finally, he advises the use of the mildest medicaments. That one should undertake intrauterine attacks only when there is no uterine inflammation is a matter of course. Even then the least dangerous remedies and the methods involving the least danger to life must be used. As less dangerous than injections when there is a normal width to the os uteri, painting with a brush or a flat stick of silver or nickel may be used to introduce the required medicament to the uterine cavity. [W.K.]

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[1] Annals of Surgery, July, 1904.
[2] Deutsche medicinische Wochenschrift, April 21, 1904.
[3] Revista Médica Cubana, Tomo iv, No. 2.
[4] Medicine, July, 1904.

[1] La Escuela de Medicina, May 31, 1904.
[2] Southern Medicine and Surgery, June, 1904.
[3] Medical Press and Circular, April 27, 1904, and British Gynec. Jour., May, 1904.
[4] Deutsche medicinische Wochenschrift, April 21, 1904.

Adenomyoma of the Uterus.—Cameron and Leitch[1] enter into a general discussion as to the histologic and clinical aspects of these tumors, report in detail the case study in several instances and conclude as follows with reference to the stages of these tumor formations: 1. An ingrowth of the structures of the endometrium into the muscular wall, as is seen in hypertrophic endometritis—the stage of "glandular inclusion." 2. A hyperplasia of the inclusions and a progressive infiltration stimulating a hyperplasia of the muscle—a stage of adenomyoma benignum. 3. A loss of relation between glandular and muscular elements, the growth of the former outstripping that of the latter, inversion and eversion of the epithelium with a consequent displacement of the intraglandular stroma and an encroachment upon the muscle, the irritation of the growth causing round-celled infiltration—stage of "malignant adenoma." 4. The stage of adenocarcinoma, the loss of relations between one epithelial cell and another, the riotous proliferation and heaping up of immature epithelial cells, which break through the restraining basement membrane. [A.B.C.]

A Rare Case of Uterine Rupture.—E. Honck[2] reports a case of uterine rupture in a young woman of 25, the labor pains beginning four weeks earlier than was expected. After a few hours a swelling in the middle of the abdomen was remarked. Attempts were made to reduce this by the use of the catheter and by pressure with a bandage, but without any effect. On further examination the swelling was found to be caused by the hernia of the amniotic sac through a place in the wall of the uterus, made thin by curetage after a previous abortion. The opening of the abdomen confirmed this diagnosis. The uterus was incised and a living child delivered. [W.K.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

EDITORIAL COMMENT

Questionable Scientific Medical Advice.—The editor of this department is on record in complete accord[3] with the views expressed by Dr. Hoag, under this heading, in our department of Correspondence, (page 272), but he remembers how difficult it often was to get the attending physician in cases seen in consultation, say 10 years ago, to follow the advice to abstain from the administration of milk in any form. Sterilized milk was the "rage." In one case well remembered the attending physician deemed it his duty not only to inform the family of the difference of opinion, but also to say that he believed death would directly result from the consultant's advice if followed. The family, however, adopted the consultant's view, that milk-feeding with consequent proteid decomposition and poisoning was the dangerous element, and the child is now a blooming girl of 12 years. Barley water usually affords an admirable medium of compromise when family or physician will not consent to the use of sterile water only by the mouth, with saline infusion (hypodermoclysis) under the skin if necessary. As a rule, enteroclysis is not desirable in these cases, for absorption of toxins may be promoted. Irrigation of the lower bowel with hot saline solution, containing in addition some suitable antiseptic, if desired (say betanaphtol 1 to 1,000 or acetozone 1 to 1,000) is, however, often quite useful. Much diluted beef-juice may be given in some instances without harm; but as a rule it is best to cleanse the primæ viæ by calomel or castor-oil and rhubarb, and to keep them clean by giving water only, or water and alcohol, for a few days. Above all else, milk must be scrupulously tabooed.

REVIEW OF LITERATURE

Therapeutic Use of Lecithin.—Lecithin exists in all parts of the animal organism, but it is especially plentiful in the central nervous system. It is a powerful factor in the construction of tissues and therefore, when animals are fed lecithin they grow to a much greater size, and are apparently much brighter than animals kept as control. Mental fatigue is nothing more than an exhaustion of the lecithin of some of the neurons. The temporary weariness may be followed by an actual destruction of nerve-cells, if the lecithin is not replaced as it is consumed. Martell's[1] experiments, to influence central disturbances by giving lecithin, rest therefore on a perfect theoretic basis. He employs different preparations of lecithin, which he prepares from the brain and spinal cord of young heifers. His therapeutic results differed, depending on whether he used lecithin prepared from the brain and upper part of the cord (lecithin-cerebrin) or from the lumbar part of the cord (lecithin-medullin). The former was found to have sedative and hypnotic properties; he employed it in cerebral convulsions of children, in neurasthenia with psychic depression, in migraine and in nervous headaches. Medullin from the upper cord improved cardiac neuroses, mitral stenosis, nervous asthma and acute cardiac dilation; it was a perfect diuretic also. Medullin from the lumbar cord was found successful in nervous gastralgia, intestinal atony, with constipation, vesical incontinence, impotence, uterine inertia. He found it an excellent tonic in convalescence from acute diseases. It may be given hypodermically dissolved in normal salt solution in doses of 0.02 gm. to 0.03 gm. ($\frac{3}{10}$ gr. to $\frac{1}{2}$ gr.) or 0.06 gm. (1 gr.) by mouth. [E.L.]

The Effects of Extracts of Organs upon Pancreatic Disease.—Glaessner and Sigel[2] report a case of disease of the pancreas, in which there was a decided disturbance in the proteid and fat absorption. They conclude from their experiments that the administration of thyroid extract is not beneficial in disease of the pancreas; that absorption of nitrogen and fat is slightly influenced by the administration of pancreon; that the absorption of these substances is decidedly influenced by pancreatin; and that absorption is greatly favored when sodium bicarbonate is given with the pancreon and the pancreatin. [J.F.]

Dialysed Digitalis Preparations.—A. Doebert[3] considers dialysed digitalis preparations superior to all other digitalis preparations, as they are absolutely constant in their strength. He gives adults from 60 to 100 drops daily, children proportionate doses. He saw no difference between the preparations of digitalis purpurea and grandiflora, and never observed unpleasant symptoms even after much larger doses than those mentioned. Usually, on the second or third day, improvement began to show itself, and even in desperate cases temporary improvement was noted. He gives the details of five cases, all of which showed a rapid diminution in the number of pulse-beats and respirations, improvement in the general health, increase in the quantity of urine, lessening of dyspnea, and sometimes edema and ascites were dispelled by it. He has employed it in more than 40 cases of cardiac insufficiency, and always with the best results. [E.L.]

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[1] The Lancet, July 9, 1904.
[2] Münchener medicinische Wochenschrift, May 3, 1904.
[3] Summer Diarrhea, Medical News, July 28, 1894, and many subsequent articles.

[1] Wiener medicinische Wochenschrift 1904, liv, No. 7-9.
[2] Berliner klin. Wochschrf., 1904, No. 17.
[3] Therapie der Gegenwart, 1904, xlv, 149.

Olive Oil in Diseases of the Stomach and Duodenum.—P. Cohnheim[1] has employed large doses of olive oil in more than 30 cases of pyloric stenosis, gastric ulcer, pyloric fissure, and their sequels and reports concerning these cases in detail. His method of procedure is as follows: Into the empty stomach, which, if necessary, has been washed out, he injects by means of the stomach tube 100 cc. to 150 cc. of warm olive oil; the patient then lies on his right side for about a half hour and fasts for another half hour; if the pains recur during the day, 50 cc. more are given toward evening. As the patient improves he takes a wineglassful an hour before breakfast and from 1 to 2 tablespoonfuls an hour before dinner and supper. In some cases Cohnheim gives milk of almonds instead of olive oil. He summarizes his results as follows: Gastrectasia, the result of pyloric fissure or ulcer, is cured by large doses of olive oil in a short time. Gastrectasia, due to organic pyloric stenosis, gives no symptoms so long as the patient lives carefully and uses large doses of oil; the oil acts as a mechanical lubricant. Relative stenosis associated with pylorospasm and hypersecretion for hours after meals are helped quickly. The spasm of carcinomatous stenoses is improved by oil very much. The painful spasms of pyloric ulcer disappear very soon as long as no complications exist; the oil checks the spasms, lubricates the surfaces, increases nutrition, and prevents pain. It is not associated with unpleasant side-effects. It serves to differentiate nervous from organic strictures, as the former are not improved by it. It prevents secondary gastrectasia in many cases and protects against relapses. It should always be tried before resorting to operation. [E.L.]

"Dyspeptine Hepp," Inert or Injurious?—F. Loeb[2] reports concerning his observations in Ewald's clinic with Hepp's dyspeptine (natural gastric juice from the pig) which by its originator was maintained to be a universal remedy for all varieties of hypoacidity and anacidity; Hepp stated that by its use he has seen a reappearance of HCl in cases of anacidity and an increase in cases of deficient acidity. When dietetic measures were combined with its administration, Loeb found that it neither benefited nor harmed the patient; in cases in which nothing else was prescribed it was injurious, insofar that the patient was not put upon helpful treatment while it was being used. Patients who did not improve on the ordinary measures were not helped by dyspeptine. Loeb says that it does not contain any free HCl, as claimed by Hepp, and of combined chlorids he found only a trace, whereas Hepp reported two to three parts in 1,000. [E.L.]

Antipneumococcus Serum.—Horder and Garrod[3] report the case of a man of 26, who was admitted on the fourth day of an attack of lobar pneumonia. From the cardiac indications it was evident there was an ulcerative endocarditis. Pneumococci were found in the blood and sputum. On the fourth day after admission 10 cc. of Pane's antipneumococcus serum was injected hypodermically; this was repeated daily for five days. There was then an interval of one day in which no serum was given; then it was recommenced and for four days larger doses (equivalent to 40 cc. daily of the variety first used in the case) were employed. The temperature ran a slightly lower course during the use of the serum, but on the whole the drug appeared to have no appreciable effect, and the patient died. Considering, however, that in addition to pneumonia and ulcerative endocarditis the patient developed a popliteal thrombosis—all proved by necropsy—the test for the serum was an unfair one. [A.B.C.]

Enemas Containing Collargol Credé.—H. Loebl[4] advises the use of Credé's collargol by enema, instead of by inunction or intravenous injection. He considers this a better method, as it is thus given over a greater absorbing surface and may be used in larger quantities; nor is the patient disturbed as much by it. The technic is very simple and devoid of danger; no bad symptoms were observed in any of his cases, and the results were as good as when one of the older methods was employed. He reports a number of cases, in many of which recovery followed the rectal use of collargol, although other methods had been employed without success. He dissolves .5 gm. of collargol in 50 cc. of water, giving it a half hour after an enema of lukewarm water. He gives these twice daily for 8 to 14 days. [E.L.]

Drug Eruptions after Theocin.—Pauli[1] gave a patient with aortic regurgitation on account of stenocardial pain, 1.5 gm. (22 gr.) of theocin within two days; 1.2 gm. (18 gr.) was given by suppository. On the second day the patient complained of nausea and dizziness, and within a short time an intensely itching urticarial eruption covered the entire body. Theobromin, 4 gm. (1 dr.) daily, was substituted, and in spite of this being a compound isomeric with theocin, the symptoms and eruption gradually disappeared. He saw two other such cases within a short time, and as theobromin, which differs but little from theocin in its action, has never produced such symptoms, he advises its use instead. [E.L.]

Elimination of Veronal.—E. Fischer and J. von Mering[2] have found that veronal is eliminated from the body in the greater part as unchanged veronal. Their first experiment consisted in dissolving a definite quantity of the drug in 1,200 cc. of urine, and regaining as much of it as possible by a method which they describe in full. They succeeded in recovering 89% of the total amount given. The same method was then employed with a series of patients who were given gram doses in 4 intervals of 12 hours each, and their urine collected for 5 days. With care, fully 70% of it was recovered as pure veronal. They recommend hot tea, or water, as the best method of administration. It should never be given in hot milk, as this intensifies the bitter taste of the drug. As veronal is dissolved easier and quicker than sulfonal or trional, its action is quicker, and it is therefore preferable. [E.L.]

FORMULAS, ORIGINAL AND SELECTED.

To Prevent Falling Out of the Hair.—Brocq[3] uses the following:

Crystallized acetic acid	5 gm. (75 gr.)
Tincture of cantharides	10 gm. (2½ dr.)
Tincture of rosemary Tincture of jaborandi	of each 25 gm. (7 dr.)
Bay rum	150 gm. (5 oz.)

[E.L.]

In Aphthous Stomatitis of Infants.—Hutinel[3] gives potassium chlorate both internally and externally. To wash the oral cavity he prescribes the following mixture:

Potassium chlorate	4 gm. (1 dr.)
Distilled water	200 gm. (6 oz.)
Tincture of myrrh	3 gm. (45 gr.)

Mix: Use externally.

For internal use the following potion is prescribed:

Potassium chlorate	1 gm. (15 gr.)
Distilled water	90 gm. (3 oz.)
Currant syrup	10 gm. (2½ dr.)

One teaspoonful every two hours. [E.L.]

To increase the flow of milk, galega (goat's rue)[3] is advised:

Extract of galega	5 gm. (75 gr.)
Tincture of vanilla	20 drops
Syrup of bitter orange-peel	200 gm. (6 oz.)

Two to four tablespoonfuls daily. [E.L.]

Hyperidrosis of Hands and Feet.[4]

Balsam of Peru	1 gm. (15 gr.)
Formic acid	3 gm. (45 gr.)
Chloral	5 gm. (75 gr.)
Absolute alcohol	q. s. 100 gm. (3 fl. oz.)

Rub into hands or feet. [E.L.]

Expectorant.[4]

1.

Terpin hydrate Balsam of tolu	of each 3 gm. (45 gr.)
Extract of gentian, to saturation.	

Make into 30 pills; 2 pills to be taken 3 times daily, after meals.

2.

Oil of juniper Resin of benzoin	of each 2 gm. (30 gr.)
Powder of ipecac and opium	1 gm. (15 gr.)

Make into 20 pills; 2 three times daily, after meals. [E.L.]

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[1] Zeitschrift für klinische Medicin, 1904, lii, 110.
[2] Deutsche medicinische Wochenschrift, 1904, xxx, No. 11, 379.
[3] The Lancet, June 4, 1904.
[4] Therapie der Gegenwart, 1904, xlv, 152.

[1] Wiener klinische Wochenschrift, 1904, xvii, No. 17, 485.
[2] Therapie der Gegenwart, 1904, xlv, 145, No. 4.
[3] Bulletin Général de Thérapeutique, 1904, cxlvii, 160.
[4] Zentralblatt für die gesammte Therapie, 1904, xxii, 167.

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VOL. VIII, NO. 8. AUGUST 20, 1904. $5.00 YEARLY.

William Osler, Professor of Medicine at Oxford University.—Private advices have just reached us announcing that Dr. Osler has accepted the chair of medicine at Oxford University as regius professor of medicine, the appointment having been approved by King Edward. He will remain at Johns Hopkins University until the completion of the coming session. Dr. Osler succeeds Sir John Burdon Sanderson, his former teacher. A warm personal friendship has existed for years between them, a fact which doubtless will make this succession a pleasure to both. Dr. Osler's popularity in America is great, and no man holds the confidence of the profession to a greater degree in all that pertains to the ethical side, as well as in matters scientific. We congratulate England upon the acquisition of one of the most brilliant minds in the American profession and Dr. Osler upon his attaining in this academic position release from the pace set for him in America by the exactions consequent upon hospital work, teaching, practice, and literary work. It would seem that both England and Dr. Osler are gainers in this change—the losers are Dr. Osler's friends in America and the American profession.

Animal Experimentation in Great Britain.—Persons in Great Britain who desire to perform experiments of any kind upon animals must first obtain a government license. The annual report of this bureau for 1903 has been issued as a parliamentary paper and shows that during the year 347 persons were so licensed; 97, however, performed no experiments. Proof was furnished that licenses are granted to persons fitted by training and education to carry out experiments and profit by them and to these only upon recommendation of wellknown scientists. The number of experiments in 1903 was 19,084, in 4,178 of which anesthetics were employed. No operation more severe than superficial venesection may be done without anesthetizing the animal. Inspection of places registered under the license act revealed during the year only two not conforming entirely to the law. The system appears to work well in England despite its seeming meddlesomeness and undoubtedly possesses points in its favor. It should and doubtless does prevent a certain amount of unnecessary cruelty to animals. On the other hand, animal experimentation may be carried on without fear of molestation by members of protective societies, whose well-intentioned zeal is often a hindrance to true scientific progress.

The Bacillus of Leprosy, and Leprolin.—In a letter from its Rangoon correspondent, the London *Times* gives in some detail the account of the discovery of the bacillus of leprosy by Captain Rost, of the Indian Medical Service. We take this to mean the successful cultivation of the organism. Of greater interest is the claim that Captain Rost has succeeded in producing a curative serum known as "leprolin," that possesses remarkable healing properties. It appears to act equally well upon all varieties of the disease. Sensation is restored to anesthetic areas, the color becomes normal, ulcers and nodules disappear. Four cases are reported cured. One patient, a Burman, who had anesthetic leprosy of the legs with ulceration of the feet for five years, appeared completely cured in ten days. In India the treatment is being tried in some 30 localities, and in Burmah more than 100 cases are receiving serum, which is injected usually at intervals of a fortnight. Salt is administered internally as an adjunct. This report lacks scientific confirmation, and until such is received we must regard it as a newspaper statement that at least appears overdrawn. It is said the four patients who had been cured were exhibited at the local branch of the British Medical Association.

Recent Cancer Research.—The first report of the Cancer Research Fund of the Royal College of Physicians and Surgeons, lately issued in London, while not adding a great deal of definite knowledge concerning the etiology of cancer, is nevertheless very suggestive. It illustrates a growing tendency at the present time to look for the cause of cancer in some subtle change within the tissue cell, rather than to some parasite from without. Whether or not this be on the right trail, it is at least a relief from the insistent parasitic theories, of which not one has made good its claims. The report consists of three papers by Dr. Bashford and Mr. Murray. The first considers the zoologic distribution of cancer; here it is shown that not only the common domestic animals, but also the hen, salamander, gurnard and trout, animals toward the extremes in temperature, are also subject to malignant tumors. The second paper deals with the transmissibility of cancer in animals, and records 259 inoculations in mice; of these, about 25% were successful. Exposure of the tumor tissue to a temperature of 37° C. for 24 hours, or maceration in a mortar, prevented its growth. The third part of the report discusses the cytology of tumors, and directs attention to certain cell changes possibly related to the genesis of malignant growths. The heterotype mitosis described earlier in the year by Farmer, Moore and Walker, was observed, but it is very variable, and appears to bear no relation to the degree of malignancy of the tumor; the opinion of those writers that cancer is normal tissue transformed into reproductive tissue, is not supported. Certain observed figures seemed to indicate that conjugation of some sort occurs between the cells of tumors. Further study must determine if this be the starting point of cancer. Of interest in this connection are the observations of Patterson on the nuclei of malignant neoplasms. He has observed in mitotic cells an unusual method, in that a part of the nucleus is extruded and may even lie outside the cell. Appearances indicate that the remainders of such nuclei unite with the nuclei from other cells, the whole process being analogous to the formation of polar bodies and the union of sexual elements. These observations are stimulating, but that intracellular changes are primarily the cause of tumors, is not as yet demonstrated. Researches along all lines should be multiplied.

State Medical Examinations.—During the last few years there has been much dissatisfaction on the part of the Medical Examining Board of Pennsylvania with the showing made by candidates coming before it for license to practise medicine. If we are rightly informed, the Board is considering the advisability of drastic measures to elevate the standard of medical education. It is even hinted that the right of certain medical colleges to retain their charters is to be questioned. Anent this subject the Philadelphia *Ledger* contains an editorial the sentiments of which we heartily endorse. We quote:

> The responsibility, therefore, reverts to the colleges, a responsibility not only for the professional training which they give to their students, but also for the quality of the material out of which they profess to make qualified physicians. The medical schools and hospitals of this city afford wide and varied opportunity for qualified men to acquire the best scientific instruction; where the system most needs strengthening is in the preliminary education of the students. You cannot, in three years, or even in four, and much less in a shorter time, make a sound modern physician out of an uneducated, illiterate man. The schools of highest rank are those which weed out their students at the beginning of the professional course, requiring an academic degree or its equivalent, *and continue the weeding out from year to year until only the fittest survive.* (Italics ours.)

The subject of entrance requirements has been thoroughly discussed in recent years and we will not now consider that phase of the question, but we wish specially to emphasize the last clause of the quotation. The later weeding out process is neglected. Medical colleges, we mean first class institutions, are too prone to accept as final what others say regarding the fitness of individuals entering. Instead, each should set and maintain a standard, and if a student does not meet it during his first or second year, regardless of his entrance credentials, he should be dropped. This would be infinitely better than coddling him through the course and at the end presenting him a degree which the State Board is compelled to render null and void. Why, for example, should a man be permitted to reach the junior examinations when he writes "alowed," "adition," "methids," "eather," "watter," "oil-emersion lenze," and places such words in ungrammatical sentences as innocent of related ideas as they are of correct orthography and syntax. There are many such men in every class in our large colleges. Why waste on them the time that rightly belongs to men who can and will learn? Weed them out instead of graduating them into an already overcrowded profession. Just as long as medical colleges aim at the survival of all instead of the survival of the fittest, State examiners will find cause, and just cause, for complaint. We believe that in this, rather than in the curriculum, lies the responsibility for many failures.

The Conflict is not between Science and Religion.—In the August number of the *Popular Science Monthly*, Dr. Edward S. Holden contends successfully for a long ignored truth. By a learned historic survey he shows that in any age the "conflict of science" has been between true and false science, or between religion and heresy, but never between real science and real religion. The religion of one epoch may rarely have been at variance with the science of another epoch, but between things so different as genuine science and religion there has never been in one country or age any warfare. The conflict, indeed, is only between the pseudos of both sides—those who accept their theology or their science from others, at second hand. The sunset is red because "he looketh down on hell" is no better religion than that "science" is good science which contends that the rainbow is pure mechanics, while being utterly unable to explain the nature and origin of the rainbow or of visual sensation. There is no "materialism of science," because true science has nothing to do with materialism or metaphysics. Religion can not object or criticise true scientific inductions because that is *ultra vires*. The lesson for scientists, and especially for medical scientists, is to learn by mistakes. Men of genius may err, but they err but once. They become real leaders because they learn more easily and even from errors, their own or those of their enemies. The others constantly repeat the same blunders, mistake their vanity for knowledge, their prejudice for truth, their ignorance for information.

One-third Percent Commission by the Tuberculosis Sanitarium.—It seems well to warn the profession again that it is necessary to supply truly professional sanitariums now that we have got the public aroused as regards the sanitarium treatment of the disease. The parasitic quack follows closely every movement made by scientific and benevolent men to entice their patients away. Special institutions are springing up all over the land and the mails are carrying circulars to both patients and physicians, holding out the greatest allurements. To the patient it is the wonders of the climate, buildings, scenery, diet, etc., all leading to certain cure, and with a jargon of pseudoscientific terms to make them think that doctors in charge have the most marvelous instruments, diagnostic and therapeutic skill. To the medical man they say patients are only sought through the members of the profession, and especially giving most accurate details as to the division of the spoils. Just in proportion to the degree of ignorance and humbuggery will the quack emphasize his "fraternal" relation to the physician who may "steer" his patients into their hands. He will have the patients "eat a diet," and he will spell "busines," and "refference" as here written, and not fail to let you know in many ways that he has a good stock of the first and a poor one of the last, and none of education general or medical. Here are the closing paragraphs of the letter of a Colorado sanitarium owner sent to a subscriber:

> For this a minimum fee of $65.00 will be charged for the initial month ⅓ *of which, or* $21.00 *will be your part, and should patient remain indefinitely you will continue to share as above.*
>
> I am relying Dr. entirely upon the profession for my patients nor do I correspond with others. Should you desire either busines or professional refference will be glad to furnish same.
>
> Frat. yours,
>
> —— —— ——, M.D.

Centenarianism in the Twentieth Century.—Our readers cannot have failed to notice that of latter years there has been increased fertility in the production, or at least, in the record, of cases of genuine centenarians. A century ago, the authenticity of the record—and even the physical possibility of the existence—of a human centenarian was questioned by the sceptical. There can be very little doubt that a large proportion of the centenarian specimens were in former ages invented by the manufacturers of the folk lore and fairy tales—in those good old days when the registration of births and baptismal records was not so carefully carried out, and so securely preserved, as they have been of recent years. But, although the annual supply of cases may seem to have diminished, the record of a certain (limited) number has within recent years been placed in a position which is, historically and scientifically, impregnable. About three years ago there appeared in the pages of an English medical contemporary, a short notice of the death of Mrs. Hanbury, of Richmond, Surrey, at the venerable age of 108 years and 4 months. The publication of that article had the desirable effect of eliciting from Mr. T. E. Young—one of the highest authorities on this subject—a communication which appeared in the following issue, in which he informed his readers that since the publication of his wellknown book on the subject (in 1899), he had obtained incontrovertible evidence of the existence of 22 other cases. And, indeed, all the evidence now before the scientific world goes to show that the span of average human life is lengthening; so that we may hug ourselves with the consoling consideration in this century of hurry and worry—universally prevailing and everywhere increasing. The additional physical comforts, the sanitary improvements, and the almost universal diffusion of some of the fundamental maxims of hygiene, have hitherto more than compensated for the excess of wear and tear produced by the increased velocity which is now so necessary in the race for material success; and for the complicated consequences of the increased competition which the growing population and gradual elevation of the standard of skilled labor, mental as well as physical, have created in every profession and occupation of life. Accordingly, it would appear that the ground is gradually sliding from beneath the feet of the ignoble army of pessimists.

Centenarianism of the Future.—The hopes inspired by the rapid progress of the principles and practice of hygiene and of the knowledge of the precise causation and intimate nature of disease, during the past half century, has led some enthusiastic scientists, especially the elect members of that order who have not yet arrived at the prosaic age of 40, to express with considerable confidence the prophetic forecast, that, before the end of the twentieth century, the genesis of every one of the disease-producing microbes will have been brought under complete control. If not then actually wiped off the face of the earth, their entrance into, and their subsequent development and reproduction in, the tissues of the human body will have been effectively provided against. The gigantic strides which have been continuously made during the whole of the past century in all departments of scientific advancement do, most assuredly, give some reasonable grounds for such an outlook. And we are, in consequence, invited to hope that thenceforward the office of the physician will be no longer required to include the cure of disease. He will only require to maintain the efficiency of his scouts and outposts, so as to insure timely warning of every approaching invasion of microscopic enemies, if any happen to be still left. And all his other energies may be devoted to the provision of means for the lengthening of the span of human life, and the further development and expansion of the physical and mental powers of man!

Centenarianism and Longevity in the "Emerald Isle."—Almost coincident with the death of Mrs. Hanbury occurred that of another—socially and historically more celebrated—lady centenarian, the Dowager Lady Carew, a native of the County Waterford, where she first saw the light in 1798—"the year of the French" of the gossiping Irish annalist. Since that period Irish journals have been pretty constant in their supply of centenarian records. Indeed, it is worthy of notice that the Emerald Isle, notwithstanding the drawbacks offered by its much-abused climate, has always taken a leading position in furnishing materials for the records of centenarianism. Some of the older records are, of course, tinted with an unmistakable coloring of romance. Scientific critics of the twentieth century will receive with sceptical discount the hearsay evidence of Sir Walter Raleigh—the founder of our own State of Virginia—regarding the age attained by the famous Countess of Desmond, even in the curtailed edition which appeared in the later doggerel:

"Who lived to the age of a hundred-and-ten,
And died by a fall from a cherry-tree then;"

—and still more gravely examine the puerile credulity of the famous Lord Chancellor Bacon, who treats with respect the testimony that she "lived till she was seven score years old; that she did Dentire twice or thrice; Casting her old Teeth, and others Comming in their Place." But there seems, however, to have been no reasonable ground for doubting that she really did survive to an age well beyond the limits of her century. About two years ago the following letter appeared in the *Irish Times:* "In today's *Irish Times*, in "Passing Events," I see mentioned the death of Miss Mary Ann DeFoe, her great-great-grandfather having been born in 1661—five generations, covering a period of 241 years. I think I can go one better. My great-great-grandfather was born about the same time, 1661 or 1662. He raised troops in England and fought at the battle of the Boyne. My great-grandfather was born in the nineties of the same century. I have a book in which is his signature over the date 1711. My grandfather was born in 1745, my father in 1795, and myself in the sixties, being still on the right side of 40. My grandfather, who died in 1840, when a very young lad, remembered his grandfather, then a very old man; so there are plenty of people still alive here who saw a man that saw a man who fought at the battle of the Boyne. I have in my possession some of James II's table linen, taken after the same battle."

Centenarianism a Product of Heredity Rather than of Habit.—The influence of heredity in the genesis of long life is well known to all observant persons. A case in point is mentioned by the *Lancet* of June 4, 1904. A man had just died in the Blackburn workhouse at the undoubted age of 105. His mother also lived to 105, and his sister "was killed" at 102. This man had been "a snuff-taker and habitual smoker, and 'was not averse to a glass of beer.'" It is, indeed, a very remarkable fact that, notwithstanding all the outcries which have been raised against certain habits by philanthropists, as destructive of health and life, not one of them is entirely corroborated by the records of centenarianism. Persons of almost all habits and occupations—even some of the most unsanitary and most dangerous—will be found enrolled on the same list. The North American Indian, who lived a life of continuous exposure, in unchanging filth of personal habit, and the modern chemist, who spent all his more active hours in a close laboratory, necessarily inhaling the foul gases of his myriad experiments, have both lived to the age of 103. The list includes philosophers and criminals, soldiers and sneaks, teetotalers and drunkards, globetrotters and denizens of a single room (or cell), nobles and servants, millionaires and paupers. The annals of longevity inform us that "'Lady' Lawson, who died at the age of 116, never practised ablutions of any kind, or hardly in any degree, because, as she alleged, those people who washed themselves were always taking cold or laying the foundation of some dreadful disorder." And, moreover, that "her apartment was only occasionally swept out, but never washed; the windows were so encrusted with dirt that they hardly admitted a ray of light." In presence of such facts, dogmatists sanitary should surely be somewhat more modest!

BOOK REVIEWS

International Clinics.—Edited by A. O. J. KELLY, A.M., M.D., Philadelphia. Volume II. Fourteenth series, 1904. Philadelphia: J. B. Lippincott Company. Price, $2.00.

Almost half this volume is devoted to diseases of warm climates, and to those who have not had the opportunity of keeping up with the latest literature on this rapidly advancing branch of medicine is well worth the price of the book. To those who read most, it will be a handy summary of recent literature. This part of the book includes The Spread of Diseases by Insects, by C. F. Mason; Recent Progress in Tropical Medicine, by John McCrae; Sleeping-sickness, by C. Jarvis; two papers on Malarial Hemoglobinuria, by Kanellis and Krauss; Uncinariasis, by A. J. Smith; two papers on Liver Abscess, by Cantlie and Thompson; and Directions for Those Returning from Tropical Countries to Cold Climates, by Andrew Duncan. The second half of the book contains 14 articles under Treatment, Medicine, Surgery, Pediatrics, and Rhinology. Among the writers are Bierring, Billings, Eisendrath, Cumston, and Porter. Bishop presents the third in a series of lectures on abdominal diagnosis, taking as his subject Bimanual Examination of Pelvic Swellings. The latter part of the volume is fully up to the standard, the former is very timely and a most interesting feature. Illustrations are numerous and most of them are good.

The New International Encyclopedia, Volume XV.—Dodd, Mead & Co.

This number begins with Rice Insects, and concludes with Southard. Among the subjects of medical interest are:

Rickets
Rigor mortis
Ringworm
Roseola
Rubefacients
Saccharin
Salicin
Salicylates
Salicylic Acid
Salivary Gland (diseases)
Salivation
Salol
Saltpetre
Sanitary Commission
Sanitary Laws
Sanitary Science
Santonin
Sarcina
Savine
Scalp (injuries and diseases)
Scammony
Scarlet Fever
Sciatica
Sclerosis
Sclerostoma
Screw Worm
Scrofula
Scrophulariaceae
Scurvy
Seasickness
Seborrhea
Sedatives
Seidlitz Powders
Senility
Senna
Sensation (disorders of)
Septicemia
Serpentaria
Serum Therapy
Sewage Disposal
Shock
Shoulder-joint (diseases and injuries)
Sight (defects of)
Silver
Skin Disease
Skin Grafting
Skull (fractures)
Sleeping Sickness
Smallpox
Sodium
Somnambulism.

The principal omissions are:

Rigor
Risus Sardonicus
Rodent Ulcer
Saw Palmetto
Sclerema Neonatorum
Scleritis
Scleroderma
Scoparius
Scopolamin
Sequestrum
Scrotum (diseases of)
Sea-bathing, indications for and against
Sebaceous Cysts
Sialogogues
Sleep (disorders of)
Sneezing
Softening of the Brain
Somnifacients.

The chief medical uses of sandalwood and several pharmacopeial plants are not alluded to. The article on the Shoulder-joint fails to describe amputation, and that on the Scapula, the injuries to which this is subject. Under Skull there is no reference to trephining in case of injury or disease or to the closely connected subject of brain localization. The article on Serum Therapy simply aims at stating results. Neither it nor that on Immunity contains any reference to Ehrlich's side-chain theory. The article on Sight is excellent in its treatment of myopia, less so in regard to hypermetropia, and it fails altogether to discuss astigmatism, the chief dramatis persona in the ocular tragedy. This and asthenopia receive brief mention in the first volume, but it is difficult to understand why the anomalies of refraction and their results should have been thus disjointed. The subjects considered at greatest length are those on Sewage Disposal and Sanitary Science, but Sanitariums and Sanatoriums are not so much as named. Medical biographies maintain the proportion of preceding volumes; but Romberg, Saemisch, Schleich, the Schott brothers, and other equally famous names, have been omitted.

Disorders of Metabolism and Nutrition.—Part V. Saline Therapy.—By Professor CARL VON NOORDEN, Frankfort, and Dr. Carl Dapper, New York. E. B. Treat & Co., 1904.

Five points are discussed in this part of these admirable treatises, namely, the influence of saline mineral waters on gastric secretion, on the absorption of food, on the metabolism of proteids, on the excretion of uric acid, and the use of fruits, salads, vinegar, etc., in the course of water cures. The results of actual observation of cases are given, this feature lending weight to the conclusions deduced. The importance of making investigations on the sick rather than on well people or upon animals is rightly emphasized. The writers find that in cases of gastric disorder accompanied by either diminution or excess of HCl, the use of saline mineral waters tends to restore normal conditions. Contrary to many authorities, no particular diet is called for during their administration. The ingestion of large quantities of water does not interfere with the absorption of food, in particular the absorption of fats. Metabolism of the proteids is not increased, and the excretion of uric acid is slightly increased. The treatise as a whole is distinctly favorable to the employment of saline waters. Whether or not one entirely agrees with the conclusions reached, the 75 pages of text are highly instructive; no one interested in the subject should neglect to read this little monograph.

A Manual of Fever Nursing.—By REYNOLD WEBB WILCOX, M.A., M.D., LL.D. Philadelphia: P. Blakiston's Son & Co., 1904.

This book of 227 pages contains the lectures on fever nursing delivered by the author to the nurses of St. Mark's Hospital during the season of 1903-4. The first four chapters deal with fever in general; in them are definitions, detailed directions for taking temperature, pulse, etc., the consideration of treatment and feeling, and items regarding the nurse, the patient, sick-room, quarantine, and disinfection. These chapters are very plain and practical and cannot fail to be of service to nurses who seek specific information on the subjects treated. The remainder of the book is devoted to the consideration of infections of continued type, of intermittent type, the exanthems, and thermic fever. These chapters are of necessity largely made up of descriptions of the numerous diseases, but very many special directions for the nurse are also incorporated. As a whole, the book is one of the best on the subject that we have seen; it has been written by an experienced clinician who describes procedures in the same clear manner he would employ in giving directions for his own cases. It is concise, plain, and helpful.

A Compendium of Chemistry: Including General, Inorganic, and Organic Chemistry.—By Dr. CARL ARNOLD. Authorized translation from the eleventh enlarged and revised German edition, by John A. Mandel, Sc.D. John Wiley & Sons, London: Chapman & Hall, Limited. 1904.

This work of Arnold is a very complete chemistry of 627 pages. Part I, 94 pages, is devoted to general chemistry, with a consideration of various laws, chemic terms, etc. Part II, 200 pages, is occupied by inorganic chemistry. Part III, 275 pages, contains the consideration of organic chemistry and the voluminous index. The first two parts contain a very satisfactory presentation of the divisions of the subject there treated; the third part is of more interest to the physician and, outside of the works devoted entirely to this topic, gives more details than any book of its class we have seen. Hence, in addition to being a valuable reference work on inorganic chemistry, it furnishes a fairly complete medical chemistry. The more important parts of the text are in large type, while much of the explanatory portion is set in smaller letters; this feature allows of a great deal of information in a comparatively small volume. The book is well bound, and can be recommended in every way as a desirable work on chemistry. The very full index facilitates ready reference.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Modern Ophthalmology: A Practical Treatise on the Anatomy, Physiology and Diseases of the Eye.—By JAMES MOORES BALL, M.D., Professor of Ophthalmology in the St. Louis College of Physicians and Surgeons. With 417 illustrations in the text and numerous figures on 21 colored plates, nearly all original. 820 pages, extra large royal octavo. Price, extra cloth, $7.00 net; half morocco, $8.50 net. F. A. Davis Company, Philadelphia.

Optical Dictionary: An Optical and Ophthalmologic Glossary of English Terms, Symbols and Abbreviations, together with the English Equivalents of some French and German Terms relating to Physical, Physiologic and Pathologic Optics, Optical and Other Instruments of Precision and Terms Descriptive of Color and Photochemistry, to which are added a number of general and mathematical expressions.—Edited by CHARLES HYATT WOOLF, F.R.P.S. P. Blakiston's Son & Co, Philadelphia, 1904. Price, $1.00 net.

The Personality of the Physician.—By ALFRED T. SCHOFIELD, M.D., M.R.C.S., etc., Hon. Physician to Friedhem Hospital, etc. P. Blakiston's Son & Co., Philadelphia, 1904. Price, $1.50 net.

Index—Catalogue of the Library of the Surgeon-general's Office, United States Army: Authors and Subjects. Second Series. Vol. ix.—L. LYURI. Washington, Government Printing Office, 1904.

A Treatise on Applied Anatomy.—By EDWARD H. TAYLOR, M.D. (Dublin University), F.R.C.S.I., Surgeon to Sir Patrick Dun's Hospital; University Examiner in Anatomy, and Late Lecturer in Applied Anatomy, Trinity College, Dublin, etc. Illustrated with 178 figures and plates from original drawings, many printed in colors. J. B. Lippincott Company, Philadelphia, 1904.

Surgery of the Heart and Lungs: A History and Review of Surgical Conditions Found Therein, and Experimental and Clinical Research in Man and Lower Animals, with Reference to Pneumonotomy, Pnemonectomy and Bronchotomy and Cardiotomy and Cardiorrhaphy.—By BENJAMIN MERRILL RICKETTS, PH.B., M.D. The Grafton Press, New York, 1904. Price, cloth, $5.00; half leather, $7.00.

International Clinics. Vol. II, Fourteenth Series, 1904: A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners by leading members of the medical profession throughout the world.—Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, U. S. A. With the collaboration of William Osler, M.D.; John H. Musser, M.D.; James Steward, M.D.; J. B. Murphy, M.D.; A. McPhedran, M.D.; Thomas M. Rotch, M.D.; John G. Clark, M.D.; James J. Walsh, M.D.; J. W. Balantyne, M.D.; John Harold, M.D.; Edmund Landolt, M.D.; Richard Kretz, M.D. J. B. Lippincott Company, Philadelphia, 1904.

New Findings in Ophthalmology and Otology.—By E. H. HAZEN, M.D., Emeritus Professor of Ophthalmology and Otology, College of Physicians and Surgeons, Medical Department of Drake University, Des Moines, Iowa.

A Textbook of Human Physiology.—By ALBERT P. BRUBAKER, A.M., M.D., Professor of Physiology and Hygiene, Jefferson Medical College; Professor of Physiology in the Pennsylvania College of Dental Surgery; Lecturer on Physiology and Hygiene in the Drexel Institute of Art, Science, and Industry. With colored plates and 354 illustrations. P. Blakiston's Son & Co., Philadelphia, 1904.

Report of the Superintendent of Government Laboratories in the Philippine Islands for the year ended September 1, 1903. (From the Fourth Annual Report of the Philippine Commission.) Bureau of Insular Affairs, War Department.

The Brain of the Sheep: Explicit Directions for its Removal, Preservation and Dissection. With 8 plates and 3 figures in the text.—By BURT G. WILDER, 1903.

Visceral Inflammations.—By DAVID B. LEES, M.A., M.D., CANTAB., F.R.C.P., LOND., Senior Physician to the Hospital for Sick Children, Great Ormond street; Physician to St. Mary's Hospital; Late Examiner in Medicine for the University of Cambridge, etc. P. Blakiston's Son & Co., Philadelphia, 1904.

State Board of Health, New Jersey: Twenty-seventh Report, 1903. The Unionist Gazette Association, State printers, Somerville, N. J.

A Textbook of Alkaloidal Therapeutics: Being a condensed review of all available literature on the subject of the active principles added to the personal experience of the authors.—By W. F. WAUGH, M.D., and W. C. ABBOTT, M.D., with the collaboration of E. M. Epstein, M.D. Chicago, The Clinic Publishing Company, 1904.

Transactions of the Medical Society of State of North Carolina: Fiftieth annual meeting held at Hot Springs, N. C., June 2, 3 and 4, 1904. Presses of Edwards & Broughton, Raleigh, 1903.

The Practical Application of the Röntgen Rays in Therapeutics and Diagnosis. By WILLIAM ALLEN PUSEY, A.M., M.D., Professor of Dermatology in the University of Illinois; and EUGENE W. CALDWELL, B.S., Director of the Edward N. Gibbs Memorial Röntgen Ray Laboratory of the University and Bellevue Hospital Medical College, New York. Second edition, thoroughly revised and enlarged. Handsome octavo volume of 690 pages, with 195 illustrations, including four colored plates. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $5.00 net; sheep or half morocco, $6.00.

A Textbook of Pathology.—By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College of Philadelphia; Pathologist to the Medico-Chirurgical Hospital, Philadelphia. Handsome octavo volume of 818 pages, with 350 illustrations, a number in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $5.00 net; sheep or half morocco, $6.00 net.

AMERICAN NEWS AND NOTES

GENERAL.

Bequests to Charity.—BOSTON: By the will of the late Mary McGregor Means, $10,000 is left to various charitable institutions in Boston. The T. Morgan Rotch, Jr. Hospital receives $3,000, and the House of the Good Samaritan, $2,000.—PHILADELPHIA: By the will of Cornelia Thompson, $10,000 is left to the Presbyterian Hospital for the endowment of two free beds in memory of her two sisters, and $5,000 for the endowment of a free bed in the Children's Hospital in memory of Edward S. Clark, a brother-in-law.

Mosquito War in Panama.—In carrying out its plans for the sanitation of the Panama Canal Zone, the Isthmian Canal Commission will require 100,000 yards of wire netting with which to screen the various buildings along the line of the canal so as to protect the officials and employes from the mosquitos, which carry yellow fever and malarial fever. Experience has shown that ordinary wire screens do not last more than six months in that moist climate, and Governor Davis of the Canal Zone has recommended the use of galvanized steel, brass, or copper wire, which will be much more durable. The work of sanitation now going on under the direction of Dr. Georgas includes not only a general cleaning up of the towns and villages, but a systematic antimosquito crusade. Ponds and pools of standing water are being covered with kerosene, etc. Work has also begun on the drainage of swamps and like mosquito breeding places in the zone, which will require something like a year to complete. So far there have been but few cases of yellow fever, and but one American has died from the disease.

War on Plush Seats.—An exchange states that the plush seat is the central evil which the Kentucky Board is attacking. It has been placed under State ban, and the board purposes to indict every railroad official it can reach in the State who can by any possibility be held responsible for operating cars with such seat coverings. Either leather or cane is permitted as a substitute. The requirement extends both to sleepers and day coaches. There is no question but that the plush seat is one of the finest receptacles for filth that could be devised. The dust that blows in through the open car windows is caught and held fast, and if any disease germs are in the air they are pretty sure to find a camping-out place on the plush until a human victim comes along. Leather seats are not open to any such sanitary objections, but they are hot and often uncomfortable, and not at all to be compared for downright ease with the cane seats, which are usually set aside for day coaches, tourist sleepers and the least pretentious cars. Another good seat covering is of linen which can be taken off and cleaned at frequent intervals.

Leprosy.—Professor Theobald Smith, the Harvard bacteriologist, recently read a paper entitled "Etiology of Leprosy." "The biblical leprosy we read about was not that which we know now, but a name for several kinds of diseases," he said. "At one time there were in Europe, during the middle ages, 19,000 leper hospitals. The ancient practitioners had it under control in 1600, and now it is confined to barbarous countries. It is most prevalent in India, China, Japan, Asia Minor, and on the coast of Africa. In Europe it is found in Norway and on the Balkan range, while on this continent we find cases on the northern coast of South America and in Mexico, Central America and the West Indies. There is a movement on foot at the present time to lay a petition before the next Congress, asking for a national hospital to be established in this country for lepers, for now is the time to crush it, before it becomes prevalent. In Boston there have been only four or five cases during the past 30 years, and these were always easily handled, because they were discovered in time. The bacillus was discovered almost at the same time independently, in 1879 and 1880, by Dr. Neisser and Dr. Hansen."

The Late Dr. Walter Reed and Sanitation in the Tropics.—The sanitarians who are to clean up Panama have sailed for Colon, and within a year, it is expected, the Isthmus will be fit for Americans to live in. Here again, as in Havana when we undertook similar work, the scourge especially to be conquered is yellow fever, but in the five years since the United States assumed the temporary care of Cuba our health authorities have found the means of destroying this dreadful disease, and what was thought an impossibility before the Spanish war is now only a matter of comparatively little time. It is particularly fitting, then, that efforts should be making now to raise an appropriate memorial to the late Dr. Walter Reed, who, major and surgeon in the United States Army, sent to Cuba as chairman of a board of experts to study yellow fever, demonstrated the methods by which the pestilence can be controlled. Dr. Reed died in Washington in November, 1902, having just completed the most remarkable and startling series of experiments in the annals of American medicine. By proving beyond question the previously suppositious theory that the fever was conveyed from one person to another in the same way as malaria germs were spread, and showing that the only measure of protection necessary was the complete isolation of an infected patient by means of mosquito netting, he made a discovery to be compared with inoculation, perhaps to supplant and supersede that ancient practice of Turkish origin. The physicians at the recent meeting of the American Medical Association in Atlantic City subscribed $8,000 of the $25,000 desired for the statue of Dr. Reed it is proposed to erect in the capital, and the remaining $17,000 should be not slowly forthcoming when the purpose for which it is desired becomes more widely known.—[*Boston Transcript.*]

Cold Storage Foods to be Tested.—The food experiments that have been in progress for the past two years at the Department of Agriculture will soon pass into another stage of the general inquiry. Dr. Wiley, the chief chemist of the department, has concluded his determination of the effect on the human system of boracic preservatives in various foods, and has now arranged to take up a study of the use of cold storage foods. Twelve young men, most of them college graduates, athletic, healthy, and studious, will form the class that is to sit at the hygienic table to be maintained in the chemic laboratory of the department. Each person takes an obligation to obey or honor the rules laid down for the experiment, and not to eat any food but that provided in the experiment, and not to drink water without reporting the amount. Test will be confined to articles in cold storage, and the markets will be searched for the oldest meats, game, poultry, etc., preserved in cold storage. One of the interesting features of the tests will be the requirement from each member of the class that he should describe the taste of the foods taken, and that he will be urged to eat heartily, as an unsuspecting consumer of such foods would in the ordinary conditions of life.

The Fourth Pan-American Medical Congress, which was to have convened the latter part of December of this year at Panama, has been postponed until the first week in January. This was done at the request of many physicians who wished to attend the congress, since they desired to be at home during the Christmas holidays. The delegates from this side of the continent will leave on Tuesday, December 27, if they go from New York by the regular Pacific Mail Lines, or at other dates if they go by way of New Orleans or Jamaica. The dates of sailing from the Pacific Coast have not yet been ascertained. The congress will be held from the fourth to the seventh of January. The officers of the Congress, appointed by President Amador, of the Republic of Panama, are: Dr. Julio Icaza, Dr. Giro Uriola, Dr. J. Calve, Dr. Carlos Cooks, Panamanians; Dr. Gorgas, chief of the Panama Canal Sanitary Commission; Drs. Carter and Ross, Americans; Dr. Manuel Corales, Cuban; Dr. M. Stern, English; and Dr. Oduber, Dutch. This Congress bids fair to be the most successful Pan-American Medical Congress that has ever been held, on account of the central situation of Panama and its easy approach from both sides of North America, Mexico, and the Central American Republics, as well as from the countries on the north and west sides of South America. There will be but four sections at this congress—surgery, medicine, hygiene, and the specialties.

Examination for Assistant Surgeon in the Public Health and Marine-Hospital Service.—Treasury Department, Bureau of Public Health and Marine-Hospital Service, Washington, D. C., June 29, 1904.—A board of officers will be convened to meet at the Bureau of Public Health and Marine-Hospital Service, 3 B street, S. E., Washington, D. C., Monday, October 3, 1904, at 10 o'clock a.m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service. Candidates must be between 22 and 30 years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. The following is the usual order of the examinations: (1) Physical; (2) oral; (3) written; (4) clinical. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination of the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and natural sciences. The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco. After five years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant surgeons receive $1,600; passed assistant surgeons, $2,000, and surgeons, $2,500 a year. When quarters are not provided, commutation at the rate of $30, $40, and $50 a month, according to grade, is allowed. All grades above that of assistant surgeon receive longevity pay, 10% in addition to the regular salary for every 5 years' service up to 40% after 20 years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For further information, or for invitation to appear before the board of examiners, address Surgeon-General Public Health and Marine-Hospital Service, Washington, D. C.

NEW YORK.

New York's Increased Deathrate.—A quarterly report for the quarter ending March 31 has been issued by the Department of Health. It shows an estimated population for the greater city of 3,838,024. The number of deaths for the first quarter of this year was 12,590, which, on an estimated population of 3,838,024, gave a deathrate of 22.58 per 1,000, as compared with the average number of deaths for the preceding five years of 18,301, which, on an estimated population of 3,540,664, gave a deathrate of 20.98 per 1,000, an increase of 1.60 points. The cause of this increased rate as compared with the quinquennial average was due to three factors: (1) An immense increase in the prevalence of measles; (2) a persistent and severe type of influenza; and (3) the unusually severe winter; the second and third factors contributing to the increase in the respiratory and tuberculous diseases among adults and old people.

PHILADELPHIA, PENNSYLVANIA, ETC.

Philadelphia Still Free from Smallpox.—No new cases of smallpox were reported to the Bureau of Health for the week ended August 13. This makes the sixth week of freedom from the disease. Typhoid fever prevails generally. The returns for the last week show that 100 new cases developed. Deaths numbered 11, as compared with 84 cases and 5 deaths for the previous week.

Prosecute Violators of the Pure Food Law.—It is asserted that more than 1,000 defendants are held in bail, throughout the State, on charges of selling adulterated food. In his crusade against violators of the Pure Food Law, Dr. Warren the Dairy and Food Commissioner, is being assisted by Attorney-General Carson.

WESTERN STATES.

Chicago's Dairy Inspection.—The Bulletin of Chicago's Health Department states that a total of 611 dairies, with 13,121 milch cows, were inspected during the month and the milk from 125 of these was excluded from sale in Chicago because of feeding "wet malt" and from nine others because of the bad condition of the herds. Inspection of dressed meats, fish, poultry, fruits, vegetables, etc., was pushed to the limit of the resources of the Department and large quantities of the various articles were condemned and kerosened.

Chicago's Water-supply.—The Bulletin of the Chicago Health Department says: Among the important causes contributing to the phenomenally low deathrate of July is a remarkably good sanitary quality of the public water-supply. There has been no such record of "safe" since daily examinations were begun in 1895 as during the last two months, and for the first time during the nine years a rainfall of more than three-fourths inch in 24 hours has failed to cause water pollution. On the thirty-first nearly an inch (0.91) fell, but it had no effect on the chemic determinations, while, on the other hand, the bacterial examinations showed a marked reduction of the bacterial content. The value of the continuous flow from the lake through the Drainage Channel is not yet appreciated. When the remaining lake-emptying sewers are diverted into the channel, Chicago will have continuously the purest, as it already has the most abundant, water-supply of any large city.

Disease and Death in Indiana in July.—The July Bulletin of the State Board of Health says: The health of the State this July was not so good as in the corresponding month of 1903. Diarrheal diseases led in prevalence, and typhoid fever, which in the same month a year ago was sixth in prevalence, stood fourth this month. The typhoid fever epidemic in Indianapolis in June abated somewhat in July. Tuberculosis shows an increase. The total number of deaths was 2,772, annual rate 12.3. In preceding month 2,203 deaths, rate 10.1; in July, 1903, 2,765 deaths, rate 12.9. *Deaths by Important Ages.*—Under 1 year, 513; 1 to 4 inclusive, 186; 5 to 9 inclusive, 69; 10 to 14 inclusive, 54; 15 to 19 inclusive, 119; 65 and over, 669; 18.4% of all deaths was under 1 year, and 24.1% was 65 and over. *Important Causes of Death.*—Pulmonary tuberculosis, 346; exceeding same month of last year by 31; typhoid fever, 68; diphtheria, 10; scarlet fever, 5; measles, 4; whoopingcough, 6; pneumonia, 85; diarrheal diseases, 296; cerebrospinal meningitis, 29; puerperal fever, 10; cancer, 116; violence, 189; smallpox, 5. The city deathrate was 16.1, being higher than the State rate. The city tuberculosis rate was 188 per 100,000, or 34.4 higher than the State rate. The cities also show a higher deathrate than the country in typhoid, diphtheria, pneumonia, diarrheal diseases, cerebrospinal meningitis, puerperal fever, cancer and violence. The deathrate of the large cities of the State were: Indianapolis, 18.3; Evansville, 19.3; Fort Wayne, 10; South Bend, 15.8; Terre Haute, 21.6. The havoc of tuberculosis was greater than in the preceding July. Homes invaded, 307; widows between 18 and 40, 19; widowers same age, 84; orphans under 12 years of age, 172. At the lowest estimate, tuberculosis cost the people of Indiana in July $500,000.

FOREIGN NEWS AND NOTES

GENERAL.

Formic Acid Again.—In formic acid, Dr. Clement, of the French Academy of Medicine, claims to have discovered a wonderful remedy for muscular fatigue. He combines it with sodium bicarbonate to save the stomach from distress.

Radium and Cosmic Heat.—To what extent radium is responsible for the heat of the earth is one of the philosophic questions now interesting scientists. Professor Rutherford, before a recent meeting of the Royal Institution of London, said that he believed the amount of radium present and uniformly distributed throughout the earth to be sufficient to account for all the heat lost from that body. In this event, the cooling of the earth, so that ultimately it will become uninhabitable, as was calculated by Lord Kelvin, will be postponed and a few million more years will be afforded for the various forms of animal life. Such a possibility was doubtless anticipated by Lord Kelvin himself, for in his calculations he inserted "provided no new form of heat is discovered." This is now held to exist in the minute quantities of radium which are widely and universally distributed over the earth, and which may account for the gradual increase of temperature as the interior of the earth is approached.

Experimental Operations in Hospitals.—An exchange says: The extent to which experimental operations may be permitted in hospital practice is a question involving some very fine points, which are not all capable perhaps of exact definition. There can be little doubt that in olden days pauper patients were sometimes subjected to risks which would not have been incurred in the case of wealthier sufferers. But such incidents nowadays are exceedingly rare, and contrary to the general spirit of the surgical profession. There was, therefore, a very stormy scene at a recent meeting of the Society of Internal Medicine, in Berlin, when Dr. Jacob, an assistant doctor in Professor Leyden's clinical department at the Charity Hospital, was accused of causing the death of a patient by performing an unjustifiable operation. Dr. Jacob had lectured before the society on experiments which he had been making, conjointly with Dr. Rosenberg, on tuberculous patients, by the injection of medicaments into their lungs. Severe criticism was directed against the treatment at that time. At the later meeting Dr. Westenhöfer, of the same hospital, accused Dr. Jacob of having aggravated the condition of a patient by a similar operation, and also of having made incisions of the windpipe in two cases without formally recording the facts. Dr. Jacob sought to justify his action from a medical point of view, and to explain various alleged contradictions in his statements. His defense, however, failed to satisfy a large number of the medical men present, and the meeting was closed amid a considerable uproar.

War between Men and Beasts in India.—An interesting comparison between the number of men killed by wild animals and the number of the latter killed by men, in India, appears in *Cosmos* (June 25). As appears from the statistics, the beasts seem at present to have decidedly the best of it. Says the writer: The English Government, according to its custom, has just published the annual statistics of victims of wild animals and reptiles in India. When we compare them with preceding figures, we must acknowledge that the efforts of the Government—official battues, prizes, etc.—have not produced particularly good results, and that the situation has hardly been bettered. The figures for 1903 are as follows: 23,164 persons killed by the bites of serpents; 1,046 by tigers; 277 by wolves; 973 by bears, leopards, and panthers. A total of 25,460 victims. As for losses of domestic animals, cattle, sheep, etc., they are summed up thus: 4,000 animals killed by reptiles; 38,211 by leopards and panthers; 30,555 by tigers; 4,719 by wolves; 2,387 by hyenas; 4,000 by bears. A total of 83,872. Reprisals for these massacres and preventive measures looking toward future improvement have been feeble enough, as may be judged by the following figures: Thirty-eight thousand hunters have been out, but their success has been moderate. They have killed: 1,331 tigers, including 63 solitary ones; 4,413 leopards; 1,850 bears; 2 373 wolves; 706 hyenas; 4,300 miscellaneous beasts. Or, in all, 14,983 animals. There are no statistics of serpents. This figure, compared to that of the victims, men and animals, is nothing to boast of.—[Translation made for *The Literary Digest*.]

OBITUARIES.

Joseph Wiener, at his home in New York City, August 11, aged 76. A native of Bohemia, he came to New York City in 1849, was a graduate of the College of Physicians and Surgeons, and for thirty-five years was actively engaged in the practice of medicine, being an associate of the late William Detmold in the chair of military surgery in the College of Physicians. He was one of the founders of the department of pathology of that institution, prior to its incorporation as part of Columbia University. Retiring from practice some twenty years ago, and being an enthusiastic lover and collector of objects of art, was a member and patron of the Metropolitan Museum of Art and the Museum of Natural History. He was a member of various art and scientific societies and literary organizations. He presented the statue of Washington Irving which now stands in Bryant Park, New York City.

J. C. McConnell, anatomist of the Army Medical Museum, Washington, D. C., at Liberty, N. Y., July 25, where he had gone for recuperation. Apart from the profession of medicine and anatomy, Dr. McConnell utilized his leisure as a delineator of objects of natural history, especially shells and fossils, craniums and bones. He had for nearly 35 years carried on this work, and it is certain that as a draughtsman in black and white line, for scientific purposes, he had no equal in this country, if in the world. Many thousand exquisite drawings had been prepared by him for the National Museum and various surveys, as well as the Army Medical Museum, in the course of his career.

Albert W. Warden, at his home in Weehawken, N. J., August 9, aged 47; a graduate of the medical department of New York University in 1880. The cause of death was blood poisoning received while attending a patient three weeks before death. He was prominent in social and political affairs in northern New York.

Charles Fletcher Sumner, at his home in Bolton, Conn., July 12, from pneumonia, aged 87; a graduate of the College of Physicians of the western district of New York, Fairfield, in 1840; twice a member of the General Assembly of Connecticut and for sixty-two years a practitioner in that place.

William H. Hanscom, at his home in South Minneapolis, July 16, aged 37; a graduate of the College of Physicians and Surgeons of the University of Minnesota in 1889 and for ten years medical inspector of the Department of Health of Minneapolis.

James W. Wilson, at his home in Fremont, O., July 21, aged 88; a graduate of Jefferson Medical College, Philadelphia, in 1837; one time president of the Sandusky County Medical Society and a member of the Ohio State Medical Society.

John Cooper, at his home in Buffalo, N. Y., July 11, aged 71; a graduate of the University of Pennsylvania in 1857; surgeon in the Federal army during the Civil war and a prominent physician of Buffalo.

Lindhurst C. Dodge, at his home in Rouse Point, New York, August 12, aged 63; a graduate of Albany (N. Y.) Medical College in 1862. He was one of the most prominent physicians of northern New York.

Henry D. Green, Atlanta, Ga., was struck and killed by a car near the World's Fair, St. Louis, July 29, aged 25; a graduate of the Medical Department of the University of the South, Sewanee, Tenn., 1900.

D. F. McCrimmon, of Rochelle, Ga., at the State Sanatorium, Milledgeville, Ga., July 15; a graduate of the Atlanta (Ga.) Medical College; formerly representative in the State Legislature of Georgia.

Ernest A. Taylor, at his home in Hutchinson, Kan., July 20, aged 70; a graduate of the Missouri Medical College, St. Louis, in 1865; surgeon in the Seventh Missouri Cavalry in the Civil war.

John Turnbull, of Bellbrook, Ohio, at St. Elizabeth Hospital, Xenia, Ohio, July 19, after an operation for gallstones, aged 64; a graduate of Jefferson Medical College in 1863.

Isadore H. Jacob, of New York City, in the German Hospital, in that place, July 18, after a prolonged illness; a graduate of the University of Würzburg, Germany, in 1898.

Otis H. Johnson, of Haverhill, Mass., at the Hale Hospital, in that city, July 16, aged 63; a graduate of Harvard University Medical School in 1866.

Gresham P. Williams, at his home in Huntingburg, Ind., July 12, aged 60; a graduate of the Hospital College of Medicine, Louisville, Ky., in 1891.

George Wright, committed suicide at his home in Bordentown, N. J., August 9, aged 64. For several years his mind had been unbalanced.

John L. Mitchell, at his home in Jackson, Mich., July 10, aged 81; a graduate of the College of Physicians and Surgeons, New York, in 1845.

A. Clarence Bartlett, at his home in New Castle, Ind., July 10, aged 47; a graduate of the Medical College of Ohio, Cincinnati, in 1880.

Isaac Detwiler, at his home in Manheim, Lancaster county, Pa., August 14; a graduate of Hahnemann Medical College in 1861.

Columbus N. Warren, of Harrietsville, O., July 26, aged 38; a graduate of Starling Medical College, Columbus, O., in 1889.

J. E. Voak, at his home in Biloxi, Miss., August 8, aged 75.

Foreign—Sir William M. Banks, of Liverpool, England, August 8, aged 62. Sir William was a Scotchman by birth, but the greater part of his life was spent in Liverpool, and his most notable work was the resuscitation of the Medical School of that city and the foundation of the University College there. He was one of the leaders of the present movement which has for its object the discovery of a cure for cancer. Born at Edinburgh in 1842, he took his M. D. degree at the University of Edinburgh. After acting as Demonstrator of Anatomy at the University of Glasgow he removed to Liverpool in 1866. In 1897, when the British Medical Association visited Montreal, Sir William was President of the Surgical Section, and delivered the address on surgery. He was a Fellow of the Royal College of Surgeons, and was knighted in 1899.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 12, 1904:

			Cases	Deaths
	SMALLPOX—UNITED STATES.			
District of Columbia:	Washington	July 30–Aug. 6	1	
Illinois:	Peoria	July 1-31	4	
Louisiana:	New Orleans	July 31-Aug. 6	1	
Massachusetts:	North Adams	July 31-Aug. 6	2	1
Michigan:	At 72 places	July 23-30	Present.	
Missouri:	St. Louis	July 31-Aug. 6	2	
New Hampshire:	Manchester	July 31-Aug. 6	1	
New York:	New York	July 31-Aug. 6	3	
Ohio:	Zanesville	July 2-30	3	
Pennsylvania:	Johnstown	July 31-Aug. 6	1	
Tennessee:	Nashville	July 31-Aug. 6	1	
Wisconsin:	Milwaukee	July 31-Aug. 6	1	
	SMALLPOX—FOREIGN.			
Brazil:	Rio de Janeiro	June 26-July 3	200	117
Canada:	Winnipeg	July 23-30		1
Colombia:	Barranquilla	July 18-24		1
France:	Marseilles	June 1-30		3
	Paris	July 16-23	17	1
	Rouen	June 1-30		3
Great Britain:	Glasgow	July 22-29	7	2
	Liverpool	July 16 30	6	
	London	July 9-16	7	
	Manchester	July 9-16	2	
	Newcastle-on-Tyne	July 9-16	10	1
	Nottingham	July 16-23	2	
	Sheffield	July 16-23	1	
India:	Bombay	June 28-July 12	24	
Italy:	Palermo	July 16-23		1
Mexico:	City of Mexico	July 17-24	2	2
Russia:	Moscow	July 9-16	5	5
	Odessa	July 16-23	1	
	Warsaw	June 25-July 2		20
Turkey:	Constantinople	July 17-24		10
	YELLOW FEVER.			
Brazil:	Rio de Janeiro	June 26-July 3	3	1
Mexico:	Merida	July 24-30	1	1
	Tehuantepec	July 24-30	4	1
	Vera Cruz	July 24-30	1	
	CHOLERA.			
Persia:	Teheran	July 9	Severe epidemic.	
Straits Settlements:	Singapore	June 10-18		1
Turkey:	Bagdad	June 30	3	1
	Villages	June 30		404
	PLAGUE—INSULAR.			
Hawaii:	Honolulu	Aug. 4		1
	PLAGUE—FOREIGN.			
Egypt:		July 2-9	31	15
Formosa:		June 25-July 2	35	37
India:	Bombay	June 28-July 12		73
Peru:	Callao	June 25-July 2		2
	Lima	June 25-July 2	4	1

Changes in the Medical Corps of the U. S. Navy for the week ended August 13, 1904:

McDonnell, W. N., acting assistant surgeon, detached from the Marcellus and ordered to the Naval Recruiting Rendezvous, Baltimore, Md.—August 5.

Dabney, V., acting assistant surgeon, detached from the Naval Recruiting Party No. 3 and ordered home to wait orders—August 5.

Dean, R. C., medical director, detached from duty as a member of the Naval Retiring Board, Washington, D. C., and ordered home—August 5.

Duncan, G. F., acting assistant surgeon, detached from the Naval Recruiting Party No. 2 and ordered to the Franklin—August 5.

Janney, W. H., acting assistant surgeon, detached from the Naval Recruiting Party No. 1 and ordered to the Marcellus—August 5.

Lung, G. A., surgeon, detached from the Hancock and ordered to the Kentucky—August 10.

Guest, M. S., passed assistant surgeon, detached from the Kentucky and ordered to Washington, D. C., September 1, for examination for promotion, and then to wait orders—August 10.

Asserson, F. A., assistant surgeon, detached from the Kentucky and ordered home to wait orders—August 10.

Dessez, P. T., assistant surgeon, detached from the Naval Academy and ordered to the Kentucky—August 10.

Changes in the Public Health and Marine-Hospital Service for the week ended August 11, 1904:

Clark, Taliaferro, passed assistant surgeon, granted leave of absence for one month from September 15—August 5, 1904.

Lumsden, L. L., passed assistant surgeon, granted leave of absence for four days from July 23, 1904, on account of sickness—August 5, 1904.

Cook, B. J., acting assistant surgeon, granted leave of absence for ten days from August 3—August 6, 1904.

Gahn, Henry, pharmacist, granted leave of absence for fifteen days from August 15 - August 8, 1904.

Slough, Chas., pharmacist, granted leave of absence for thirty days from August 10—August 3, 1904.

Holsendorf, B. E., pharmacist, granted leave of absence for thirty days from September 1—August 6, 1904.

Stier, Carl, pharmacist, granted leave of absence for thirty days from August 17—August 5, 1904.

Resignation.

Pharmacist G. O. Ferdinand resigned to take effect August 15, 1904 – August 9, 1904.

SOCIETY REPORTS

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Twenty-first Annual Meeting Held at Philadelphia, Pa., June 2, 3 and 4, 1904.

[Specially reported for *American Medicine*.]

What Shall We Do with Patients Having Pulmonary Tuberculosis?—F. I. KNIGHT (Boston) classified patients according to the stage of the disease and their financial ability. The various measures applicable to each were considered. With reference to the third financial class, those dependent on charity, Knight strongly advocated sanatoriums for all the pathologic classes. The sanatoriums should be absolutely free and not hampered with small fees or a declaration of poverty. The isolation, control and treatment of all such patients, often ignorant and careless, will be an economy to the State and city which support them. Frequent visitation of charity patients at their homes and effective instruction in hygiene and prophylaxis were enjoined. Knight said that consultants have been too careless in knowing anything of the treatment to which patients are committed when sent away from home, and cited the practice of a distinguished alienist who frequently visited patients after sending them to institutions for the insane.

Discussion.—B. F. LYLE (Cincinnati) referred to the difficulty of getting these cases sufficiently early. In the Cincinnati Hospital since its organization about seven years ago, there have been admitted about 1,700 cases, but the very large majority of these cases are advanced.

A Description of the Work of the Tuberculosis Clinic of the Department of Health of the City of New York.—THOMAS DARLINGTON, Commissioner of Health (New York), summarized the work of the clinic for the first four months of its existence. It is located at Fifty-seventh street and Sixth avenue, New York, and from it, if necessary, cases are transferred to one of four hospitals.

Recent American Contributions to the Methods of Prevention and Treatment of Pulmonary Tuberculosis.—1. Antituberculosis Societies and Their Work. 2. Exposition in Baltimore. 3. Facilities for Outdoor Treatment. 4. New Sanatoriums. A. C. KLEBS (Chicago) referred to the papers published by Hoffman, Lillian Brandt, Coleman, and others dealing with tuberculosis. The high deathrate among negroes demands special efforts for its reduction. The New York Tuberculosis Committee has brought out the need of greater attention by municipal and national agencies intrusted with the public health. New York City has been most active during recent years in dealing with this subject. The operations of the Health Department of New York were highly commended. The work of the Boston Association for the Control and Relief of Tuberculosis was favorably noticed. The Chicago Tuberculosis Committee and the Pennsylvania Society for the Prevention of Tuberculosis have accomplished much in their localities. The National Association for the Study and Prevention of Tuberculosis, just forming, is likely to aid greatly in systematizing efforts in this direction. The Baltimore Exposition was also described. The use of tents and shacks in out-of-door treatment was commended.

E. O. OTIS (Boston) referred to the **Boston Association for the Control and Relief of Tuberculosis**, which works in conjunction with our dispensary and has two visitors; and the District Nurses' Association which we have, uses its nurses, fourteen in number, to do somewhat the same work. I would sincerely urge the gentlemen to visit Brannan's Dispensaries, and also Darlington's, in New York City, and see then what an immense amount of good this sort of work is accomplishing.

Discussion.—B. F. LYLE (Cincinnati). Ohio is not behind in the effort to stamp out tuberculosis. Our last legislature voted money for the purchase of ground for the establishment of a State sanatorium. Cincinnati claims the honor of being the first municipality to establish a hospital for the care of tuberculous patients. Our hospital was established in 1897 and we have at the present time a daily attendance of 100 patients in the institution. It is intended for the care of persons unable to defray the expenses of a private sanatorium, and we admit patients in all stages. During the past winter we have kept quite a number of patients in tents; we have found that they improved very much more than those who were in the buildings, and we feel that through the inauguration of this method in our climate we have done a great deal for the benefit of the patients, as well as to establish the recognition of the value of this method of procedure in public estimation.

The Home Treatment of Tuberculosis by Means of Hospital Dispensaries.—JOHN WINTERS BRANNAN (New York City) referred to the excellent work done for the city of New York by James Alexander Miller, at Bellevue. Tent cottages on the river bank, milk and eggs, and all necessary supplies have been placed at his disposal. The tuberculosis clinic has been in existence for four months and has for its objects: 1. Careful and thorough medical attention to each patient in a separate clinic by physicians especially interested and experienced in this disease. 2. Systematic investigation and supervision of the home conditions. 3. Education of the patients and their families in the principles of good hygiene and the prevention of the spread of infection. 4. The study of the social and economic conditions of these cases. 5. The opportunity for scientific investigation and clinical experience for physicians and students. All these topics were considered in detail in the paper and a number of photographs shown. There are now tuberculosis clinics at Bellevue, Gouverneur, Harlem, and Fordham Hospitals.

A Description of the Agnes Memorial (Phipps) Sanatorium, Denver.—CARROLL E. EDSON and W. H. BERGTOLD (Denver). This institution has been built by Mr. Lawrence C. Phipps, of Pittsburg. It is designed for persons of small means and occupies a 40-acre tract seven miles from Denver. The present capacity is for 80 patients. The plans and specifications were shown by lantern slides and the buildings, newly completed in the Spanish Mission style of architecture, have been equipped in a most thorough manner for the outdoor treatment. The architects are Messrs. Gove and Walsh, of Denver.

Human Slavery as a Prevention of Pulmonary Tuberculosis.—THOMAS J. MAYS (Philadelphia) quoted statistics of southern cities to show the great increase in deaths from tuberculosis among negroes since emancipation, claiming that it is from two to four times as much as among whites at the present time. The climate has remained the same but domestic conditions have vastly deteriorated. Education is the only visible remedy, and a return to similar surroundings, except slavery, as previous to the Civil war.

The Climate and Waters of Hot Springs, Va.—GUY HINSDALE (Hot Springs, Va.). The situation at an elevation of 2,300 feet in a valley between the Blue Ridge and Allegheny Mountains affords a delightful climate well suited to the needs of most nervous, rheumatic, and gouty invalids. The waters are alkaline calcic and have a natural temperature of 106° F. They are applied by means of a spout, circular, and tub baths, in connection with hydrotherapeutic apparatus. There are springs for internal use, among which is the "Healing Spring" water. This is strongly diuretic and is well borne by the stomach.

This paper was discussed by BEVERLEY ROBINSON, W. C. RIVES, I. H. HANCE.

Remarks on the Treatment of Respiratory and Circulatory Disturbances by Passive and Active Movements.—JOHN MADISON TAYLOR (Philadelphia) read an abstract of his paper. He urged the wider use of educational development of the function of respiration. He said that far less difficulty exists in taking in air than in expelling the vitiated tidal air. In many people renewal of the residual air is rarely or never adequately achieved. Taylor does not believe that patients with acute or chronic disease of the lungs are ever injured by increasing the depth and fulness of respiration. Taylor has observed that those individuals who suffer most from persistence of pulmonic and cardiac disorders have frequently an infantile chest. Development of the chest is followed by disappearance of chronic disorders. Proper breathing exercises were described in detail. One good effect of these exercises is the improvement of digestion. The psychic effects are most wholesome.

Discussion.—ROCHESTER wanted to heartily second the remarks of Taylor in regard to the management, particularly of circulatory disturbance, by means of properly directed massage and exercises, and the very great harm that can be brought to those cases by improperly directed massage and exercises. I think that the careful study of these cases and the careful prescription of the character of massage or the character of movements is of the utmost importance. In cases of cardiac incompetence, begin with only passive movements or only assisted movements before taking up resisted movements, the raising of weights, etc., which are of great value in circulatory disturbance. I think the chief value of Nauheim is more from the movements given than from the baths.

QUIMBY said while it is perfectly true that respiration is an absolutely reflex act, in my experience patients who have been made to breathe properly for a certain length of time find that afterward their respiratory muscles go on breathing properly when they let them alone. The effect of respiratory exercises is not limited, therefore, to the simple time of the lessons; not only are the respiratory forces augmented, not only is the lung expanded, but the respiratory centers are trained to a better form of reflex action. RIVES said I have been to Nauheim several times, and my personal impression is, from what I saw there of the results of treatment, that the effect of the baths was remarkable in diseases of the heart, and that the improvement was due more to them than to the exercises. ROCHESTER said I have sent patients to Nauheim, and I have imitated the baths at home—both the carbonated bath and the noncarbonated, purely saline baths. Three patients who have been to Nauheim and who had undergone the course of treatment there of six weeks and then a rest and return for six weeks' further treatment, on their return were not particularly benefited by their residence at Nauheim; they came home in about the same condition as they were before they went away. Then I put them simply on a course of careful watching and carefully administered, not resisted movements, but stretchings, complete rest, and carefully assisted movements, and finally resisted movements and active exercises; then the patients improved to a very material degree and got well, and are still living in a very comfortable condition. Those are three cases in which the baths failed absolutely to be of any use, although administered at Nauheim. I further used baths at home, and there I have not had the good results from them that I had hoped to get; but I have had good results where I have used the exercises. We have to put a great many of these patients absolutely to bed without any exercises of any sort at first, and then to begin the massage and assisted movements, and finally the resisted movements and the exercises.

Babcock believes in many cases it is absolutely necessary to prepare the patients for the administration of a course of baths, and that it is a mistake to plunge every patient who manifests cardiac disturbance into the bath tub. There is a great difference in the care manifested to patients in Bad Nauheim. There are some men there who are extremely skilful and conscientious in the use of that method of treatment, and I can heartily recommend Groedel as one of them; and there are others, as I happen to know by personal experience and the experience of patients, who are altogether too routine in their method of administering and prescribing baths at Bad Nauheim, and who do not give their patients personal attention—the particular directions concerning their mode of life and habits, which I believe is essential in addition to the special treatment.

C. E. Quimby: I have not had a large experience in the Nauheim bath, but if I may give an impression, it is that the patients who are suffering more from the nervous side or the toxic side, perhaps, are the most benefited by the bath treatment; that those in which the cardiac muscle is weaker are more particularly benefited by the treatment of the resistance exercises.

The Pitch of the Normal Pulmonary Valve Sound and the Practical Significance of its Changes in Acute Lobar Pneumonia and in Emphysema of the Lungs.—Howard S. Anders (Philadelphia) examined 470 healthy persons, and found the pulmonic second sound absolutely lower in pitch than the aortic sound in 77%, no difference in 10%, and in 13% the pitch of the pulmonary valve was perceptibly higher. Accentuation or increase in the intensity of the pulmonic sound is more noticeable when the evidences of hypertrophy of the right ventricular myocardium are prominent—when the *vis a tergo* is specially marked, while extreme elevation of pitch accompanies those affections, associated with excessive obstruction to the flow through the pulmonary capillaries, where the *vis a fronte* predominates. In acute lobar pneumonia the pulmonic second sound is elevated above the aortic sound, corresponding with the amount of increased tension in the pulmonary circulation. If this suddenly is lowered by weakening of the right ventricular force there is impending danger.

Meteorologic Conditions in the Causation of Lobar Pneumonia.—James M. Anders (Philadelphia) prepared tables and charts showing monthly mortality, changes of temperature, winds, relative humidity, barometric pressure, etc. He said that, although the deathrate from pneumonia may be largely independent of climate, yet the seasons of the year exert a marked influence upon pneumonia prevalence. In continental climates the greatest prevalence of pneumonia is in the spring, while in insular climates the deathrate is highest in winter. Low temperature and high deathrate are coexistent. The higher the winds the greater the deathrate. The influence of the seasons is not a direct one, but rather indirect, by bringing about the effective element in the causation, concentration and increased virulence of the specific poison in consequence of closed doors and lack of free ventilation.

Some Unsettled and Important Problems in the Treatment of Acute Lobar Pneumonia.—Beverley Robinson (New York City) believes that slightly acid antiseptic gargles and mouth washes exert a preventive influence, but that such washes should not be used except when the person has been exposed to special danger. Beechwood creosote inhaled by patients, attendants and others is believed to prevent attacks. In the beginning morphin has a valuable place for relieving pleuritic pain; but if the patient be of middle life, with previous evidences of interstitial nephritis, upon which a marked acute process is grafted, we must do without an opiate. When the kidneys are acting well, with little or no albumin, casts or blood present, if delirium or insomnia is pronounced and threatening, and if other means have failed to relieve, a small or moderate amount of morphin hypodermically is permissible. Cold sponging is permitted, occasionally, if the fever is high, but Robinson prefers warm water with alcohol added. Large doses of quinin or digitalis were condemned. Strychnin is not so useful as coca. Alcohol is imperative at times; calomel used early is useful.

Discussion.—Rochester said in my own observation in cases of pneumonia I have paid attention, as other observers have, to the intensity of the sound—to the changes in the intensity of the sound and likewise to the duration of the sound, and I find that shortening of the duration of the pulmonary sound is indicative, just as the raising of pitch is, of beginning failure of the right heart; and of course we know that with elevated pitch the note is usually shorter in duration and the two go together very well. I think that it is a very valuable addition to our knowledge in cases of diseases of the respiratory tracts. In regard to the prevention of pneumonia by inhalation, that, of course, is a matter very difficult, as Robinson says, to prove; and I should be very sceptical as to the value of overloading the air with a drug like creosote. What we really need in cases of pneumonia is the purest air we can possibly get and in the largest quantity possible, and when we cannot get it in sufficient amount, we should use oxygen instead of pure air. In all cases of pneumonia, in my opinion, there is more or less involvement of the kidney, and that is shown, I think, by a thorough and careful observation of the 24-hour sample of urine; in the next place, different samples, at different times of day, and if thus examined you will invariably find a minute amount, or in some cases a large amount, of albumin present in pneumonia, and I believe the kidney is almost as seriously involved in severe cases of pneumonia as the lung itself. It is a very serious matter to administer constant inhalation of creosote, lest we have marked disturbances of the kidney from that drug. Furthermore, in regard to the care of the sputum in the prevention of pneumonia—I think it should be cared for; and I most heartily endorse the use of mouth washes. Not only do I insist upon mouth washes, but upon the nurse scraping off the tongue and swabbing off the mouth around the teeth as well, and that, I think, is of very great importance. But, regarding the use of carbolic acid and corrosive sublimate in the cups beside the bed, I think it is absolutely valueless. I made some experiments bearing on this in cases of tuberculosis several years ago, in which the sputum was deposited in corrosive sublimate—1 to 1,000 solution—which simply coagulated the material around the outside; and even though I left it 12 hours in this solution, showed active tubercle bacilli in the center in the case of sputum deposited in such a solution; so that unless you stir your solution up very thoroughly and very frequently (which you won't do) you won't get that sputum thoroughly disinfected by carbolic acid or corrosive sublimate. Another thing, in this matter of disinfectant solutions danger has occurred and patients have been poisoned from drinking in their delirium corrosive sublimate solution. That has occurred to my positive knowledge in two cases, where patients have been poisoned from drinking from their sputum cups with corrosive sublimate in them. If we watch pneumonia carefully and see how the patients recover therefrom, we learn that they recover by sweating. The plain indication for us is to follow nature's suggestion and get rid of toxemia through the skin. It can be gotten rid of, namely, by profuse sweating; that can be induced without drugs; therefore I sweat all my patients with hot air, usually administered by means of the hot mustard foot bath. I have treated 210 cases of pneumonia after this manner. Including all cases, that is, old cases (and one was 82 and another 89 years old)—cases that were alcoholic, cases that came under observation just a day or two before deaths, cases with empyema and other complications, with all these cases included there were 23 deaths—a little over 11%; that is, in all classes of cases. If I were to exclude the cases which Osler said should be excluded, my deathrate is reduced to 2½%. Of course, we have not a right to exclude those cases, but I think sweating is the most important procedure in the treatment of pneumonia, and next to sweating is the local treatment of the lung and heart, which consists of cupping vigorously over the lung; I can relieve pain better by dry cupping than by hypodermic injection of morphin. A physician whom I was called to see was suffering severely from pains in his chest. He had 40 grains of morphin in quarter to half grain doses given to him hypodermically at three hour intervals; and I said: "Stop your morphin." We cupped his chest, and it relieved him immediately. He said: "That was the first relief I have had." To dry cup properly, you have got to put on a big enough cup which shall bring the skin and the underlying flesh half way up and will turn purple and blue. If you are going to cup, you want to cup vigorously; then you get your results. In regard to bleeding in pneumonia, it is of very great importance and very great value in properly selected cases. I would not care to say to bleed all cases, and I do not believe in bleeding them right at the start. We don't get the results that we are after. We get just as good results by sweating and purging by the use of calomel. I have seen case after case where with a distention of the right heart, it was relieved by the withdrawal of blood; you have got to draw a pint or more blood to have any effect. Just this last spring, a lad of 17 or 18 years of age had a very severe case of pneumonia involving one part after another, and all the lobes of both lungs were finally involved; at one period of his disease, his respirations were 56, his pulse 130, and his temperature 105°, and he was purple; the veins in his neck were pulsating, you could hear the heart sounds distinctly over his liver, and his liver was getting down toward the umbilicus. We bled him 800 cc. of blood at one bleeding, and his respirations dropped from 56 to 36; his pulse became regular and dropped to 112; his temperature dropped five points, and the boy was comfortable. Of course, his temperature went up again, and his respirations increased to about 40 again, but he finally recovered. The boy had a pericarditis beside, which I think was entirely cut short by proper local applications of leeches.

Charles E. Quimby (New York). If Rochester means that toward the proper time for a climax it is proper to sweat a patient, I think most of us will agree with him; and that the other gentlemen will recognize that efforts to produce sweating at that time are exceedingly satisfactory; but that the production of sweating early means always reduction of arterial tension, and arterial tension is a factor, as Anders has shown in the process of defense.

H. Longstreet Taylor (St. Paul, Minn.). I come from a cold part of the country, and we do not have most of our pneumonia cases with the temperature at its lowest point. We have snow on the ground from November to April, practically every year; and it is not in January and February that we have the most pneumonia, but we have a great deal of it when the snow falls and again when it thaws. This winter we passed through a term of 10 days when the thermometer did not reach zero at the warmest time of the day; those were the hardest days practically of the winter, and during all that time my tuberculous patients were sitting out of doors and objected to going into the house.

J. H. Elliott said our climate in Muskoka, Canada, is perhaps very similar to that in Minnesota and the Adirondacks; my experience has been much the same as Taylor's; that the incidence of pneumonia is not more marked in winter; and in the winter our actual humidity is very, very low, the average actual humidity through the winter being, I believe, much less than one grain of moisture per cubic foot; so that the condition of very low actual humidity cannot be a very important factor in it. One other thing in reference to what Phillips has said regarding the temperature of the body dropping very markedly in cold weather and those observations taken of the temperature in the mouth; in carrying out the out-of-door treatment of tuberculosis in very low temperature, I find that the temperature taken by the mouth does not correspond with the temperature taken by the rectum; that in a patient sitting out of doors or even sleeping in a cold room you may find a subnormal temperature of 94° or 95° in the morning; when the mouth has been closed for 20 minutes—then the temperature is taken and with a reliable thermometer remaining in the mouth for three to five minutes; that the rectal temperature may be within a degree of normal when the mouth temperature is down to 94° or 95°; and that the rectal temperature does not fluctuate with the out-of-door cold as does the mouth temperature.

Klebs said when I take the stand here and speak to you it is because the facts which have been noted here about lobar pneumonia seem so radically different as coming from different observers. There does not seem to be one single point on which every one is agreed. When those with large experience seem to have such different views, this is for the younger men especially bewildering. To begin with, it was mentioned here as an indisputable fact that lobar pneumonia is an extremely fatal and most prevalent disease. I have made some statistical investigations on that subject; I showed you some charts yesterday; and as far as lobar pneumonia is concerned, that it does not seem to be borne out by statistics, that the disease is enormously prevalent and more prevalent than it used to be. We have an increase from what is called pneumonia, but not from lobar pneumonia. I showed you yesterday the tremendous increase which socalled pneumonia has brought about in children in ages under five years. That cannot be lobar pneumonia, that must be bronchopneumonia to the greatest extent. Holt gives the proportion of bronchopneumonia to lobar pneumonia in childhood at 75 to 25, so that for the increase of pneumonia in childhood, which of course materially affects the total increase—lobar pneumonia cannot be made responsible. This seems not to be taken into account sufficiently, and there is a sort of panic which has set in among the profession as well as among the laity in speaking of pneumonia. It was expressed in all of the papers which I read, as far as I remember. It may be well that we remember a paper which was read before this Association some years ago by Drs. Townsend and Coolidge, which was perhaps the best expression of the subject that was ever brought before us; they analyzed 1,000 cases treated in a series of years at the Massachusetts General Hospital. That observation brought out the fact that the mortality had been practically the same through all these years and absolutely uninfluenced by various factors; that there was increase in the mortality because there were patients sent to the hospital of more advanced age, but taking the age element and others into consideration the mortality was not great. We have various observations from a great many hospitals. I collected several statistics from hospitals, and the average mortality from pneumonia in these hospitals hardly exceeded 20%. It frequently was lower. This does not speak for a great fatality especially since we have recognized the fact that the worst cases are sent to the hospital. In military hospitals, in private practice, the mortality among adults is considerably lower than in these hospitals. As to the treatment, it is also shown in Townsend and Coolidge's work that during these different periods of years various methods of treatment were used. In the first period there was heroic treatment—profuse bleeding, dry cupping, etc. In the intermediate period there was some letting down from these measures, and more medicinal methods were used. In the last period a rather expectant treatment probably induced by the effect of the example of the Skoda school prevailed and cases were treated expectantly. Absolutely and radically different methods of treatment were used and the mortality still remains the same. I think that is something we ought to take into consideration.

Howard S. Anders said, first, in regard to the matter Quimby brought up of the physics involved in the accentuation of the second sound, I tried to make clear in my paper that there was not any contradiction here when I there said, speaking of anything that will stimulate a hypertrophy of the right ventricle by increasing the resistance of the flow of blood through the lungs, causing accentuation of the sound of the pulmonary valve. Now, the laws of physics are laws; they are not opinions or matters of individual judgment; they are hard and fast; they are almost mathematic in their certainty. If they were not, they would not be laws; and those two laws do hold. The lower the pitch, the louder the sound, for the simple reason that you can hear a bass drum further than you can a kettle drum. So is a deep toned whistle, like Baldwin's Locomotive Works' whistle, heard farther off than the higher-toned, piping whistle of the little factory in the neighborhood. So here the law governing the cause of the elevation of pitch supervenes over that of the cause of a lower pitch; of tension over mere accentuation of loudness of sound. Just as I hold this paper in my hand, I am influencing it by muscular power, by my will. The law of gravitation would make that paper fall to the floor; the law of gravitation is prevailing just as much now while I hold that paper in my hand as when I let that paper fall to the ground; but my will, the psychic law of my will, supervenes and oversteps the law of gravitation for the time being. As soon as I am willing to let the law of gravitation supervene, then it falls; so in this case, the law of pitch supervenes over that concerning greater intensity. Now, with regard to the question of meteorology. I simply wish to emphasize the importance of the fact that daily observation—daily observations day by day for groups of two or three days a week, in the course of a few weeks are worth more than maximum or minimum taken over longer periods of time, such as months or years. The absolute daily range and the conditions under which we live day by day that make us more susceptible or more resistant as the case may be—these differences operate more than does the average of long periods taken together. With regard to the treatment, Beverley Robinson has no doubt treated ten times as many cases of pneumonia as I have; and yet, perhaps, I am one of the heterodox younger generation; not a therapeutic nihilist, nevertheless one somewhat sceptical as to the value of drugs in the treatment of pneumonia. The cases of pneumonia that I have treated in private and in hospital practice always do better when I give them the least amount of medication of any kind, and so with regard to alcohol. I think that over-feeding, too, is another adverse thing in connection with the treatment of pneumonia. I think that when you give them meat extracts and concentrated meat broths you feed the disease and do not help the patient. I think that most patients get well in spite of alcohol when given, and do better without it. I feel that when I was giving alcohol in the case of pneumonia I was adding poison to poison already present; and, although I have not used the method Rochester has spoken of, of hot air, I think that we have a strong hint in nature when we see patients with pneumonia very ill who are with their skins attempting to force out toxins with the sweat; we have an important hint there to take advantage of and encourage sweating by whatever means.

Rochester said, it has been said that we should not sweat our patients because pneumonia does not sweat them until the end. It is not to get rid of the toxin of pneumonia that we sweat our patients. Our patient is poisoned by the retained toxins in the body as well as by the toxin of pneumonia; and the body is not excreting as it should; its kidney is not doing its work as it should; its bowel is not doing its work as it should, and its skin is not doing any work at all; it has a dry, hot skin until the time of crisis occurs. If we can relieve sufficient of the poison accumulating in the body; if we can get rid of the accumulated chlorids, possibly doing some harm that the kidney is not getting rid of; if we can get rid of those poisons by the institution of sweating, we are helping the patient toward recovery and we relieve that toxemia of the individual; we get that result not by giving drugs, but by the production of sweat, by hot air; and I think we can get the very best results in that manner. In reply to what Robinson has said, I can refer you to the statistics of a large number of cases, in both private and hospital practice, which gives 10% better results than other tabulated results.

At the business meeting the following officers were elected for the ensuing year: President, W. F. R. Phillips, Weather Bureau, Washington; vice-presidents, S. G. Bonney, Denver, and S. D. Risley, Philadelphia; secretary and treasurer, Guy Hinsdale, Hot Springs, Virginia; Member of the Council, J. C. Wilson, Philadelphia; Member of the Executive Committee of the Congress of American Physicians and Surgeons, F. I. Knight, Boston; alternate, R. G. Curtin, Philadelphia. The time and place for the next annual meeting were left to the Council for decision.

Fleming Maut Sandwith, of London, was elected a corresponding member.

Milking Cows by Electricity.—"In the newly invented apparatus for milking cows by electricity," writes S. P. Warner, United States consular agent at Gera, Germany, "rubber hoods are attached to the udder of the cow. These hoods are connected with a vessel for receiving the milk by means of a rubber tube, from which the air is exhausted by means of the electric device. It is claimed that the suction thus secured resembles very closely the sucking of a calf, and that for this reason the cow 'lets down' her milk more freely than when milked by hand. It is also claimed that absolute cleanliness of the milk may be secured when this method of milking is employed."

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SPONTANEOUS FECAL FISTULA.

BY

MONT. H. CASSIDY, M.D.,

of Cone, Mich.

Mrs. M., aged 74. The patient is of medium size, rather spare. Her health has been good, and her family history is good. For 20 years she has had a swelling in the left groin, just above Poupart's ligament. It is the size of a small orange, and is somewhat egg-shaped.

On June 4, after working in her garden, the swelling began to cause her severe pain, and became red and edematous.

On June 10, she began to vomit fecal matter; there had been no movement of the bowels since June 5, and the swelling had been increasing. Temperature was normal. Hot applications were applied, but no poultices.

On June 30, she still vomited fecal matter; the colon tube, was used, but there was no passage from the bowels. No food was retained in her stomach since June 10. Rectal feeding had been resorted to.

On July 1 the swelling broke. A large amount of bloody, watery pus, and considerable cheesy substance of very offensive odor were discharged, large pieces resembling fatty tissue escaping at times.

On July 6, the bowels moved voluntarily. Fecal matter began to escape from the opening in the swelling. The patient began to retain food on the stomach.

On July 8, the temperature was normal, the swelling broke the second time, patient improving. On July 22, the swelling broke the third time; all the openings yielded pus and a cheesy matter. On August 20, swelling broke for the fourth time, the bowels moved naturally and the appetite improved. The patient was given nourishing food.

It is now nine months since the last opening occurred. Since last October the patient has been about the house doing her work, and during this time the four openings have become permanent. Each opening communicates with the cecum, as fecal matter and pus escape from all the openings at times.

Dr. John F. Jenkins, of Tecumseh, Mich., saw the patient with me on August 2, but for various reasons operation was not advised. Swelling is now about the original size.

MYELITIC SYMPTOMS OCCURRING DURING PUERPERIUM.

BY

ALFRED GORDON, M.D.,

of Philadelphia.

To the Editor of American Medicine:—Last year within a period of three months two cases full of practical suggestions came to my notice. As they are in line with Dr. Nicholson's interesting cases, reported in *American Medicine*, May 28, I consider the subject of some value to your readers.

The first case is that of a woman, whose labor was absolutely normal in character and duration, but the delivery was somewhat rapid. Fearing lacerations from rapid descent of the head, the attending physician applied the forceps (this was related to me by the doctor himself). A laceration was nevertheless caused by the instrument, and, as no attention was paid to it, an abscess was formed; the latter was incised and abandoned to nature. A purulent discharge, quite abundant, soon appeared from the vaginal cavity. The patient shortly developed pain in the lumbar region, which gradually extended to the lower extremities. It was steady, with occasional paroxysms of sharp lancinating pain. On the fifteenth day after the confinement the patient began to lose gradually the power in her legs; obstinate constipation and difficulty of micturition made their appearance. The patient was fretful and irritable. The pain became intense. The physician in charge called the condition "nervous explosion," and two weeks later, at the instance of the family, he communicated with me.

Upon examination I found a whole array of symptoms of a typical transverse myelitis; paraplegia, rigidity, increased tendon reflexes, ankle-clonus on one side, Babinski sign on one side, marked sensory disturbances, finally, bladder and rectal disturbances. Curiously enough, the abundant purulent discharge from the vagina continued and no special attention was paid to it, except that every two to three days a douche of plain water (unfiltered) was administered. My diagnosis of infectious myelitis was looked upon with incredulity. I met, therefore, great difficulty in convincing my confrere of the possibility of such an occurrence and of the need of special effort in disinfecting the uterovaginal canal. After a long conference he finally yielded. An appropriate treatment was decided upon. It is remarkable (and on this I wish to lay special emphasis) that only after the purulent discharge disappeared the cord symptoms began to subside. Bladder and rectal phenomena were first to show improvement. The rigidity of the extremities persisted for a considerable time, and when I saw the patient six months later a slight rigidity was still present, but the exalted reflex phenomena and the sensory disturbances disappeared entirely. The patient is totally well at the present time.

The second case is very similar to the foregoing, with this difference, however, that the symptoms were milder, but they were all present. There was also an application of forceps, which, by the way, were not disinfected, but taken directly from the coat pocket and introduced into the vagina. There was also a purulent discharge with some fever (100° to 101°). In this case I experienced more difficulty than in the first in convincing my colleague of the truth of my diagnosis, because the symptoms were so mild in character. Patient recovered entirely.

In recording briefly the two cases I wish to call special attention to the practical side of the question raised by Dr. Nicholson's paper.

1. The necessity of not ignoring any sort of symptoms developing after even an apparently uncomplicated obstetric case. No matter how insignificant a symptom may be, we must face it and endeavor to give it the proper interpretation, not dismissing it in a superficial manner, contenting ourselves with such meaningless terms as "nervous explosion," etc.

2. The so often repeated advice to be clean and aseptic. The introduction of unclean forceps (second case) into a cavity full of small erosions and lacerations is to be condemned.

3. A purulent discharge from a uterus or vagina which is in a state of a great receptivity for all sorts of infection is of too great meaning to an educated physician to dwell upon the necessity of removing local infection.

4. The occurrence of myelitis or other spinal symptoms during the puerperium and caused by improper management is a possibility.

5. A transient or curable inflammation of the central nervous system is also a possible occurrence. The prognosis should therefore be reserved in cases similar to those reported.

SEQUENCE OF DIPHTHERIA CASES.

BY

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A young woman exposed to diphtheria in Brooklyn, December 23, came to Vermont the following day, and eight days later developed the disease. The membrane was confined to the tonsils, and the case was not severe.

Six weeks later she returned to Brooklyn into a family of four—two adults and two children—taking with her a pack of cards and a tooth brush used during her illness. In six days after her return one adult and one child of the family developed diphtheria. These cases were not severe. The grandmother from Vermont went to Brooklyn to care for the youngest child. She was there four weeks, but did not see the diphtheria patients, who were strictly quarantined. The grandmother had 2,000 units of antitoxin given her, but no culture of her throat was made. Within a week after her return to Vermont two members of her family developed diphtheria—mild cases.

The day before the doctor was called to the first case, some library books were wrapped in brown paper and returned to the public library. These were put into the cellar to be fumigated later by the library committee.

Eleven months later, one of the committee finding the package in the cellar, brought it up and opened it. Seven days later she developed diphtheria—mild case.

All of these patients had frequent cultures taken from the throat during their illnesses. A culture from the grandmother's throat after her return from Brooklyn gave almost a pure growth of the Klebs-Löffler bacillus, but in her case there were no symptoms, excepting a slight soreness of the throat. No membrane. In all these cases the membrane involved the tonsils only.

ORIGINAL ARTICLES

LACERATION OF THE CERVIX UTERI.[1]

BY
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of Philadelphia.

As in most good things which have been proposed in this world, the disciples of Emmet have "out Heroded Herod" in the matter of his operation for repair of laceration of the cervix uteri, which may be accepted as a matter of course; but what is really surprising in the matter is that they continued so long in their extreme beliefs and the propagation thereof. In a long experience with and observation of these lesions, the original views expressed by Emmet (who feared and protested against extreme views as likely to react against an extremely useful procedure) seem more and more to have been warranted. In his very earliest remarks on the subject he says, "yet the fear is not an idle one that the operation, which will accomplish more than can be gained by any other means when employed within its proper range, may fall into disfavor through abuse of its practice. The operation has been done too often when no necessity for doing it has existed. . . . The simple existence of a fissure in the cervix does not justify an operation for its closure." Even such an experienced pioneer as Goodell came to realize that he had abused the operation, and with his usual candor, admitted the fact and sounded a warning against it.

Time has modified even some of Emmet's early views in this matter, and according to Pryor, "the cicatricial plug, which at one time was even thought to cause optic neuralgia, as well as other reflexes, has disappeared in the light of more precise pathology." No one can examine a series of sections of the tissue removed from the angles of these tears under the microscope without soon becoming convinced of the truth of this observation. The vaginal mucous membrane covering it is in all respects similar to the healthy vaginal mucous membrane covering the cervix, which blends with a mucous membrane in most respects similar to that lining the cervical canal, with little or no difference in the transitional stages. The arrangement of the underlying connective and muscular tissues differs little from the normal, and then only in the excess of connective tissue, and the point which strikes one most is the fact that this small excess above the normal of connective tissue is no more noticeable in the tissue taken from the angles than it is in the tissue of every part of the cervix obtained by amputation of that organ.

The significance is clear; the connective tissue overdevelopment is not due to the granulation tissue of the healing angles as was enunciated by Emmet, but to the inflammatory deposits which have invaded the whole cervix through its torn and infected surfaces. And as a matter of clinical fact, let the cervix uteri be torn as deeply as you choose and preserve the parts from infection, the greater part of the tear will heal spontaneously and the balance of it will remain perfectly healthy, as much so as did the lobe of the ear which had been torn through by the weight and drag of our great grandmothers' earrings; the lips will remain uninfiltrated, of normal size and thickness, with no eversions and no erosion of the lining mucous membrane. In such a case there will be no untoward symptoms and no bad effects whatever.

And herein lies the hint as to the proper treatment of the acute cases. There is a tendency among obstetricians to repair these lacerations primarily. The objections to such practise are manifold, and I admit a prejudice against it. The objections are enormously swollen lips so that a proper adjustment of the surfaces is difficult, the subsequent shrinkage of the tissue under the sutures is of such an extent as to be uncontrollable both for purposes of apposition and for the prevention of the invasion of infection between the lacerated surfaces. The puncture points of the needle bleed about as freely as do the torn surfaces—in fact, often times more so. When shrinkage has taken place to a certain extent, infection may be readily let in, but it proportionately becomes impossible to cleanse the wounds. The effect of an operation on the morale of the patient at such a trying period is by no means the least of the objections. In general it were far better even in an infected patient to trust to the efforts of a clean nurse with a cleansing douche than to those of a dirty or an indifferent surgeon—after whose work the efforts of any amount of clean nurses would not avail. Whatever may be ideal surgery under the exigencies of actual practice, the treatment for recent lacerations of the cervix remains, and I believe will remain, rigid local cleanliness, except when there is a sufficient hemorrhage to demand a ligature. When noninfection can be insured, and when the torn lips are not unnecessarily disturbed by the careless use of the nozle of a syringe, spontaneous healing of these lacerations may be expected to a greater or less degree, and what tear remains, when nature is through with her work, will be of a healthy character; will give no future trouble, and will need no surgical interference.

To obtain such results is of course utopian, and not to be expected. All degrees and conditions of lacerated cervix exist, and will continue to exist. Fissures continue as deep as was the original laceration, lips are infiltrated and do not involute, and in consequence become everted both by their thickness and the tendency to contraction of the new tissue (formed from the inflammatory deposits). The infection of the lacerated surfaces not only brings this about, but produces also an erosion of the mucous surfaces, which erosion is subsequently kept up and even exaggerated by the discharges from the infected lining membrane of the uterus itself, a discharge which is continually pouring down through the cervical canal and accumulating in the culdesac of the vagina to bathe constantly the already irritated, eroded and everted lips. The constant rubbing of the cervical membranes against the vagina, the traumatism of coition, etc., as put down in most books have little or nothing to do with either the production or the continuation of these erosions. Stop the acrid discharges from the uterus, keep the eroded surfaces free from their own discharges, and they will soon disappear.

The symptoms of chronic lacerations of the cervix uteri are essentially local in their production and remain local in their manifestations. I have no sympathy with the views which attribute reflex symptoms to these lesions. There is a leukorrheal discharge, which comes purely from the eroded mucous membrane of the cervix and the infected mucous membrane of the fundus. There is a feeling of weight and bearing down in the pelvis, which is due to the size and inflammation of the cervix itself; this is not infrequently added to by a displaced fundus, an endometritis, prolapsed ovaries, an inflammation of the ligaments radiating backward from the cervix or by a general sagging downward of the uterus with relaxation of its supports. When these complications occur and the patient has been a long sufferer it is easy to understand how she may become neurotic and suffer from all the ills of chronic neurasthenia. But in uncomplicated cases in which there simply exists a laceration of the cervix uteri with everted and eroded lips, producing a constant leukorrhea and a feeling of weight and uneasiness in the pelvis and about the rectum, these socalled reflex symptoms do not exist. I do not deny that many a woman with a lacerated cervix, has "chronic nerves" with all that implies; headaches, tired feelings, backaches, leg-aches, indigestion, sleeplessness, inability to walk, and the whole interminable list. What I deny is the relation of cause and effect. In the first place, there is no "cicatricial plug" or "scar tissue" in the angles, and if there were, where else in the body does scar tissue produce such effects? In this connection it is worth while to note that the cervix is particularly free from nerve filaments, more so than most any part of the body—how can you have reflexes without nerves?

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[1] Read before the American Gynecological Society, Boston, May, 1904.

Irregular menstruation only occurs when the endometrium is involved, which in the surgical cases it must be admitted usually obtains. Pelvic pain, as pain, does not occur. There is a sense of soreness, such as would accompany an erosion in any part of the body, especially when disturbed; but, although pain is mentioned as an accompanying symptom of this condition by such a recent writer as Penrose and attributed to pelvic lymphangitis and lymphadenitis, we look in vain with the microscope for any signs of lymphangitis in the tissue removed, or any cause in it which would produce sufficient irritation to induce such a condition in the pelvis. The whole truth is, that the innumerable symptoms attributed to laceration of the cervix are in great part far-fetched, and in most cases caused by complicating conditions.

I see no reason to depart from the opinion long ago expressed by Emmet that the majority of lacerations of the cervix heal spontaneously, that large numbers remain as secondary conditions, which need no subsequent surgical interference; that the conditions which indicate the necessity of surgical repair are the existence of infiltration sufficient to induce eversion of the lips and consequent erosion of the mucous membrane lining the inner surfaces of the lips. And it is further true that in the vast majority of such cases there is an accompanying infection of the endometrium, which needs the use of the curet.

There is one belief prevalent which would warrant, nay, demands a repair of every lacerated cervix, the belief that lacerations of the cervix produce carcinoma. In this belief I take no part, and no one has to my knowledge as yet produced a single scientific fact which will uphold such a theory. The proofs are purely clinical but such as they are, they in no way appeal to my sense of reason. The one and only proof offered us is, that cancer of the cervix occurs for the most part in women who have lacerations of the cervix. This may be accepted as true, but not nearly to the extent it was some years ago. What gynecologist has not in recent years observed cancer of the cervix in a nullipara in a number of instances of both married and unmarried women? In this connection it must be borne in mind that cancer is largely a disease of middle life—at least of an age at which the vast majority of women are no longer nullipara, and have had lacerations of the cervix uteri to a greater or less extent, and that as age advances the lacerations become more frequent, and cancer more prevalent. In other words, the two conditions are prevalent at the same period of life. Is it then strange that they should be so frequently associated? Would it not be short of marvelous if a developing cancer should miss a lacerated cervix? Is it the rule for cancer to develop at the seat of a traumatism in any other part of the body? Is it proved that traumatisms elsewhere have anything whatever to do with cancer? At none of the common seats of the disease in the intestines or any of the internal organs is this true nor in the breast, nor in the fundus of the uterus. Why then in the cervix only? It will be said the traumatism is not the cause, nor the scar tissue, but the chronic irritation. Chronic irritation in other parts of the body causes inflammation, not cancer. In some few instances it is thought chronic irritation does so, but where it is supposed to produce cancer once, it produces inflammation a hundred times. At any rate, where there is no eversion and no erosion, there is no irritation in laceration of the cervix, so what of the cancers which develop in such cases? In vain have I looked with the aid of the microscope for any physical changes in the tissue of a lacerated cervix which would indicate any such probability. The conditions are normal in every respect. The mucous membrane is practically normal, as are its glands. Even when cancer has developed there is nothing abnormal about the contiguous tissues. The old theory of the plug in the angle being the source of the irritation is exploded because there is no such plug, and because the vast majority of cases of cancer begin to develop at the tip and spread into the angles, instead of the reverse, as was formerly believed. So far as we know, it may begin at the tip at that exact point which was the original part of the cervical canal. In this case if chronic irritation is the cause, why should we not have it more frequently in nullipara? Surely there are plenty of nulliparous women with specific and infective irritating discharges from the uterus, with eversion of the os, especially old maids. It is asked why we have the cervix uteri as a favorite point of development of cancer? I may ask why the breast and other parts of the body? No one claims these same causes for the breast and for the different parts of the colon, for instance. We simply do not know, but because of this it is no proof that these theories are correct.

To me the proposition is an unproved theory in which I do not believe and according to which I do not practise. In 20 years' work I have not seen a single case of cancer develop in a laceration of the cervix which I have refused to repair, and from what I have had to say of these lacerations you may imagine the number has not been few.

A CASE OF MALIGNANT ADENOMA OF THE LIVER.[*]

BY

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Cases of malignant adenoma or adenocarcinoma of the liver have now been described in considerable number, but the condition is still sufficiently uncommon and in some of its relations sufficiently controversial to justify the recording of another. Indeed, as to nomenclature there is no argument. Eggel,[1] calling all epithelial growths of malignant character carcinomas, includes these in that group; and clinically that would seem a useful designation. Morphologically, however, many of them are adenomas—as mine certainly is—and if we call them also "malignant" it would seem to me to describe them sufficiently.

Case.—*History:* The patient whose liver I show today was a Greek, aged 38, a fruit dealer by occupation. He was admitted to the New York Hospital on October 5, 1903, and died a month later.

He spoke no language but Greek, and on this account his history was necessarily meager. Of his family history nothing was obtainable. He remembered no previous illnesses except gonorrhea two years before. He gave no history of syphilis. He admitted the drinking of beer, but denied indulgence in all other forms of alcohol. He said that he had felt well until two weeks before admission, at which time his abdomen began to swell and he began to grow weak and short of breath. Apart from this he denied all symptoms. He had not been troubled by diarrhea, vomiting, headache, cough, or pain of any kind; nor had he had bleeding from bowels or nose or mouth. His chief complaint related to his distended abdomen, and the consequent shortness of breath and weakness.

On physical examination the following facts were noted: He was of small frame and poorly nourished. His skin and mucous membranes were of fairly normal color. His tongue was dry and coated in the middle. His pharynx and eyes appeared normal. His heart was normal in position and rapid. There were no murmurs. Pulse was of fair volume and force, with slightly increased tension. The radial and temporal arteries were somewhat thickened and the latter were also tortuous. Percussion note was dull in both axillary regions low down. Behind it was flat from the angles of the scapulas to the bases. The breath sounds were diminished in intensity at angles of scapulas and gradually lost below these points. Vocal fremitus was absent over lower parts of both sides of chest behind. These signs of fluid in the pleural cavities subsequently disappeared. Elsewhere over lungs, expiration was prolonged and a few wheezing rales were heard. His abdomen was tense and distended so that solid viscera could not be defined. There was movable dulness in the dependent regions. Examination of his extremities revealed the knee-jerks present. There was distinct edema of the feet and legs. Axillary glands were of the size of a large pea. Other superficial glands were not enlarged. Rectal examination was negative; prostate was not enlarged nor tender.

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[*] Read at meeting of Association of American Physicians in Washington, D. C., May 12, 1904.

His urine was always of rather high gravity, from 1,030 to 1,034, of acid reaction; occasionally contained a trace of albumin, never any sugar, and occasionally a few granular casts. It was normal in quantity until the last week of his life, when it was passed involuntarily and could not be measured.

Leukocytes varied between 7,800 and 12,500. The following differential counts of 300 leukocytes were made on October 13 and 19 respectively:

October 13:		
Polynuclear neutrophiles	239	— 79.6%
Lymphocytes	47	— 15.6%
Eosinophiles	9	— 3.0%
Large mononuclear	5	— 1.6%
Mast cells	0	
October 19:		
Polynuclear neutrophiles	238	— 79.3%
Lymphocytes	39	— 13.0%
Eosinophiles	1	— 0.3%
Large mononuclear	22	— 7.3%
Mast cells	0	

He had 70% of hemoglobin. His temperature was never high; a few times it was found as high as 100°, but generally it ranged in the neighborhood of 99° until toward the end of his life, when it was subnormal for several days. At death it was 94°. His pulse fluctuated between 70 and 100, usually being between 80 and 90. It was usually soft and compressible. His respirations were occasionally somewhat accelerated, but usually about 20 or below.

He was much distressed by the size and weight and tenseness of his abdomen, and was very wakeful. After the administration of saline purgatives for a few days, his abdomen was tapped. It measured in circumference at the umbilicus 35¼ in. before tapping. On October 8 he was tapped and 7½ quarts of very bloody serum were removed. Microscopically red blood cells were extremely numerous, and a smear appeared like a fresh blood smear. Red cells were normal in shape and size, not at all disintegrated, and were present in a cubic millimeter to the number of 697,600. After the tapping he was much relieved, and it then became possible to examine his abdomen by percussion and palpation, as had not been the case before. His liver was found to be very small, its area of flatness extending only over the fourth space and fifth rib. Its edge could not be felt. The spleen could not be felt, but it percussed large. No masses could be felt through the soft, relaxed abdominal wall. After the tapping his abdomen measured 31 inches.

In spite of the fact that there was a constant leakage from the wound in the abdominal wall for the following three days, the fluid rapidly reaccumulated. The relief afforded by the tapping was marked, however. He slept well, as he had not done at all before. In four days his abdomen had regained most of its former size, and he was again oppressed by its weight and interference with respiration. His face began to show emaciation, and soon this was very distinct also in his body and limbs. He continued steadily losing flesh and strength; and gradually growing indifferent and stupid, without pain and without complaint, he died exhausted on November 6 at 9.15 a. m., one month after entering the hospital.

Autopsy.—The autopsy was made the day after his death at 4.30 p. m., by Dr. George P. Biggs, the pathologist of the hospital. The body was much emaciated; rigor mortis was present; the upper part of the chest was narrow and prominent anteriorly; the lower parts of the chest and abdomen were broad and full. There were no external evidences of syphilis.

Peritoneum.—There were no adhesions. It contained 3.5 liters of very bloody fluid, with no fibrinous exudate. Investigation showed the source of this hemorrhage to be an irregular, nodular mass about 7 cm. in diameter, projecting from the superior surface of the right lobe of liver.

Diaphragm was on a level with the fourth rib on the right side, and with the fifth rib on the left side. The network of veins on the diaphragm and in the upper abdomen generally was enlarged and engorged.

Pleuras were normal.

Pericardium was normal.

Heart was smaller than normal, and weighed 225 gm. Its muscle was brownish-red in color; its valves and coronary arteries were normal.

Lungs.—The bronchi were hyperemic and contained bloody fluid. Bronchial lymph-nodes were enlarged and slightly pigmented. Both lungs were hyperemic, especially in the posterior portions, which were also the site of several areas of hemorrhage, varying in diameter from 1 cm. to 3 cm. These had the typical appearance of infarcts. The central portions of the larger of these areas were very firm and of grayish-red color. Obstructions could not be demonstrated in the vessels of these areas.

Spleen was very much enlarged, and weighed 570 gm. Its capsule was moderately thickened, its consistence firm, its color normal. Its cut surface showed some increase of stroma.

Kidneys were slightly enlarged; their capsules were not adherent, surfaces smooth, cortices slightly increased in thickness, markings somewhat obscured. Both organs were hyperemic throughout. Pelves and ureters were normal.

Pancreas was normal in size, and appeared to be normal in structure, but its tail was unusually firm.

Suprarenal glands were normal.

Stomach was markedly hyperemic. The mucosa was moderately thickened and coated with mucus.

Intestines were hyperemic throughout, but showed no other change.

Bladder was normal.

Prostate was normal.

Aorta was normal.

Vena cava inferior was dilated below its union with hepatic veins.

Hepatic Veins.—The mouth of one of the main veins contained a soft, grayish-yellow, villous-like mass, which projected into the vena cava as a nodule .5 cm. in diameter, but did not entirely occlude the vein.

Splenic vein was thrombosed from the tail of pancreas to its junction with the mesenteric vein. The thrombus was firm and gray in its distal part and softer and redder in its proximal part.

Lymph-nodes were normal except that those in the region of the lesser omentum were slightly hyperplastic. There was no appearance to suggest the presence of tumor-tissue in them.

Gallbladder and large bile-ducts were normal.

Liver was much reduced in size and greatly altered in shape. The left lobe was very small and largely drawn behind the right lobe. The extreme measurements of the organ were 15 cm. vertically, 14 cm. transversely, and 10 cm. anteroposteriorly. This reduction in size seemed to be due to a very marked atrophic cirrhosis, which would appear to be at all events in part of syphilitic character from the numerous deep cicatricial contractions upon its surface. There is no quadrate lobe, nor is there any trace of it. These cicatrices explain much of the irregularity of the liver's shape, but this is due in part to extensive growth of tumor-tissue, the most prominent part of which is that seen on the superior surface of the right lobe, measuring 7 cm. x 7 cm., and having an elevation of 5 cm. The next most noticeable mass of tumor-tissue is in the central portion of the anterior surface of the right lobe, where it measures about 8 cm. in diameter and projects above the surface to an uneven height of between 1 cm. and 1.5 cm. Much tumor-tissue is seen elsewhere throughout the liver in masses of varying size, constituting nearly a third of its bulk, but it shows *upon the surface* in but very few small areas aside from the two large masses described. The large mass seen on the superior surface has grown far beyond the plane of the organ's surface, and in its left portion it showed when fresh a mass of coagulated blood which marked very plainly the site of the origin of the blood which had been found in the peritoneum both before and after death. The projecting parts of the tumor were seen to be covered by Glissen's capsule, beneath which it doubtless originated in the substance of the liver. This capsule, which is generally moderately thick and continuous, is very thin and shreddy over the most prominent portion of the tumor; and at the site of hemorrhage there is seen in it a large, irregular rent, which had allowed the escape of blood. Tumor-tissue beneath this rent presents a ragged and hemorrhagic surface. Adjacent to this both omentum and diaphragm were firmly united to the covering of the tumor by old, fibrous adhesions. In many parts of the liver the growth of tumor can be demonstrated within veins, and in one of the main branches of the portal vein is seen a growth of tumor-tissue similar to that described as being in one of the large hepatic veins. When fresh the tumor-tissue was soft and its color was light yellow with greenish areas scattered through it. The liver-tissue was dark green and its lobules were not distinct.

Microscopic appearances. Liver.—The liver shows in sections everywhere very extensive development of connective tissue surrounding the acini. In this is seen very abundant proliferation of bile ducts, which appear in the sections cut transversely, obliquely, and longitudinally. In many places they have a distinct lumen. About the centers of the acini there is marked congestion, and much pigment occurs in the zone surrounding the central vessels.

The connective tissue is seen in places to contain many aggregations of young cells; in others it is fully formed, dense, and without many cells or nuclei. In general the cirrhosis is of the interlobular variety, but there are many wide bands of connective tissue which extend between many acini longitudinally. The formation of bile ducts is much more extensive in some parts of the connective tissue than in others.

Tumors.—The tumors present the tubular or trabecular variety of adenoma very generally. In many places the lumen is distinct, in others it is barely indicated, and in others it cannot be made out. It does not contain bile anywhere. In older parts the structure is trabecular rather than tubular. In all the tumor masses (and the liver sections show many of all sizes from minute points to whole fields) many fat vacuoles are seen

There is but little stroma as a rule between the tubules. Dense bands of connective tissue occur here and there, separating large tracts of tumor tissue from each other.

The tumor cells are modified liver cells, all bearing a general resemblance to liver cells. They are usually larger than the liver cells, and their nuclei are often larger than those of liver cells. They often contain two or more nuclei. The cells vary very much in size and in shape. Caseous areas are occasionally seen. In some of these an indication of a general glandular arrangement can be made out with the fat vacuoles as seen elsewhere in the tumor, but without any definition of individual cells or nuclei, and with only a few connective tissue nuclei visible in the not very abundant stroma. Besides the numerous small tumor masses of microscopic size which are seen scattered through the liver tissue, occasionally similar microscopic masses of similar formation are seen in the dense connective tissue between the acini. This would suggest that the cirrhosis was primary and the adenoma secondary in this case, although not certainly so. However minute these little islands of tumor tissue are, their general arrangement of cells and fat vacuoles is exactly like those of the larger masses. This vacuolation is not seen anywhere in the liver tissue.

Similar microscopic masses of liver tissue are also seen occasionally as little islands in dense fibrous stroma, and present a very different appearance from the tumor islands in their arrangement and size of cells and in the presence of pigment. Pigment is nowhere seen in the tumor masses. Within small bloodvessels occasionally tumor tissue is seen completely filling them. Actual transition from liver tissue to tumor tissue is nowhere seen, although in places liver cords seem to be very nearly continuous with tumor tubules. Everywhere, however, careful focusing shows that they are separated by connective tissue, which is sometimes very fine and delicate. No metastatic growths are found in other organs, although it is possible that microscopic metastases escaped my observation. Sections of masses found in hepatic and portal veins showed them to consist of tissue exactly similar to the tumor tissue found in the liver.

Other Organs.—What appeared to be a thrombus in the splenic vein proved actually to be that; no tumor tissue was found in it. Examination of hemorrhagic areas in lungs, bronchial lymph-nodes, and omental lymph-nodes were also negative as to the presence of tumor tissue.

Kidneys, showed chiefly thickening of the stroma in cortices.

Pancreas was normal.

Suprarenal bodies were normal.

The literature of this subject has been carefully collated, especially by van Heukelom,[2] and later and more fully by Eggel,[3] who, however, includes other kinds of malignant tumors, notably all primary liver carcinomas, irrespective of their origin. Some of his cases started in the gallbladder, some in the bile ducts. He calls all the tumors *carcinomas*, because they all fall within his definition, by being epithelial growths and malignant. His inclusion in his list of other tumors than those which I have described brings his total up to 163, of which only 85.4% shows the coincidence of cirrhosis.

One of the most satisfactorily worked out of all the published cases is that by Catherine H. Travis in the *Johns Hopkins Bulletin* for May, 1902, page 108. Her microscopic work is especially good. Her case and mine are the only ones that I have found in which profuse hemorrhage occurred into the peritoneum.

Marckwald[4] has studied 11 similar cases. He regards the connective tissue growth as being always secondary to the tumors and not causative of them. The relation between the tumors and the atrophic or annular cirrhosis, which have been found associated so commonly in these cases, has been much discussed by Marckwald and others. It is still unsolved. Many writers regard the newgrowth as compensatory to replace destroyed liver parenchyma; if this view be adopted it is, of course, quite unexplained why these neoplasms should not occur oftener in atrophic cirrhosis.

H. Fraser[5] describes a very typical case. Indeed, there is an absolute identity in the details of many of the described cases. He also regards the newgrowth as compensatory. Van Heukelom[6] tabulates 31 cases from other writers and adds three of his own from Rosenstein's clinic at Leyden. He carefully excludes all but those similar to the group that we are discussing, and calls them adenocarcinomas. In all of the 33, atrophic cirrhosis was present.

Van Heukelom's[7] summary of the important facts in these cases is very apt. He finds the livers of very different sizes, rarely as large as they become in secondary cancers, rarely quite as small as in well-developed annular cirrhosis, although the bulk of tumor tissue is often large and the cirrhosis may be far advanced. The liver is generally bile stained and contains countless tumors, which are individually for the most part small. Their color is generally grayish or yellow or dark-green. These growths may be very unevenly distributed through the organ, and then the left lobe is apt to be more extensively invaded than the right. In my case the right lobe was the site of chief invasion of the newgrowth. The gall ducts are not dilated and the blood supply is usually not great. The liver shows a very generally distributed cirrhosis, which is equally well pronounced in regions where there are no tumors. In this latter respect it is in striking contrast with the distribution of the connective tissue in livers the seat of secondary carcinomas, in which it is limited to the proximity of the newgrowths.

The form of the adenoma is trabecular or tubular, at least in its early stages; the cirrhosis is annular. The extent to which newly formed bile ducts occur in the connective tissue is variable. The origin of the newgrowth in bile ducts is maintained by but few writers, whereas, the development of its cells from liver cells can often be seen. Metastasis in other organs is rare, but does occur. On the other hand, both portal and hepatic veins are frequently invaded by the newgrowth —a condition which Van Heukelom graphically describes as "carcinomatous thrombi." As far as clinical data allow a generalization, he finds the liver adenoma with cirrhosis almost only among men. In this respect his experience is different from that of Marckwald,[8] who finds it in both sexes and at all ages. Van Heukelom finds it only in men about 40, rarely much older.

The course of the disease, from the earliest complaint to the end, covers usually a period only of months. Ascites almost always occurs, jaundice usually. The diagnosis is rarely possible. In some cases when the liver becomes palpable after tapping, it might be suspected, and in a few the presence of a tumor might be made out. It would be likely to suggest the probability of a secondary carcinoma under these circumstances during life.

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[1] Ziegler's Beiträge, Bd. xxx, p. 509.
[2] Ziegler's Beiträge, Bd. xvi, p. 341.
[3] Ibid., Bd. xxx, p. 506.
[4] Virchow's Archiv, 1896, Bd. cxliv, 1, p. 29.
[5] Ibid., Bd. clxv, and Fortschritte d. Med., 1902, Bd. xx, No. 5, p. 174.
[6] Ziegler's Beiträge, Bd. xvi, p. 348.
[7] Ibid., p. 345.
[8] Loc. cit.

THE EXISTENCE OF CERVICAL RIBS IN MAN.

BY

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That one or more ribs arising from one or both sides of the sixth and seventh cervical vertebras can be present in the human being has been known since the observations of Hunault published in 1740. In 1869 Professor Wenzel Gruber, of St. Petersburg, had collected 76 examples of cervical ribs occurring in 45 individuals. Since this latter publication similar cases have been reported from time to time. The majority of these were found during autopsy or in the dissecting-room. Their presence during life had apparently given rise to no symptoms of pressure so that their discovery after death was accidental.

The diagnosis of the presence of cervical ribs during life is of sufficient rarity to warrant the publication of another case.

In looking over the literature of this subject one is struck by the fact that the first record of the recognition during life of a cervical rib is that of Holmes Coote in 1861 (see below). Since this date I have been able to collect 34 cases (including Coote's and my own) in which the cervical ribs were not only diagnosed during life but in a number of cases the pressure symptoms upon the brachial plexus or subclavian vessels necessitated removal.

Before speaking of their clinical importance it may be well to mention that cervical ribs occur normally in certain of the reptiles (crocodiles). They are outgrowths of the anterior nucleus of the transverse process of the sixth or seventh cervical vertebras. This nucleus in human beings under normal conditions unites with the rest of the vertebra at about the fifth year. Occasionally, however, it remains separate and growing beyond its proper limits, forms a cervical rib. Such a rib may be very short or it may extend far enough forward to articulate with the sternum. (See Fig. 1.)

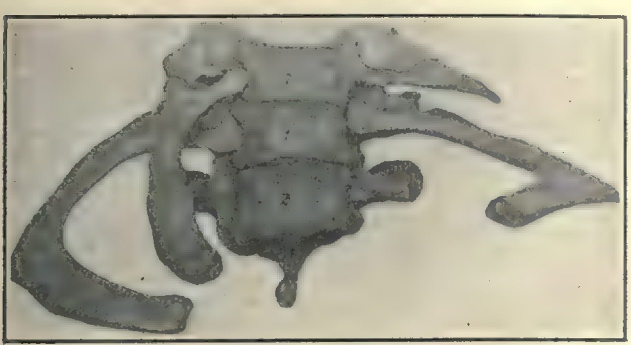

Fig. 1.—Dissection in a case of bilateral cervical rib. (Schultze.)

Its chief clinical interest is the relation to the brachial plexus and to the subclavian vessels. The subclavian artery usually passes across the upper surface of the cervical rib and thus lies more superficial and may cause compression. In some cases it may give rise to a pulsating tumor just above the clavicle and be diagnosed as an aneurysm (Poland's case). In others the compression of the artery causes thrombosis of the distal portion with resulting discoloration, coldness or even gangrene of the fingers. Usually the thrombosis is so gradual than an abundant collateral circulation has time to form.

Symptoms of pressure on the brachial plexus are due to the fact that these nerves pass beneath the rib, and vary from numbness and tingling in the arm to severe pains down the arms or in the fingers alone. In some of the cases weakness of the fingers or entire arm has been present, in addition to the sensory disturbances.

In a number of the cases electric treatment or elevation of the arm (Barker) gave relief. In others the resection of the cervical rib caused cessation of the symptoms.

In my own case the discovery of the cervical rib was accidentally made during the course of an examination for carcinoma of the breast.

Mrs. S., aged 56, had been conscious of the presence of an abnormal bony prominence in the left supraclavicular region since childhood. She consulted me in regard to her left breast, fearing a carcinoma. An examination of this organ resulted negatively. During the palpation of the region above the left clavicle for possible enlargement of lymph glands, I encountered a firm bony prominence whose anterior extremity lay just behind the clavicle (Fig. 2). It could be followed back to the lateral aspect of the last cervical vertebra. It was apparently about three inches in length, and its tip was free but seemed connected in some manner with the first thoracic rib. Its presence gave rise to no symptoms of pressure upon either the subclavian artery or brachial plexus. The radial and brachial pulsations of both arms were equal, and there was no discoloration or pallor of the fingers. Both arms were about equal in strength, and there was no tingling, numbness, nor pain.

The diagnosis of a cervical rib was confirmed by a röntgen ray examination (Fig. 3).

I append an abstract of all the cases which have been published, in which the presence of a cervical rib was diagnosed during life:

Case I.—Holmes Coote.[1] Female, aged 26; swelling on left side of neck and characteristic pains down the arm, with numbness. No pulsation felt in the brachial artery or below. Arm usually cold.

Diagnosis.—Pressure on the axillary vessels and nerve by an exostosis from a cervical rib. Removal of the rib and exostosis. Recovery. After operation pain was removed, but pulsation did not return.

Case II.—Poland.[2] Male, aged 44. Pulsating tumor above the clavicle; diagnosed as a fusiform and tubular aneurysm of the subclavian artery. Pulsation was completely arrested when pressure was applied to the bony support behind the artery, and pain was produced in the right shoulder and arm, with numbness in the fingers. Treatment by compression, followed by recovery, without return of pulsation in the brachial, ulnar, or radial arteries. The right subclavian lay upon the first rib, passing over and extending some distance beyond it, previous to being lost under the clavicle. A similar but less pronounced condition existed on the left side.

Case III.—A. Pearce Gould.[3] Male, aged 19; spreading obliterative arteritis in the right arm, with pain in the hand and fingers. Dry gangrenous patches appeared on the tips of the right thumb and the fourth finger, and the distal end of the matrix of the nail of the third finger was also black. Arising from each side of the lower two cervical vertebras was found a hard, immovable, irregular mass, bony, larger on the right than the left side. When the left subclavian artery was pressed against this mass in a particular direction a thrill was produced by it. Brachial, radial, and ulnar arteries pulseless. Treatment without operation. Recovery, without return of pulsation.

In a discussion of the case at the time, it was suggested that the arterial thrombosis was due to the pressure of the bony tumor in the neck upon the subclavian artery, but the author found several difficulties in accepting this theory.

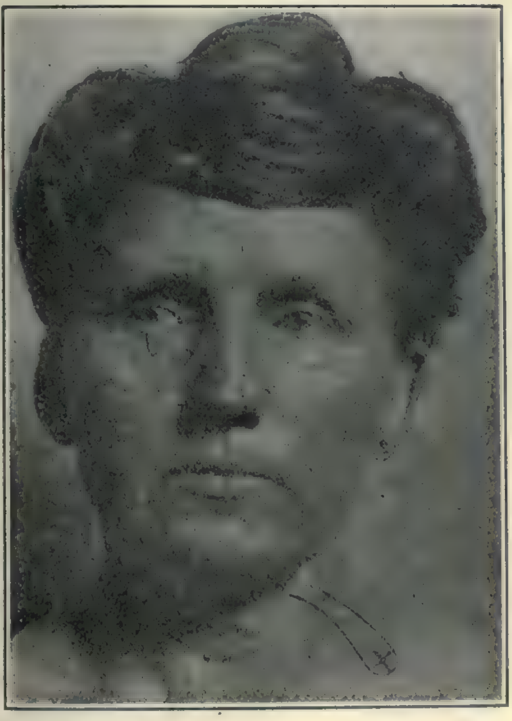

Fig. 2.—Photograph of patient with left cervical rib outlined on neck. The figure x indicates tip.

Case IV.—Planet.[4] Male, aged 30; bony tumor directly above the clavicle on the right side; pain in the neck, radiating down right arm. On the left side of the neck a similar tumor, only smaller. The extirpation of the right swelling, by Périer, showed this to be an accessory seventh cervical rib. The extirpation was difficult, and an opening in the pleura was unavoidable. Good recovery, after which the symptoms produced by the pressure of the rib on the nerves and vessels completely disappeared.

Case V.—George Fischer.[5] Female, aged 21. Osseous tumor in the left subclavian region; pain on stretching the neck; pain in the upper arm; tingling in the hand, which became worse on pressure on the interspace between the growth and the clavicle; numbness in the fingers.

Diagnosis.—Cervical rib, with pressure on brachial plexus. Extirpation of the cervical rib. Its upper end adhered to the transverse process of the seventh cervical vertebra; the lower articulated with the first thoracic rib. Recovery, four weeks after operation.

CASE VI.—Stanley Boyd.[6] Young woman; slight pain on the left side of neck, where a bony tumor, found to be a cervical rib, was located. Over it lay the subclavian artery, easily felt, and compressed against the cervical rib. Complete compression of the subclavian was affected with as much ease as that of the radial. The pulsation was most marked outside the sternomastoid, about 1½ inches above the clavicle.

CASE VII.—V. Bardeleben.[7] Female, aged 44; for seven years pain above the left clavicle, where a hard tumor was located. Pain in left arm; sensation of coldness and tingling; dysphagia and hoarseness.

Diagnosis.—Cervical rib that extended about 3 cm. beyond the transverse process, and was attached to a process of the first rib. The brachial plexus passed over the most prominent point of the cervical rib. Subperiosteal extirpation of the rib, thereby making a rent in the surface of the pleura; no pneumothorax. Recovery. Gradual disappearance of the disturbances in the left arm, but the atrophy of the muscles of the thenar eminence and the lower arm was still unchanged four months after operation.

CASES VIII and IX.—E. Ehrich[8] reports two cases from the Rostock clinic:

1. Girl, aged 17; from whom Madelung extirpated a cervical rib on account of symptoms of pressure in the brachial plexus and subclavian artery. The cervical rib articulated with the seventh cervical vertebra. The use of the arm was recovered, but pulsation never returned in the brachial.

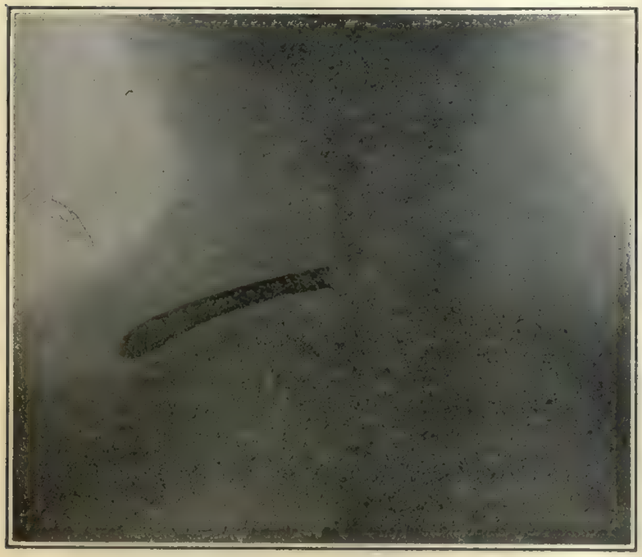

Fig. 3.—Skiagraph of case of cervical rib. Shadow of rib artificially darkened.

2. Male, aged 24; operated upon by Karg for pressure in the subclavian artery and brachial plexus. He found the subclavian artery compressed between two ribs, which were connected with the sixth and seventh cervical vertebras. After the operation a small aneurysm of the subclavian was found. The pressure symptoms disappeared.

Beside these two cases, the author collected eight cases from literature, with the following symptoms of disease: In three cases there was aneurysm of the subclavian; in the remainder, principally pressure on the brachial plexus.

The majority were in young men, and out of the whole ten cases, seven occurred on the left side.

CASES X and XI.—Bernhardt[9] reports two cases, in a male and female, aged 30 and 31, respectively, in which the cervical ribs were felt upon both sides, in the supraclavicular fossas, and produced both motor and sensory disturbances in the upper extremities. The pulsation in the brachial arteries was normal. Electricity applied to the supraclavicular region and faradization of the muscles of the hand and fingers produced improvement.

CASE XII.—Stifler.[10] Female, aged 23; pulsating tumor in the left supraclavicular region. Diagnosis: Cervical rib projecting from the seventh cervical vertebra; produced disturbances of movement and sensibility, due to compression of the brachial plexus. The author treated the patient symptomatically, but states that sooner or later resection will be necessary.

CASE XIII.—Lewellys F. Barker[11] describes a cervical rib attached to the last cervical vertebra in himself. This process projected above the clavicle in front, where it could be plainly seen and felt. Pain and numbness radiated down the left arm, hand, and fingers, which could be essentially relieved by lying down or elevating the shoulder. The disturbance caused by pressure on the brachial plexus was purely sensory, and Barker records the case as one of "Circumscribed Unilateral, and Elective Sensory Paralysis."

CASE XIV.—Warren.[12] Female, aged 35; a bony tumor was found behind the middle of the right clavicle, arising from the first rib. A similar but smaller one was found on the opposite side. Operation revealed a cervical rib. It articulated with the first rib by a facet situated a short distance behind the insertion of the scalenus anticus. The scalenus medius was inserted into the cervical rib. The removal of the bone seemed to relax the brachial plexus, which had been stretched by the arching position of the bone. Recovery.

CASE XV.—Rudolf Hirsch.[13] Male, aged 21; osseous tumor in the fossa supraclavicularis dextra; pain in the right supraclavicular region, and the right anterior half of the thorax; pain and tingling in the right arm and hand. Excessive sensibility to pressure of the right brachial plexus above the clavicle and in the axilla.

Diagnosis.—Tumor of cervical rib, with pressure on brachial plexus. No operation was performed, patient having to enter military service. No further history obtained.

CASE XVI.—Hirsch[14] speaks of another case in the surgical section of Mosetig's field hospital, of bilateral cervical rib, the symptoms (motor paresis, disturbance of sensibility, etc.) of which showed that the callus of a fractured clavicle pressed on the brachial plexus against one of the cervical ribs.

CASE XVII.—De Quervain.[15] Male, aged 20. Pain in the left supraclavicular region; bony tumor was found extending from the seventh cervical vertebra to the first rib. The subclavian artery passed directly in front of the tumor between it and the clavicle, becoming compressed during certain movements of the shoulder. Pain in the arm.

Diagnosis.—Cervical rib connecting the first thoracic rib. Resection, during which an opening was made in the pleura. Recovery.

CASE XVIII.—Herbert Alderson.[16] Female, aged 21; pain over swelling, 2½ inches above right clavicle. Found to be a supernumerary rib, articulating with the right transverse process of the seventh cervical vertebra. A small artery was noticed coursing over the swelling. Treatment not stated.

CASE XIX.—Howard J. Williams.[17] Female, aged 17. Pain in arm; occasional numbness in hand and slight interference with the circulation; resection; during operation a complete arch of bone was found reaching from the subclavian notch on the first rib, upward and backward to the body of a cervical vertebra. The bony tumor was then discovered to be a supernumerary rib. The subclavian artery was found resting against the anterior edge of the growth. Recovery.

CASE XX.—Grounauer.[18] Case of cervical rib, which was bilateral. The left one, which caused nervous disturbance, was excised. This rib articulated with the first rib. Complete recovery after operation.

CASES XXI AND XXII.—Kiderlen.[19] Two cases of cervical ribs.

1. Female, aged 24; tingling in the left hand; gradual atrophy and weakness of the whole left arm. Röntgen rays revealed a cervical rib attached to the left seventh vertebra; a smaller one existed on the right side. Pulsation existed in the subclavian artery.

2. A young cadet; radiating pains and paralyzed-like feeling of weakness in the left arm. Resection of cervical rib with complete recovery in three weeks.

CASES XXIII, XXIV, XXV, XXVI.—D. M. Borchardt[20] reports four cases from v. Bergmann's surgical clinic, Berlin.

1. Female; aged 37; pain in right arm and thoracic region; röntgen ray revealed right cervical rib. Resection. Pressure on brachial plexus caused the disturbances in the arm. Recovery.

2. Female, aged 22; in right supraclavicular region, a bony prominence was found which proved to be a cervical rib. A smaller but similar tumor existed on the left side, which on palpation produced the same radiating pains. Resection. The subclavian artery passed over the bony prominence and extension of the hand downward showed how complete compression of this artery between the scalenus and the rib occurred. Complete paralysis of the right arm and acute pains followed the operation. The symptoms finally subsided with only partial paralysis of the fourth and fifth fingers. The temporary paralysis was found to be due to the force used in the abduction of the plexus.

3. Female, aged 35; pain in right arm radiating to chest and back. Bony tumors on either side beneath the clavicle; back and above the right subclavian artery, the brachial plexus coursed over the bony tumor. Pressure on this plexus caused pain in the right arm, and sensations of tingling and numbness. Resection. The subclavian artery and cervical plexus not only crossed the cervical rib but a thick white cord, which later proved to be a nerve fasciculus, passed transversely over it, and disappeared between the seventh cervical and the first thoracic vertebra. Recovery.

4. Female, aged 35; pain in neck and paresthesia in the left arm.

Diagnosis.—Left-sided cervical rib. Pressure on the brachial plexus produced motor weakness in the left arm; diminished sensibility. Resection. Recovery.

In all cases the pleura was uninjured during operation.

CASE XXVII.—Henry K. Pancoast.[21] Girl, aged 15; swelling over the middle of the left clavicle, with pain radiating down the arm. Skiagraph revealed cervical rib. Dr. Frazier excised it. One of the scaleni muscles was found attached to the lower third of the rib. At its proximal end the rib seemed to take its origin from the seventh cervical vertebra. After the rib was removed, the subclavian vessels sank back into their normal position. Good recovery.

CASE XXVIII.—Frederick Kammerer.[22] Female, aged 35. Hard tumor in the left supraclavicular region. Pressure on swelling caused pain, radiating down to finger-tips. No pulsation in brachial, radial, or ulnar arteries. The supernumerary rib was found during operation to take origin from the vertebral column, and to extend forward toward the sternum beneath the plexus and subclavian artery. The scaleni muscles were attached to it. Upon removal of the bone the vessel and the plexus immediately dropped into the groove established between the cut ends of the rib. Recovery. But pulsation did not return in the ulnar, radial ahd brachial arteries.

CASE XXIX.—Brewer.[23] Male; bony swelling in supraclavicular space. Incision revealed supernumerary rib, attached to the seventh cervical vertebra, passing forward, and attached anteriorly to the cartilaginous portion of the first rib by distinct angular deflection. Extirpation, during which pleura was wounded. After the operation the symptoms of pressure upon the plexus and vessels increased rather than diminished, persisting for a time, but subsequently ceased and there was partial restoration of power in the limb.

CASE XXX.—T. E. Gordon.[24] Male, aged 32; arterial obliteration in the right arm; gangrene of a portion of several fingers. Pain referred to the fingers when pressure was made on the brachial artery. Excessive pulsation in the subclavian. *Diagnosis.*—Case of cervical rib, with pressure on brachial plexus. Excision. Recovery.

CASES XXXI and XXXII.—Spisharni [25] reports two cases of cervical ribs, both in females, aged 15 and 17 respectively. Both occurred on the left side, and the ribs extended from the seventh cervical vertebra back of the clavicle. The subclavian artery lay under the rib. No symptoms existed on the part of the vessels or brachial plexus. Only on one occasion one of the patients complained of pain in the region of the clavicle after a brisk movement of the head. The other applied to a physician on account of scoliosis of the lower cervical and upper thoracic vertebral column. No indication for surgical intervention in either case.

CASES XXXIII and XXXIV.—Ranzi.[26] 1. Male, aged 17; swelling in the right subclavicular region; in front and below the tumor the subclavian artery pulsated. Acute pain radiating down the arm, with tingling sensation. Atrophy of hand and fingers. Sensation of coldness. Resection performed by Professor v. Eiselsberg. The brachial plexus found drawn over and against the cervical rib, which articulated with the first rib. Recovery, but atrophy of the hand only partially improved.

2. Female, aged 33; round bony tumor in the left fossa supraclavicularis, below which there was pulsation in the subclavian artery. Radiating pain; sensation of coldness, and tingling in left arm. Resection by Dr. v. Friedländer. The brachial plexus also pressed against the cervical rib. Recovery *per primam.*

In the first case the disturbance lasted for three years before the operation; in the second 15 years.

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Interparietal Hydrocele.—Stanisla Kostlivy (*Wiener klinische Wochenschrift*) reported two cases of this character, and collected a few others from the literature. Both of these patients were operated upon. He believed that they resulted from pressure upon the open process vaginalis within, or from the unfolding and filling of a congenital diverticulum.

THE VALUE OF NONOPERATIVE LOCAL TREATMENT IN GYNECOLOGY.[1]

BY
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No one will deny that greater good has come from the surgical treatment of diseases peculiar to women than was ever dreamed of by the early gynecologists who did not operate. To compare results from surgical treatment with those obtained by nonoperative measures is absurd. The contrast between the new and the older methods is too great to require argument. Is it true, however, that surgery does all that can be accomplished in the treatment of diseases of women? One ought not to be loath to write about the nonoperative treatment, if there is anything in it, and yet this seems to be the case on the part of those best qualified to speak on this subject. The pathology of these disorders, learned by pelvic and abdominal surgery in the past few years, is better and clearer than was ever discovered postmortem. It ought to follow that the causation and natural laws of these diseases are better understood by the operators than by any other class of men. For obvious reasons the methods differ considerably from those that hold good in surgical disorders in other regions of the body. It is this fact that makes a specialty of our work. If surgery alone is sufficient to deal with all diseases of women then this specialty has no longer any reason for its existence. It does not matter how much sentiment we may have about the name gynecology, or how seriously we may insist that it is a specialty, the minute we concede that there is no such thing as nonoperative gynecology we join the ranks of the surgeons and relegate sick women, who do not require surgery, to the general practitioner.

These platitudes will not influence men one way or the other if they are far along in their medical careers, but the attitude of a great national society on a subject of this sort is important. The very fact that this subject was selected by the committee of arrangements for discussion is significant. Not long ago one of the distinguished members of this society said to me, that his office had come to be a place where operations were arranged for and nothing more. This was not because he did not care for an office practice, but simply because patients came for surgical advice only. Probably this condition was brought about by his neglect of minor ailments in those who formerly came to him for treatment, and partly by the general sentiment in the community that it was useless to consult him for any other than an operative case. This ought not to represent gynecology and I do not believe that it does. This doctor had enough to do, but he was better qualified to care for the minor ailments that had not yet become surgical than the men who were doing this work about him.

It is a common thing for all surgeons to say that certain operations were the result of a neglected condition, which might have been removed without serious consequences, if the patient had been seen early. This applies not only to those more important disorders that ultimately may require surgical treatment, but there is a large number of women who suffer from the annoyance, inconvenience, pain, irritation, and discomforts of simple ailments, without there being any serious menace to life, and who become professional invalids, developing the habit of introspection, losing control of themselves and the power to exercise the will, and the condition becomes what is known as neurasthenia. A strong, wellborn woman with a stable nervous organization never becomes a neurasthenic, no matter what her ailments are; but the weaklings are really in the majority, and these conditions, which could be easily removed by medical treatment directed to the source of local irritation, may, and often do lead up to serious nervous disorders unless judicious management is given. If there is no other reason why nonoperative treatment of gynecologic cases should be continued in the hands of skilful, conscientious men, the one reason that neurasthenic women are likely to have local disorders that need rational care in order to prevent them from going entirely over the bay, is sufficient.

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[1] Read before the American Gynecological Society, Boston, May 25, 1904.

Neurasthenia is not a disease, it is a condition of unstable nervous organization to which the person is born; and while in good health, comfortable surroundings, and under no great stress of the emotions, these people live like others, without the development of symptoms which are recognized as those of neurasthenia; yet under slight, though continued pain, irritation, or other misery which constantly calls attention to their ailment, they develop the invalid habit.

The cure of neurasthenia must begin before the mental symptoms have developed, and the strongest plea which can be offered the gynecologist to care for the early manifestations of local uterine disorders without surgical interference is, that unless these people are skilfully managed by rational men, they soon become self-centered, introspective, and nervously unbalanced, readily developing the invalid habit. It is probably true also that when this nervous habit has been established and years have passed, the more serious pelvic disorders have developed, requiring surgical interference. Then it is too late to do more than restore anatomic conditions—but this does not cure. It is only two or three years ago that some enthusiastic oculists claimed that epilepsy could be cured by the proper adjustment of glasses, in a certain number of patients. They were given the opportunity to try this theory at the Craig Colony for Epileptics, at Sonyea, N. Y. After more than a year's trial the report was made that there was "but one case of arrest in which cure seems probable," but epilepsy was uninfluenced for the better in any considerable number of cases, and some were absolutely made worse.[1]

That the nervous habit cannot be cured by surgical procedure has been proved by the fact that the removal of diseased ovaries and such like operations in epileptic women have not cured epilepsy nor neurasthenia. The argument, therefore, is that in those ailments which tend to disturb the emotions, especially in ailments connected with the reproductive organs of either men or women, the serious thing is not the pain experienced, but the permanent invalidism, which is brought about by protracted local sensations that in a large number of cases disturb the mental equilibrium, which has come to be called neurasthenia. If nothing but surgical gynecology is to be thought of, these early cases are necessarily either neglected or are treated by men who are general surgeons or general practitioners, and who are, perhaps, less competent to judge of the trend of the disorder, the significance of the symptoms, and the rational treatment of the conditions, than are those who have been educated by a long surgical practice.

It is true that surgery removes the cause of many disturbances of the emotions which constitute the sum total of the symptoms called neurasthenia; but if the mental and bodily habit is thoroughly established, and if the women are professional invalids, surgery may relieve, but does not cure a single patient. All men know that the reason why women consult a gynecologist or their family physician for a local disorder, is usually some symptom which in itself is unimportant as bearing upon the safety or the longevity of the patient. These symptoms are quite likely to be conditions of irritation which rational local treatment can relieve; but if neglected or improperly treated, they may develop into more serious disorders, requiring surgical procedure. A vaginitis, or a purulent leukorrhea, or an irritable condition of the urethra, is more likely to bring a patient early to the physician than a fibroid tumor, or an ovarian tumor, or a cancer of the uterus. In many of these cases a man who is operating for the major disorders may think that the case is too trivial to occupy his time, and yet the conditions which cause them would be most easily understood by men who are dealing also with the graver disorders, the result of infection further up in the genitourinary tract. Is it not probable that the man who appreciates the dangers of such conditions would more skilfully care for such patients than the general practitioner, who is not operating in the pelvis and who does not see the results of infection in the upper tract of the genitourinary apparatus? It is perfectly true that judicious local treatment by hot douches, glycerin, and ichthyol tampons, or by pessaries, etc., may often prevent the extension of simple disorders, so that grave surgical procedures are unnecessary. Gonorrhea furnishes a striking example of the truth of this statement.

It is not worth while to specify the treatment necessary for the simple inflammatory conditions of the urethra, labia, and vagina, for papers on these points are to follow. But take the case of a sudden dislocation of the uterus backward with the accompanying prolapse of the ovaries in young women. If seen early and the simple reposition of the organs is secured, with perhaps, the temporary support of a pessary, or the recumbent position with tampons, the ligaments which have become overstretched very soon regain their power of control. It requires skill and some patience to do this, and it ought to be very much better done by surgeons who have in mind the grave disorders, degenerated, adherent ovaries, protracted congestion of the uterus, and the permanent stretching of the round ligaments, which later on in the case make the necessity for abdominal section.

I am convinced that a large number of cases requiring surgical interference, either in the removal of diseased ovaries, or for the reposition and fixation of the uterus, with perhaps resection or partial ablation of the ovaries or tubes, could be prevented if the skilful gynecologist saw the patients early enough to institute nonoperative procedure. None of us doubts or hesitates at all in performing an abdominal section in cases that have developed out of displaced organs, when time enough has elapsed to produce pathologic changes that cannot be relieved by nonoperative treatment. The use of electricity if properly administered and with a sufficient current, early in certain cases, gives as brilliant results in relieving adhesions, developing an infantile uterus, and in helping to straighten a flexure, as does any surgical method later on in the case. Appropriate medical treatment which relieves conditions of permanent, continuous constipation, or of acid, irritable urine, are quite as important as anything we can imagine regarding the development of uterine disorders.

Medical treatment in the preparation of patients for operation becomes a matter of routine, and is often relegated to the house physician or to the superintendent of the hospital where our operations are done. That this preparation should be continued long enough to secure a fairly normal condition of the blood and of the secretions, goes without saying, and except in emergency operations ought to be as carefully conducted as is the operation itself. The whole subject of surgical shock, which is the condition that every man considers when he does a major operation, is still a mooted question as to whether it is due to hemorrhage or to the kidneys, which ought to have been attended to before the operation was performed. A few cases occur every year in which the element of surgical shock is discussed because of the behavior of the heart or of the kidneys. A careful investigation of all facts will often show whether there has been a previous myocarditis. Obscure conditions of this disease, however, cannot always be determined by physical examination.

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[1] The nervous habit is not broken up by the removal of anatomic lesions, which produce in the first place the epileptic seizures. I would be willing to say that the correction of eyestrain might *prevent* epilepsy, and I believe it does that.

I operated on a woman this past year who told me that she had two sisters who died in a hospital, in each instance within a few hours after a surgical operation had been performed. I was unable to discover any abnormal condition of the heart, or arteries, or of the kidneys, though I kept the woman under careful observation for several days, and had her examined by several physicians at different times. She bore the ether perfectly well, but went into a collapse immediately after the operation, and for some hours there could not be felt any radial pulse, and she required artificial respiration, was cyanosed, and death seemed imminent. Cardiac stimulants, salines and oxygen failed to restore the circulation, and adrenalin was administered hypodermically, which restored the pulse to a sufficient volume so that it could be counted. I have no doubt that if this woman had been operated upon without a long preparatory course of treatment, and without due consideration of this story which she told me of her family, I should have lost her.

As to the third proposition, postoperative treatment, I suppose all of us will say that in all but the simple cases in which the patients get well under the hands of the skilled nurse, the care which is bestowed is quite as important as the surgery itself. This must be said of all cases of plastic surgery about the vagina, and I am confident that the failure, either partial or complete, in these cases is, in the main, due to the neglect of the surgeon or to the incompetency of the nurse. Of course, a nurse cannot be held responsible, unless the physician is particular in giving the most minute directions as to the management of the nursing after he has left. Those of us who have competent assistants and superintendents in the hospital where we work come to leave this part of the case in their hands; but it is none the less true that the responsibility rests with the surgeon who does the operation, and that the postoperative treatment often is as important as the surgical technic.

THE MODERN TREATMENT OF PULMONARY TUBERCULOSIS.[1]

BY

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The modern treatment of pulmonary tuberculosis is based upon the clearer conception of the conditions and environments which contribute to a higher standard of health under ordinary circumstance of living. There are many things which contribute to good health in our everyday walks of life. These have been closely observed and incorporated into what is now called the modern treatment of the disease under consideration. Then, too, physicians have observed that disease of any kind does not find as favorable soil for its development in persons who are in robust health as it does in those who are run down from any cause; in those whose resisting powers are less than in those whose resisting power to disease is at the highest standard. The resisting power of an individual in good health is greater than one in only fair health. It is true some individuals have normally only a slight resisting power to disease; in these persons frequently the resisting power is kept continuously at so high a standard that the ability of disease to implant itself upon the organization is greatly lessened by the most assiduous care to the many little details which tend to preserve the health.

Physicians have observed for some time, too, that even after disease has once established itself, the system will throw it off just in proportion to the increase of the general health of the individual.

The cause of pulmonary tuberculosis is a germ, the tubercle bacillus. Many of us occasionally breathe some of these germs into our lungs. It is supposed that some of us are partially immune and others seem totally immune to the infection which results in some individuals. Whether an infection results depends largely upon two factors: 1. The condition of health of the individual who breathes the bacilli. 2. The number of bacilli which one breathes into the lungs. Under the first proposition the patient's vitality may have been previously weakened by disease of one kind or another, as pneumonia or typhoid fever; and for that matter by any debilitating disease or influence, and insanitary environments.

Heredity does not play the part that it was one time supposed to in the cause of tuberculosis, although it is true that some people are born with a constitution which offers feebler resistance to the development of tuberculosis than others. However, by proper care, they may avoid the disease, or if infected, the infection may frequently be obliterated and the patient cured just as in the case of a patient without this socalled inherited tendency. However a patient possessing this feeble power of resistance should take most extraordinary care of himself.

If heredity does not play the extensive part which has been heretofore accredited to it, why is it that tuberculosis will so often go through a family and practically decimate it? We now believe that it is by reason of its infectious nature. Unless the sputum is properly cared for, members of the family are continuously exposed to the source of infection and in that way develop the disease. One patient may have been dead some time before another case develops, but we must remember that the germs may have settled with the dust upon the walls or other places, as cracks and crevices of the house, and the infection have come from that source rather than from any hereditary tendency that the patient may have possessed. A new hope has arisen for the patient of a tuberculous family. Persons working at occupations that involve the raising of a certain amount of dust and the consequent breathing of it, develop the disease more readily than others. This dust may be from emery wheels, from asbestos as in the insulating of wires, from linen or woolen fabrics during their manufacture, or even from the dust arising from a carpet during sweeping. More especially does this apply to one possessing delicate lungs, and consequently easily irritated ones. An infection assaults one under these circumstances more readily because the lungs are kept in a constant source of irritation and congestion from these irritating particles; and tuberculous infection always fastens itself more readily upon a congested tissue. One of the results of this constant irritating influence of these dust particles is to keep up more or less bronchial congestion and when a bronchial disturbance is once started no one knows how soon a tuberculous infection may implant itself upon the lungs.

Persons living under environments that give insufficient air, light, and sunshine cannot expect to be up to a high standard of health. Insufficient food of a nourishing character is also a potent factor in vitiating the vitality of the individual. Then when a patient receives an insufficient amount of food there are usually other factors that go with this that are prejudicial to the health of the individual. Then the carking cares of poverty add their crushing weight to the person who is probably at the same time insufficiently protected with scanty clothing, and leaky shoes. So often with this class of people, their habitation is as insanitary as is their food and clothing. The cubic feet of air space in their room or rooms is far below that necessary to maintain good health, and consequently strong resisting power. The sunlight seldom enters many of these habitations, and the construction of the building is such as to make it impossible to secure an abundance of pure fresh air. This is more especially true in tenement buildings than elsewhere; and it is more true of the tenement buildings in large cities, though in all fairness, the tenement houses of today are quite different from what they were some years ago. Boards of Health, recognizing the insanitary construction of these buildings as being a very fruitful source of disease, especially in their ability to contribute to the development of tuberculosis, have brought about the construction of a much more sanitary structure than has ever before been furnished for the poor. In all of the large cities at the present time a greedy and heartless landlord cannot construct a living tomb simply to enrich his purse. A human being, though poor, is entitled by divine right to some protection at the hands of the State, and he is now coming into possession of some of his rights. The first great advance made by England in reducing the mortality rate from tuberculosis was due to her attacks upon insanitary tenements. Finally, any cause or set of causes that tends to lower the health or vitality of the individual, provides a more receptive state for the development of tuberculosis.

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[1] Read before The Alumni Club of the Ohio State University, April 9, 1904.

The second cause which I mentioned as a principal factor in the production of tuberculosis was the number of bacilli which one breathes into the lungs when exposed to an infection. The number of the infective germs in a room depends directly upon the care which has been taken with reference to the disposal of the sputum. If the sputum of the tuberculous patient is always carefully disposed of, the amount of danger to others about him is nothing. With a careless disposition of the sputum, the exposed person is constantly subjected to a greater or less degree of danger of becoming infected himself. Then the intimacy of association has much to do with the probability of becoming infected. If one is occupying the same room, he is in greater danger than if he simply occupies the same house. And he is in still greater danger if he share the same bed, a thing which should be counseled against, though it is advice that is frequently not followed. A factor which helps to determine the number of bacilli in the room which the tuberculous patient occupies, is the amount of ventilation which is afforded it. If he is constantly so afraid of taking cold that he keeps the windows and doors closed tight, the opportunities for the germs to collect in a concentrated number are much greater than when ample opportunity is afforded the apartments to be constantly replenished with fresh air, and this will be effective just in proportion to the thoroughness of the ventilation. But I repeat, with the sputum efficiently cared for, the amount of danger to those about the patient is practically nothing.

In 1882, Robert Koch, a German physician and bacteriologist, discovered the tubercle bacillus. He not only discovered the germ, but proved upon guineapigs that they could be uniformly infected with the disease. Since that time many observers have proved the correctness of the doctrine. Shortly after the discovery of the tubercle bacillus, many observers thought these germs were simply a result of the disease and not the cause; but it was not long until it was proved that the germs were not only always present in every case of tuberculosis, but that they would uniformly produce tuberculosis by being injected into the smaller animals. Previous to this time much had been done to prove the infectious nature of tuberculosis, but from this time on the subject became thoroughly understood. A considerable amount of the modern treatment of tuberculosis has been based upon this discovery of Koch's.

Thus far, I have spoken only of the sputum of a tuberculous patient being the means of infecting another person. This doubtless is the principal way in which the infection is carried. The sputum dries, gets into the air, others breathe it and possibly become infected. Another probable source of infection is the eating of infected meat and the drinking of infected milk, both the meat and milk being from tuberculous animals. Koch denies this but other observers insist that this is one of the means of conveying the disease. All observers agree, however, that the chief fight against tuberculosis must be made along the lines of the infection taking place through the medium of the sputum of an individual affected with pulmonary tuberculosis.

Tuberculosis has come to be looked upon as both preventable and curable. This is perhaps true only within certain limits. If a patient who has acquired the disease is living under especially unfavorable hygienic surroundings, and is unable to secure sufficient food, or even change his occupation which has materially contributed to the disease, then we cannot hope for much in the way of a favorable termination. But if he put himself in the care of some capable physician, and can follow his directions, he may get well, as many cases do terminate favorably. But even here, as with patients in all walks of life, an immense amount depends upon the individuality of the patient; whether he is willing to carry out some of the directions which may not exactly suit his fancy. All careful observers agree that a patient may aid you to success or carry you down to ignominious failure.

When I state that tuberculosis is a curable disease, I wish to emphasize the fact that it is only in the early stages of the disease that it can ordinarily be cured. It is true that occasionally a patient in an advanced state gets well, but this is the exception and not the rule. Even in all the incipient cases a cure cannot be established, but modern statistics show all the way from 30% or 40% to 70% of cures. It is not many years since a patient suffering from pulmonary tuberculosis was looked upon as doomed to death. But a new era has come; a bright light has appeared to illumine the path of the physician and his tuberculous patient to a safer anchorage.

In the modern treatment of pulmonary tuberculosis, an early diagnosis is of the greatest importance. It is at this period of the disease that the greatest benefit is derived from the treatment. The diagnosis should be made when friends can scarcely bring themselves to believe that the patient is really suffering from the disease. A strong, robust-appearing person may become infected with tuberculosis. At this time his general appearance is so different from what a person is accustomed to consider the appearance of a tuberculous patient that one would be quite ready to entertain doubts as to the existence of the disease. But this is the period when the greatest good comes from the treatment. When a patient is first infected with the disease, he is still perhaps in good flesh and bears a fairly healthy appearance also. But a capable physician does not depend upon these symptoms to make a diagnosis. He knows that many times a patient will retain his flesh to a considerable degree for quite a little while after the infection asserts itself.

When a patient is first infected he begins to feel weak, perhaps loses appetite, and develops a slight hacking cough. This cough may be so slight as scarcely to call the attention of another person to its existence. The cough is dry, or perhaps followed by only a small amount of expectoration. Yet when the physician comes to examine the lungs, unmistakable signs show themselves. Then, when he follows this physical test by a microscopic examination of the sputum and finds tubercle bacilli, the case is not in doubt. The modern treatment of tuberculosis depends upon fresh air, day and night, nutritious food in generous quantities, sanitary environment, exercise properly regulated by the physician, and medicine. This treatment may be undertaken in open or closed sanatoriums, at home, or by roughing it upon the plains, or in the mountains.

The open sanatorium is a place where one goes and comes at his will or discretion. The numerous hotels and boarding-houses at health resorts may be termed open sanatoriums. Patients going to Saratoga to take waters or baths stop at the hotels. The same is true at Mt. Clemens and Hot Springs. For tuberculous troubles in some of our Western States we find the patients stopping chiefly at hotels and boarding-houses. They are there for whatever benefit the air of that climate may give them, but not a single movement at these places is regulated. They may be under the general care and acting along the lines of advice of a physician, but every movement is not supervised. They may go and come at will. That is why resorts of this class have been called open sanatoriums.

The closed sanatorium is quite another affair. Every movement is supervised. The patient, unless excused by the physician in charge, arises at a definite hour in the morning; leaves his room promptly for breakfast on the ringing of the bell; leaves his room for a walk on the veranda at a certain time, and remains out in the air until a given hour. Then he must rest in the recumbent position during a short time at noon to recuperate his energies and to be ready at a certain time to walk or ride. He is only permitted to return to his room at a given time, and even then he is required to recline a short time before the supper hour. When on the veranda some patients are not allowed to join in a large crowd, for it is found that the excitement of the conversation is such as to start a cough, and perhaps some increase of fever. Their exercise is fully supervised and regulated. Their food is specified, and they are encouraged to eat. The effects of the fresh air are such as result in a splendid appetite. Their sleeping room is arranged with its specified ventilation. The patient is taught and required to care scrupulously for his sputum. His clothing is regulated. The receiving of visitors, both as to time and number, is specified. Not alone is he required to arise at a certain hour in the morning, but he must also retire at a given time at night.

For violations of any of these rules, penalties are attached, and when they are repeated with frequency the patient is no longer retained in the sanatorium; at least in a well-regulated one. With every movement of the patient scrutinized, it is easy to understand why this class of sanatoriums is called closed. But, nevertheless, it is from this class of sanatoriums that the great advance in the treatment of tuberculosis has been achieved.

The home of the closed sanatorium is Germany. There were many things which led up to its establishment. Different observers had been working out the infectious nature of the disease. Pasteur had developed the new science of bacteriology. Villemin had shown that the disease could be communicated to animals by the injection of the sputum from a tuberculous patient. Finally Koch demonstrated the infectious nature of tuberculosis. But previous to this, Dr. Henry McCormac, of Belfast, read a paper, in 1861, before a distinguished medical society in London, on "The Absolute Preventability of Consumption," in which he laid down principles that are the foundation of the treatment of the disease. He suffered great persecution as a result of the paper, so advanced in character was it. But the world has reaped the benefit of his misfortune.

Perhaps to Hermann Brehmer, more than to any other one, is the credit due of establishing the modern sanatorium. He did this under great opposition, but he persisted in his treatment in spite of all complaints, and convinced the world that a new treatment worthy of recognition had arisen upon the horizon.

The tuberculosis problem has been attacked in different countries in different ways. Germany has attacked it by means of the sanatorium, France by means of her dispensaries, in which she has given instruction to those seeking it, looking to a better sanitary condition of the home, the proper disposal of the sputum, and in fact, has acquainted the patient with all the minutiæ relating to his treatment, which include not only the giving out of medicine, but also the arranging of the diet, the exercise under different conditions of the patient, and even in giving out food for those too poor to buy it. They also give out suitable flasks for the tuberculous to use so as to prevent the spread of the infection. These dispensaries have done a splendid work in enlightening a large number of the poor as to the best means of caring for themselves, and also the best means to employ in preventing its spread among their relatives and friends. England attacked the problem in another way. She found that the largest deathrate from tuberculosis, in proportion to the number of inhabitants, occurred among those living in the tenement districts in very closely confined quarters. She instituted legislation which gave a different class of tenement buildings. They had more cubic feet of air space to each inhabitant as well as more light and sunshine. The good result of this was soon shown, not only in the improvement of the tuberculous feature, but also in an improvement in the health of this class of individuals in every way. Having accomplished this improvement, she is now quite abreast of the times in the fight against tuberculosis, having dotted her island with sanatoriums for the treatment of the disease. These sanatoriums reach many of the poor, whose home surroundings are not usually of the best character. But many beside the poor find their way to the sanatoriums. By the establishment of the sanatoriums the patients have been more segregated, and consequently the number of foci of infection reduced. The patients, when cured, have gone back home with enlightened ideas of the improved sanitary conditions necessary to protect the home from a fresh invasion of the disease. When they return home before they are cured, they carry back clearer ideas of what to do to protect themselves from increased infection, and to protect those about them.

Some patients seek other climates, either of their own volition, or upon the advice of their physician, and rough it upon the plains. This is a thing that should never be done without the advice of the physician. This form of treatment is only adapted to early cases. It requires great strength to lead this kind of a life. When one is much prostrated, the strain in going over the plains or climbing the mountains, is very great. Patients with much elevation of temperature do not stand this form of treatment as a rule very well. Again, patients with a weak heart do not stand the elevations of a plateau or mountain. Persons who are frequently troubled with hemorrhages are affected unpleasantly by these elevations. While much good has resulted from this treatment, it is one that must always be approached with the greatest care.

Finally, the treatment of the disease may be undertaken at home, and when this is done the best results have been attained where the sanatorium idea of treatment is established. The physician must constantly remember that the treatment of the disease is a complex one; that medicine is only one of the means to attain the end. One must not suppose that fresh air is going to do everything for the disease. The treatment must be judiciously backed up by a generous and easily digestible diet. If the patient is not inclined to eat much, he may be put upon a line of treatment that will give him an appetite. Usually a proper amount of fresh air, exercise and medicine will establish an appetite that will enable him to eat sufficient food to supply the needful fuel to enable him to make a recovery with the aid of the other combinations of treatment.

The value of fresh outdoor air in comparison with that found in many rooms where stifling air abounds, and in which many people remain too much of the time through fear of taking cold, cannot be overestimated. Fresh air brings oxygen to the lungs, and this oxygen nourishes the blood, and well-nourished blood battles more successfully against the multiplication and even the life of the bacilli, than impoverished blood can ever hope to do. I know many people object most seriously to flooding their rooms with the outside air in a way that will give a sufficient amount of it for the successful treatment of this disease. This is chiefly due to the fact that a patient with pulmonary tuberculosis has a cough, and the patient is, and usually his friends are, afraid of his taking cold. Indeed from the irritating character of the tuberculous deposit in the lungs, a greater or less amount of bronchitis with its accompanying cough exists. Now, a cold frequently results in bronchitis. So, people unfortunately get these two causes of bronchitis confused. They reason that the patient will take cold if exposed to outdoor air. One can hardly wonder at this when he considers that a cold in the throat or bronchial tubes results in a cough; but we must not lose sight of the fact that it is the tuberculous deposit in the lungs which is exciting the cough and that the outside air tends to restrain the growth of the deposit and to increase the chances of recovery rather than to injure them. But the friends do not stop to consider how the patient also coughs when he has been held in a hot, stuffy room, with every crevice closed against the entrance of fresh air. In the abstract everyone agrees that fresh air is a good thing for the sick and the well, but in the concrete so many people will not avail themselves of this beneficent agent for a patient who has a cough, through the fear of his taking cold. However, there are more and more people every day who are coming to see that in fresh air we have a beneficial agent for the treatment of this disease.

The most pronounced objection which people offer to fresh air comes when the temperature of the air is low. If the air is cold the inference is that the patient will take cold if exposed to it. This rule does not apply after the patient has become used to this exposure. The fresh-air treatment must be approached gradually or harm may result, but with proper discretion the patient soon becomes so inured to the exposure that he not only profits by it but enjoys it.

Exercise is ordinarily a good thing for anyone, but not always for the tuberculous patient. When he has an elevated temperature he should not attempt to walk about any more than he would with typhoid fever or pneumonia. But in the absence of high fever, judicious exercise is valuable; though this exercise should be regulated by the physician, otherwise it may be so greatly overdone, or perhaps so much underdone, as to afford the patient none of the advantages to be derived from a suitably regulated amount of exercise.

Some tuberculous patients' homes are situated with such insanitary environments that the sanatorium will be far preferable to any treatment that can be carried on at home. And as we seem likely to have soon a State sanatorium in Ohio, we shall be able to accomplish much for the tuberculous and those about him.

Can the home treatment or even the sanatorium treatment be as successfully carried on in our climate as the same kind of treatment in some other climate? Acute and careful observers have been gradually convinced that there is very much less in climate than was at one time supposed. The best authorities agree that there is nothing specific in climate. Whatever is gained in the way of improvement of tuberculosis by a change in the climate is now supposed to be largely due to the fact that patients spend more time out of doors there than they do at home; that they now make a business of getting well. Many very able observers contend that if a patient will make the same effort here to live in fresh air, that equal benefits will accrue to him. This is probably not true of all cases. When a patient is not doing well here, it is best to make a radical change. There is one feature associated with a change of climate that must be considered, and that is with our rigid winter climate fewer patients would be in the open air than in a warmer climate, although it is true that many of these patients would be able to live in the open air in the winter more of the time if they would begin this process in the fall.

There is always one objection to making a radical change in climate. Frequently the patient becomes homesick, and this of itself is so depressing as to prevent progress. Again to make a change in climate blindly without proper medical direction is frequently harmful rather than beneficial. I have seen this change made by people who shut themselves up in a room when away as closely as at home, and of course received no benefit from the change. Then again, some of these patients who have sought another climate, instead of shutting themselves up, have overtaxed themselves by excessive exercise which was followed by an exaggeration of their symptoms. Of course some patients do as well, even better, in other climates as here, but the number is probably much less than would be if the patients would enter into the spirit of the treatment with the same degree of energy here as away. After all, the benefit of climate is now supposed to be due largely to the fresh air that one receives rather than to the climate itself.

Wherever and however the treatment is undertaken, much depends upon two factors: 1. The extent to which the disease has advanced. 2. The individuality of the patient. I have always said that more patients will recover by treatment in the incipiency of the disease than in later stages. Then, in the next place, he who enters with will and vigor into the treatment, will recover when another patient, in a no more advanced stage of tuberculosis, will fail by reason of his carrying out the treatment in a half-hearted fashion.

Great good has been accomplished by the modern treatment of tuberculosis. Physicians all over the civilized world are battling to cure and to prevent the disease. They will not cease in their vigorous efforts until the great white plague shall be known no more.

A PLEA FOR A MORE JUST JUDGMENT OF NARCOTIC DRUG USERS.[1]

BY

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When I began the preparation of this paper I intended its title to be "A Plea for a More Charitable Judgment of Narcotic Drug Users," but on getting into the subject more fully, I saw that it is not charity that I should ask, but simple justice. Therefore, I come before you today making a plea for justice and not for charity. I hope to show you that thousands of the most wretched and helpless of all human beings are being constantly and openly stigmatized as degenerates, wilful perverts, inveterate liars and fiends, and are having numerous other epithets of reproach and condemnation heaped upon them for continuing a course of conduct to which they are impelled by forces that it is totally beyond their power to resist. Whether an opium addiction was formed from necessity or as a dissipation, justifiably or unjustifiably, the condition finally becomes the same, and when the condition of confirmed addiction is reached it is as truly a disease as is typhoid fever, and the normal supply of the drug used is a necessity for the comfort and wellbeing of the victim.

Let us consider for a few minutes the condition into which an opium user is thrown by being deprived of his drug. Dr. Wilson, Vol. V, Pepper's System of Medicine, says:

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[1] Read, by invitation, before the Medical Society of the State of North Carolina, Raleigh, May 24-26 1904.

> Opium habitues, differing as they do among themselves as long as the drug is freely taken, all alike develop characteristic symptoms upon its speedy or gradual withdrawal. . . . The nervous system, whether it has been accustomed for months only, or for years, to the influence of opiates, is, upon their withdrawal, forthwith thrown into derangements of the most serious and widespread kind. In the course of a few hours after the last dose, the steadying influence of the drug disappears. General malaise is associated with progressive restlessness, the ability to perform the ordinary duties of life gives way to profound indifference; precordial distress, accompanied by cough, is followed by insomnia, hallucinations, and sometimes mania. The habitual pallor of the face is replaced by a deep flush or cyanosis. The heart's action becomes excited or irregular, then feeble; the pulse, at first tense, becomes slow, thready and irregular. Attacks of yawning and sneezing are followed by convulsive twitching of the hands. Speech becomes hesitating, drawling and stuttering. These phenomena are associated with a sense of perfect prostration, which obliges the patient to take his bed. Pains in the back and limbs followed by neuralgias occur. Complete anorexia, with easily provoked or even causeless vomiting and persistent nausea with diarrhea, difficult to control, add to the gravity of the condition. During the early days of the abstinence, the evidences of cardiac failure are marked. Enfeeblement of the first sound, irregularity of the heart's action and intermissions are common. Restlessness is continuous and very often intense, and patients are with difficulty kept in bed. If left to themselves, they move frantically about the room, moaning and bewailing their condition and begging the attendant for that which alone is capable of relieving their distress. This condition gradually subsides, giving way to one of profound exhaustion. . . . The appearance of the patient is now most pitiable. The countenance is blanched and pinched, the body drenched with sweat, the heart action feeble, the pulse thready and irregular. . . . Failure of the circulation may, notwithstanding every effort to control it, reach such a degree as to jeopardize the patient's life.

Erlenmeyer says:

> The patient after withdrawal is left in such a condition of physical weakness and mental dilapidation as to be the victim of intolerable suffering. . . . He cannot sleep, has no appetite, often vomits and feels too much used up to rise from bed. This condition grows worse from week to week. Various attempts to cure prove useless. Morphin is the only remedy.

Butler's Therapeutics, p. 452, says:

> The treatment of so dire a malady, for such the chronic use of morphin must be regarded, demands the utmost forethought, patience and tact. The method of sudden, absolute withdrawal of the drug is admitted by the wisest observers to be fraught with dangers commensurate with that of the indulgence to be overcome. Collapse, insanity and other serious results have attended so drastic a measure. The gravity of the situation should from the first be fully realized, since it is too often simply a case of life or death, the patient being not infrequently seized with the desire of self-destruction in the extremes of mental anguish occasioned by the ordeal imposed by unwonted abstinence.

Other writers of undisputed authority enumerate intolerable suffering, violent delirium, transient or permanent dementia, suicide and death as occurring to drug users through being deprived of their drug supply. Notwithstanding these clear and distinct teachings by men of unquestioned authority, the great majority of professional men regard the users of narcotic drugs as being wilfully abandoned to a loathsome habit which they could discontinue if they would. As a result of their holding such views the public have been taught to regard these victims as perverts who are devoid of moral courage and right purposes in life and who take their drug simply to dream away the time and who are unworthy of any treatment other than social ostracism. The fact that such opinions are generally held among the people is a matter of common knowledge, and when one falls a victim to a drug, however strongly he may have condemned others for what he considered a voluntary, loathsome habit, he soon finds there is another side to the question. Comparatively few persons form the opium habit voluntarily or as a dissipation. Usually it is formed inadvertently or because of the use of the drug for the relief of pain. There are very few drug users who have not made many and often very desperate efforts to extricate themselves from the thraldom of the drug, or who have not, by some circumstance or other, been deprived of their drug supply. These efforts at abandonment or periods of deprivation have brought upon them the sufferings incident to the disuse of the drug and these have proved to be so excruciating and intolerable as thoroughly to convince them that the voluntary abandonment of the drug is entirely out of their power; that what they once blamed others for not doing, they are themselves unable to do.

While such experiences may have worked a radical change in their own opinions, they are well aware that public opinion—the irresistible moral force—has not undergone any such change. They are acutely, or possibly, morbidly sensitive to the fact, but they are not changed in their purposes in life, in their desire to have and retain the respect and confidence of their friends and the public in general. They still love their life, and their good name is as dear to them as ever. They feel confident of their own integrity and good purposes, but they know that the drug has become a necessity to them. They also know that if their use of the drug should become known, the blighting sting of public opinion would lacerate their very souls, therefore, in order to shield themselves from criticism and censure, springing from what they now know to be misguided public opinion, they procure their drug and use it in secret. Thus they start out leading a double life, a life of deception, with a skeleton in the closet that must be kept constantly concealed from public gaze, but the motives which prompt them to that course are not dishonorable. Self-preservation is said to be the first law of nature. A man is justified under the law in taking the life of his fellow man when necessary to preserve his own, and in the protection of his good name, which to a right thinking man is as dear as his life, very great liberty of action is allowed.

The acts that are held to be a perversion of character which are manifested by many of these persons are not due to the physiologic effects of opium, or to any pathologic conditions induced by it. The use of this drug does not, of itself, beget moral degeneracy. This springs largely, if not altogether, from another source. This is clearly shown from the fact that drug users who are independent of such influences maintain their integrity, sustain their good name and retain the respect and confidence of their associates. To illustrate this point I will relate the history of three cases.

Case I.—The patient is a druggist, who has used morphin 18 years, running up in quantity during the time to 1.3 gm. (20 gr.) per day. He has during all that time continued to attend to his business, has been successful as a business man, has built up and held a large trade, and has himself done much of the prescription work and other delicate work connected with the business. His family and his physician knew of his addiction, but never at any time reproached him for it or tried to control him with reference to it. The public had no occasion to know of it, or to be concerned about it, and therefore asked no questions. Being a druggist and independent financially, his drug supply was always at hand, and was taken at regular intervals, and in uniform quantities. In this way he kept himself in a fairly normal condition, and neither the public nor the people with whom he did business suspected his use of the drug. A uniform supply of the drug was as necessary to keep him in a normal and comfortable condition as it would have been for any other drug user, but being in a position to have entire control of the drug supply, he was not compelled to resort to questionable means of obtaining it, and as his family made no objection to his course, and did not at any time attempt to stand between him and his drug supply, he was not forced to use deception or other questionable means to obtain the necessary thing. Being thus favorably situated, he was able to retain the confidence of his family and friends, and of the public at large.

Case II.—A case similar to the foregoing was that of a physician, who became addicted to the use of morphin during a protracted attack of inflammatory rheumatism, and, after about six months' use of the drug for the relief of that ailment, the rheumatic symptoms subsided and an effort was made to discontinue the drug, but without success. After a little delay, another effort was made with the same result. The suffering resulting from these efforts, with the necessary resort to the drug for relief in each instance, fully convinced the doctor and his family that it was out of his power to discontinue it, and they all accepted the situation and looked upon his addiction as a misfortune for which he was in no way to blame, and from that time on, for more than 20 years, he continued the use of the drug with the full knowledge and consent of his family, but without his patrons or the public knowing anything whatever of it. He kept an ample supply of his drug always at hand and used it in uniform quantities and at regular intervals, and during all these years he kept up an active practice, and held the confidence of his patrons and of the business public. He was always an unwilling slave, and no element of dissipation was allowed to enter into his addiction. He bought the drug in tablet form, so as to be exact about the dose, and only took a sufficient quantity to keep him comfortable. In this way he has succeeded in holding the dose down to .39 gm. (6 gr.) or less per day. On days when he had little to do he used not more than .26 gm. (4 gr.), but on other days when there were taxing duties to meet and when his hours of work must be prolonged into the night, as much as .39 gm. (6 gr.) was required to sustain him. From his appearance or conduct, no one would ever suspect his being a drug user, and he was, when he came for treatment, in an active practice and holding a number of official positions in the profession. He was a man of intelligence and of fine family and character and very acutely felt his slavery. He says he realized that the drug was injuring him, especially his memory, therefore he wanted to be released from its thraldom.

CASE III.—Another of this type, was a refined, delicate woman, who had been given morphin for several months to prevent an abortion, and after her confinement she was unable to discontinue it. She made repeated efforts, with the assistance of her husband, to leave off the drug, but her condition in each instance became so critical that her husband would not consent to her making further effort in that direction, and instead of chiding her or blaming her for inability to leave off the drug, he bought it for her in sufficient quantities and told her to use it as she found it necessary. She suffered from a number of ailments, which led to an increase of the dose to about 1.3 gm. (20 gr.) per day, but for several years no one knew of the use of the drug except her husband and her physician. Later her father and brothers were informed of it, and, as they had heard of my work in this line, they urged her to come for treatment. When she was brought to me her husband and brother gave me a history of the case, her husband stating that he recognized it as a misfortune, for which his wife was in no wise to be blamed, and, since he realized that it was out of her power to quit it, he had kept her supplied with the drug, so that she had never been forced to obtain it any other way or to resort to deception in connection with the habit. He said that she had always been perfectly open and frank with him about the matter and that the use of the drug had not in the least rendered her unreliable or untrustworthy. She was with me about six weeks, and I found her entirely truthful and trustworthy, never at any time attempting to deceive me or indulging in extravagant or unfounded statements. In fact, she showed the same high sense of honor and exercised the same caution in statement and respect for her word that would be expected in a woman of refinement and culture afflicted with any other disease, notwithstanding the fact that she had been using morphin, in considerable quantities, for more than five years.

These are fairly representative of a large percent of drug users who come under the care of one engaged in the treatment of such patients. It is true that drug users of this class are almost unknown to the public and are very little known to physicians in general practice, but they are not at all rare among those who apply for treatment to institutions devoted to the treatment of such patients. The mere use of opiates does not make perverts or moral degenerates of people who were of good character before use of the drug was begun and the fact that some such persons do retain their integrity and sustain their character and standing in the communities in which they live, notwithstanding the use of the drug, forces us to look elsewhere *than to the effect of the drug* for an explanation of the traits of character usually seen in drug users. Let us, therefore, study the history of a few other cases.

CASE IV is of a different type, but at the beginning her character and standing were first class. She was a member of a good family and married to a lawyer of prominence. She made an ideal wife, loved her home and devoted herself largely to making it attractive to her husband. Something over a year after her marriage she became the mother of a fine boy who was the delight of both father and mother, and for the next two years their home was an ideal one. About this time another conception occurred. All went well until about the fourth month, when she was threatened with a miscarriage. The family physician was called and it became necessary to confine her to bed and administer morphin for about 10 days to prevent an abortion. She was then allowed to get up and a few days later the symptoms returned. She was again put to bed and morphin was administered and this time continued for three weeks without the intermission of more than a full day. Morphin was then discontinued and she was allowed to get up, but in a few days the uterus became rebellious again and it was necessary to resume the use of the opiate. By continuing the opiate from that time on, she was carried to her full term and delivered of a healthy child. She had both a perineal and a cervical injury at the confinement, which protracted her convalescence and caused considerable suffering, and the morphin was continued until the baby was 2 months old. By this time she had sufficiently regained her strength to be up and about the house. Her physician then told her that it would not be necessary to use the opiate, ordered it discontinued and dismissed the case. In about 24 hours her suffering became so acute that he was again called but declined to give an opiate, insisted that her suffering was mainly imaginary and told her husband that as soon as she found that she could not get more morphin she would become quiet and quit complaining. Her husband believed this and told her that he would not allow her to have more of the drug under any circumstances, and leaving her with the servants, went on to his business. As the addiction had been confirmed by more than six months' use of the drug, her sufferings increased until they became unbearable, and, realizing that she could not expect relief from either husband or physician, she sent a servant out and obtained a bottle of laudanum. A full dose of this gave her a fair degree of relief and when her husband came home in the evening she was more quiet and he felt that the doctor's word had come true and that they had, by their firmness, broken his wife from the use of morphin. But he was mistaken.

When the first bottle of laudanum was exhausted, more was obtained. This was used as sparingly as possible, and she made numerous efforts to leave it off altogether. Finding herself unable to do so, she continued it, and by discreet management used it for a period of two years before it was detected by her husband. When he did become aware of it, he reproached her for it very severely, and again applied to his physician for advice in the matter. The physician assured him that her use of the drug was a mere dissipation, a habit that could be abandoned at will, and advised him that if she did not wish to leave it off she should be compelled to do so. Her husband urged her to leave off the drug, and she promised to do so, and did try faithfully, but of course she could not succeed. Her husband criticised her severely for her failure to keep her promises in the matter, and attributed to her all kinds of evil purposes. Finding that these did not avail, he determined to cut off the drug supply. He deprived her of money, and notified all the druggists in his town not to sell her on credit, and urged them not to sell her opiates at all. This made it necessary for her to resort to many expedients to procure her drug, and even then she was not able to obtain it regularly. When she could not obtain the drug by other means, she would sell her clothing to negroes and get them to buy the drug for her. Another plan was to order groceries and sell them at reduced rates to get money to buy the drug. At times she was unable by any of these means to obtain her drug supply, and at such times she would secure whisky and drink that. This, of course, disgusted her husband, and his position became one of extreme bitterness toward her. The wife realized that it was out of her power to comply with her husband's wishes and discontinue the use of the drug. The intense suffering that came on when she was out of her drug became an impelling force, which compelled her to do almost anything to obtain that which alone was capable of giving her relief. The position occupied by her husband and her physician was so extreme, and they so totally misunderstood the necessities of her case, that there could be no common ground of agreement between them. They felt that she was pursuing that course from preference, as a deliberate choice, that she had lost all respect for herself and for her family, and had become totally depraved, and they treated her accordingly. She was conscious of her faithful efforts to comply with their demands, but was also painfully conscious of the fact that it was out of her power to break the fetters that held her a slave to the drug. Strive as she would, she could not do so. Much as she desired to regain the confidence and love of her husband, the unbearable suffering experienced and the extreme desperation brought on by failure of her drug supply, impelled her as an irresistible force to turn a deaf ear to all their entreaties, to disregard all promises made to them as to leaving off the drug, to smother all motherly and wifely instincts, if need be, and to continue to resort to all forms of deception and intrigue that were found necessary to obtain her drug supply. It had in her experience become the one supreme necessity of life.

CASE V.—D. G., a young man, aged 18, was given morphin seven months during an attack of rheumatism. At the end of that time the rheumatic symptoms had disappeared, and his father, who was a physician and had attended him, decided to withdraw the morphin by gradual reduction, and began to do so. Things progressed fairly well for a time, but after the dose had been cut down considerably, the suffering of the patient was extreme. The father had mapped out a plan which he felt he must not vary from. The son suffered intensely for a number of days, but all his pleadings for something more to relieve him were ignored. His father told him he would rather see him a corpse than have him continue the use of morphin, and insisted that the course he was pursuing was the only one that promised relief, and that he must stand the suffering. The reduction was continued until the last of the drug was withdrawn, but the condition of the patient was most desperate. He could not sleep, had no appetite, was extremely nervous, had an exhausting diarrhea that nothing seemed to benefit, and in many other ways his suffering was unbearable. In this extreme condition the son, by the aid of a friend, secured a supply of morphin tablets. These were used very sparingly, and only enough to overcome the most acute suffering, the young man feeling that if he could only get a little relief he could bear the balance of the suffering and finally get off the drug, which he was very anxious to do. The father noticed the improved condition of the son, and felt that he was succeeding in curing him of the addiction. In a few months, however, the son's efforts to hold the quantity down and to keep his use of it concealed were unavailing, and the father learned of it. He was very much incensed at what he termed his son's wilful disobedience and deception. He then determined to punish him and cure him at the same time, so he took the drug supply away, put an attendant with him, and locked him in his room. Here for the next three days he suffered the tortures incident to the abrupt withdrawal of the drug without treatment, and by the end of that time his condition was so critical that the father became alarmed and gave morphin for relief. This was continued for a few days, and then another effort was made to withdraw it, but the symptoms became alarming again and the drug was resorted to. The next year was spent in one effort after another to break up the habit, the father often resorting to harsh means and even cruel treatment in his efforts to force the disuse of the drug. This only served to widen the breach between the father and son, and to drive the son to more desperate means to obtain the drug supply. He would steal his father's books or instruments or anything else that he could take from the house without being immediately detected, and sell them to obtain the drug. If he could not get morphin, he would get whisky or any other stimulant. His father looked upon these acts as positive evidence of extreme perversion, and regarded him as utterly abandoned and hopeless.

The last two cases are representative of a large percent of the drug users in the United States. They present a sharp contrast when compared with the first three cases reported in this paper. Between them there are all grades and varieties and while they all use the drug in common, they differ radically in other respects, and I cannot regard the traits of character manifested by many of them as being due to the effect of opiates. In studying the history of a large number of patients who were unquestionably of good character prior to the formation of the addiction, I have found that the perverse traits of character were prominent or not, just in proportion as the other influences herein mentioned were prominent or not. If the addiction was formed by one who was entirely independent and could secure and use the drug without being interfered with by any one, he retained his integrity, his business and social standing, etc., to a fair degree, but when the habitue was dependent on someone else for his drug supply, and this one a person who did not understand the necessities of his condition, or when his family or friends, or those to whom he was subject, undertook to break the "habit" by withholding the drug supply or the means of obtaining it, or when adverse fortune made it necessary for the drug user to resort to deception and other such means to procure the drug, the perverse traits of character were very prominent. These perverse traits were present in proportion to the length of time and the degree of intrigue and deception the drug user was forced to use.

I think the conclusion is inevitable that in the fourth case herein reported, the failure of the husband and physician properly to understand the condition of the patient and to provide the relief her condition demanded, forced her, in the first place, to begin a life of deception, and their harsh criticism and unjust treatment caused her to continue to pursue a course which they could only look upon as one of extreme dissipation. The same influences were responsible for the conduct of the patient in Case V. The mistaken views held by the father led to the son's wretched condition. No greater mistake was ever made by well-meaning persons than to attempt to deprive of his drug supply one who is addicted to the use of morphin. Such efforts only serve to drive the drug user to secret and often immoral acts to procure his supply. The only proper and reasonable course is to recognize the condition as a misfortune—a disease, as it really is, and one which cannot be overcome by merely depriving the patient of his drug. It should also be borne in mind that it is a really hazardous proceeding to deprive a drug user of his drug supply, since dementia or death may be the result.

Another case will illustrate still another phase of this subject:

Case VI.—C. H. T. belongs to a different class. His parents were in moderate circumstances but lived in a crowded city district where the son formed acquaintances that were anything but desirable. At 16 he began to drink and gamble, declined to continue in school, and set out to make his own living. His ideals were low and, having no well-defined purposes, he obtained employment first at one thing and then another, but painting seemed to be his preference, and by the time he was 20 he had developed considerable skill as a house and sign painter. This enabled him to earn good wages and furnished him means with which to buy liquors. He would work faithfully for a few weeks, but as soon as he accumulated a little money, he would go on a spree and not stop until his last cent was spent and his credit exhausted. His money being gone, the saloons would no longer shelter him and he was frequently taken in charge by the police and sobered up under their care. At other times he would apply to physicians for something to quiet his nervousness and enable him to sober up. This something too often proved to be morphin given hypodermically. This had to him a most delightful effect, bringing quietude to his shattered nerves and rest to his excited brain. He soon learned that under the influence of opiates the demand for strong drink was much less urgent and that he could control himself more fully than when using whisky alone. Being a venturesome creature, he soon learned the use of the hypodermic syringe and this led to the daily use of the drug. Things progressed fairly well with him for the next year, as he used much less whisky, but as he became more and more dependent on the drug his capacity as well as his inclination for work declined. His income decreased until it was not sufficient to support him and supply the drug he was using. He then began to resort to various expedients to procure his drug. He borrowed from friends until his repeated failures to repay forced them to refuse further loans.

His next resort was to besiege the offices of physicians with some feigned complaint and beg them to give him the drug, but physician after physician, tiring of these calls, turned him away without further assistance. Then being more desperate, he began to beg on the streets, and when these appeals did not bring the necessary funds, larceny of any article that he could pawn for a small amount was resorted to. These thefts brought him into prominence in the police courts and the accounts of his peculations in the papers brought his case to the notice of thousands of people. When he would become known to the people of one town as a chronic beggar and they no longer responded to his appeals, he would make his way to another town, and there under new surroundings he would, for a time, be more successful in obtaining assistance from physicians and from the public. But sooner or later he would be brought before the public as a morphin fiend, who had committed some crime, almost always petit larceny. Later on his thefts became more frequent and of greater magnitude, and he is now serving a term in a State prison for grand larceny.

It will be noticed that this man was reared under rather unfavorable surroundings, that he began to dissipate early, had not very high ideals or well-defined purposes, and that morphin was added to the use of whisky more as a dissipation than otherwise. This case belongs to a class that forms probably 15% of all drug users, certainly not more than that, but while they are comparatively few in number, they have made a reputation for the entire generation of drug users. They are the ones who have been constantly before the public gaze; they are the ones with whom physicians have often come into unfavorable contact, both at their offices and at the public institutions, and both the public and the profession have come to look upon them as fairly representative of the entire multitude of drug users. Their crimes and other acts of perversion have been so repeatedly brought to the public notice through the press and the courts that the public has been taught to look upon all narcotic drug users as of this class, when, in fact, this is very far from the truth. One drug user of this class will often be brought to the notice of many thousands of people in an unfavorable light, while there are in the same population hundreds of other drug users who conduct themselves discreetly and never expose themselves to the public gaze. Many of these doubtless compare favorably in character and standing with the first three cases reported in this paper, yet the state of public opinion is such that if their use of the drug were known they would be classed with the perverts and stigmatized as "morphin fiends."

As a result of attributing the perverse traits of character manifested by morphin users to the effects of the drug, both the profession and the public have fallen into the error of looking upon all opium users as of the same class, and, since the comparatively small number of perverts among them are the ones who have become most commonly known, they have made the reputation by which all are judged. Such a conclusion is erroneous, and the opinion based upon it is manifestly unjust. Drug users differ from each other as greatly as do other people. Some of them retain their moral character, their veracity, and even their reputation, without blemish, while others become moral wrecks, but it is evident that other influences beside the effects of the drug are potent agents in bringing about that wreckage.

If you will recall for a moment the condition into which a drug user is thrown by being deprived of his drug, as described at the beginning of this paper, I think you will admit that it is unreasonable to expect any human being to enter upon such an undertaking voluntarily, or to submit to being forced into it if it is in his power to prevent it. I do not hesitate to say that an opium user has a moral right to resort to any course of conduct that may be necessary to obtain his drug supply.

If that course of conduct should embrace untruthfulness, deception, and fraud, it does not place him on the same moral plane with persons guilty of the same acts when the motive which prompts them is gain, personal advancement, or other such motive. In resorting to such acts for the purpose of obtaining a drug supply, if it can not be otherwise obtained, the drug user does only what any other human being would do under the same circumstances, and no one should be condemned for doing that which anyone else would have done. Every drug user firmly believes that if he were deprived of his drug supply he would either die or go crazy, and he therefore feels justified in doing anything that may be necessary to protect himself from such an extremity.

Most morphin users deny their habit, and on that account they are charged with being notorious liars and unreliable in all matters. Here, again, they are judged with undue harshness. They deny the use of the drug in self defense, to try to preserve their good name and to protect themselves from the criticism and censure of their friends, and from the sting of misguided public opinion. Since the motive which prompts an act fixes its moral quality, they should not be so strongly condemned for denying that which, if admitted, would ruin their business and social standing, and convict them in the eyes of the public of being wilful perverts or moral degenerates, and lead to their being known and spoken of by the inhuman epithet of "morphin fiends." If self-preservation is not the first law of nature, it is one of the strongest, and it is a just and proper motive for human action.

Burns and Radium.—According to the *Scientific American* Dr. Jules Rehns of Paris after experiments to ascertain the precise effects of radium burning upon the skin, found that if the rays of $\frac{1}{1600}$ ounce of radium bromid are applied, no pain is experienced nor is there any mark left at the time of application; but 24 hours later a red mark appears, remains for a fortnight, fades, and leaves behind a scar similar to that of a burn. If the application be continued for ten minutes instead of five, the mark becomes visible in 18 hours. Ulceration does not occur unless the radium has been applied for at least an hour. If the spot is treated medically, suppuration may be prevented and the wound cured in six weeks or two months. But if it is not attended to, it ulcerates, becomes painful, and lasts an indefinite period. Some of these wounds or burns caused three months ago by one hour's application of radium, still show no sign of healing. Moles can be destroyed by applying the radium for ten minutes.

OPEN ORAL QUESTIONS.

BY

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In these days of medical progress, oral disease from its various aspects is pretty thoroughly understood. The various departments of medicine have contributed to a grand total which enables the practitioner to recognize and treat with fair success all those lesions which present in the oral cavity. Dental science, as a branch of medicine, has drawn upon pathology, bacteriology, physiology and chemistry, with the result that the specialized field of dental pathology has been evolved. The stomatologist and oral surgeon have, by borrowing from other fields, brought forth another offspring of medicine—oral pathology—which elucidates all lesions liable to occur at the portal of the alimentary tract. In spite of these immense strides made within the last century, many links are yet missing in the chain, leading to medicine, as a positive science.

Just as medicine, the mother science, is not yet a completely tilled field, so are her children, the specialties not fully exhausted. None of the various branches of medicine, excepting perhaps, neurology, offers more opportunities for investigation than dental surgery, as part of stomatology. This is, perhaps, due to the fact that this specialty is the youngest offspring of medicine.

There are many conditions of the teeth in which the etiology is partly clouded. For many years the profession was at sea as to the actual causes of dental caries. Many theories were advanced, but were rejected as they proved inconsistent. Finally the unceasing labors of men like Hunter, Fox, Magitot, Tomes, Miller, Black, and many others, brought out facts which led to our present knowledge of the disease. The indefatigable efforts of Riggs, Talbot, Black, and others, have thrown much light into the condition known as pyorrhea alveolaris, or interstitial gingivitis. Still neither one is thoroughly understood, for were this the case these conditions would be more successfully treated and more often prevented.

Frequently patients come with a number of carious teeth. These are treated and filled, and the patient is instructed to cleanse his teeth often and well and to use an antiseptic wash. In spite of all this, these very patients will return after some time with other carious teeth, which at the first visit showed no trace of the disease. Why is this? If the carious structure was thoroughly removed, the teeth properly filled, and the mouth kept as clean as possible, how could the disease again take so firm a hold? Does this not suggest that there is perhaps another etiologic factor present, *ex orem?*

It is well known that for the production of tuberculous disease two factors are necessary, the tubercle bacillus and a lowered vitality of the tissue which the bacillus infests. The bacillus in a healthy tissue means naught, but introduce the bacillus into weakened tissue, whose resistance is below par, and tuberculosis threatens. To kill the bacilli alone without nourishing the tissue, without raising its resistance, may stay the destructive processes for a short time, but at the next invasion the tissue will fall prey to the disease. The treatment, therefore, must be twofold. First, to remove the cause, so far as possible, and second, to raise the vitality and the resistance of the tissue to such degree that it can resist the bacterial invasion.

Analogous conditions are prevalent in dental caries. Teeth which have lost the continuity of their enamel, easily fall prey to caries. How is the enamel surface broken? By acid conditions of the oral fluids, by traumatism, by fermentive processes going on in the sulci of the teeth, and by mechanical abrasion, produced by artificial dentures. What are the destructive processes causing the dissolution of the enamel? The salt elements are dissolved out, and the organic fibrous structure supporting the salt elements becomes peptonized by ferments and bacteria. The enamel thus being broken, the dental structure easily falls prey to caries. This is the pathology of caries, in a general way, as accepted by many today.

But how about the teeth of those individuals in whom the oral secretion is alkaline, and who carefully cleanse their teeth, but in whose mouths there is little or no fermentation going on, are they void of caries? No. And how about those people who never clean their teeth, and whose oral secretion is decidedly acid, and who in spite of all this exhibit no caries? Is there not another factor active in the dissolution of the enamel structure and the spreading of caries beside those mentioned, certain systemic conditions producing a diathesis in the mouth? It is an established fact that conditions which draw upon the system will predispose the teeth to caries; for instance, measles, typhoid, pregnancy, etc. Whether this is due to an actual lack of nutrition of the tooth structure or to nervous disturbances, is an open question.

People of the sanguine type have teeth, which seem not so readily invaded by caries as those of nervous temperament. The teeth of the former are of a yellowish color, are well proportioned, with smooth surfaces, while those of the nervous type are of a bluish or gray color; length predominates over breadth in their form, and they present depressions and elevations. The teeth of the nervous type are easier drilled; they seem more brittle than those of the sanguine type. This indicates that the variance in the systemic make-up is also extended to and recognizable in the dental organs. If this is so in healthy organisms, why should it be otherwise in disease? Why should not perverted functions and pathologic conditions exert their influence upon the teeth just as varying constitutions produce modifications in the color, shape and texture? Maybe certain constitutional conditions through the nervous and lymphatic currents alter the consistency or texture of the dental structure, so as to cause it to become less resistant to influences, which, if the constitutional conditions were normal, would not affect the teeth. These are questions which are justifiable to ask, questions which are still open. Investigations in this direction will throw considerable light on the pathology of caries, and if solved, will indicate treatment.

If the coherence between constitutional disease and dental caries can be established, then our present methods of treatment will be found lacking. The mere restoration of the lost structure by means of a filling and local asepsis will not be sufficient, for it does not raise the resistance of the tissue to combat chemic and bacterial action. It is like treating tuberculosis by means of germicides alone, without nourishing the tissue and raising its vitality and resistance, so that it is able to resist the action of microorganisms. To obtain immunity to caries, double treatment is then necessary, first, to repair the local condition, and second, to correct any systemic condition which so modified the dental structure as to predispose it to caries. The treatment then would, beside being curative, also be preventive.

Pyorrhea alveolaris is a condition about which many theories have been advanced. What is it? A condition in which there is a hyperemic, flabby condition of the gums, a purulent discharge from the alveoli with the formation of distinct pus pockets, loosening of the teeth, and destruction of the alveolar walls.

It is not my intention to go into details of all those conditions, which by some, as a class, are termed pyorrhea, nor will I make any distinctions or classifications; I simply speak of that class of cases, presenting the foregoing symptoms, excluding, however, those cases which are simply due to absolute neglect of oral hygiene, and in which a cure is established by simple local antiseptic measures; these I should not call pyorrhea, but gingivitis.

The usual treatment consists in the removal of all deposits and the sterilization of the pockets and alveoli and the local application of stimulants and counterirritants, to induce a return to the normal. The success attending the treatment of the disease is limited because the actual cause has not been established. The deposits which so frequently are looked upon as the actual cause of the trouble are but exciting causes. Miller attempted to isolate a microorganism specific to the disease, but failed. The condition is frequently associated with uric acid diathesis and diabetes mellitus. It is perhaps a local manifestation of some perverted function present in these diseases.

Atrophy of the gums, followed by loosening of the teeth, is another condition for which local treatment is offered with but little success. It is undoubtedly a local manifestation of some constitutional disturbance, for it is frequently found in nervous diseases.

Success in the treatment of oral disease cannot be obtained till the etiology of these conditions is thoroughly understood. They offer a broad field for investigation to both medical and dental men, and those who succeed in clearing the fog, will not only be benefactors to suffering humanity, but they will be disciples of Esculapius in the true sense of the word; not only will they be healers, but they will also be preventers of disease.

METEORISM IN PNEUMONIA: ITS PROGNOSTIC IMPORTANCE. REPORT OF A CASE OF PERITONITIS COMPLICATING PNEUMONIA.

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There are two questions that every physician is asked: What is the matter with the patient, and what are his chances; or, what is the diagnosis and what the prognosis? The correctness of the latter serves in the eyes of the patient, or rather his relations, as a touchstone of the doctor's ability, and this to a certain extent with good reason. Therefore, and also from a scientific standpoint, every new point that assists in making a correct prognosis should be warmly greeted. Five years ago when I was surgeon at Rothschild's Hospital, near Vienna, I was astonished at the great number of patients with empyema thoracis. To a certain extent the explanation of this was due to the fact that from 20 to 40 pneumonia patients were treated every month in the general medical department. The subject attracted my attention and aroused my interest and I began to study not only the cases with metapneumonic exudate, but also the pneumonia cases, in the hope of finding an explanation for the frequent occurrence of (metapneumonic) empyema. During my studies I noticed a symptom that was not only of interest from a scientific standpoint, but proved itself of great value in making a correct prognosis. This symptom was also observed by the physician who had charge of the medical department, a former assistant of Nothnagel. The symptom is the meteorism which occurs in pneumonia. In looking through the different textbooks on this subject and the literature so far as I could reach it, I found no mention of this symptom.

Altogether I observed 79 cases of pneumonia, of which 14 terminated fatally. Of these 14 cases, there were 5 cases with considerable meteorism, 3 cases with distinct and 6 cases with slight or no meteorism. Of these 6 cases without meteorism, 2 patients died on the third day, and therefore do not count. Of the 65 patients that recovered, I found in 7 distinct, in 11 slight meteorism, and in the remainder none. The 7 cases with meteorism were all very severe. The microscopic examination of the sputum of the 79 patients showed in 1 case only streptococci—this patient died; in another case in which pneumonia followed otitis media, influenza bacilli only were found; in 5 cases diplococci combined with streptococci, and in the remainder, diplococci only. In 4 cases with considerable meteorism I made a postmortem examination. Abstracts of the protocols of these cases follow:

CASE I.—The lower lobes of both lungs are infiltrated, the infiltration is not as compact as usual; the other lobes of the lung are enormously hyperemic and edematous. Serous exudate is present in both pleural cavities to the extent of three pints. High meteorism. The peritoneum of the diaphragm, of the stomach and spleen is without its normal polish, is highly hyperemic, and in the peritoneal cavity there is about three pints of a serous exudate. The microscopic examination confirmed the diagnosis of pneumonia produced by streptococci. In the lungs and in the exudate of the pleural and abdominal cavities were streptococci. I also found streptococci through the entire thickness of the diaphragm, in the serous membrane of both sides, and along the muscle fibers, without preferring the lymph or bloodvessels or their neighboring tissue; the microbes simply grew through the diaphragm, thus infecting the peritoneum. The histologic examination of the inflamed parts of the lung did not show the picture of an interstitial pneumonia, as is usually given to the pneumonia by streptococci; there was nothing unusual except that the hepatization was more flabby and the hyperemia enormous.

CASE II.—Pneumonia of the left lower lobe of the lung with serofibrinous exudate in the pleural cavity. The pleura is covered with fibrinous membranes; there is considerable meteorism; in the peritoneal cavity there is about a quart of serofibrinous exudate; the diaphragm, spleen, and stomach are covered with fibrinous membranes. In this case diplococci were found in the lung, in the exudate, and in the tissue of the diaphragm.

CASE III.—Pneumonia of the middle and the upper part of the lower right lobe. Considerable meteorism; the intestines are in a state of acute catarrh, with small ulcers on some follicles. The peritoneum appears normal. In the intestinal canal are enormous quantities of diplococci and streptococci. The same microbes were found in the infiltrated parts of the lung.

CASE IV.—Pneumonia of the lower right lobe, distinct meteorism; peritoneum appears normal. In the lung were diplococci. In this case it was impossible to produce a passage of feces or of gases during life.

Of the seven patients with meteorism that recovered, in two cases both diplococci and streptococci were found in the sputum.

The following conclusions can be drawn from these examinations: (1) Meteorism in a slight degree frequently accompanies pneumonia, especially if the pneumonia is in the lower lobes of the lungs; (2) meteorism in the lighter degrees may be produced by the deficiency of the mechanical action of the diaphragm upon the intestines; (3) meteorism of a distinct or considerable degree is rare. It may be produced either (*a*) by a complicating peritonitis, or (*b*) by an acute septic intestinal catarrh, due to diplococci or streptococci or influenza bacilli, the microbes that produced the pneumonia, or (*c*) by a toxic paresis of the intestines. Meteorism in cases of pneumonia or sepsis in which the peritoneum is normal cannot be explained in any other way; (4) meteorism of considerable degree is one of the worst prognostic symptoms in pneumonia. When it is distinct it makes the prognosis very grave and indicates a severe and often deadly course. If we were able to recognize during life the exact cause of the meteorism, whether it is peritonitis or something else, the prognosis would become a still more certain one. Unfortunately, however, we are not always able to determine this, but such uncertainty does not lower the prognostic value of this symptom. I would like to call attention to the coincidence of meteorism and the presence of streptococci, either alone or combined with diplococci. The number of cases observed by me is too small to draw positive conclusions from, but in my opinion they are worth mentioning. In connection with this I will describe a case of peritonitis complicating pneumonia, in which very distinct meteorism occurred. The early meteorism led me to predict a very severe illness, and the course of the disease proved my prognosis correct. I have lately read several essays on peritonitis produced by pneumococci, either by primary infection of the peritoneum (trauma) or by hematogen infection or infection through the intestinal wall, or in females, through the genital organs, but reports of peritonitis as a complication of pneumonia are still very rare, and therefore the need for the publication of such a case is well established.

My patient was taken sick February 10 with headache, slight increase of temperature and a cough. Despite his indisposition, he went to a banquet two days later, and on February 13 to a party, which lasted until the morning hours. I saw the patient for the first time in the evening of February 14. At this time he presented an intricate picture, he answered in a confused manner or not at all, and complained of pains in the stomach. His temperature was 102°, pulse 108; a diffuse bronchitis was present and his breath had a distinct odor of alcohol. I prescribed a physic. The next morning the patient was slightly improved, his mind was clearer, temperature 101°, pulse 104. There was still a diffuse bronchitis, with continued pains in his stomach and backbone. He had several copious bowel movements during the night. On February 16 his temperature was 103°, pulse 104, dulness over the left lower lung, mind free, and, on the whole, the patient felt better; a slight meteorism was observed. During the day rust-colored sputum appeared, which on examination showed influenza bacilli and pneumococci. On February 17, the temperature was 105°, pulse 110, and except for the increased meteorism, no remarkable symptom was present. In the evening the patient was suddenly taken with hiccups, which lasted only a few minutes, but on the following night hiccups began again, and lasted with but short intermission for nearly five days. Beside the pneumonia on the left side that did not progress, a pleuritic exudate on the same side appeared. The meteorism grew somewhat higher, and we could not produce a bowel movement or gas. With the appearance of the very annoying singultus and the meteorism, the picture of the disease was changed. The patient grew quickly weaker, the pulse, 138, became weak too, was easily suppressed, in spite of the fact that the temperature was not high. The tongue, which until now was moist, became dry; the patient became unconscious and violent delirium occurred, which, together with the singultus, weakened the patient considerably; several collapses occurred, and it was necessary to give large doses of strychnin and camphor to stimulate the heart. All remedies advised for hiccup failed; the hiccup was at times so rapid and strong that the patient's bed shook; even doses of 32 mg. (.5 gr.) morphin brought only a few minutes' relief. Bromides, spray of ethyl chlorid, mustard plaster, washing out of the stomach, permanent high rectal lavage, subcutaneous transfusions of normal salt solution, no food or fluid through the mouth, were fruitless. On February 20 the pulse was 156, temperature 104°, the amount of urine passed within 24 hours was six ounces, with 0.6 Esbach albumen, many granulated and epithelial casts, leukocytes, cubic epitheliums, erythrocytes. At times the patient showed Cheyne-Stokes type of respiration, furious deliriums prevailed, and one very deep collapse occurred, during which the pulse was hardly felt.

On February 21, urine was passed more freely, the temperature began to fall, a bowel movement and gases were produced by the continued (high) enemas. The interruptions between the single attacks of hiccup were longer, but the delirium and hallucinations became still more violent. On this day besides the meteorism, exudate could be detected in the abdomen. Within two days the temperature fell to normal and despite the fact that an exudate in the right pleural cavity developed also, and the exudate in the abdomen grew, the patient improved, the hiccup stopped entirely, urine was produced more freely and did not contain so much albumin, bowel movements were easily produced by enemas, the patient began to take nourishment, the delirium and hallucinations disappeared gradually and on March 6 all traces of an inflammation and exudate had disappeared. The patient had pneumonia which began slowly and which showed a lytic declivity of the temperature, in short which had the character of an influenza—pneumonia or a mixed infection of influenza bacilli and pneumococci; he also had peritonitis with annoying hiccup and meteorism; an exudate in both pleural cavities and acute nephritis. The condition of the patient on the fourth day was good, he did not show any alarming symptom except the meteorism but this was sufficient to give a bad prognosis and the course of the disease showed how correct this was. More than once the case was considered hopeless and recovery was a surprise to the physicians as well as to the patient's relatives.

It is a fact that in nearly all cases of pneumonia, pneumococci can be found in the peritoneum and that in many cases pneumococci are to be found in the blood. Both facts help to a certain extent to explain the different complications in cases of pneumonia, but they do not give us an explanation of the rarity with which these complications occur. Why does peritonitis not occur in all cases of pneumonia if pneumococci are present in the peritoneum? This question cannot be answered in an exact manner, but we may presume that the amount of bacteria in the peritoneal cavity, or their virulence, or the condition of the endothelium or the patient all play a role. In some of my cases I am inclined to lay some stress on the presence of streptococci, which I believe responsible at least for some cases of peritonitis or for the high meteorism. Our knowledge is more exact on account of the manner in which the peritoneum becomes infected. In my own practice I have had two cases, in which this could be traced by means of the microscope. I found through histologic examination pneumococci were present through the whole diaphragm, in both serous membranes and between the muscle fibers; blood or lymph vessels or their surrounding tissue did not show any preference. In these cases the microbes simply grew through the diaphragm and produced peritonitis. The infection may also occur through the lymph vessels and there is no doubt that hematogen infection of the peritoneum occurs also. The occurrence of peritonitis after otitis media cannot be explained in any other way.

There is no doubt that in the foregoing case peritonitis complicated pneumonia. Meteorism, hiccup, no bowel movement, no gas, exudate in the abdomen all justify this diagnosis. It is, however, more difficult to say which of the bacteria, the influenza bacilli or the pneumococci produced the peritonitis; there was no examination of the exudate made, a trial puncture for clinical purposes only could not have been justified.

SPECIAL ARTICLES

PROTECTIVE INOCULATION.

BY

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The origin of protective inoculation, like much that is of value in medicine, was in a phase of fetichism through which man made supernatural forces in his own image. Disease, quite early in human mental evolution, was thus given a human element, and both placated and frightened as human beings would be, under such circumstances. When particular diseases became godlings they received special ceremonial worship. From this ceremonial worship, in the case of smallpox, came the practice of inoculation. In India the goddess of smallpox, called Sitala (she who loves the cool), was the eldest of a group of sisters presiding over pustular diseases. One phase of her worship was a ceremony of inoculation. This was regarded as a charm, and was found to be efficacious against returns of smallpox. It spread on its own merits westward, and was introduced into English-speaking countries by Lady Mary Wortley Montagu, and was in the natural course of evolution supplanted by vaccination. In India, through the influence of the British Government, vaccination was substituted for inoculation under the plea that the charm was intensified by being passed through that sacred animal, the cow. In India, according to the *Spectator*, government vaccinators earn a considerable sum yearly by executing the Sitala worship, and when a child is vaccinated a portion of the service is performed. In this development, inoculation has followed the lines of folklore, in which human sacrifice becomes modified into animal, ere passing into the mere symbol. Through this line of evolution all therapeutics and pathology have passed into the employment of animals to determine effects on human beings. The intensification of the charm, or the weakening of the spell by giving it to an animal, is the basis of experimental pharmacology and pathology.

It must be admitted that, as I have elsewhere pointed out, despite its antiquity the elements of error arising from the crude transference of animal results to man, still enormously exist particularly in the case of protective inoculations. In the practice of such inoculations the anatomic and physiologic differences between man and the animal are ignored, and in the cultivation of an alleged microbe, Koch's law is ignored. The microbe or protozoon found with a given disease of morbid state is regarded as the cause of that state and is cultivated to produce a serum. The logical requirement of science is that a given hypothesis to be accepted must not only explain all the facts but must exclude all other explanations. Here this requirement is set at defiance, and in the determination of disease origin, the possible is but too often taken as the certain, and acted upon. It must be remembered that microbes and protozoa are not the same biologically nor nosologically. The life history of a microbe differs from the life history of a protozoon as to reproduction, and hence as to the production of excretions and secretion. While smallpox was among the earliest diseases of which the value of protective inoculation was demonstrated, yet it was among the latest to have its special germ recognized. The discovery of the protozoon of smallpox was made by Ischigama, of Tokio, whose results have since been confirmed by Councilman. The history of the protective inoculation in the case of smallpox demonstrates the line of research to be followed in the evolution of future systems of inoculation.

Glittering as seems the line of reasoning adopted in the recent explanation of immunity by Ehrlich's side-chain immunity theory and valuable as some of it is as a working hypothesis, much is based on a series of hypotheses, the demolition of any one of which seriously impairs the main theory. It starts with the acceptance of certain data produced by reasoning, but slightly controlled by research, and that chiefly in the test-tube of the bacteriologist rather than in the hospital by the nosologist. No field has remained so sterile of practical results while seemingly so fertile in possibilities as that of protective inoculation cultivated by the bacteriologist alone. In respect to sterility, it closely resembles the field of biology and pathology as cultivated from the standpoint of inorganic chemistry. In the study of protective inoculations the field of comparative medicine first requires attention. Disease, varies in man because of the individual variance in constitution, which turns upon acquired and inherited peculiarity. Some of these peculiarities turn upon reversions to lower types of structure and some, upon unnecessary refinements of structure gained at the expense of physiologic balance constituting health. Such differences are still more intensified by the variation of physiologic balance produced by a lower central nervous system. For example, while in man paraplegia from kidney disease is rare, in the horse it is so frequent that paraplegia immediately suggests kidney disease. In the horse, moreover, diphtheria runs the same course, of milder type, as in man, and the complications are similar though slight, hence, the reaction produced by diphtheria was found to produce an antibody which has proved, properly applied, peculiarly efficacious against diphtheria. That such an antibody could not be used by direct transference to man is shown in the tetanus produced by it in Italy and St. Louis. This tetanus should have been avoided through the most ordinary knowledge of the horse as a host for the tetanus bacillus. It further, would have been impossible had the ordinary tests of unit strength been applied, since the guineapig employed therein must have been tetanized. None of these results, however, could have been obtained by the unanalyzed application of Ehrlich's theory.

The older explanation of smallpox inoculation which obtained in the days of the germ theory, before Pasteur's time was twofold. The disease was regarded as allied to a plant which exhausted the soil of the elements through which it grew, and hence could not be resown. In certain constitutions the first effect of the disease was a stimulation of its life preserving tendencies so that the disease was thrown off at a light cost to the system, but which stimulation did not, however, interfere with the destruction of the soil by the disease. In both therapy and protective inoculation, these ends were sought. It was admitted by clinicians from nosologic studies that sometimes the disease did not exhaust the soil of elements capable of bearing it, and sometimes these elements were replaced by new changes in the constitution since the first attack of the disease. In some constitutions the soil could never develop these elements, hence their immunity from contagious disease. In some constitutions through worry and its resultant effects on the assimilative and eliminative organs, such a soil was created at the close of an epidemic which did not exist at the outset. Thus was explained the immunity of physicians at the beginning of an epidemic as compared to the fatality among them at its close. Immunity by the older clinicians was regarded, as by Ehrlich, as the result of a general principle, not one of merely germ characters. The toxin complex of Ehrlich contains two groups of different function, the haptophores by which the complex enters into chemic union, and the toxophore by which toxic action results. The destruction of the haptophore element destroys the effects of the toxin complex while destruction of the toxophore destroys or prevents toxic action. The receptors of Ehrlich subserve normal assimilative processes necessarily of synthetic character.

Receptors produced in excess and liberated from the cell constitute the antibodies, or antitoxins. Appearing in the fluids, they unite with the toxins, for which they have specific affinity, and thus protect the cells which have receptors of similar affinity, from damage. Not only toxins, but also toxoids, call forth antibodies. It is therefore chiefly the haptophore group which causes the cell reaction, yielding antibodies by occupying the specific receptors. This cell reaction is certainly not purely regenerative, since the great disproportion between the amount of toxin introduced and that of antibodies obtained indicates concomitant cell stimulation of latent functions. The toxophore comprises various constituent groups, whose action is generally slow.

The receptors of the cell have latent independent individuality shown in their augmented reproduction. They act as localizers or condensers, and thus concentrate a dilute solution of toxins. Definite receptor complexes are associated with the definite metabolic types. Uniform metabolic processes imply uniform receptor complexes, and therefore uniform susceptibility to toxins. Functions of varying powers show extremely variable susceptibility. This outline of the most clearly demonstrable part of Ehrlich's theory shows that the relations between the receptors and the toxins result in a destruction of physiologic balance previously existing, hence undue reproduction of antibodies, and therefore, undue strain on the cell power after the cell has surrendered such powers for the benefit of the organism as a whole.

The production of antibodies in a given animal being an expression of strain on cell power, no animal should be subjected to such strain, provided recovery from such strain is desired. While the reparative powers of nature exist they require, when the physiologic balance is disturbed, such a waste of force as to constitute the first steps in early senescence.

The problem in the application of protective inoculation implies, therefore, the employment of such protective inoculation as will destroy the toxin (the soil element poison of the old clinicians), and at the same time create the life-giving principles constituting the antibodies at the least expense to the system. This will be best accomplished by distributing the strain generally, rather than leaving it to expend its strength on the individual cells. This is best done by employing the specializations through which most is accomplished by the least expenditure of force. The power of the organism to antagonize the constitutional effects of pathogenic germs, their toxins, and other poisons is directly proportionate, all other things being equal, to functional efficiency of the adrenal system. The problem of a protective inoculation is complicated by the factor of mixed infection. Tuberculosis, as observed nosologically, is a mixture of the effects of the tubercle bacillus, of the pneumococcus, the Pfeiffer-Canon bacillus, and pus cocci. The factor of mixed infection is further complicated by the differing effects of toxins. The toxins of tubercle, pneumonia, and grip differ in intensity and localization. All three may occasion the confusional insanities, the meningisms, while the pneumonia and grip bacilli are apt, in addition, to produce neuritides. To meet all these factors by inoculation is a difficult problem of great complexity, further complicated by the fact, pointed out by students of comparative medicine long ere Koch, that tuberculosis of cattle differs in character from that of man, and that the difference is much greater than that between variola and vaccinia. The infectious pneumonia of cattle resembles the furibund type of human pneumonia. Can this problem be solved by a simple serum? The idea at first thought seems of the nostrum variety, since it ignores the individual difference of disease, whether due to inherited or acquired peculiarities, and it also ignores epidemic characteristics, which loom up prominently apart from the effects of climate, food, or individual characteristics.

Careful study of the results obtained by clinicians from protective inoculation of smallpox, shows that these were excellent, but that the subject was guarded by careful hygiene and treatment during the inoculation and was properly prepared for it. In other words, all possible strain in the production of antibodies was avoided. This was the case likewise in the early stages of vaccination and to it was due the markedly successful results of the early vaccinators as well as their freedom from objectionable consequences. The bad results charged to vaccination by Mosley and other opponents of it were not the lockjaws and other possible consequences of modern days, but mythical transformations in whole or part into cows and cattle. The problem of protective inoculation therefore implies a study of comparative medicine with the variation between man and animal taken into account; but also a careful study of the hygiene and prophylaxis of the animal employed, and of the human being before, during, and after inoculation.

LITERATURE.

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THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

August 13, 1904. [Vol. XLIII, No. 7.]

1. The Permanent Preservation of Anatomic, Embryologic, Pathologic, and Bacteriologic Specimens. W. M. L. COPLIN.
2. What Credit, If Any, Shall Be Given the Holders of Baccalaureate Degrees for Admission to Advanced Standing in Medical Schools? HENRY L. TAYLOR.
3. The Value of the Conversational Method of Medical Instruction: The "Students' Conference." JOSEPH MCFARLAND.
4. The Elective System in Medical Schools. D. N. EISENDRATH.
5. The Teaching of Materia Medica in Medical Schools. TORALD SOLLMANN.
6. Clay Modeling in the Study of Anatomy. ARTHUR P. HERRING.
7. A Plea for a Standard Medical Curriculum. GEORGE M. KOBER.
8. Case of Tetanus Successfully Treated by Aspiration of the Cerebrospinal Fluid and Injection of Morphin-eucain and Salt Solution. JOHN B. MURPHY.

1.—Preservation of Specimens.—W. M. L. Coplin publishes in detail the various steps necessary for artistic and accurate preservation of material. The method is based on the Kaiserling process, and the permanent preservation in gelatin is but a modification of the old glycerin-jelly medium. The fixation fluid is formalin, 250 cc.; potassium nitrate, 10 gm.; potassium acetate, 30 gm.; water, 1,000 cc. No metal is permitted to come in contact with the solution or specimens during any stage of their preparation. Alcohol is the developer, and the final preservative is potassium acetate, 200 gm.; glycerin, 400 cc.; water, 2,000 cc. The gelatin medium is a 10% solution in this mixture. Freshness is a prerequisite in the specimen. If fixation is not at once practicable, the blood stains should be rinsed off and the material wrapped in absorbent gauze or towels. The specimen should be oriented as it is to appear when mounted, before the formalin gives it permanent shape. White thread and quill or wooden toothpicks may be used. The writer describes minutely the technic of each step, with the method of mounting in petri dishes and glass plates, and carefully preserving and placing the labels; also, a special rectangular jar for specimens not adapted to the dishes. [H.M.]

2.—Baccalaureate Degrees and Advanced Standing.—H. C. Taylor publishes replies received to the circular sent out asking whether there is a practical unit of measure for the first medical year, or whether one can be determined, and whether medical schools can readjust their curriculums so as to admit to the second medical year, graduates of registered colleges that present the full requirements of the first medical year, tested by that unit. The first year's requirements in anatomy, biologic sciences, chemistry, physics, and physiology were carefully prepared by representatives of the medical profession and schools, and sent to representatives of independent medical schools, to universities maintaining both departments, and to independent colleges. He concludes his paper with the following propositions: If credit is to be given to institutions outside New York, more accurate registration both of the college and medical course is essential. Accurate registration is dependent both on examination and inspection. Reciprocity between States must be based on actual requirements met by licensees, and a uniform minimum statutory requirement for all States of the union is at present impracticable. State control should concern itself with the minimum statutory requirement for admission to practise, *i. e.*, the licentiate credential, and leave to the schools the determination of the maximum scholastic, *i. e.*, the degree. [H.M.]

3.—The Conversational Method of Instruction.—J. McFarland believes it illogical to do away entirely with the didactic method, but thinks it should be supplemented by laboratory work and conferences. He reports the averages attained by two sections of a class, one of which had and the other had not conferences the first half of the year, comparing them with the averages of the second half when the sections changed about. These show the immense value of this method of teaching. [H.M.]

5.—The Teaching of Materia Medica.—T. Sollmann would abridge the number of drugs and preparations to be studied, neglecting the unimportant, would limit pharmacy, and pay no attention to habitat, natural order, method of collection, etc. He believes that only the preliminary subjects of pharmacy, etc., should be taught separately, and that the materia medica of the individual drugs should be studied immediately after their action and uses. If there is any study in which formal lectures are misplaced, it is this. The study of the action of drugs by laboratory methods requires time which should be taken from other subjects. Pharmacology, however, so facilitates the study of therapeutics that part of the time assigned to the latter can be transferred without injury. He gives the details of instruction as carried out in his own course, describing the arrangement of the museum. [H.M.]

7.—See editorial *American Medicine*, Vol. VII, No. 25, p. 962.

8.—Aspiration and Injection of Morphin-Eucain in Tetanus.—J. B. Murphy reports a case treated eight days after infection. The patient was first given three full doses of serum without effect. The convulsions increased and were almost continuous. A lumbar puncture was then made and 16 cc. of cerebrospinal fluid withdrawn; at the same time 3 cc. of the following was injected:

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B. eucain	gr. 1½	09
Morphin sulfate	gr. ⅓	02
Sodium chlorid	gr. 3	18
Distilled water	oz. 3½ 105	

This had been sterilized by boiling. The patient slept 4 hours immediately and through the night 1½ hours at a time. There were only 8 spasms in the succeeding 24 hours. A more severe spasm recurring the next morning another puncture was made, 15 cc. of fluid withdrawn, and 4 cc. of the above injected. This was repeated on the 2 following days, and then with intervals of 2 days, 2 more aspirations and injections were made and he was discharged cured 10 days later. The quantities of morphin and eucain used were exceedingly small as this was the writer's first case. He believes the eucain should be increased so the patient would receive ¼ gr. or ⅓ gr. at each injection, and the aspirations and injections might be more frequent. Eucain is safer than cocain as it admits of boiling and there is less idiosyncracy to intoxication. Reduction of the spasms prevents death from exhaustion or interference with respiration. The diminution of pus in the aspired fluid would lead one to believe that lessening of pressure aided the fluid in overcoming infection. There is no reason why the cerebrospinal cavities cannot be washed out by salt or other neutralizing solutions. [H.M.]

Boston Medical and Surgical Journal.

August 11, 1904. [Vol. CLI, No. 6.]

1. Operations on the Stomach, with Report of Cases. JOHN C. MUNRO.
2. Malpositions of the Uterus; Their Causes and Treatment. D. J. BROWN.
3. Subperiosteal Fractures of the Humerus in Children. J. S. STONE.
4. The Physical Relationship of Finsen Light, Röntgen Rays and Radioactivity. WALLACE C. SABINE.

2.—Malpositions of the Uterus; Their Causes and Treatment.—D. J. Brown discusses the various malpositions of the uterus and says, in regard to treatment of retrodisplacement, that we have two distinct purposes in view: (1) The bringing forward of the uterus to its normal condition, and (2) its retention in the corrected position. Taking into consideration the wide range of mobility exercised by the normal uterus, careful nonsurgical treatment should be first considered. This treatment should depend upon the symptoms complained of, duration of displacement, and complication. The treatment essentially is to replace the uterus by bimanual manipulation from the vagina and abdomen. If a vaginal manipulation fails, the finger should be introduced in the rectum, the knee-chest posture should be assumed, if necessary; if all these fail, an anesthetic should be administered, when complete relaxation will, in almost all cases, permit reposition of the displaced organ. A pessary should now be used to retain the organ in position, especially if displacement has been of short duration; if of long duration, daily use of sterile tampon saturated with ichthyol or glycerin and packed firmly against the surface should be used until tenderness disappears, and then a Hodge-Smith pessary should be used. The writer formerly practised ventrofixation or ventrosuspension, depending upon the age and civil condition of the patient, but he has ceased to use them, regarding either operation as dangerous to the future welfare of the patient. J. C. Irish and J. G. Blake, in discussing the paper, both differed from Brown in regard to ventrosuspension and ventrofixation; they believe in the efficacy of these operations in indicated cases. [A.B.C.]

3.—Subperiosteal Fractures of the Humerus in Children.—J. S. Stone reports five cases occurring in children, varying from 6 to 11 years. The cases are reported briefly in detail; they were all fractures of the surgical neck of the humerus. He states that the cases are so familiar that it would appear diagnosis could be made from the clinical symptoms without the aid of the radiograph, though that was taken in each case. Each occurred in a child beyond the age at which green-stick fracture is most common; each resulted from a fall on the out-stretched arm; in each case there followed absolute inability to use the deltoid; each child could, with varying hesitation and difficulty, raise the hand to the face and the top of the head, but always with the arm kept as close to the side as possible; in each, passive motions in all directions could be made to the full normal limits and well guarded by but slight spasm; each had but slight atrophy of the deltoid and scapular muscles; deformity in each case was trifling, each having a very sharp bony arch on the anterior surface of the neck of the humerus just at the seat of fracture. This deformity might easily be overlooked. Each had slight localized tenderness at the seat of fracture; each had very slight pain about the shoulder; crepitus and abnormal mobility were conspicuously absent in each case. Skiagrams accompany the article. Greater care in suspicious pathologic conditions of the shoulder and deltoid in children with these symptoms is urged. [A.B.C.]

Medical Record.

August 13, 1904. [Vol. 66, No. 7.]

1. The Success of Physical Remedies in Pulmonary Tuberculosis as an Index of Their Value in Other Chronic Diseases. SIMON BARUCH.
2. Cerebrospinal Meningitis, with Remarks on Its Diagnosis, Prognosis, and Treatment. LOUIS FISCHER.
3. Associated Movements of the Upper Eyelid and Lower Jaw. EDWARD B. COBURN.
4. Acute Cholecystitis Simulating Appendicitis: Two Illustrative Cases. ARTHUR L. CHUTE.

5. The Treatment of Syphilis by Hypodermic Injection of Mercury; a Preliminary Report. LAWRENCE T. ROYSTER.
6. A New Pathogenic Throat Organism. B. H. STONE.

1.—Physical Remedies in Pulmonary Tuberculosis and Other Chronic Diseases.—S. Baruch regards pulmonary tuberculosis as an illustration of what can be accomplished by systematic management in all chronic diseases. In acute disease the doctor visits the patient daily or oftener, and his whole environment is under absolute control. In a chronic disease, the patient perhaps calls weekly, and the execution of the physician's orders depends upon his own will. Constant, unremitting attention to every detail of food, drink, rest, exercise, baths, clothing, occupation, is the only road to a favorable result. Contentions about climate become of secondary interest, since we realize that methodic treatment in air free from contamination and excessive moisture are the curative factors. The writer discusses in particular, hydrotherapy, explaining the physiologic action of cold water on the skin. Brief applications of cold stimulate, longer applications depress, and prolonged applications destroy vitality. The indications for hydrotherapy in tuberculosis are to increase blood cells and hematosis, to deepen inspiration, to enhance nutrition, to eliminate rash, to remove stasis, and to reduce temperature. The flexibility of hydrotherapy enables us to devise procedures for every stage of pulmonary tuberculosis. The most useful, general method is that which gradually accustoms the skin to lower temperatures, greater pressure and larger quantities of water, in all stages. Reaction, indicated by a feeling of comfort and absence of chilling, must be obtained. In febrile cases, low temperature applications are contraindicated. The writer gives in detail the graduated course which he usually follows. [H.M.]

2.—Cerebrospinal Meningitis.—L. Fischer insists on the importance of spinal puncture in diagnosis. He believes that all infections of the meninges other than by the diplococcus are fatal. He describes the technic of the operation in which 20 cc. to 30 cc. (.7 oz. to 1 oz.) of fluid is withdrawn, or if done only for diagnostic purposes, 15 cc. (.5 oz.). Babinski's symptom is found more frequently in tuberculous meningitis than the epidemic form which this paper discusses. The author has noted it in 30 healthy children in his clinic. The prognosis is usually very grave, and depends on the vitality at the beginning. In recovery, serious sequels may cripple the child through life. The patient must be fed, using rectal feedings for vomiting. An ice-bag should be applied to the head and neck if fever is present. Other forms of hydrotherapy are soothing. A mustard foot bath or leeches over the mastoid will sometimes relieve the cerebral symptoms. For scanty urine, colon flushings of normal saline solution at 110° may be given. Morphin, $\frac{1}{30}$ gr. may be administered three times daily until the child is quiet. Most antispasmodics are cardiac depressants, and the pulse must be watched. Hyoscyamin, $\frac{1}{100}$ gr. is useful in active delirium. The best stimulants are musk, hypodermic injections of camphorated oil, or black coffee. Chloralamid promotes sleep. [H.M.]

3.—Associated Movements of the Upper Eyelid and Lower Jaw.—E. B. Coburn reports a case of a boy unable by effort of will to raise the left eyelid, which is elevated involuntarily, however, to its maximum on opening the mouth or chewing on the right side. When chewing food on the left side of the mouth the lid is only slightly raised. The mobility of the eye is apparently good, except that it does not go upward as far as its fellow. If the right lid is held shut the left can be fairly well opened. Double images are found on the left, with that of the affected eye higher and to the left of the other. The condition shows correlation between the impulses conveyed to the levator palpebræ by the third nerve and to the digastric and external pterygoid muscles, supplied by the fifth nerve. The double images show an involvement of the superior rectus and inferior oblique. The commissural fibers are also affected, as the levators do not act consensually. The writer presents a study of the other cases found in literature. Near the aqueduct of Sylvius the descending root of the fifth nerve passes close to the nucleus of the third nerve, and any abnormal mingling of the fibers could easily occur at this point. The relationship of the condition to chronic nuclear palsy is suggested. [H.M.]

4.—Acute Cholecystitis Simulating Appendicitis.—Arthur L. Chute says the striking similarity which acute cholecystitis may bear to acute appendicitis is represented by two classes of cases: Group I comprises those cases in which the inflamed gallbladder is in its normal position, but in which pain and tenderness, in the presence of distention and rigidity, are referred to the appendix region. Group II is made up of those in which an inflamed gallbladder reaches into the iliac fossa, either through great enlargement or through displacement. Here the error in diagnosis is the result of finding a painful, tender mass in the region of the appendix. This type is less common than the first. Chute reports two cases, both belonging to the first group. One was a female patient of 58, who some months ago had an attack diagnosed appendicitis and which was very like the present one. Here the pain and tenderness were referred to the right iliac fossa. There was some vomiting, chills, fever, but no jaundice. Operation showed the appendix to be normal while the gallbladder was distended, inflamed, and at several points necrotic. It contained pus and two large stones. The other patient was a man of 60, whose complaint strongly suggested appendicitis. There was pain in the appendiceal region and abdominal distention. Under ether palpation was more fully carried out and it revealed a mass in the region of the gallbladder. Operation revealed a distended gallbladder which contained pus and numerous stones. [A.B.C.]

5.—Treatment of Syphilis by Hypodermic Adminstration of Mercury.—Lawrence T. Royster holds the generally accepted view that syphilis *per se* should not be treated until the eruption appears. He then institutes hypodermic administration of mercuric chlorid, using the buttocks as the seat for injection, alternating from one to the other. His technic is as follows: Commence with 5 m. of a 2% solution and increase up to 10 m. or 12 m., and then change to 5 m. of a 4% solution and increase up to about 10 m. and make this the maximum dose. The use of this concentrated solution has reduced both pain and induration to a minimum, and leaves this the most satisfactory method of treatment. Beginning after the eruption has appeared, one injection is given each day until the eruption has disappeared; but when the eruption is slight or seen very early, every other day usually suffices. The intervals are gradually lengthened until, by the end of about 10 months, only one injection each week is given, and this is maintained until the end of 2½ or 3 years. [A.B.C.]

6.—A New Pathogenic Throat Organism.—B. H. Stone describes an acute inflammatory condition of the throat, accompanied by severe toxemia, lasting from 24 to 48 hours, ushered in with chilliness, pain in head and limbs, and coryza, with an unusual amount of sneezing. In nearly all cases the tonsils have been swollen, the soft palate and uvula edematous, and in many a distinct false membrane, white and very tenacious. Grip and diphtheria bacilli are absent. There is the universal appearance of a peculiar diplococcus. The same organism has been met in several cases of follicular tonsillitis, three cases of scarlet fever, in many irritable throats following diphtheria, and in one case of purulent meningitis. It occurs in the secretions and exudations of the inflamed mucous membrane. The adjacent sides of the diplococcus are slightly flattened. Löffler's stain brings out a distinct metachromatic granule which does not show with fuchsin. In preparations from bouillon or blood-serum the pairs are clumped and held together by a gelatinous material which does not stain. There are no flagella, spores, or demonstrable capsule. Almost no growth occurs in gelatin, and there is no liquefaction. The colonies are tenacious. In litmus agar there is no change of color. It produces nitrites in nitrate broth and does not form indol, gas, or acid in glucose, lactose, or saccharose solution. It is variably pathogenic for laboratory animals. It is not generally found in healthy throats. [H.M.]

New York Medical Journal.

August 6, 1904. [Vol. LXXX, No. 6.]

1. The Pathogenesis of the Aneurysms of the Aorta. FRITZ SCHWYZER.
2. The Best Method of Operating to Effect a Radical Cure of Senile Hypertrophy of the Prostate Gland: Based on the Study of 150 Radical Operations. ORVILLE HORWITZ.

3. The Indications for and the Technic of Prostatectomy. G. FRANK LYDSTON.
4. Appendicitis Associated with Disease of the Tubes and Ovaries. H. C. COE.
5. Placenta Prævia Centralis: Profuse Hemorrhage; Collapse; Podalic Version; Manual Extraction of Placenta; Recovery of Mother. ALBERTUS ADAIR MOORE.

1.—The Pathogenesis of the Aneurysms of the Aorta.—The statistics presented by Fritz Schwyzer show about 76% of his cases to be luetic in origin. Traumatism, alcoholic intoxication, tuberculosis and malaria may be considered factors, but Schwyzer says that these conditions combined with acute and arteriosclerotic aortitis, furnish a smaller number of aneurysms than lues alone. He says that a great part of the cases with internal manifestations of syphilis show specific changes in the aorta, and it is decidedly the lesser part of these that really develops aneurysms. Lues, leading to the formation of miliary gummas and progressing with agglomeration of granular elements and leukocytes in spots, destroys large tracts of elastic tissue, interrupting the elastic fibers entirely, and collagenous fibers at least partly, thus setting numbers of small wounds in the media which rapidly distend. Another factor which makes lues especially dangerous is that aortic lues usually develops in comparatively few years after infection, or most often between the thirtieth and fortieth years. [C.A.O.]

3.—See *American Medicine*, Vol. VI, p. 731.

4.—Appendicitis with Ovarian Disease.—H. C. Coe emphasizes the following points in this article: 1. Appendicitis is a frequent complication of inflammatory disease of the annexa. 2. In most cases it is secondary to annexal trouble, a long appendix in contact with, or adherent to, the right tube or ovary being infected by extension through its walls or through the lymphatics. 3. The inflammation of the appendix is usually of the subacute type. 4. In a small proportion of cases the infection extends from the appendix to an adherent tube or ovary or cystoma. 5. The symptoms of the associated conditions are usually determined by the more prominent lesion, but these are referable principally to the diseased annexa. 6. The diagnosis is made from the history, the location of the pain (above, as well as below the pelvic brim), and the presence of an induration, which can be traced from the appendicular region downward into the pelvis. 7. In acute cases, with an intrapelvic mass, the lateral incision is preferable, with subsequent exploration of the pelvis and vaginal drainage if possible. If the abscess is mainly intrapelvic and easily accessible, vaginal section is indicated. 8. In subacute and recurrent cases a median incision is to be elected. 9. The appendix should be removed whenever the abdomen is opened for pelvic disease, with the exceptions noted. [C.A.O.]

Medical News.

August 13, 1904. [Vol. 85, No. 7.]

1. Report of a Case of Ruptured Ectopic Gestation. JOHN W. COE.
2. Some Interesting Obstetric Experiences. J. J. GURNEY WILLIAMS.
3. Chronic Mastitis and Diffuse Fibroadenoma of the Breast. B. FARQUHAR CURTIS and FRANCIS C. WOOD.
4. Hereditary Syphilis. HOWARD S. KINNE.
5. Difficult Cases of Infant Feeding. THERON WENDELL KILMER.
6. Transition of Obsessions to Delusions: With Report of Two Cases. ALFRED GORDON.
7. Moot Points in the Treatment of Fractures. MARTIN W. WARE.

1.—Ruptured Ectopic Gestation.—John W. Coe reports the case. The patient was a married woman of 29; six and eight years ago, respectively, she had attacks of pain in the lower abdomen, which were diagnosed as gravel. Since then she enjoyed good health until the present illness. Her last regular menstruation appeared as usual, and seven days later there was slight flow for one day, then the patient felt well; five days thereafter there was pain over the lower abdomen, succeeded by a short chill, when the patient again felt well; seven days after this she was suddenly seized with sharp pain over the lower abdomen, and there was nausea, vomiting and prostration. She was then seen by Coe for the first time. In view of the previous history of gravel, and the fact that the pulse and temperature were normal, operation was considered not indicated. During the next two weeks the patient had irregular rises of temperature, occasional pain in the lower abdomen, the general condition remained bad, and operation was indicated. A mass the size of a large hen's egg was found in the right broad ligament; this was removed, and on pathologic examination was found to be a ruptured ectopic gestation. There was considerable blood in Douglas' culdesac, evidently from the original rupture. [A.B.C.]

2.—Obstetric Experiences.—J. J. G. Williams recounts a series of interesting cases which he has met in obstetric practice. Six cases are reported in detail. One was a woman of 30, with acute Bright's disease, having abdominal distention, swelling of the leg, puffiness of the eyes, and threatened eclampsia, who had to be delivered with forceps after incising the cervix on one side to permit rapid delivery. The patient recovered, but the child died 11 days after birth. Another was a woman who had been in labor for 36 hours, was greatly weakened, she had varicose veins of the vulva and thigh, extensive old lacerations of the perineum, rectocele, and cystocele. Forceps was applied, the head slipping out of the forceps it could not again be conveniently grasped; podalic version was accomplished, and the dead child delivered; the mother recovered. In a third case, a foot and a prolapsed umbilical cord presented; a living child was delivered; the mother recovered. In another case, a primipara of 30 years, requiring manual dilation, version was accomplished with occiput posterior; high application of forceps was made, the head was brought to the vulva, forceps removed, and spontaneous delivery was effected three hours later. In two instances reported therapeutic abortion was required on account of persistent nausea and vomiting. In one of these the patient died, and the autopsy revealed marked distention of the large and small intestines and stomach. The diagnosis was autointoxication. The writer reports his series of cases as examples of what is met with in obstetric practice in the slum districts, where no facilities are at hand to deal with complicated and urgent conditions. [A.B.C.]

3.—Chronic Mastitis and Diffuse Fibroadenoma of the Breast.—B. Farquhar Curtis and Francis C. Wood state that a chronic induration of the breast with slight enlargement is common in women in the middle period of life, is occasionally seen earlier, but rarely begins after the menopause. These represent two pathologic varieties: (1) Chronic interstitial mastitis; (2) diffuse fibroadenoma. The typical cases of these are easily distinguishable, but the two conditions may appear in different parts of the same breast, and in some cases it may be impossible to determine whether one or both conditions are present. Both may closely simulate carcinoma in their clinical and physical characteristics, and differentiation from malignant disease may be impossible, except after removal. Both are liable to carcinomatous degeneration or to be followed by the development of carcinoma. In some cases there is retraction of the nipple, such as is found in malignant disease, the axillary glands are sometimes enlarged from inflammatory reaction, but they are not so hard as when malignant disease of the breast is present. Several illustrative cases are reported. If the growth shows great induration and a number of small cysts is present, fear of malignant disease may be entertained; if there is little induration and few cysts, the likelihood of its becoming malignant is more remote. In regard to treatment, he divides these cases into three classes: 1. Marked induration, limited or general. 2. Marked induration, limited to a quarter of the breast or less. 3. Marked induration, general. The latter two demand surgical treatment on general principles. [A.B.C.]

4.—Hereditary Syphilis.—Howard S. Kinne calls attention to the fact that for the first two years or more after birth secondary and tertiary manifestations of hereditary syphilis may appear side by side; later, and up to the time of puberty, if syphilitic lesions appear, they belong exclusively to the tertiary type. He quotes Hutchinson, who says that the diagnostic recognition of hereditary syphilis is a matter of much difficulty in all stages of the malady, and to make a diagnosis complete it is necessary to have a combination of snuffles, ham-colored eruption, senile physiognomy, etc., and that none of these alone is of much importance. To the latter Kinne takes exception, especially if the history points strongly to syphilitic parentage. In reference to treatment the author believes it unwise to give mercury or iodids unless symptoms actually appear. In the early stages mercury should be given by inunction, bichlorid baths, or by mouth in the form of gray powder, calomel, etc. Later, in what corresponds to the tertiary stage, potassium iodid and mixed treatment are resorted to. He reports a case in detail, the interesting points in connection with which are: 1. There were no early manifestations of the disease only a rather late development of tertiary lesions, the disease first appearing when the child was 6 years of age. 2. The large doses of potassium iodid which were taken without difficulty. 3. The thorough curative effect of the medication. [A.B.C.]

5.—Difficult Cases of Infant Feeding.—Theron W. Kilmer states that many children are changed from the breast to cow's milk, undiluted, without the doctor being consulted in any way whatever. Cow's milk being too rich for the child, it is overfed, probably appears to grow rapidly for a time, but soon its digestion fails and a series of gastric and intestinal symptoms supervene. Such a child should have its stomach washed daily with warm water, especially if there is much vomiting, and, if intestinal trouble, the bowels should be thoroughly flushed out with decinormal salt solution, and the child should be put upon a cereal water, such as barley water, for a few days, until the digestive apparatus is in condition to assimilate food, and then the cow's milk should be added, *one teaspoonful* at a time, to the barley water, and gradually increased as the child's ability to assimilate food increases. In some cases, if there is persistent vomiting, the giving of food by gavage is successful. Malnutrition may be caused by poor milk from the mother or by acute illness of the child. Kilmer has little faith in the specially sterilized foods compounded for nursing children. A good quality of milk, several nursing bottles, a 16-ounce graduate, pure water, and intelligence on the part of the nurse or mother, under the direction of the physician, is usually all that is required. Condensed milk, on general terms, is condemned, but it is one of the best of foods to switch off on if the baby's stomach is a little upset with too much proteid food. A case is reported in detail. Mothers should be taught that change of food for the child is hazardous, and should be done only under the direction of a physician. [A.B.C.]

6.—Transition of Obsessions to Delusions.—A. Gordon describes a physiologic obsession as when an image, sentence, or idea obstinately persists, although it will disappear with an effort of will. The immediate cause of pathologic obsessions is lack of control of the will. There must be present the mental make-up of the socalled degenerate for the development of this form, an insufficient mentality, a chronic indecision, a tendency to introspection, etc. Should the patient begin to analyze the obsessions, he is apt to lose all power of critical judgment, become passive, he ceases to struggle against them, tries to find justification for them ascribing them to some tangible cause. He then reaches the final step of the evolution, and the obsession becomes a genuine delusion. The difference between the two is only one of degree. The writer reports two cases, in one of which the hallucinations were unilateral, the threatening forms always approaching the patient on the right. [H.M.]

7.—Moot Points in the Treatment of Fractures.—Martin W. Ware's opinions are based on experience with 3,000 cases in dispensary service and practice. In attempting to make a diagnosis of fracture one should not seek for crepitus, but search for a point of localized tenderness which invariably exists at the site of fracture. An anesthetic is required in a general way only when the fracture involves a joint or there is a bad deformity with impaction. In very young infants no anesthetic is employed. The röntgen rays, while of great value generally, are practically useless in a diagnosis of fracture about the joints of young children, since the epiphysis is so largely made up of cartilage that the shadow does not form. In most cases in which an anesthetic is indicated for diagnosis and treatment of fracture, ethyl chlorid is preferred by Ware. The tendency is to overtreat fractures; except in the lower extremity, which must bear the body-weight; callous at the end of two weeks is firm enough to keep the ends in place so that at the end of this time splints may be dispensed with, and active, not passive, motion allowed. Prognosis with reference ot fracture should always be guarded, since fat embolism and palsy may appear late. Plaster-of-paris is too frequently condemned. The röntgen rays have added but little to our knowledge with reference to fracture of the elbow joints, barring fractures of the olecranon, of the neck of the radius, or of either condyle. Perfect reduction is the *sine qua non* in Colles' fracture. The article is extensive, contains interesting illustrations, and many points of value which cannot be mentioned in brief abstract. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

Fatal Infection by a New Bacterium.—Possession of the Philippines has already added much to medical knowledge, both of old and of new lesions, and bids fair to still further complete our studies of disease. The latest contribution from the islands is a hitherto undescribed chromogenic bacterium that produced a fatal infection in an adult male Filipino. The cultural, morphologic and tinctorial characters of this organism are fully described by Dr. Maximilian Herzog,[1] recently appointed pathologist to the government biologic laboratory at Manila, who has given it the name of *B. aureus fetidus.* It is a nonmotile, encapsuled bacillus, averaging 1.4 microns in length, and 0.7 microns in thickness. The form is often that of a diplobacillus, occasional almost spheric forms being with difficulty distinguished from diplococci. On solid culture media it produces an intense golden-yellow pigment, and both aerobic and anaerobic cultures possess a very fetid, cheesy, and somewhat cadaverous odor. Inoculation of animals showed the bacillus to possess a low degree of pathogenicity, although undoubtedly the cause of death in the case reported. It is believed ordinarily to be a saprophyte. The clinical history of the case is unknown; death was rather sudden, plague being suspected. The principal lesions found were diffuse nephritis, acute interstitial hepatitis, brown atrophy and fatty degeneration of the myocardium, and hyperplasia of the inguinal and cervical lymph-nodes. The isolation of this bacillus although not exciting the interest that would be engendered were it the cause of some previously wellknown disease, is nevertheless of great importance as adding to our list of known infectious agents pathogenic for man. We congratulate Dr. Herzog on this discovery as an evidence of success in his new field of labor.

REVIEW OF LITERATURE

Arterial Pressure as Influenced by Organic Extracts.—Patta,[2] of Albanese's clinic in Pavia, has experimented with the different animal extracts in their relation to blood-pressure, and draws the following conclusions from his work: 1. Suprarenal extract produces a marked increase in arterial blood-pressure; this increase is not dependent upon any action of the extract on the vasomotor centers; increased cardiac strength and activity produce the greater part of it, and to some extent it is due to constriction of the peripheral bloodvessels. This constriction cannot be ascribed to any action upon the nerve-ends of the nervi vasorum. By its stimulation of the cardiac nerve fibers of the pneumogastric, it slows the pulse; the cortical part of the extract is more active in slowing the pulse, while the medullary extract influences the arterial pressure more. 2. Opothyroidin (Merck) lowers arterial pressure; the mechanism producing this is probably directly opposed to the mechanism acting in suprarenin. 3. Opoovarin (Merck) lowers blood-pressure by increasing pulse frequency; the extract does not influence the vasomotor centers. 4. Opoorchidin (Merck) and spermin (Poehl) stimulate the vasomotor centers, thus increasing arterial pressure. The extracts of the genital organs influence male and female animals alike. 5. Opocerebrin (Poehl) increases arterial blood-pressure and slows the pulse-rate slightly. [E.L.]

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[1] Bureau of Government Laboratories, No. 13, 1904.

[2] Inaugural Dissertation, Pavia, 1904.

Tetany in Dilation of the Stomach.—H. Richartz[1] reports a case of marked dilation of the stomach with atony, characterized by a copious secretion of fluid into the stomach and profuse vomiting. Combined with these symptoms were attacks of tetany, occurring symmetrically in the extremities, the first attacks being apparently induced by lavage of the dilated stomach. On account of a resistance in the neighborhood of the pylorus, an operation was performed. A small carcinoma of the pylorus was found, together with an accumulation of 80 plumstones in the stomach. A gastroenterostomy, with removal of these seeds, relieved the tetany; and three weeks later the tumor was removed, with complete recovery. Tetany in dilation of the stomach has been explained by three theories: (1) Autointoxication; (2) inspissation of the blood; (3) reflex action. The last theory can be excluded, as there were no evidences of increased activity of the reflexes. The theory of autointoxication has considerable support, as the absorption of toxins would account for numerous other nervous phenomena of gastric origin. The theory of inspissation of the blood would not account for this case, as considerable quantities of fluid were introduced into the circulation without effect on the tetany. A positive explanation cannot be offered, although it is probable that reflex nervous influences are the underlying factors. [B.K.]

Observations on Tuberculous Pericarditis.—W. S. Thayer[2] reports two cases of this condition. In the first, paracentesis of the pericardium was performed in the fifth space about 4 cm. (1⅗ in.) within the mamillary line; 1,250 cc. (41 oz.) of clear, yellowish, straw-colored fluid was withdrawn. Paralysis of the left vocal cord afterward developed from tuberculous extension and there was gradual development of the signs of adherent pericardium; recovery, however, was essentially complete. The second patient had a large effusion but the needle introduced in the sixth left space at the sternal border and in the left costoxiphoid angle came in contact with the heart and but little fluid was obtained. Autopsy showed the enlarged heart in contact with the pericardium anteriorly and the fluid, more than 1,200 cc. (40 oz.) lying posteriorly and at the lateral angles. In discussing the point of election for aspiration, Thayer prefers the procedure advised by Shapojshnikov; that is, aspiration in the sixth left space when the effusion is large, the diaphragm depressed and the semilunar space occupied by flatness; when this is not the case the needle should be introduced in the third or fourth right space close to the sternum, provided there be flatness at that point. It is not always possible to escape the pleura by tapping in the fourth or fifth left space close to the sternal border and from every other standpoint this is an unfavorable location. Aspiration should always be preceded by exploratory puncture. [A.G.E.]

Relationship between the Functions of the Kidney and Skin.—E. Bendix's[3] first studies were performed to determine, whether a glycosuria, due to inability of healthy kidneys to remove all the sugar circulating in the blood, can be prevented, if at the same time the skin can be induced to excrete sugar energetically. He succeeded in doing this in many cases. He always gave a quantity of glucose sufficient to produce glycosuria, and by inducing profuse perspiration, the skin was forced to assist in excreting the sugar, thus preventing the glycosuria. In his second set of experiments he noted the influence of increased cutaneous activity upon diseased kidney function, as expressed by an alteration in the freezing-point of the blood, but he was not able, either in the healthy or diseased animal (mercurial nephritis), to influence the normal freezing-point by even the most energetic sweating processes, nor could he stay the increasing molecular concentration of the blood in nephrectomized animals by profuse sweating. He could neither produce inspissation by depriving the animal of water, nor could he diminish the molecular concentration of the blood by removing substances from the blood through profuse perspiration. The same was observed in healthy man. In kidney insufficiency, however, the freezing-point of the blood, showing pathologic depression, could often be brought back to normal by profuse sweating; in all the cases where this succeeded relatively large amounts of solid substances were excreted with the perspiration. The normal freezing-point is therefore not influenced by sweating procedures, while the abnormally low freezing-point of kidney insufficiency may be raised to near the normal by inciting the skin to energetic labor. [E.L.]

The Avenue of Infection for Tuberculous Food.—Julius Bartel[1] experimented on dogs and guineapigs. He concluded that tubercle bacilli taken in the food in the natural manner, apparently pass over the unchanged intestinal mucous membrane, and arrive at the mesenteric lymph-glands. The bacillus may persist in its virulent form in the lymph-glands without producing specific macroscopic or microscopic change. In one experiment, after a single introduction of the tubercle bacillus, tuberculous change was demonstrated in the tonsils and mesenteric lymph-glands. The author concludes with probability that the tonsils become involved disproportionately rarely, as this occurred once in 12 experiments, against seven positive results in the mesenteric lymph-glands. This was also true as to disease of the cervical glands which occurred in one experiment. This case shows that it is possible to infect the cervical lymph-glands by alimentation without demonstrable lesion of the tonsils or the surroundings. He was unable to prove the presence of the bacillus in the lymph-glands of the thorax, or to draw any conclusions as to the fate of the lymph-glands in the neighborhood of the digestive tract, except that not every introduction of tuberculous food calls forth a manifest tuberculosis. [J.H.W.R.]

Influence of HCl Lavage on the Amount of Pepsin in the Gastric Contents in Cases of Achylia.—Heichelheim and Kraemer[2] have made observations concerning the influence of HCl lavage in cases of anacidity and hypoacidity with reference to pepsin formation; Weidenbaum, experimenting with the same solutions, was able to find pepsin in two cases of achylia gastrica. He introduced one pint of decinormal HCl solution into the stomach, removed it after 20 minutes, gave a test-breakfact then, and removed it after 20 minutes; he found pepsin in both cases, while in four carcinoma patients he could not find it. The authors' observations cause them to conclude as follows: There are no fixed differences in the amount of pepsin of the gastric contents in different forms of achylia, nor can fixed differences be found in the influence upon pepsin formation by gastric irrigation with HCl. The absence of pepsin is not characteristic for carcinomatous achylia, no more than its presence is for simple forms, as stated by Weidenbaum. The amount of ferment was found diminished in almost all cases of the disease; but this decrease was relatively less in carcinoma than in other varieties; in some of the simple varieties there was a total absence of the ferment. A relatively high amount of pepsin increased still more by lavage with HCl, is found in some carcinomas, and in combination with other symptoms is of diagnostic value. Blood mixed with gastric contents after HCl irrigation is characteristic for carcinoma. [E.L.]

The Diagnosis of Gastric Cancer—Z. F. Orloffsky[3] discusses the data in regard to the socalled tryptophanic reaction of the gastric juice (bluish-pink color on addition of chlorin water). Contrary to the opinion of Erdmann and others, our author maintains that this reaction occurs in benign diseases of the stomach, like chronic catarrh and dilation. However, the reaction is more frequently met with in cancer of the stomach. Far greater value attaches to the presence of albumin in the gastric contents after the test according to Salomon. The stomach is washed in the evening, and the patient eats nothing until next morning, when 400 cc. (13 oz.) of normal saline solution is poured into the stomach through the tube. This fluid is removed at once and tested for albumin. In health and in benign diseases no albumin is present, while in cancer up to .5% of albumin is found. Hence the diagnostic importance of Salomon's test, especially in differentiating between cancer and benign disorders. A negative result of this test will show the absence of an ulcerating growth in the stomach, since the positive result is due to the entrance of blood-serum into the gastric contents. In chronic round ulcer of the stomach the reaction seems to be usually negative. In making the test we should aim at washing out the entire mucus of the stomach when removing the normal saline solution. For this purpose the funnel holding the fluid should be raised and lowered repeatedly. This test is a distinct advance in the diagnosis of gastric diseases. [L.J.]

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[1] Zeit. für klin. Med., Bd. liii, p. 369.
[2] Johns Hopkins Hospital Bulletin, May, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, No. 7, 233.

[1] Wiener klinische Wochenschrift, 1904, No. 15, p. 414.
[2] Münchener medicinische Wochenschrift, 1904, li, No. 8, 330.
[3] Russki Vratch, June 12, 1904.

Effects of Certain Salts on Kidney Secretion, with Special Reference to Glycosuria.—O. H. Brown's[1] experiments to ascertain the effect of salt solutions on the production of diuresis, and on the excretion of sugar by the kidneys produced the following conclusions: 0.8% solutions of sodium chlorid, sodium citrate, sodium acetate, and sodium sulfate produced diuresis. They also produced glycosuria. The diuresis is not the cause of the glycosuria, as by the addition of small amounts of calcium or strontium chlorid the glycosuria is prevented, while the diuresis continues to exist. Calcium and strontium chlorid likewise decrease or totally inhibit the excretion of sugar, which is caused by the injection of phloridzin. Since diuresis and glycosuria are caused by salts which have been found to stimulate nerves, and that depression of these activities is caused by salts, which depress the irritability of nerves, it may be assumed that anions stimulate renal activities; cations depress them. Whether the glycosuria caused by these salts was the same as that caused by phloridzin or whether the sugar of blood was increased, was not determined. [E.L.]

Inspiratory Diminution in the Volume of the Pulse (Pulsus Paradoxus).—E. Reichmann[2] endeavors to give a simple and universally applicable explanation of the socalled "pulsus paradoxus." He first reviews the literature on the subject, and finds that the phenomenon has been observed under the most varied circumstances, but believes that the fundamental cause is the same in all. During inspiration there is a diminution of the intrathoracic pressure. Consequently the aorta tends to expand and take up more blood, leaving less blood to be sent to the peripheral arteries. This causes a diminution in the peripheral pulse wave, which is present even under normal conditions, but to so slight an extent as to be undemonstrable with our present means of observation. An important additional factor is a disturbance of the peripheral blood-pressure from some cause, such as cardiac weakness, etc. It is a pathologic combination of these two factors which produces the diminished pulse wave. This theory is supported by the results of experiment. Artificial increase in the negative intrathoracic pressure may be brought about by respiration through partly closed air passages, while a lowered blood-pressure may be produced by venesection. In both cases the peripheral pulse is diminished in volume. The author objects to the term "pulsus paradoxus," as the condition is merely an exaggeration of a perfectly normal phenomenon. [B.K.]

The Action of Hepatolytic Serum.—A. W. Sivre[3] has made a study of the pathologic changes in various organs after the injection of hepatolytic serum. An emulsion of the liver was injected into animals, and the subsequent changes in the organs were observed. Naturally, the liver showed the most marked alterations, and the author considers the action of the hepatolytic serum to be specific. The protoplasm and the nucleus of the hepatic cells are dissolved in the same manner as red blood cells were digested by white blood cells in Metchnikoff's experiments. Beside this selective action, the serum affects other organs as well, causing a series of degenerative changes, which will form the subject of further investigation. It was also found that small doses of serum are more rapidly fatal than large ones, and the author infers from this that the action of the serum is fermentative, as maintained by Metchnikoff. [L.J.]

Etiology of Acute Bronchitis.—E. B. Fowler[4] furnishes clinical data from 200 cases of bronchitis, the ages of the patients ranging between 15 and 60 years. The principal points in his summary of the findings are: Family history or nationality has little or no weight; men are attacked more than twice as often as are women; increasing age brings greatly increased susceptibility; March and October, especially the former, have the greatest number of cases and August the fewest; outside and inside occupations *per se* are of little significance; occupations which are dusty or subject one to sudden changes of temperature, either natural or artificial, render one especially liable to the disease; irregular habits or excesses of any kind also markedly predispose; bacteria unaided are probably powerless. [A.G.E.]

Excretion of Strontium.—L. B. Mendel and H. C. Thacher[1] experimented upon dogs, cats and rabbits, to determine the manner of excretion of the salts of strontium. As the experiments were designed especially to determine the function of the gastrointestinal canal in excretion, the strontium was introduced subcutaneously, intraperitoneally, and intravenously under strict aseptic precautions. Sterile 4% solutions of strontium acetate were employed. The urine and feces were collected separately. Their most important deductions are summarized as follows: Strontium salts are eliminated to a relatively small extent only by the kidneys, even after direct introduction into the circulation. The excretion in the urine begins soon, and ceases usually within 24 hours. The larger portion of the strontium eliminated is found in the feces, whether the introduction of the element be per os, subcutaneously, intravenously, or intraperitoneally. The place of excretion is apparently restricted to the region of the alimentary tract beyond the stomach. A functional relation to certain phenomena of intestinal peristalsis, etc., is suggested. The rate of elimination is slow, and is apparently influenced by the calcium content of the food. Strontium is found deposited in the body chiefly in the bones; traces may be met with in the liver and muscles. [E.L.]

Hyperchlorhydria in the First Stages of Gastric Carcinoma.—V. Ziegler[2] has observed five cases of gastric cancer which exhibited hyperchlorhydria in the first stage. In none of the patients was there a history of gastric ulcer or nervous influence to account for the excess of acid. The usual accompanying symptoms of pure hyperchlorhydria are found in this stage. Gradually the picture changes to that of diminished motility, loss of weight, distress after eating, etc. The hydrochloric acid secretion diminishes, lactic acid appears, the Oppler bacilli may be found, and gradually the typical picture of gastric cancer develops. Carcinoma may be suspected even in the first stages of hyperchlorhydria, if the following phenomena are exhibited: (1) All measures directed toward the hyperchlorhydria have only a temporary effect on the percentage of acid present; (2) the relief afforded by the use of alkalies is never fully developed if cancer be present; (3) there is an abhorrence of meat diet, which is entirely inexplicable in view of the high percentage of acid; (4) the patients are usually beyond the age at which uncomplicated hyperchlorhydria develops; (5) later occurs the unusual combination of anemia with hydrochloric acid excess; (6) signs of beginning motor insufficiency develop, with changes in the secretion and the occurrence of catarrhal symptoms. The demonstration of the presence of lactic acid is an important factor here, also the presence of the Oppler bacilli. [B.K.]

Pulsus Paradoxus.—G. Galli[3] considers its diagnostic and prognostic significance. First recognized by Widenmann and Griesinger in 1856, it has a very modern place in medical history. Kussmaul, in 1873, gave it its present name, and attributed to it an almost pathognomonic significance in sclerotic pericarditis. This pulse may occur in many cardiac and respiratory diseases. Pulmonary traction is of the highest importance in giving rise to a doubling of the diastolic sound, and to the paradoxic pulse; the heart, lying between the lungs and the diaphragm, must be affected by mechanical causes to remain in diastole on account of its hollow form and the weight and movement of the surrounding structures. In systole, beside the *vis a front* in the vascular column of blood, the traction of neighboring structures must be overcome. During systole the time of greatest effort should correspond with the time of pulmonary dilation. In emphysema, and other pulmonary affections altering alveolar elasticity the tractive force of the lungs will exert a varying influence on the heart; the state of the myocardium will be an additional factor in producing the pulse, consequently; so that varying quantities of blood will be thrown into the aorta, and these variations should correspond to the degree of pulmonary and cardiac involvement. Müller and Valsalva report experiments to show that the quantity of blood ejected from the left ventricle is relatively constant, in regard to the respiratory cycle, in normal individuals; in cases in which the myocardium is atonic it is enough to take a deep inspiration to cause a notable decrease in the quantity received by the aorta at a beat. Even during cough, in normal people, the quantity is but slightly influenced. The writer discusses treatment, and closes with a classification of the paradoxic pulse into two groups: 1. The pulse of Kussmaul, associated with venous engorgement and characteristic of sclerotic pericarditis, with involvement of other mediastinal structures. 2. The idiopathic paradoxic pulse, depending on a lowered myocardial resistance, functional or anatomic in origin, and related to various illnesses, or to a certain asthenic convalescence; this may usually associate with a reduplication of the second sound. Prognosis is to be guarded. Etiologically, the writer would explain the functional varieties as due to an autointoxication with fatigue products; it is not of long continuance. Some cases are to be blamed to excessive medication; a case of which is reported. [T.H.E.]

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[1] American Journal of Physiology, 1904, x, No. 7, 378.
[2] Zeit. für klin. Med., Bd. liii, p. 112.
[3] Russki Vratch, June 12, 1904.
[4] Chicago Medical Recorder, June 15, 1904.

[1] American Journal of Physiology, 1904, xi, No. 1, p. 5.
[2] Zeit für klin. Med., Bd. liii, p. 80.
[3] Il Policlinico (Rome), No. 41, 1904.

Gonorrheal Stomatitis in Adults.—Jürgens[1] reports such a case; upon examination he finds the mucous membrane of the patient intensely red, swollen, and the gums partially detached from the teeth. The inflammation is most intense at the junction of the gums and teeth where the mucous membrane is elevated in small wheals 2 mm. in diameter. These areas are covered with a foul, grayish-green exudate; when the latter is removed a bleeding surface is exposed. In the neighborhood of the molar teeth the gums and the mucous membrane of the cheek evince extensive similar changes. Many small irregular ulcers are found upon the gums and inner surface of the cheeks. The salivary secretions are abundant; the lymph-nodes of the right side of the neck are tender and swollen. The patient admits having contracted gonorrhea a short time before the condition of the mucous membrane of mouth developed. [J.F.]

Rheumatoid Arthritis.—Charles J. MacAlister[2] says that while in some cases rheumatoid arthritis seems to run its course and reach a cure, the deformity remaining permanently, this in many cases is not attained, the pain continuing, and the deformity and solid edema increasing. Attention is called to the fact that in a good many instances rheumatoid arthritis is ushered in by symptoms exactly similar to those of acute rheumatic fever. The test is its failure to respond to the salicylates. He has found quinin a valuable agent to check the progress of this and other forms of rheumatoid arthritis. MacAlister believes there is some relation between myxedema and rheumatoid arthritis. He reports a case exhibiting symptoms of myxedema engrafted upon those of rheumatoid arthritis. Thyroid extract effected a remarkable change. He also believes there is some obscure relation between rheumatoid arthritis and Raynaud's disease, coldness and numbness of the extremities being early symptoms of each. Scarlet fever may stand in causal relationship to rheumatoid arthritis. The latter disease MacAlister believes is due to some toxin elaborated within the system, most probably from a mucous surface; a case of chronic rhinitis eventuating in rheumatoid arthritis is instanced. Other mucous surfaces, particularly the alimentary tract may be the seat of elaboration and absorption of the toxins. [A.B.C.]

Marked Discoloration of the Skin after Injection of Suprarenal Extract.—A. Schuecking[3] injected, for hemostatic purposes, during the course of a gynecologic operation, 1.75 cc. of a 1 to 100 solution of suprarenal extract into the posterior vaginal vault and the cervical structures. Seven minutes after the injection the skin became a dark blue color and the respirations superficial and labored, no pulse change, however, being noted. The respiratory symptoms were improved by artificial respiration, but the discoloration lasted fully a half hour. Vomiting, which lasted 24 hours, may have been due to the anesthesia. The discoloration resembling Addison's disease, and being probably directly due to the injection, causes him to recommend caution in the use of the agent. [E.L.]

Dysentery Due to Bacilli, Especially in Infants.—Karl Leiner[1] studied seven cases of intestinal disease which, from the side of symptomatology, contagion, and the anatomic condition of the two fatal cases, could be considered cases of dysentery. In all the cases the bacteriologic examinations agreed as to the following points: The bacilli were immobile; stained quickly by the Gram method; produced glucose on fermentation; coagulated milk; turned the mannit litmus culture-medium red. In five out of the seven cases a specific reaction was obtained against the serum of the patients when diluted 1 to 50, and agglutination of the Flexner culture was also obtained on the same dilution. Agglutination of the Shiga-Kruse bacillus failed; a high-grade immunizing serum was obtained by means of the Flexner bacillus. Shiga's high-grade serum agglutinated the Shiga and Kruse cultures in 1 to 1,000 dilution, the cultures from our patients and the Flexner cultures in 1 to 80 dilution. Serum from one of Leiner's cultures in 1 to 1,000 dilution agglutinated cultures from Leiner's and Flexner's bacilli alternately, but this was not true in the Shiga-Kruse cultures. Leiner claims that the bacilli found in his cases are similar to the Flexner bacillus, but different from the Shiga-Kruse bacillus. Leiner's bacillus was pathogenic for animals without producing specific intestinal lesions. The constant presence of the bacillus of dysentery goes to prove fairly conclusively that the disease in his cases was not an independent disease, such as enteritis follicularis. [J.H.W.R.]

A Fatal Case of Hematemesis Due to Miliary Aneurysm of an Artery of the Stomach Mucosa.—Hirschfeld[2] reports a case in which there were 15 hemorrhages in the course of 20 years, the last one of which proved fatal. At the autopsy there was but one point on the posterior wall of the stomach that presented evidences of disease and this in the form of a projecting polypus which upon microscopic examination proved to be a thrombus. Underlying the thrombus he found a gap in the vessel. In the submucosa of this particular portion of the gastric wall he found arteries which at points were conspicuously dilated. He further notes that the veins were also dilated. He accounts for the varices from the fact that the aneurysmal dilations of the artery exerted enough pressure upon the surrounding structure to prevent the onward flow of the blood through the veins and that the stagnation of the blood gave rise to the dilation. [J.F.]

The Influence of Vasodilating Measures and Suitable Muscular Exercise on Chronic Nephritis.—P. Edel[3] finds that, in cases of contracted kidney with increased blood-pressure, rest in bed, warmth, and carbonic acid baths lower the blood-pressure during their period of application. At the same time the percentage of albumin in the urine is diminished. Amyl nitrate and nitroglycerin have the same effect. The good results are probably brought about by widening of the blood-vessels. Permanent diminution of the blood-pressure also produces permanent reduction in the amount of albumin. Muscular exercise, such as mountain climbing, which leads to a uniform increase in the heart's action, produces a diminution in the amount of albumin. After mountain climbing this remains low, if the blood-pressure also remains low, but rises if the latter increases. Such suitable exercises not only increase the strength of the heart, but also tend to diminish the excessive blood-pressure by producing dilation of the muscular and cutaneous vessels. [B.K.]

A Case of Metastatic Sepsis of Pneumococcic Origin.—Anton Krokiewicz[4] reported a case of croupous pneumonia in which, during the first few days, there developed a swelling of the left shoulder-joint, resulting finally in the formation of an abscess. An examination of the pus revealed pure cultures of the Fränkel-Weichselbaum diplopneumococcus. Very few similar cases have been described in literature. [J.H.W.R.]

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[1] Berliner klin. Wochenschrift, 1904, No. 24.
[2] The Lancet, July 23, 1904.
[3] Münchener medicinische Wochenschrift, 1904, ii, No. 5, 204.

[1] Wiener klin. Woch. Nos. 25-26, June 1904. p. 738.
[2] Berliner klin. Wochenschrift, 1904, No. 22.
[3] Zeit. f. klin. Med., Bd. liii, p. 415.
[4] Wiener klin. Woch., 1904, No. 20, p. 563.

GENERAL SURGERY

MARTIN B. TINKER
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EDITORIAL COMMENT

Chloroform as an Anesthetic.—The third report of the Special Chloroform Commission of the British Medical Association is at hand. While presenting no epoch-making addition to our knowledge concerning chloroform, the report furnishes evidence that outposts are being cleared in preparation for attack on the fortress. The commission is still investigating the effect of small quantities of chloroform upon the isolated mammalian heart and endeavoring to determine the amount of chloroform in air and fluids. The latter is the difficult problem, and until it is solved we will not know how to administer chloroform both effectively and safely, knowledge that the surgeon anxiously awaits. Regarding the first point, it has been found that of equal quantities of chloroform dissolved in physiologic salt solution and in blood, the former exerts a much more depressing effect upon the isolated heart. A more practical finding is, that up to a certain point the withdrawal of chloroform is followed by recovery of the heart, and that instead of cumulative effects, a degree of tolerance is acquired; beyond this dose the depressing and lethal properties of the drug are asserted. All this is essentially what is known to take place in the living individual inhaling chloroform vapor and the measure of the safe dose is still lacking. The further improved inhaler of Mr. Vernon Harcourt is endorsed by the committee as an appliance that can be regulated to furnish any desired strength of vapor. This is, indeed, a cause for congratulation. If now the safe dose can be determined, the question will practically be settled. This, as stated before, is an exceedingly difficult proposition, involving, as it does, the relation between the quantity of chloroform inhaled and the amount retained by the tissues. The members of the committee have shown that the blood retains chloroform, but they have not succeeded in determining the quantity. That the corpuscles are the active agents in this retention is suggested by the fact that it does not take place in laked blood. The committee is to continue its work along this line, and we trust that success will crown its efforts. For the present we must hold that, for this country, at least, ether is the safer anesthetic. It is possible that chloroform may be administered as safely, but we are not yet masters of the technic necessary to ensure this result.

REVIEW OF LITERATURE

The Formation of Pseudarthroses.—V. Cornil and P. Coudray,[1] in continuation of studies recently published, attempted to produce pseudarthroses in fractures of rabbit bones by daily motion of the fragments; the results substantiate those of other observers who found this an impossibility. In studying the role of muscles in pseudarthroses, they found that those structures play a double part in fractures. Muscle between the fragments retards or prevents completely consolidation in the central part; when at a distance from the center of the lesion it enters into the formation of peripheral callus and even contributes to ossification of that part. To summarize: Pseudarthroses are not due to mobility of fragments alone. Among the causes are muscular interposition, overriding, rarefying osteitis, fatty rarefaction of bone. General causes are but little known, syphilis alone being well established. Other causes often associated are splinters of bone between the fragments, effusion of blood, open and suppurating fractures with overriding, and various other combinations. The writers give full description of their experiments. [A.G.E.]

Peptic Ulcer of the Jejunum.—Mayo Robson[2] says Watt described a peptic ulcer of the jejunum, following a gastroenterostomy in a dog, and he tabulated 14 cases in the human subject that have been reported. Robson reports a case, the first in the human subject in English literature, he believes, which counting another which he knows of, but which has as yet not been reported, makes 16 that have been reported. Robson says peptic ulcer of the jejunum is one of the sequels to be reckoned with after gastroenterostomy, though it seems much more likely to occur after the anterior than the posterior operation. So far as we know, it does not occur after pyloroplasty. Robson's case occurred after an anterior gastroenterostomy, being the only one after 30 such operations. It occurred 3½ years after the gastroenterostomy—was treated by enterectomy, with Roux's operation. The patient recovered. Kausch reports 2 out of 160 gastroenterostomies in Mikulicz's clinic; both were after the anterior operation. Of the 16 cases tabulated, 11 followed the anterior operation; 2 the posterior; and 1 the Y operation of Roux. The 2 posterior ones resulted in early general peritonitis and death; 3 of the 11 anterior ones did the same, while in 8 the peritonitis was limited. [A.B.C.]

Fracture of the Radius in Chauffeurs.—Lucas Championniere,[1] in a communication to the Académie de Medécine, discussed a new professional fracture, which is of interest in connection with the pathogenesis of fractures of the lower end of the radius. This fracture is caused by a premature explosion as the chauffeur seizes the lever to put the machine in motion; a sharp turning of the hand from right to left occurs, unless the driver quickly release his hold upon the lever. Failure to do this causes various lesions of the wrist up to fracture of the radius, which occurs a short distance above the articular surface. Championniere, while admitting that fractures are caused by blows of the lever on the hand, calls attention to the fact that those in question are caused while the hand is still holding the lever, and are therefore due to hyperextension of the wrist; this supports the view of LeComte regarding the mechanism of fractures of the radius. In these fractures there is essentially no displacement, and consequently no deformity to correct, as in ordinary fractures of the radius, though mobility may be greater. Skiagraphs make plain the condition of the bone. Treatment demands no apparatus for immobilizing the parts. Massage and movements may be begun almost at once, and cure is rapid. [A.G.E.]

The Functions of the Great Omentum.—While it is certain that the omentum has functions of its own, yet the exact nature of these has not yet been determined. L. A. Jacobson[2] experimented on dogs by means of removing the omentum and then studying the consequences. The operation was well borne by the animals. No changes could be found later in the liver and stomach, as asserted by other authors. Concerning the absorptive power of the omentum, the writer infers from his observations that the omentum of the dog, though it is very thin and delicate, does not permit of more transudation than the intestinal serosa. On the other hand, direct absorption takes place to a certain extent, and we must assume that the omentum plays its part in the removal of peritoneal transudates and exudates. Finally, the sensibility of the omentum was tested and found to be lower than the sensibility of the intestinal peritoneum. [L.J.]

Treatment of Chronic Internal Hydrocephalus by Autodrainage.—A. S. Taylor[3] says that a successful method of drainage must be internal, slow and prolonged or permanent. He gives in detail the technic employed in operating upon six cases in which a small permanent fistula between the ventricles and subdural space was established. He makes an osteoplastic flap two inches in diameter with its hinge over the base of the mastoid and just above the level of the horizontal lateral sinus. After exposure of the brain and puncture of the ventricle by an aspirating needle the drain is carried in along the track of the needle. The drain consists of six strands of 40-day chromic catgut bound with a spiral of catgut that leaves a little more than an inch of the ends free. Around the shaft of the drain are rolled three layers of cargile membrane. The drain is then inserted along the track of the aspirating needle, the free ends projecting under the dura and kept from adhering by a layer of cargile membrane. The operative mortality in the six cases was 50%. Two of the cases demonstrated that prolonged drainage may be obtained by the method described. At the end of 11 and 20 months the signs of intracranial pressure are still absent. In both the signs of drainage became most active about three months after operation. [A.G.E.]

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[1] Revue de Chirurgie, July 10, 1904.
[2] Annals of Surgery, August, 1904.

[1] Revue de Chirurgie, June 10, 1904.
[2] Medizinskoe Obosrenie, lxi, No. 10.
[3] American Journal of the Medical Sciences, August, 1904.

Anesthesia of the Spinal Cord.—After noting the large number of unpleasant and even dangerous symptoms a list of which is given, by which cocain lumbar injections are followed, A. Bier and A. Doenitz[1] began to experiment to see if they could not discover a substance, which would prevent ascent of the poison to the brain and the upper parts of the cord, and thus prevent these symptoms. In the suprarenal preparations they believe they have discovered such a substance. They produce strict localization of the poison to the point injected, achieving the desired action without unpleasant and dangerous after-symptoms. Combined doses of the two drugs, larger than is necessary in man, could be injected into animals without injury to them, thus showing that adrenalin not only localizes cocain, but also diminishes its toxicity. Adrenalin and suprarenin were both employed, and but little difference between the two preparations could be discovered. The former was used in 56, the latter in 65 patients; of the former 5, of the latter 6, needed a general anesthetic because of inability of the substances to produce sufficient anesthesia. In age the patients varied between 16 and 80, and although most of them were of such a condition as to absolutely forbid chloroform, no accident was noted. About half the patients presented some symptoms directly traceable to the cocain, but not nearly to the same degree as formerly; they are still seeking some other substance by means of which even these symptoms could be done away with, but so far without success; but as the chief dangers have been removed they feel justified in recommending their method especially as it enables the performance of operations in individuals too weak to be anesthetized. Their operations included such grave procedures as Kraske's operation for resection of the rectum, prostatectomy, Bassini's method for the cure of inguinal hernia, hip-joint amputation, resection of knee-joint, etc. They do not recommend spinal cord anesthesia for operations higher than the rectum, and even in hernial operations the anesthesia is not always complete. The technic is carried out by an assistant in the anteroom, while other operations are carried on and therefore no time is lost at all. The patient is placed upon the table with elevated pelvis and the space between the second and third lumbar vertebras looked for. A needle is inserted here and after the escape of cerebrospinal fluid, 1 cc. of a 1 to 2,000 solution of adrenalin or suprarenin is injected. The needle and syringe are not removed. After five minutes a second syringe is loaded with 0.02 gm. ($\frac{3}{10}$ gr.) of cocain dissolved in normal salt solution and injected through the same needle; the patient is ready for operation 10 minutes later. [E.L.]

Urine Analysis in Ether Anesthesia.—To determine how frequently, and to what extent ether as an anesthetic irritates the kidneys, and how soon they recover from this irritation, A. F. Chace[2] examined the urines of 125 patients before and after operation; 100 were without albumin or other abnormalities before operation, 25 had more or less albumin and casts. The ether narcoses varied from 15 minutes to 2½ hours. In nearly every case the urine on the day after operation was more concentrated, the specific gravity being about 10 points higher, the chlorids, phosphates, and urea increased proportionately and a heavy sediment of amorphous urates existing. Large numbers of casts were present in proportion to the small amount of albumin, especially hyaline and granular casts. On the second day the urine began to clear up, and by the end of the week was usually back where it was previous to the operation; in some cases a severe nephritis developed, which would not clear up for several weeks. Two of his patients died of suppression of the urine, although before the operation one had no albumin at all, the other only a slight trace. Ether is a poison which ordinarily damages the kidney to a great extent temporarily without greatly interfering with its function. [E.L.]

Treatment of Fractures of Both Bones of the Forearm.—C. S. Cole[1] says that nonunion in simple fractures does not obtain. Fixation in good position results in firm union with an inconsiderable amount of callus. This point has not been sufficiently emphasized. It means the dismissal of the question of interosseous union in the fractures mentioned, and with it the interosseous pad. No one should let any idea of how muscles act keep him from putting the parts in the exact position necessary to get the bones end on; sometimes this will be midway between pronation and supination, sometimes in pronation and again in supination. Overriding is easily prevented by making traction on the distal portion until the splint is firmly set. The splint devised by Cole is called the sugar-tongs splint. It is made of plaster-of-paris bandage. The measurement is taken from the middle of the back of the hand around the elbow to the part of the hand opposite the starting-point. The bandage of several thicknesses is made this length, and while soft is applied and kept in position by a starch bandage. The edges must not overlap, but it should not be too narrow to overlap each bone. Traction on the forearm is made until the plaster sets. Almost perfect results have been secured in 12 cases in which the splint was employed. [A.G.E.]

Abdominal-perineal Amputation of the Rectum for Cancer.—P. Goullioud[2] recommends a very radical operation in all cases of cancer of the rectum. It consists of opening the abdomen, sectioning the sigmoid flexure, making a permanent iliac anus of its upper end, closing the lower end, detaching the peritoneal portion of the rectum through the abdomen, and removing the whole rectum as a closed tube by way of the perineum. The author has performed this operation seven times, and always with success. In five cases the tumor could have been reached by the perineal route alone, but he preferred the combined operation. It is necessary to cut the intestine sufficiently high up to remove all parts that may possibly be infiltrated by cancerous tissue. All the surrounding pelvic tissue should also be removed, the incisions being made close to the neighboring organs. The chief objection to this operation is the establishment of an artificial anus, but in view of the malignant nature of the disease, there should be no hesitancy in sacrificing the natural anus as the only means of saving life. The operation is much more difficult in men than in women, on account of the intimate association of the urinary organs. [B.K.]

A Case of Sinus Pericranii.—Litthauer[3] reports a case of a man, in whom there appeared a tumefaction upon stooping, and which would gradually disappear again upon assuming the erect posture. The patient gave a history of having fallen, striking the right side of his head against the edge of a sill. The accident was followed by intense swelling of the face and right temporal region, which soon disappeared, but at the end of 14 days he noticed that a swelling appeared in the right temporal region upon stooping forward, which vanished when he regained the upright position. Litthauer says upon examining both sides of the head the right was not more prominent than the left, it was rather depressed in the temporal region with the head erect; the skin over this area was unchanged, the soft parts covering the depressed area seem thinner than the soft parts covering a corresponding area on the left side. Litthauer explains the formation of this tumor in the following manner: The sudden sliding of the skin as the patient struck, caused a tear of one of the veins of the diploe, or of "Santorini emissarium" at their point of exit from the cranium, and by constant usage the opening never closed. [J.F.]

Perforation of Ulcers of the Lesser Curvature of the Stomach.—E. Villard and L. Pinatelle[4] conclude a critical article begun in the May number. They report a series of 115 cases, two of which are personal. They find that perforation occurs in only a third of the ulcers in this location; comparative immunity is explained by the high situation, the fixation of the part, and above all, by the frequency of adhesions. Clinically, perforation is always accompanied by vomiting, the history of ulcer may usually be obtained, and the beginning of symptoms is gradual or by successive steps. This suggests the possibility of preperforative operation in cases with local perigastritis and some signs of peritoneal reaction; intervention at such time would include packing of gauze around the suspected place and gastroenterostomy. When perforation occurs, laparotomy and suture should be done as soon as possible. Two things may prevent this; peripheral adhesions or the extent or friability of the border of the ulcer. In the former case, the surgeon will insert protective packing, which in some instances gives very good results. In the latter case, one or a combination of several expedients may be employed, as suture at a distance, suture to the skin, fixation of the omentum, or one of these with packing. [A.G.E.]

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[1] Münchener medicinische Wochenschrift, 1904, ii, No. 14, 593.
[2] The Postgraduate, 1904, xix, No. 3, 302.

[1] The Postgraduate, August, 1904.
[2] Lyon Médical, July 24, 1904.
[3] Berliner klin. Wochenschrift, 1904, No. 22.
[4] Revue de Chirurgie, July 10, 1904.

Gonorrheal Phlebitis.—Heller[1] reports a case of a man who contracted an acute urethritis, anterior and posterior, later cystitis and prostatitis. One day, after leaving the hospital apparently cured, he first observed severe pain in the left calf of his leg, which soon disappeared. Three days later he noticed an indurated area 3 cm. by 4 cm. in diameter occupying the posterior and middle portions of the same leg and involving the skin and underlying muscle. Heller first diagnosed the condition gonorrheal myositis, but in the course of a few days an elongated area appeared in the right groin, the pain became more acute, the left foot swollen and edematous, and a hard cord was palpable in the first-named area along the course of external saphenous vein. The indurated area in the right groin he believes was a phlebitis of the pampiniform plexus. [J.F.]

Cystic Ureteritis.—H. W. Carey and A. T. Laird[2] report two cases of this condition, the only two in the records of more than 600 postmortems at the Bender laboratory. Cysts occur in the pelvis of the kidney, bladder and ureter, in the latter usually corresponding to the points of constriction. Ascending infection of the urinary tract is the important factor in their etiology; they start in v. Brunn's cell nests. In the 24 cases mentioned, a cystitis, calculus or pyelitis existed in all but two. The socalled sporozoas were present in the cysts of the two cases reported; they are believed to be degenerating epithelial cells. Cysts of the ureter may cause obstruction and hydronephrosis or by their rupture give rise to hematuria. A practical point is that in their early stage they may be mistaken during cystoscopic examination for miliary tubercles. [A.G.E.]

Hepatopexy.—Depage and L. Mayer[3] review the literature of this subject. This is an operation which has not been performed very frequently. It was first performed by Michl, of Prague, in 1887, and the authors have collected over 58 cases since that time. They report a case in which an operation suggested by themselves was performed upon a woman of 34. Under chloroform an incision 12 cm. to 15 cm. (5 in. to 7 in.) was made below the costal margin on the right side, extending almost to the median line. The upper portion of the parietal peritoneum was folded back of the liver, and a catgut suture was passed through the reflected portion of the peritoneum, the liver, and the parietal peritoneum in such a way as to form a sort of gutter. The peritoneum was then closed by sutures and then the muscles and the skin. The operation was performed in 15 minutes, and the patient left the hospital cured at the end of about seven weeks. Two months later the patient was still well. [J.H.W.R.]

Traumatic Asphyxia.—F. Shimonek[4] reports a case very similar to that of Beach and Cobb in a recent number of the *Annals of Surgery*. The patient was a young, robust man, who was compressed between the ground and a sagging joist in a building moved on rollers. When seen, five minutes after release, the patient was intensely congested, the lips and tongue black, the eyes protruding, and the pulse slow and strong. One quart of blood was immediately abstracted from the median basilic vein, the symptoms at once abating. The following day the patient resumed work. Shimonek feels sure that the prompt and copious venesection saved the patient's life. Artificial respiration and inhalations of oxygen should be used as auxiliaries to venesection. [A.G.E.]

OPHTHALMOLOGY

WALTER L. PYLE

EDITORIAL COMMENT

The Dangers of Large Electromagnets.—The use of powerful magnets in extraction of fragments of steel from the eyeball is always attended with certain risks. The strenuous advocacy of the large electromagnets by Haab and his followers, for a time seemed to overshadow the advantages of the smaller hand instruments. However, the recent perfection of methods of localization by radiography, particularly that of Sweet, has had the effect of turning many thoughtful and conservative ophthalmic surgeons again to the diagnosis by the röntgen ray, and subsequent extraction through an adjacent scleral incision. It is imperative that the position of the metal in the eyeball and its approximate size and shape should be known, before extraction with an electromagnet is attempted. The employment of the röntgen rays to secure such information should be the invariable rule in every community in which the services of an expert in general radiography are obtainable. Grave traumatism may be done to an injured eye unless these precautions are followed. Often the resultant small scleral scar is most deceptive in estimating the site of the metallic fragment. Sweet mentions a case in which a narrow linear cicatrix in the sclera 2½ mm. wide was the only evidence of the entrance of a piece of steel 10 mm. long and 2 mm. wide. The indiscriminate use of the giant magnet in this case would likely have resulted in irreparable injury to the eyeball. Numerous instances have recorded recently in which disastrous results have been followed attempts to drag forward from the vitreous, metallic fragments, by powerful magnets after the method of Haab. S. D. Risley presented on March 12, 1904, before the Ophthalmological Section of the College of Physicians of Philadelphia, a patient from whose vitreous chamber a fragment of steel had been extracted by the Haab magnet. The case was of interest as illustrating the injury which may be done by the giant magnet when the foreign body presents sufficient bulk and weight. The fragment in question was 3 mm. by 5 mm. by 2 mm. in size, and weighed two grains. When the eye was placed at 10 inches from the magnet the man suffered severe pain. As the distance was cautiously diminished, the current was carefully controlled, at intervals being entirely cut off. In a few moments the lower temporal quadrant of the iris was seen to bulge forward, and the current was quickly cut off. The eye was then turned strongly downward and the magnet tilted so that the fragment of metal might be drawn along the uveal surface of the iris into the pupil between the iris and lens capsule. The current was slowly turned on and the magnet slowly approached to a distance of approximately three inches, when the foreign body with startling suddenness shot from the eye through the original wound of entrance, near the pole of the cornea and fastened itself on the tip of the magnet, wrapped in a portion of the iris. Another portion was hanging from the corneal wound, while a small triangle remained adherent to the lens capsule. Fortunately the eyeball was saved by vigorous treatment with the cold compresses and atropin. In commenting upon the case Risley discussed the relative merits and dangers of the method pursued in this case, and emphasized his belief that much less injury would have been done had the body been first localized and then extracted through a scleral puncture by a relatively weak magnet.

Radium Rays and Blindness.—Much has been claimed for radium, but probably the most extravagant of all the statements is that it can make the blind see. This was based upon the fact that the wellknown scientist, London, of St. Petersburg, had expressed the opinion that radium had the power to restore sight to blind eyes. At the request of the Prussian Ministry for Ecclesiastic, Educational, and Medicinal Matters, Professor Greeff,[1] of Berlin, undertook an investigation of this alleged property of radium, the details of which it is unnecessary to give. His conclusion, as might be expected, is that radium has absolutely no power to make the really blind see. London, who is not an ophthalmologist, neglected to test beforehand as to the vision remaining to the eyes of the persons examined by him; neither did he make any control experiments with the simple dull screen. Persons who are but partially blind can distinguish objects behind a screen illuminated with radium; but the same is true when a dull screen is lighted with an ordinary oil lamp. It is desirable that the laity should be informed concerning these matters, so that they may not be carried away by the extravagances of the daily press.

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[1] Berliner klin. Wochenschrift, 1904, No. 23.
[2] Albany Medical Annals, July, 1904.
[3] Jour. Medical de Bruxelles, June 30, 1904.
[4] Wisconsin Medical Journal, July, 1904.

REVIEW OF LITERATURE

The Eyes in Multiple Sclerosis.—Kampherstein[2] reviews 150 cases of multiple sclerosis from the standpoint of their eye symptoms and tabulates his findings: Optic atrophy: 1. Complete optic atrophy was present 4 times; thrice it was bilateral, once unilateral. 2. Optic atrophy was incomplete 28 times (12 bilateral, 16 unilateral). 3. Temporal pallor existed 41 times (16 bilateral, 25 unilateral). 4. Optic neuritis 9 times (5 bilateral, 4 unilateral). 5. Normal optic disc with visual disturbance 7 times. Visual field anomalies: 1. Central scotoma with normal visual field periphery, (*a*) absolute, 9 times (5 bilateral, 4 unilateral); (*b*) relative, 20 times (14 bilateral, 6 unilateral). 2. Central scotoma with simultaneous peripheral disturbance of visual field, 6 times (2 bilateral, 4 unilateral). 3. Irregular peripheral disturbance of visual field with relatively intact central vision, 12 times (9 bilateral, 3 unilateral). 4. Regular concentric functional vision with field limitation, 1 case. 5. Individual colors not recognized by entire visual field, 2 cases. Paralyses of eye muscles: 1. Abducent paralysis, 14 times (5 bilateral, 9 unilateral). 2. Oculomotor paralysis, 9 times (internal recti of both sides with simultaneous paralysis of right superior rectus, 1 case; internal rectus of one side, 5 times; superior rectus alone, 2 cases; levator palpebræ and superior rectus, once). Paralysis of associated eye movements, 11 times (10 times limitation of lateral movements, 1 case of upward movement). 4. Paralysis of convergence, 3 times. 5. Ophthalmoplegia externa, 2 cases. Nystagmus: 1. Ordinary nystagmus, 22 times. 2. Nystagmus like tremor, 81 times. Behavior of pupils: 1. Reflex pupillary rigidity to light with myosis (bilateral), 1 case. 2. Reflex pupillary rigidity to light with mydriasis (unilateral), 1 case. 3. Reflex to light diminished without myosis, 3 cases. 4. Considerable difference in pupillary width, 6 cases (4 times with diminished light reaction). 5. Reaction to convergence slight with relatively good light reaction, 2 cases. [E.L.]

Eyestrain as a Cause of Headache and Other Neuroses.—Simeon Snell[3] states that the far-reaching effects of eyestrain, and the relief afforded by the proper correction of refraction errors, are not by any means as widely recognized as they demand. It is a matter that admits of no question. In his last 800 refraction cases in private practice, he found that 162 suffered from headaches; in these are not included those making the usual complaint of discomfort for which hyperopes and early presbyopes so frequently solicit assistance. Attention is called to the early writings of S. Weir Mitchell, in Philadelphia, and particularly to recent articles published in the *British Medical Journal* and the *Lancet* by George M. Gould, of Philadelphia, extracts from which are quoted with approbation. The author's conclusions are: 1. That eyestrain is the cause of a large proportion of headaches, often of a very aggravated character. 2. That various other neuroses are met with, not associated with headache, and among them may be mentioned mental depression, nausea, indigestion, vomiting, insomia, giddiness, choreiform movements of the eyelid and face. 3. That relief is afforded to these conditions by correcting the error of refraction, which can be ascertained only after careful examination. 4. That for such examination a mydriatic is absolutely essential. 5. That frequently no complaint is made of defect of vision. 6. That the ametropia is frequently of low degree. 7. That a cylinder of 0.25 D. is of great value. 8. That an anisometropia is frequently present and requires proper adjustment. 9. That in a certain number of cases the muscle balance is faulty and necessitates the prescribing of prisms. [A.B.C.]

Eumydrin, a New Mydriatic.—Lindenmayer[1] has employed eumydrin, a derivative of atropin, in solutions varying in strength from 1% to 10%. In weak concentration mydriasis appeared after from 10 to 25 minutes; normal pupillary size was regained after from 2 to 3 days. Paralysis of accomodation appeared later than mydriasis; its duration showed considerable individual variations. When employing 5% to 10% solutions, the various actions were noted much quicker. The paralysis of accommodation sometimes lasted longer than the mydriasis. In no case were symptoms of intoxication observed. Eumydrin was found to be of good service in iritis, and should be used in cases where atropin is contraindicated. The drug was also found to be of use in the night-sweats of tuberculosis. [E.L.]

Mydriasis in Aortic Dilation.—This sign should be considered less commonly due to pressure reflex than to a cause identical with that producing the aneurysm, says J. Chaillous.[2] The morbid processes inducing arterial degenerations also affect the sympathetic nervous system. A purely mechanical explanation is insufficient, for if pressure be really causative, other symptoms of that origin should exist *pari passu*, but they do not. Syphilis, the ordinary source of aneurysm, is, perhaps, the direct agent in bringing about pupillary dilation. [T.H.E.]

Persistent Edema of the Eye-lids Due to Syphilis.—E. F. Snydacker[3] reports the case of a man of 33, who became unable to use his left eye because of persistent edema, the lid hanging down over the eye. The swelling had gradually grown to its present size during the four months past; he had never had pain, redness, or discharge. The eyeball was absolutely unaffected; the lid had a persistent dough-like feel. No other lesions could be discovered anywhere. The patient confessed to a syphilitic infection seven years previously. He was put on mercurial inunctions and 40 drops of a saturated solution of potassium iodid three times daily; after three weeks the edema of the lid had entirely disappeared. At no time was the tarsus involved; there were no demonstrable gummas either of the lids or the subcutaneous tissue of the orbits. The literature concerning the subject is cited. [E.L.]

Scheme for Subjective Measurement of the Pupil of the Eye.—C. T. Cooke[4] details certain experiments and measurements by which he arrived at a method of measuring the pupil. To make practical his observations he uses an instrument which might be termed a koremeter. Its essential feature is a strip of metal ranging from 10 mm. to 1 mm. in width, resembling one of the rules of Young's optometer. This is placed across the ordinary stenopeic slit of the test-case with a device to hold it before the center. Even with patients of a very low order of intelligence it is possible to measure the excursion of the iris in contraction to light. The scale is corrected according to certain formulas, the deduction of which occupies the larger part of the article. [A.G.E.]

Prophylaxis of Gonorrheal Ophthalmia Neonatorum.—In 1876 the percentage of individuals blind as the result of gonorrhea amounted to 30% of the whole number of blind persons; in 1895 it amounted to 19%. Considering the fact that Credé's method of preventing this disease has been known to the world for upward of 20 years, this is not a very encouraging result; the reason for this is that the prophylactic method is not employed generally in private practice, in hospitals, when the method is employed frequently, the morbidity from this cause has sunk from as much as 50% of the infants to as little as 0.1% to 0.8%. The silver combinations which are chiefly used are the nitrate and acetate of silver and protargol. Silver acetate must always be followed by instillations of normal salt solutions, as it is likely to be followed by silver catarrh; it is employed as a 1% solution. Protargol, in the form of a 20% solution has given very good results also. Dauber[1] employs silver nitrate altogether; at first he used a 2% solution—of late, only a 1% solution, and has had as good results from the weaker solution as from the other; of 5,130 patients thus treated, only 17 developed eye infections. He has seen much less silver irritation from this salt than from the acetate. The proper method is to open the eye with the two fingers of one hand and to permit the drop to touch the cornea before it is permitted to enter it; the eye is then closed. Inasmuch as Credé's method is a sure preventive against the affection, Dauber recommends obligatory introduction of the instillation as well as obligatory reporting of cases. [E.L.]

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[1] Deut. med. Woch., March 24, 1904.
[2] Archiv für Augenheilkunde, xlix, 41.
[3] The Lancet, April 30, 1904.

[1] Berliner klinische Wochenschrift, 1903, No. 47.
[2] Il Policlinico (Rome), No. 20, 1904.
[3] Archives of Ophthalmology, 1904, xxxiii, 139.
[4] Northwest Medicine, June, 1904.

The Functions of the Optic Thalamus.—For the past two decades W. M. Bechterew[2] has maintained the relationship of the optic thalamus to involuntary movements, and to a whole series of vegetative functions of the system. He now brings forth an array of data reinforcing his position. There appears to remain no doubt that the optic thalamus exercises a motor influence, beside its established sensory functions. Moreover, the author confidently makes the assertion that the motor duties of the thalamus are discharged chiefly by its internal nucleus. [L.J.]

Sarcoma of the Orbit Cured by the Röntgen Ray.—L. W. Fox[3] reports the case of a woman of 20, who presented herself with a tumor of the orbit, which was diagnosed as a sarcoma. It had existed only six weeks, and during this period had been growing very rapidly. There were few orbital and ocular symptoms, and after a few weeks' treatment the tetanoid manifestations present yielded to bromids. A small section was removed and examined microscopically. The diagnosis was spindle-celled sarcoma and the case considered inoperable. She was then treated by the röntgen rays, and during the first 28 days 28 applications were made for five minutes each, with a high vacuum tube, at a distance of 10 inches and a current of four amperes. This reduced the size of the swelling. The number of applications was then reduced, and after 46 treatments the patient discharged to return every two weeks for an application. The ultimate result was a complete cure. [E.L.]

Deterioration of Vision during Child-life.—Ettie Sayer,[4] assistant medical officer, Board of Education, London, states that two years ago the board decided to thoroughly investigate the condition of the children's eyesight in London. The work was carried out on purely scientific principles with children of both sexes between the ages of 8 and 14; 10% of the boys and 11% of the girls on an average throughout school-life were found to have such serious defects of vision that their visual acuity was 6/18, or worse. More recently the author examined the eyesight of school children designated "infants," between the ages of 6 and 8; 1,864 were examined. Since a number of the children did not know their letters, the letter E was made in various sizes and positions to correspond with Snellen's test-types, 6/6, 6/24, etc. The result showed that at exactly 6 years of age, 81% could read 6/6 with each eye separately, and only 3.5% had such serious defects that they could only see 6/18. The defects steadily increased with every quarter year of age until at 8, when 77% could see 6/6 with each eye, while 8% had serious defects. It was found that when tests with the ordinary Snellen's test-types were made, a much larger number apparently had bad vision. The author attributes this to the fact, that the high brain centers were not yet developed and defective visual acuity had been confused with want of perception by the brain, and the really serious defects among children aged 6 years was only 3%, a percentage which steadily increased until at 11 years old it reaches 11%, and then gets somewhat better again. The author contends that children's eyes were not intended by nature to undergo the strain of accommodating over lessons for 6 or 7 hours every day, between 4 and 14 years of age. [A.B.C.]

The Fundus of the Eye in General Paralysis.—Keraval and Danjean[1] have examined the eye-grounds of 41 women presenting the symptoms of general paralysis. In 4 of them the fundus and papilla on both sides were perfectly normal; in 9 others the fundus showed very slight abnormalities in color and outline; in 3 the papillary borders were indistinct, either in one or both eyes; in 7 the papillas on one or both sides are "floues;" in 11 the papillas are in a greater or lesser state of atrophy, and in 7, lesions are found, which have appeared independent of the cerebral disease. In 13, therefore, the eye-grounds were normal or almost normal, while 21 showed conditions such as are claimed to exist in paralysis of the insane. [E.L.]

Pupillary Contraction Occurring in Lateral Movement of an Eyeball which Turns Mesially.—Note is made of this curious sign by Alessandro Marina,[2] in cases in which the history points to centric disturbance, such as tertiary syphilis, chronic articular rheumatism with vascular degeneration, disseminated sclerosis, caput ostypum, hysteria with cerebral trauma, sclerosis of the posterior columns, and chronic alcoholism. When the patient turns his attention toward an object to one side the eye which is rotated mesially has shown a certain amount of myosis not explainable by visual causes or defects. This sign while observed is in no way to be accounted for by the author who is at loss as to the mode of production of the reflex, if it be. [T.H.E.]

Delirium after Eye Operations.—Among 294 cataract operations E. C. Finley[3] has had only one of true delirium of the violent type, not of the alcoholic origin, beside several others of extreme nervousness and unruliness. The patient, a woman of 66, had slight albuminuria before operation. One cataract was removed and both eyes bandaged. During the night she became violently delirious, morphin making her state if anything, worse. A saline purge, barley water, bromids and chloral were ordered, and the sound eye uncovered. The urine was scant, urea diminished and albumin increased. She improved under the treatment and the second cataract was removed without any accident, the patient recovering with good sight. He publishes a table showing the variations of the amount of urine, urea and albumin, and concludes that the delirium was evidently of uremic origin. [E.L.]

Dionin: An Ocular Analgesic.—James Hinshelwood[4] states that dionin, or ethylmorphinhydrochlorid, is a white, odorless, crystalline powder, freely soluble in water. He uses it chiefly in a 5% aqueous solution, or made up with vaselin as an ointment of similar strength, it may be used in a weaker preparation. Dionin is not an anesthetic, and is therefore not suited to use in operations upon the eye, but if the patient is suffering from a painful affection of the eye, such as iritis, iridocyclitis, glaucoma, ulcer, or inflammation of the cornea, the instillation of the dionin solution will always soothe, and often give permanent relief for several hours, from the pain which accompanies these affections. In a series of cases he has compared the effects of cocain, holocain, and dionin in regard to their pain-relieving effects upon the eye. Cocain is at the bottom of the list, both as to the degree of relief afforded, and the duration of such relief. Its analgesic effects are not to be compared with those produced by holocain and dionin; the latter two are similar in their pain-relieving properties both as to degree and time during which relief is afforded, but dionin is superior to holocain. The relief from pain usually lasts from three to four hours. The patient is to be warned that at the first instillation of dionin there sometimes appears a chemosis of the conjunctiva, which swells up and overlaps the cornea. This is not dangerous in any way, and only occurs with the first instillation; it soon subsides and no harmful effects are produced. [A.B.C.]

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[1] Münchener medicinische Wochenschrift, 1904, li, No. 7, p. 297.
[2] Obosrenie Psychiatrii, February, 1904.
[3] Archives of Ophthalmology, 1904, xxxiii, 31.
[4] British Medical Journal, June 18, 1904.

[1] Archives de Neurologie, 1904, xvii, 193.
[2] Il Policlinico (Rome), No. 22, 1904.
[3] Archives of Ophthalmology, 1904, xxxiii, 5.
[4] British Medical Journal, April 30, 1904.

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Contract practice, says a valued correspondent, is a growing evil all over the country, and is gradually undermining the honor and dignity of the profession. The particular form of the disease reprobated is family contract practice, which in one State, if correctly informed, has largely done away with true individualism and genuine private practice. It is carried on at "so much a head," from $2 to $5, depending upon the number and means of the family. In one State in the South the negroes have been organizing into societies, and they then put up the job at auction, the local physicians bidding against each other for it. Such a method of conducting medical practice will in the long run, of course, defeat its own end, because only the most wretched of medical knowledge and skill can be obtained in that way. But the "run" will necessarily be a very long run, and it is expensive to both the community and the profession. How can the growth of the abuse be stopped? The answer must be: Only by professional organization and the power of medical societies over their members, and then over the community. Literature is needed, and pressingly necessary to awaken the community to the dangers and uselessness of such a debasing custom. Doubtless it exists only where there are no local medical organizations, or where they are paralyzed, and thus selfishness and degradation run their natural course, both inside and outside the profession. Local physicians in such communities should persistently arouse the local society to existence, to renewed existence, and force it to take a decided stand on the question. Members who continue the auction business should be disciplined, expelled, if necessary, and by literature the people instructed in the methods by which they are really cheated by the bidders at their auctions. State Boards of Health could and should be most active and may be powerful to rid the citizens of a method of killing the sick, increasing the number of dependents, and of raising the tax rate. If the successful bidder is an illegal practitioner, let him be prosecuted to the full extent of the law. We solicit correspondence upon the subject.

The Pure Food Bill and the Profession.—By a large majority the Pure Food bill passed the House, but its defeat is feared in the Senate, where selfish and private and corporate interests are so powerful, and where the people have so little voice in legislation. No pure food bill can ever be drawn that does not affect somebody's commercial interest. The people who are selling harmfully adulterated articles, or those which are preserved by deleterious compounds, always minimize the danger from the thing that gives them profit. They hire experts to help them make out a good case. They are often great American industries, "employing thousands of people." It is not strange that these concerns bring strong pressure to bear upon Congress, particularly in the Senate. Of course the makers of patent medicines are against the governmental control of drugs, and their syndicates, as a rule, own the country newspapers, and many city ones, body and soul—at least what "soul" these may have. The passage of the bill by the Senate, it is recognized and admitted, depends almost entirely upon the earnestness and work of the more than 100,000 physicians of the United States. The whisky rectifiers and wholesalers antagonizing the measure do not number 500, and yet they have organized a lobby beside which the committees of medical men and societies can do little without the united medical profession behind them as an active force. The proposed law demands that rectified whiskies shall be labeled as they are, "compounds," and not "pure whisky," and that the ingredient of the compounds shall be published. The distillers and dealers in genuine whisky are, of course, in favor of the bill. The bill will prevent the United States from becoming the "dumping ground" of the mislabeled, misbranded and adulterated drugs and food articles of the world. Every physician should write to or personally see (better both), his representatives in the Senate and House, and urge the enactment of the law.

Filth and Disease in Mattresses.—The bedbug, the curse of dirty people since houses were made, has been replaced by another kind of evil, if we may trust a report culled from a reputable newspaper. At a sanitary congress held in Glasgow it was asserted that Dr. Buchanan, the city bacteriologist, said that it would be safer to sleep on a bed filled with sewage than on the material used by 78% of the poor as their beds. Dr. Fyfe had read a paper reporting the experiments made to determine the qualities of "wool flock" used in mattresses. Old rags and filthy old clothes were the principal materials used by the manufacturers, the rejected materials gathered from every source, good and bad, from the wealthy, from vagrants, tramps, and slums. "To explain what he saw on some old torn garments would be impossible." No cleansing or disinfection of this mass of ordure was thought of. All went into the machine, if sufficiently dry, and "came out flock." A pound of this flock was taken from the machine and was twice rinsed in distilled water. The result was, that it was on analysis worse than the average Glasgow sewage. Perhaps in our country, conditions are not so bad as this, but no one knows. It is nobody's business to attend to such matters, at least, if it is, the people or their bosses are not willing to pay the health boards enough to undertake half the means necessary to carry out their duties. The coverings, at least, of the ordinary bed-mattresses used are never cleansed from the time they are bought until they are thrown away.

Syphilis, and the Army in Roumania.—The problem of syphilis and the soldier has assumed a most serious aspect in Roumania, where deaths from this disease show an alarming increase. In one department from 1897 to 1903 the mortality, including those stillborn, of children under one year was slightly more than a third of the births; a very large part of this mortality is directly traceable to syphilis. Among 1,361 cases of the disease in a population of 125,000, more than a sixth were in children. The spread of syphilis is almost wholly attributable to soldiers returning from military service, it being more pronounced in rural districts where prostitutes are not found. As a preventive measure it has been ruled that no soldier may leave camp after expiration of service or even for a holiday until shown healthy by a thorough medical examination. The ravages of the disease in Roumania are made worse by the subjects resorting to quacks instead of regular physicians for treatment. The latter employ mercury under its real name, while the former use it as quicksilver, a term much more acceptable to the people. The prevention of syphilitic infection in soldiers and its subsequent dissemination by them is a question of grave import in many countries. The measures adopted in Roumania will undoubtedly accomplish much in protecting innocent persons, and might well be instituted by other governments. As a prophylactic measure, circumcision of every male infant is warmly recommended by certain writers in this country, the comparative immunity of Hebrews being cited as an argument in its favor. In consideration of the increased cleanliness and diminished liability to contract secret vice resulting from circumcision and in addition the fact that a large number of children and adults need at some time to be circumcised, it seems that this expedient were well worthy of more extended adoption. An increasing number of obstetricians now circumcise every child whose parents allow them so to do.

Insurance for Physicians.—The New York *Evening Post* recently made mention of companies advertising in certain medical journals to insure physicians against malpractice suits. By this term is meant suits brought against reputable physicians by intentional blackmailers, or by patients who honestly believe themselves aggrieved. Insurance men report that physicians are taking kindly to this means of protection. In a later issue of the *Post*, James T. Lewis, counsel for the New York State Medical Association, calls attention to the fact that the association mentioned, as well as those in some other States, is ready to defend any of its members against blackmailing malpractice suits. He points to this as one of the benefits derived from membership in the State organization. He furthermore makes a telling point of difference between the protection thus afforded physicians and that they derived from specially formed insurance companies. The State Association furnishes a fighting defense; when application is made to the Association by a physician he is not allowed to compromise, or discontinue, or settle in any way, without the consent of the Association. With the majority of the insurance companies, conciliation and compromise are the first measures considered. The relative effects of the two methods upon both profession and people are apparent to all. It should furnish a strong incentive for joining medical associations that protect their members. In the case of those which do not furnish medical defense, or if there be other reasons for seeking the protection of insurance companies, physicians should first very carefully investigate their management and mode of action. In England there are two reliable companies insuring physicians for an annual fee of $2.50. The British Medical Association has for some time been considering the advisability of absorbing these societies and furnishing medical defense to its members. The societies, because of their long experience in this line and their profitable membership, decline to be absorbed. As many of their members do not belong to the British Medical Association and the latter includes only half of all physicians in Great Britain, merging does not appear probable. If it does fail, the Association is not apt to undertake medical defense on its own account.

A method of undermining the "Koch Lung Cure" establishments, which may be open to some minor objections, is suggested by Dr. J. W. Seip, of Reading, Pa., but is based upon the evident truth that suits for damages is the best method of showing the public their true nature. We cannot undertake to verify all the statements made, but put in the form of propositions, Dr. Seip is willing to support each or all of the following:

That organized medicine never endorses proprietary remedies and secret practices.

That the Koch Lung Cure never did import Dr. Koch's tuberculin, but that H. Koechl & Co., 122 Hudson street, New York, are the sole importers.

That H. Koechl & Co. never sold tuberculin to the Koch Lung Cure, directly nor individually, and never will let it pass into the latter's hands.

That Koch's tuberculin never entered any other port of this country than New York is indisputably proved from the United States Customs Service.

That chemic analysis proves the socalled tuberculin a mixture of cheap oils only.

That there is no animal matter or product such as lymph or tuberculin in it.

That if there were, it would be chemically incompatible.

That lymph or tuberculin is not volatile and would not be available as a vaporizing agent therapeutically.

That therapeutically, the Koch Lung Cure inhalation is inert in diseases of the lungs and bronchi.

That it is suggestion, expectation, and renewed hope on the part of patients that seemingly benefit some for a month or two.

That patients seemingly cured were benefited only by the auxiliary and adjunct measures.

That 65% of all cases of demonstrated tuberculosis get well of themselves.

That the Koch Lung Cure professes to cure only 50%; 15% less than recover without treatment.

That in their instructions to doctors the latter impose, always and invariably, a false and spurious concoction upon patients.

That the nurse is in collusion with the doctor in carrying out this fraud.

That the advertisements are to the same fraudulent effect.

That most of its testimonials of cures are not cures, but temporary improvements only.

That all their instructions, directions, etc., including their unprinted and printed literature, is worded and construed so as to convey to patients the idea that they are paying for tuberculin.

That the sterilization as practised in the offices is only filtration.

That the strengthening is a delusion and a snare.

That the Koch Lung Cure and German-American Instillation Co. are one and the same.

That the Koch Lung Cure is responsible as the father for the German-American Instillation Co.

That the proper person or persons will swear to each and all of the above facts.

And, finally, That every patient the Koch Lung Cure ever treated has ground for suit for fraud, false pretense, and extortion.

Antrum Disease Due to a Dentist's Mistake.—If there has been one severe case of suppurative disease of the antrum of Highmore recognized as due to a blunder in treating a tooth on the part of the dentist, how many may there have been, unrecognized or recognized? The editorial note,[1] upon this subject has brought out reports of two other cases from subscribers, one of which, by Dr. Doane, of Butler, Pa., is as follows:

> A young man recently referred to me, had some soreness and swelling over the left antrum, although noteworthy symptoms of antrum disease were lacking. I finally elicited a history of previous "treatment" of the first molar tooth upon that side, with subsequent soreness; although there was no soreness at this time, I took the patient to a dentist who advised extraction. This was done and an abscess sac was found attached to the roots of the tooth. There was also considerable cotton in one of the roots, having an extremely foul odor. This man *might* have had a history similar to the one you have given, had the tooth not been thus early extracted.

The Political Boss and the Health Officer.—We have received the following letter from a Public Health Officer:

> I regret to say that reform is not likely to come from those who find employment in laboratories controlled by politicians. Their mouths are and will be sealed by the implied threat of losing their positions, and when it comes to "bread versus honesty," the latter at once assumes an elasticity which it ordinarily does not and should not possess. Health officers, official chemists, and bacteriologists owe their positions, as a rule, to a few politicians, and their freedom of action and expression is and will be limited by the intelligence and ulterior motives of these politicians. A well-trained health officer in this respect is no better than one who is totally ignorant, since it is not how much he knows, but how much he is permitted to tell. You no doubt remember the plague incident in San Francisco, where the political bosses decreed that "the plague does not exist;" and such instances could be easily duplicated.
>
> Such statements may displease some of our "powers that be," and plain speech is punished, should one refuse to be "quieter than water and lower than grass" (a Russian proverb) and continue his public utterances "*pro bono publico*," he will no doubt be safely removed from the source of information.
>
> Of course, one is somewhat fortunate if he has a profession to fall back on, but what should those poor fellows do whose only stock in trade is their specialized knowledge, with the municipal politician as the only possible purchaser?
>
> The root of this evil derives its nourishment from our system of municipal government, and so long as Boards of Health, health officers, and similar officials are appointed by mayors and governors so long will the conditions prevail.
>
> Physicians, and more especially medical societies, can do a great deal in awakening public interest and molding public opinion, but physicians are notoriously lethargic and medical societies as a rule inactive in matters pertaining to public welfare. A few wide-awake societies have, it is true, shown the way, but the rest refuse to follow. The duty of the medical editor and journalist is to keep that pathway clear.

N-rays.—As the properties and applications of the x-rays have now become comparatively ancient history as regards their connection with surgery and medicine, and appear likely to display their most brilliant scintillations during the near future in connection with the law courts, it is gratifying to find a fresh group of emanations, labelled with another letter of the alphabet, pressing forward to claim what spare scientific attention the mind of the medical man can afford. The *n-rays*, the junior claimant for physical fame, have, as of course all readers know, had this name given them by their godfather and discoverer, M. Blondlot, from the first letter of Nancy, the name of the city of their birth, an event which occurred but a little more than a year ago. Those mysterious emanations proceed from a great many sources, and are said to have wonderful penetrating properties suggestive of a family relationship with röntgen rays and radium radiation; but the specially interesting part of their history for the medical man is that they are said to emanate from the human body itself under certain conditions, and especially from contracting muscular tissue. They are also related to ordinary light rays; they can be refracted and polarized like those of light; they resemble röntgen rays in being exceedingly penetrating; they pass through thin layers of most of the very opaque substances, and practically through every thickness of paper and cardboard. The wave-length is extremely short; M. Blondlot's measurements give one-twentieth of that of the violet rays of the solar spectrum. The most usual condition of their genesis would appear to be that of strain—during the progress of muscular contraction, of chemic reaction, etc. Still, a good deal of scepticism prevails with regard to their existence. Their presence is determined by a fluorescent screen; and, as the effect in all cases is but slight, and the test is one in which no appeal can be made from the evidence of the eye of the observer, it is no matter for surprise that, with the endlessly varying degrees of astigmatism and other uncorrected sources of optical discrepancy, the reports of various observers, however honest and careful, will long continue to display the disharmony of the "personal equation" to an unusual degree. The stolid Anglo-Saxon nearly always fails to verify Professor Blondlot's results; and the first public demonstration in the British Isles, which seemed to confirm them in all particulars, was given on the evening of the seventeenth of this month [May] before the Royal Dublin Society, by a brilliant junior scientist, Mr. F. E. Hackett, B.Sc. From both physical and ophthalmic points of view, the present state of the question is extremely interesting.

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[1] *American Medicine*, July 23, p. 132.

The dull and backward school-child is very often the one with "defective eyes." This has been demonstrated in carefully conducted experiments in one of the large schools of New York City, and in the middle West it is the same story. Dr. Timberman, of Columbus, Ohio, has found that sometimes over 50% of the high school pupils have ametropia, and hence defective vision, even when the tests are crude and made without a cycloplegic. Dr. McKendree Smith (*Ohio Sanitary Bulletin*), concerning the laggards and those who "drop out," writes:

> I have found frequently that children are pronounced dullards by other pupils, because they were placed in such a part of the schoolroom that everything placed upon the blackboard was blurred, or placed at such a distance from the teacher that the pupil's hearing was not acute enough to catch all that the teacher said. Sometimes the pupil upon having his eyes fitted with glasses so as to enable him to see properly the work of the teacher upon the board, exhibited a remarkable progress and demonstrated the fact that it was not mental dulness, or it was not natural stupidness or inattention upon the part of the child that held it back from making the progress that is naturally expected of the ordinary child.

And Dr. Baker, of Cleveland, writes that in the eighth grade pupils, those with defective vision were about five months older than the average age of the whole grade. He speaks of the "truant department," which "runs after these truant children, catching them here and there, and putting them in the juvenile grades, if necessary, or sending them to Lancaster occasionally." An excellent way, one may add, for the promotion and manufacture of criminals. In the reform schools of Rhode Island, it should be noted, the causes of arrest in the young law-breakers, put down as truancy, loitering, etc., largely outnumber all other causes combined.

Japanese Women Make Efficient Nurses.—A private letter from Tokio received in London, speaks with great admiration of the service done by Japanese women as trained nurses. When the war broke out all the male nurses in the hospitals were drafted into the field army and their places were taken by women, all of whom had had three years' training, largely under the supervision of the Red Cross Society. The writer says that he was present recently at a series of serious operations in the University Hospital at Tokio, where the instruments and dressings were entirely in the hands of women, and he declares that nothing could have been more skilfully done, or with greater attention to all the precautions of modern surgery. He then goes on to say that the Japanese authorities have been a good deal embarrassed by the conduct of certain well-meaning Englishwomen who have persistently volunteered their services as trained nurses under the impression that their help would be invaluable. The Japanese, knowing their kindly intention, are unwilling to hurt their feelings, and are far too courteous to tell them that they are in no need of either instruction or assistance, having an abundant supply of trained native attendants who are in all respects as competent as any Europeans.—[*N. Y. Post.*]

BOOK REVIEWS

The New International Encyclopedia. Volume XVI.—Dodd, Mead & Co.

This number, beginning with South Australia and concluding with typesetting machines, deals with a larger number of medical subjects than perhaps any other of the series so far reviewed. Surgery, military surgery, and therapeutics, are discussed from the historic and developmental point of view and modern methods are described. Among other comparatively lengthy and well-written articles are those on syphilis and tuberculosis, including an historic sketch also of these ancient and widespread plagues which science now begins to dream she can some day reduce to proportions that future cyclopedists may dismiss with a paragraph. Some of the important subjects treated briefly or at length are:

Spasm
Spectacles
Spina bifida
Spine, curvature of the
Splint
Sprain
Stammering
Starvation
Sterility
Sterilized food
Stimulants
Stomach, diseases of
Strabismus
Strangulation
Stricture
Sulfonal
Sulfur
Sulfuric acid
Suppuration
Suprarenal capsules
Sweating sickness
Synovitis
Syringomyelia
Tapeworm
Tartar Emetic
Tenotomy
Tetanus
Throat
Thrombosis
Thyroid
Toxicology
Toxin
Tracheotomy
Transfusion of blood
Trematoda
Trephining
Trichiasis
Trichiniasis
Truss
Tumor
Turpentine

There is no reference to injuries of the spine and sternum or to diseases of the spleen, or to operation for ulcers of the stomach. Very little is said as to surgery of the stomach for other lesions. There is no allusion to the medical applications of squill and strychnin, and stramonium is stated to be little used. Tympanites is described merely as a disease of horses. Symphysiotomy is not mentioned. Other subjects ignored or without cross-reference are:

Sympathetic ophthalmia
Syncope
Taste, disorders of
Tattooing, medical uses of
Teeth, diseases of
Tetany
Torticollis
Tremor

There is only half the usual number of biographic notices, the once familiar names of Stellwag, Stromeyer, Struempell, Tait, Tarnier, Thiersch, Trendelenburg, Trousseau, Tuffier and others being consigned to the oblivion of more ancient repositories of international fame.

New Eclectic Medical Practice Designed for Students and Practitioners.—By H. T. WEBSTER, M.D. Volumes I and II.

This is an interesting book from many viewpoints. It discloses in the first place a real personality. In the second place it gives us a glimpse of the present day teaching at the socalled Eclectic Medical Schools. In contrast with the majority of sectarian writers the author, to quote his own words, "gives credence to the teachings of bacteriology on the ground that it offers the only reasonable theory for the spread of infectious diseases that has ever yet been advanced." A comparison of the text of the work with standard textbooks insofar as pathology, etiology, symptomatology and diagnosis are concerned indicates that the author is an apt student and also that he possesses the faculty of expressing himself in an original manner. We regret, however, to find typhomalarial fever written of as a special type of malarial fever. The skirts of the profession of medicine are not so clear of sin in this respect that we can afford to revile the eclectics—qua eclectics—for clinging to this superstition, but we had hoped that an author occupying the prominent position of the writer of this textbook and who in other matters shows himself ready to learn from the advance guards of science, should not have been equally openminded in this important matter. We trust that in his next edition the statement will be made unequivocally that there are certain forms of malarial fever due to various forms of Laveran's parasite, that there are certain forms of typhoid fever and paratyphoid fever due to Eberth's and other bacilli, that there are certain instances of mixed infection in which both malarial and typhoid organisms are present and active, but that the great majority of cases miscalled typhomalarial fever are really typhoid fever, and that in both these and in the instances of mixed infection the safety of the public as well as of the patient will depend upon the recognition of the fact that the typhoid organisms are the active infecting agents. We regret also to find that the author has included acute articular rheumatism with chronic muscular rheumatism under one head with the definition of a "constitutional disease." Acute articular rheumatism is but one of a large group of infective processes characterized by arthritis and the etiologic diagnosis in these cases is the important one. The question of treatment, however, is the one point on which this book must be expected to differ most from ordinary textbooks and which gives it its specific interest. No comment of ours can do justice to this portion of the work. It undoubtedly represents the highest standard of its school; but from our viewpoint the suggestions as to drug treatment given are not such as to command approval. In regard to hygiene and nursing, however, the author occupies the general advanced professional standing. We especially regret, therefore, that he fails to appreciate the necessity for the general use of antitoxin in diphtheria.

Manual of Materia Medica and Pharmacy. Specially Designed for the Use of Practitioners and Medical Pharmaceutical, Dental and Veterinary Students.—By E. STANTON MUIR, Ph. G., V.M.D. Third Edition, Revised and Enlarged. F. A. Davis Company, Philadelphia, 1904.

Muir has succeeded in presenting in concise outline the important facts of materia medica and pharmacy of value to the general practitioner and to the student. Lengthy details and theoretic discussions, so confusing to the beginner, are omitted, each subject being clearly and empirically stated. The definitions are models of expression, the terms employed in botany being so clearly defined that they become perfectly intelligible to one having no previous knowledge of the subject. The spacings and headings are so arranged that the eye easily grasps the classifications and divisions. The interleaving with blank sheets permits of notes and additions.

Portfolio of Dermochromes.—By PROFESSOR JACOBI, of Freiburg im Breisgau. Volume II. English adaptation of text by J. J. PRINGLE, M.D., F.R.C.P. New York: Rebman & Co., 1903.

The second and concluding volume of Jacobi's excellent atlas of Diseases of the Skin contains 79 figures on 44 plates, 15 plates being given to syphilitic eruptions. The diseases illustrated are for the most part well chosen, but in a few instances unusual rather than common types have been selected; as, for example, in the plate showing verrucas of the palm, an uncommon form of a very common malady. One of the figures representing the dermatitis herpetiformis of Duhring, while accurate enough, represents so mild an example of this distressing affection as scarcely to convey an adequate idea of it. We are glad to see some space devoted to that very important, but rather neglected class of cutaneous diseases, the medicinal eruptions, which often prove great stumbling blocks to the general practitioner, and not infrequently puzzle even the expert specialist. The figures representing several of the commoner forms of eczema, of which there are eleven, occupying six plates, are beautiful examples of life-like portraiture; they leave little to be desired as accurately drawn and colored representations of some of the varieties of this protean affection. Among the illustrations of syphilis, which seem to us deserving of special mention because of their accurate coloring, are those representing papulosquamous lesions of the sole, serpiginous ulceration in the pubic region, and syphilitic pemphigus in the infant. All in all, this atlas, in our opinion, is one of the best which has yet appeared, more especially in the accuracy of the coloring of the portraits.

Mrs. Piper and the Society for Psychic Research.—Translated and slightly abridged from the French of M. Sage by NORALIE ROBERTSON, with a preface by Sir OLIVER LODGE. Printed by the Society, London, 1904.

This little book is most interesting—indeed, fascinating. Wireless telegraphy and recent discoveries in radiology must prevent students of science from declaring in advance of investigation the impossibility of any manifestation of force of which there seems to be trustworthy evidence. The only possible position for truth seekers is to try to ascertain the facts as accurately as possible, and then to try to find the explanation of the facts. All great discoveries in science depend upon the establishment of facts which do not fit into received explanations of the causes of phenomena. The endeavor to find the explanation for these residual facts leads to such great discoveries as Newton's of the gravitation principle, and Julius Robert Meyers of the conservation of energy. The facts concerning Mrs. Piper have been carefully studied and carefully recorded. There is no room for the hypothesis of fraud or of conscious or unconscious deception. It is certain that she passes into a trance-like state in which she seems to be possessed by other personalities than her own, and to be aware of facts previously not known to Mrs. Piper in the conscious state. These facts are concerned with the lives and affairs of other persons, and are communicated to inquirers sometimes by word of mouth and sometimes by writing with the hand. At times the voice that comes from Mrs. Pipers's throat (which is not the same as Mrs. Piper's ordinary voice) and Mrs. Piper's hand will carry on simultaneous conversations with different persons on different subjects.

Three explanations have been advanced which may be summed up as "spirit influence," "telepathy," and "secondary personality." None of these explanations has been demonstrated, and none is satisfactory, but the facts are well worth the study of physicians, and all who are interested in the workings of the human mind and of the force that may control human manifestations.

The Ophthalmic Year-Book for 1904.—By EDWARD JACKSON, M.D. The Herrick Book and Stationery Company, Denver, Colo.

The material for this excellent year-book has avowedly been chosen from the standpoint of the specialist, rather than that of the general practitioner. Hence the work is in a way unique, and Dr. Jackson deserves the thanks of his confreres for his enterprise and devotion to his work—a task which many less industrious would shrink from. The scheme of the book is to include: 1. A digest of the more important communications. In this the essential new facts or ideas regarding each topic are massed together in a single page or paragraph. 2. A list of the books, the more important monographs, and the articles appearing in periodical publications, arranged alphabetically according to the authors' names. 3. A complete index, through which one can ascertain if a topic has been the subject of any important communication in the year's literature of the world; and can turn at once to the account of it which it has been possible to present in this volume. The authors' names mentioned in the digest give the clue to their original papers, in which the reader may continue his study of the subject.

An Atlas of Human Anatomy for Students and Physicians.—By CARL TOLDT, assisted by ALOIS DALLA ROSA. Translated from the third German edition and adapted to English and American and international terminology by M. EDEN PAUL. Rebman Co., Ltd., New York.

The first three parts of this splendid Atlas have been issued by the publishers, and three additional ones are to follow. Those which have thus far appeared consist of Part I, (*a*) The Regions of the Human Body, (*b*) Osteology; Part II, Arthrology; Part III, Myology, with a supplement on the anatomy of hernia. Those which are yet to appear consist of Part IV, Splanchnology; Part V, Angiology; Part VI, (*g*) Neurology; (*h*) The Organs of the Senses. Each of the parts which has thus far appeared is handsomely bound in separate volumes of 160, 256, and 400 pages, respectively. The translator calls special attention to the dearth of valuable atlases in the English language pertaining to the teaching of anatomy. The science of anatomy being descriptive, it is highly important that the student should get a proper mental picture of the structures studied, and next to obtaining this in the dissecting-room it is best obtained by proper illustration. He states that in the admirable manuals of human anatomy now extant in English, the illustrations, even when numerous, as they often are, and when good, as they occasionally are, form a mere supplement, usually a very imperfect one, to the text. He regrets the fact that no universal anatomic nomenclature is in existence, and he has, therefore, in the present translation, retained the terminology of the original side by side with the English translation, distinguishing between the two by difference of type. The work is an atlas in the true sense, there being no written descriptive text pertaining to the various organs and structures exhibited, but rather the names which properly indicate the various denominated points in reference to the structure. The illustrations are in every way most admirable, and clearly depicted, the paper is of excellent quality, and the publisher should be commended for the excellent binding and the handsome arrangement of the work. In every detail it is the best atlas of anatomy which we have thus far been able to see, and we doubt not that it will occupy a prominent place in the library of all those specially interested in the subject of anatomy. The remaining three parts will be issued within the current year.

Blood-pressure in Surgery and Experimental and Clinical Research.—The Cartright Prize Essay for 1903. By George W. Crile. J. B. Lippincott Company, Philadelphia and London.

This is a work of over 400 pages, consisting of the records of experimental research in reference to the blood-pressure of animals and clinical observations on blood-pressure in the human subject. The animals experimented upon numbered 243, and were in every instance completely anesthetized. A brief review of the experiment in each individual instance is given, together with protocols having reference to the experiments. In the first of the series the Gaertner tonometer was used, and in the latter portion of the series the Riva-Rocci instrument was used. Experimental researches were carried out with reference to the influence of the following: Alcohol, nitroglycerin, and amyl nitrite, digitalis, strychnin, saline infusions, adrenalin, morphin, and the mixed effects of certain drugs. There were also experiments in reference to certain mechanical effects, such as the effect of increased pressure upon absorption, etc. The blood-pressure was studied in the clinical observations in operations upon the head, mouth, neck, thorax, abdomen, genitourinary system, testicles, spinal column, hernia, and the extremities; operations under cocain, etc. The work shows the author to have carried out a valuable series of experiments, the results of which have added distinctly to our knowledge with reference to a most important subject.

A Manual of Clinical Diagnosis by Means of Microscopic and Chemic Methods for Students, Hospital Physicians and Practitioners.—By Charles E. Simon. Fifth Edition Thoroughly Revised and Enlarged. Lea Brothers & Co., Philadelphia and New York.

The fact that the fifth edition of this valuable work has appeared within two years from the time the fourth appeared is evidence that the author is keeping his work entirely abreast of the most recent discovered facts and methods which pertain to his subject. The entire edition has been revised and contains all the new matter esteemed of value, which has appeared within the past two years. The chapter on blood has been almost entirely rewritten and has been enlarged by some 60 pages. A section dealing with the nature of anilin dyes and the principles of staining has been introduced; the subject of leukocytes has been rearranged in such manner that hyperleukocytes and hypoleukocytes are separately considered in connection with the different varieties of leukocytes. The bacteriology and parasitology of the blood have been enlarged with sections on paratyphoid fever, gonococcus septicemia, bubonic plague, trypanosomiasis, and spotted fever. Important changes and additions have also been made in the chapters on the feces and the sputum, the urine, transudates and exudates. The work is well illustrated, it is highly practical and well adapted to laboratory investigation, particularly in hospitals and in the private laboratory of the individual physician, as well as to the student in medicine. The work is thoroughly abreast of the times, concise, explicit, and practical. We heartily commend it to the profession.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Diseases of the Intestines.—By Dr. I. Boas, Specialist for Gastrointestinal Diseases in Berlin. Second revised and enlarged American edition, translated by permission from the German edition, with special notations and additions by Seymour Basch, M.D., of New York City. D. Appleton & Co., New York and London, 1904.

Studies from the Rockefeller Institute for Medical Research. Reprints. Vol. i, 1904.

A Compendium of Chemistry: Including General, Inorganic and Organic Chemistry.—By Dr. Carl Arnold, Professor of Chemistry in the Royal Veterinary School of Hanover. Authorized translation from the eleventh enlarged and revised German edition. By John A. Mandel, Sc.D., Professor of Chemistry, Physics and Physiologic Chemistry in the University and Bellevue Hospital Medical College. First edition. First thousand. John Wiley & Sons, New York, 1904.

Adolescence: Its Psychology and Its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion and Education.—By G. Stanley Hall, Ph.D., LL.D., President of Clark University and Professor of Psychology and Pedagogy. Vols. i and ii. D. Appleton & Co., New York, 1904.

American Men of Letters: Francis Parkman.—By Henry Dwight Sedgwick. Houghton, Mifflin & Co., The Riverside Press, Cambridge, Mass., 1904.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition.—By Prof. Dr. Carl von Noorden, Physician-in-Chief to the City Hospital, Frankfort. Authorized American edition translated under the direction of Boardman Reed, M.D., Professor of Diseases of the Gastrointestinal Tract, Hygiene and Climatology, Department of Medicine, Temple College, etc. Part v. **Concerning the Effects of Saline Waters (Kissingen, Homburg) on Metabolism.**—By Prof. Carl von Noorden, Frankfort, and Dr. Carl Dapper, Bad Kissingen. E. B. Treat & Co., New York, 1904.

Mrs. Piper and the Society for Psychic Research: Translated and slightly abridged from the French of M. Sage.—By Noralie Robertson, with a preface by Sir Oliver Lodge. Scott-Thaw Co., New York, 1904.

Proceedings of the Eighteenth Annual Meeting of the Conference of State and Provincial Boards of Health of North America, Baltimore, October 23 and 24, 1903. Snow & Farnham, Printers, Providence, 1903.

Radium, Radioactive Substances and Aluminum; with Experimental Research of the Same.—By Myron Metzenbaum, B.S., M.D., Cleveland, Ohio.

Case Teaching in Surgery.—By Herbert L. Burrell, Professor of Clinical Surgery, Harvard University, and John Bapst Blake, M.D., Instructor in Surgery, Harvard University. P. Blakiston's Son & Co., Philadelphia, 1904.

A Textbook of Operative Surgery: Covering the Surgical Anatomy and Operative Technic involved in the Operations of General Surgery. Written for students and practitioners.—By Warren Stone Bickham, Phar.M., M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; Late Visiting Surgeon to Charity Hospital, New Orleans, etc. Second revised edition. Handsome octavo of 984 pages, with 559 illustrations, entirely original. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $6.00 net; sheep or half morocco, $7.00 net.

Epilepsy and its Treatment.—By William P. Spratling, M.D., Superintendent of the Craig Colony for Epileptics at Sonyea, N. Y. Handsome octavo volume of 522 pages, illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $4.00 net.

American Edition of Nothnagel's Practice: Tuberculosis and Acute General Miliary Tuberculosis.—By Dr. G. Cornet, of Berlin. Edited, with additions, by Walter B. James, M.D., Professor of the Practice of Medicine in the College of Physicians and Surgeons (Columbia University), New York. Handsome octavo volume of 806 pages. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $5.00 net; half morocco, $6.00 net.

American Edition of Nothnagel's Practice: Diseases of the Intestines and Peritoneum.—By Dr. Hermann Nothnagel, of Vienna. The entire volume edited, with additions, by Humphrey D. Rolleston, M.D., F.R.C.P., Physician to St. George's Hospital, London, England. Octavo volume of 1,032 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904 Cloth, $5.00 net; half morocco, $6.00 net.

Obstetric and Gynecologic Nursing.—By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College and in the Philadelphia Polyclinic. 12 mo volume of 402 pages, fully illustrated. Second edition, thoroughly revised. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Polished buckram, $1.75 net.

Medical Diagnosis: Special Diagnosis of Internal Medicine. A handbook for physicians and students —By Dr Wilhelm v. Leube, Professor of Medicine and Physician-in-Chief to the Julius Hospital at Wurzburg. Authorized translation from the Sixth German Edition. Edited, with annotations, by Julius L. Salinger, M.D., Late Assistant Professor of Clinical Medicine in the Jefferson Medical College and Physician to the Philadelphia Hospital. With five colored plates and 74 illustrations in the text. Cloth, $5.00; half leather, $5.50. Sold only by subscription. D. Appleton & Co., New York.

AMERICAN NEWS AND NOTES

GENERAL.

Shortage in Medical Plants.—The price of golden seal root has been advanced nearly 100% thus far this year. The average price during January was 75 cents a pound, and it is now held at $1.35. The advance has been due to a scarcity of supplies, occasioned by the fact that the gathering of the root has been lighter and the consumption heavier. This is one of many indigenous drugs the shortage of which has occasioned the manufacturers of chemicals and wholesale drug dealers much inconvenience during the last year. Western senega root is another of these drugs which has been steadily advancing because of the scarcity of supplies, and there are numerous others of lesser importance which cannot be obtained with any degree of certainty, and which are rapidly enhancing in value by reason of their scarcity.

Incurable Sufferers.—The Philadelphia *Record* commenting on this subject editorially, says in part: Whether the medical profession should be legally authorized to kill, by some painless method and under reasonable safeguards, the incurables to whom life is a constant misery, is a question. Still, as to this also, there is not always a clear understanding of the circumstances, and the need of euthanasia is usually exaggerated. Life may hold no blessing for the incurably afflicted, and death might be welcome as a final release from needless suffering, but whatever human intelligence can do to allay the acuteness of the pains is always done. In virtually every case where the chronic disease is attended by great pain, the physician employs all his skill to render the patient insensible to it. Of course, the fact that the constant use of drugs which benumb the brain transforms the patient into a being hardly to be called living, is an argument in favor of an authorized painless death.

Properties of N-rays.—In addition to the other surprising properties of n-rays, it is now stated by wellknown scientific men that n-rays—or, rather, those substances which have the property of emitting these rays—are affected by anesthetics. A statement to this effect was made recently by Meyer, who found that plants subjected to chloroform lose their power of emitting n-rays. His work has been carried further by Becquerel, who has investigated the influence of anesthetics on other sources of this surprising form of radiation. He found that several inorganic sources of n-rays lose temporarily their power under the action of chloroform, ether, or nitrous oxid. These experiments raise the question whether the emission of n-rays is a fundamental vital process. If so, where lies the dividing line between organic and inorganic bodies? In view of other investigations of a somewhat similar character, although along an entirely different line of research, this topic is becoming of increasing interest.—[*Electrical Review.*]

Mortality of Michigan during July, 1904.—The total number of deaths returned to the Department of State for July was 2,510, or 65 more than the number registered for June. The number was 143 less than the number recorded for July, 1903. By ages, there were 520 deaths, or 20.7%, of infants under 1 year; 143 deaths of children aged 1 to 4 years, and 720 deaths of persons aged 65 years and over. Important causes of death were as follows, in reverse order of their numerical importance: Influenza, 4; measles, 8; scarlet fever and whoopingcough, 10 each; puerperal septicemia, 19; diphtheria and croup, 24; typhoid fever, 28; meningitis, 36; pneumonia, 69; cancer, 156; diarrhea, enteritis, under 2 years, 206; tuberculosis, 211, including 166 deaths from tuberculosis of the lungs, and 45 from other forms of tuberculosis; accidents and violence, 226. There were only 5 deaths reported from tetanus, a number much smaller than that for the corresponding month of 1903. No cause for the tetanus was assigned, except in one instance, when a toy pistol was stated to have inflicted the wound that caused death. There were 4 deaths from smallpox.

Miscellaneous.—General: Dr. Hermann Knapp, emeritus professor of ophthalmology in Columbia University, has celebrated at Giessen the fiftieth anniversary of his doctorate, when the diploma was renewed.—Medical examiners for life insurance societies have added the term "coffee heart" to their regular classification of the functional derangements of that organ. Its effect is in shortening the long beat of the heart.—**New York**: The New York *Evening Post* states that the College of Physicians and Surgeons, Columbia University, has received a bequest of $10,000 by the will of Mrs. Eleanor Cooper.—Dr. Henry J. Prentiss, professor of practical anatomy, University and Bellevue Hospital Medical Colllege, has accepted the chair of anatomy at the University of Iowa, made vacant by the death of Dr. J. W. Harriman.—Dr. Sidney D. Wilgus, of New York City, has been appointed by the State Commission in Lunacy as chief examiner, under the law passed by the last Legislature creating a State Board of Alienists. **Farewell Editorial**: W. C. Cooper has retired from the position of associate editor of the *Eclectic Gleaner*. **Foreign**: The Paris Academy of Sciences has awarded the Lecomte prize of 50,000 francs for the most interesting work in physical science to Professor Blondlot for his researches on the n-rays.

NEW YORK.

Infant Mortality and Morbidity.—The *Evening Post* says: Dr. Cronin of the Health Department has called the attention of the public to the terrible mortality which was induced among infants by the unrelenting July rains. Back of this is the old story of the incapability of people of the lower classes to give proper care to the babies they bring into the world. Dr. Cronin has found discouragement aplenty in the communities which make beer, strong tea, and raw fruit, staples for 10-days-old children. He says that fully 40% of the deaths among infants under 2 years of age are among those which have been fed on condensed milk and patented baby foods. And in spite of a cool summer and the best efforts of the Health Department, the number of deaths among little children has been nearly twice as great for the last six weeks as it was last year. The milk supply of the city, if accounts may be trusted, is at its maximum of excellence. Public-spirited citizens have put sterilized milk within the reach of mothers who cannot obtain it otherwise.

PHILADELPHIA, PENNSYLVANIA, ETC.

Mild Epidemic of Dysentery.—The number of deaths from dysentery has stirred up the health authorities and Director Martin has issued a warning to the public to take extra precautions in the matter of eating and drinking at this season.

Fight against Smallpox Continued.—Notwithstanding the fact that smallpox for the first time in three years has disappeared in the city of Philadelphia, the fight against this scourge throughout the State is being continued. The Secretary of the State Board of Health has sent a warning throughout the State that it would be folly to suspend in the least degree any effort to prevent the continuance of smallpox and a renewed epidemic next winter. The disease, he says, which has been so widespread for several years shows signs of rapid abatement. He points out that there are still numerous places where the disease exists, and that last month 60 cases and 9 deaths were reported. Dr. Lee declares that had the law in respect to vaccination been obeyed 5 years ago the record of 20,286 cases and 1,585 deaths from smallpox since that time would have been almost entirely prevented. The Secretary has sent to every School Board the following letter: "You are instructed to address a communication to the parent or guardian of every child of school age in your district to the effect that no child will be permitted to enter school next month who cannot present a certificate of successful vaccination signed by a reputable physician. The penalty for failure, neglect or refusal to comply with the law is a fine of not less than $5 or more than $100 or imprisonment for a period not exceeding 60 days."

WESTERN STATES.

A Modern Chinese Physician.—Chang A. Holt, the first Chinaman admitted to practice by the medical examiners of San Francisco, is now a full-fledged physician-surgeon. Dr. Holt was born in Canton 26 years ago, and does not intend to practice in this country, but will return to his native land after a tour of the United States. He has become a Christian.

Medical Library for San Francisco.—San Francisco is to have a great library of medicine and surgery, one that will be surpassed in this country only by the collection of medical and surgical works of the offices of the Surgeon-General of the United States in Washington. The library is to be built under the bequest made by Pauline C. Lane, who was the wife of the late Dr. L. C. Lane. It is to be known as the Levi Cooper Lane Library of Medicine and Surgery, as a memorial to the eminent surgeon.

FOREIGN NEWS AND NOTES

GENERAL.

Poor Sanitation in St. Petersburg.—In the opinion of the Town Sanitary Committee of St. Petersburg the town medical officers should be sent abroad periodically in order to become acquainted with the progress of the sanitary and medical departments of the large towns of Western Europe, so as to organize properly, medical and sanitary supervision.

School of Psychology.—There is in Paris a new school of psychology to investigate such questions as mind reading, mental suggestion at a distance, clairvoyance, presentiments, automatic writing, double personality, etc. This school, unlike most associations studying these subjects, has for its members medical men almost entirely, whose professional duties bring them in close contact with these often curious phenomena. The members are followers of Charcot.

Bathing in Japan.—Clarence Ludlow Brownell, in his recently published book, "The Heart of Japan," says that the deathrate for children is lower in Japan than it is in Europe and in America. This is as it should be, in a country where the houses are off the ground a foot or two, and have no cellars, and the air inside is as fresh as it is out; where, too, in such places at least as Tokio, everyone bathes and has a good scrubbing every day. From 800,000 to 1,000,000 persons go to the public baths of the capital daily, and there are tens of thousands of private baths besides. That is a good showing for a city with a population of less than 2,000,000.

A Great Teaching Hospital.—The Austrian Emperor, Francis Joseph, has just laid in Vienna the foundation stone of a new hospital, which is likely to be one of the most perfect institutions of its kind in the world. It will replace the famous Allgemeine Krankenhaus in the Alserstrasse, and will be the largest hospital in Europe. It will consist of 40 pavilions, as they are to be called—of which, however, the 18 clinical institutes will be so many separate large hospitals, with the best possible arrangements for teaching purposes, demonstrations, etc. There will be room in each operating amphitheater for 250 students. In the clinical institutes for infectious diseases the patient will be separated from both professor and students by a glass screen. Every clinical institute will have a large ambulatorium, and in each there will be flat roofs, where patients may lie in the open air whenever weather and temperature allow it. The whole area of the new hospital is nearly 60 acres, this being more than twice the area of the present Krankenhaus; but there will be fewer beds. About four-fifths of the total area, or 48 acres, will be turned into gardens. It will take 10 years to finish the institution, which will cost about $10,000,000.

The Opium Problem in the Philippines.—Information from Manila, August 5, says the opium committee appointed last August by Hon. Wm. H. Taft to investigate the laws and conditions with regard to opium in all Oriental countries has made its report. The committee recommends that the opium traffic be made a governmental monopoly at once; that at the end of three years the importation of opium be absolutely prohibited, with the exception of that for medicinal requirements; that only confirmed habitues of the drug who are over 21 years old be granted a smoker's license; that an educational campaign against the use of opium be started in the schools; that the habitues of the drug be treated free of charge in government hospitals, and that Chinese found guilty of importing opium be deported. The committee visited China, Japan, Burmah, Java, and some of the Malay States, and was absent on its labors five or six months. The committee was appointed after vigorous discussion in Manila, of the proposed opium bill introduced before the civil commission by Commissioner Smith, of California, who went out to the islands originally as colonel of the California volunteers. This bill provided for the creation of a monopoly to control the opium traffic throughout the archipelago, to be sold by the Government to the highest bidder. It was strongly opposed by the missionary element and church interests in the islands, and never became a law.

Russia's Care of the Wounded.—It is asserted that the twenty-sixth military hospital train, fitted out by the Ministry of War, has left for Irkutsk. The whole length of the Manchurian and Siberian Railway lines has been systematically split into sections and numbered hospital trains, replete with the best surgical and other appliances obtainable, have been apportioned to these sections. The staff on each train includes 3 or more doctors, 6 to 10 nurse Sisters of the Red Cross Society, and 30 to 40 hospital assistants. Each train has accommodations for 200 to 300 wounded and sick. The hospital train referred to is destined to run solely between Irkutsk and Kazan. Here a hospital train and a hospital steamboat or barge serves to link up from Kazan. The seriously wounded will be dispatched to various hospital establishments in the vicinity of the Volga, Sheksua, and other waterways by barge or a specially fitted light draught steamboat. The department of military communications for the transport of the wounded is perfecting a system of transport into the home centers by water, and, to judge by the extensive preparations being made all the way from Astrakhan to Cherepovitz, the arrival of considerable numbers of Russian wounded is clearly anticipated. The management at Franzensbad and other foreign water cure resorts have offered to allow Russian wounded officers and others to take advantage of their facilities for treatment free of charge.

Koch Still Adheres to His Theory.—According to recent reports, Professor Koch is not at all disturbed by the decision reached by the British Royal Commission on the subject of bovine and human tuberculosis. When this was published he was absent from Berlin, but on his return he said that he saw no reason for modifying his views, and declared again emphatically his conviction that the transmission of bovine tuberculosis to man cannot take place by means of food. Neither bovine flesh nor milk, he asserts, can transfer the disease. It is possible for a butcher at the slaughter house to become infected by injuring himself when handling tuberculous meat, but even then the infection remains local. It causes a local sore, but no general disease. The report of the Royal Commission, Professor Koch says, does not contain a single fact to make him change his opinion, which is based on very careful experiments, not only by himself, but by other medical men of the highest standing. It is for his opponents, he says, to prove that he is wrong. He has tried for years to find a case in which tuberculosis was transferred from animals to men. Three years ago the Prussian minister for public instruction, at his request, instructed all physicians in charge of the large public hospitals to report all cases which came to their notice of bovine tuberculosis transmitted to man, and up to this day he is waiting to hear of the first case. "Veterinary surgeons say that .5% of all cows have bovine tuberculosis, yet the Royal Commission," says Professor Koch, "cannot state a case of a man being infected by drinking the milk of such cows. How many millions are wasted by the killing of animals, the flesh of which is said to be dangerous, and for the sterilization and pasteurization of milk, which loses many of its good qualities in the process? If all these millions were spent on really practical means for combating tuberculosis, one might get the mastery over it."

OBITUARIES.

F. LeBaron Monroe, of Meriden, N. H., suddenly, August 21, near Winchester, Mass., aged 69; a graduate in the academic department of Yale University in 1857, and from the Harvard Medical School in 1860; surgeon in the Federal army during the Civil war, after which time he was stationed at Gallops Island, Boston Harbor, where he daily visited Fort Warren. He was subsequently commissioned assistant surgeon in the regular army and served in the West; later he retired from practice.

Walter J. Byrne, at his home in Russellville, Ky., August 1, aged 80; a graduate of the medical department of St. Louis University in 1848; a surgeon in the Confederate service during the Civil war; one time superintendent of the Central Kentucky Hospital for the Insane.

George W. Menees, at his home in Springfield, Tenn., August 1, aged 70; a graduate of the University of Nashville, Tenn., Medical Department in 1855; member of the American Medical Association, and one of the best known practitioners in his city.

Henry B. McCarroll, at his home in Morristown, N. J., August 18; a graduate of the College of Physicians and Surgeons, New York City, in 1881. He was visiting surgeon of All Soul's Hospital and was on the medical staff of the Morristown Memorial Hospital.

John O'Flaherty, at his home in Hartford, Conn., July 31, aged 62; a graduate of Albany (N. Y.) Medical College in 1864; an army surgeon during the Civil war and for several years president of the medical board of St. Francis Hospital, Hartford.

John Thurman Parker, at his home in New York City, August 20, aged 67. He was assistant surgeon in the Federal service during the Civil war, and one of the physicians who attended the inmates of Libby prison when they were liberated.

Frank J. Havelicek, at his home in Cleveland, Ohio, August 7, aged 45; a graduate of the medical department of Adelbert College of the Western Reserve University, Cleveland, Ohio, in 1882; member of the American Medical Association.

Henry M. W. Moore, at his home in Columbus, Ohio, August 6, aged 42; a graduate of the Columbus (Ohio) Medical College in 1885; member of the American Medical Association and a Spanish war veteran.

Albert Preston Fulkerson, at the home of his brother in Lexington, Mo., from meningitis, aged 68; a graduate of Jefferson Medical College, and surgeon in the Confederate army during the Civil war.

George T. Heston, at his home in Newtown, Pa., August 16, aged 78; a graduate of the University of Pennsylvania. He was the oldest physician in Bucks county, widely known, respected, and loved.

Charles Newton Thompson, for many years army surgeon to the Ninth Infantry, N. G. N. Y., at Nantucket, Mass., August 7, aged 54; a graduate of Bellevue Hospital Medical College in 1884.

Charles Thomas Varnon, at his home in Mexico, Mo., from Bright's disease, July 24, aged 53; a graduate of the University of the State of Missouri Medical School, Columbia, in 1876.

J. Frederick Nott, of New York City, in the Maine General Hospital, Portland, Me., August 17; a graduate of the New York Homeopathic Medical College, New York City, in 1877.

Robert Milbank, of New York City, at Byram Shore, N. Y., August 4, aged 66; a graduate of the New York University in 1878; visiting physician to the New York Infant Asylum.

James Henry Reynolds, at his home in Adrian, Mich., July 30, aged 59; a graduate of the Detroit (Mich.) Medical College in 1871; formerly mayor of his home city.

Thomas F. Thornton, of Grand Ledge, Mich., at St. Mary's Hospital, Detroit, August 3, from diabetic gangrene; a graduate of Detroit (Mich.) Medical College in 1873.

John L. Evans, of Colorado Springs, at Norton Infirmary, Louisville, Ky., July 30, aged 38; a graduate of the University of Louisville, Medical Department, in 1888.

Evans Protho, of England, Ark., at the home of his brother near Little Rock, Ark., recently, aged 32; a graduate of Memphis Hospital Medical College in 1898.

Richard C. Bond, of Aurora, Ind., at the home of his sister in Quiet Dell, W. Va., July 7, aged 83; a graduate of Miami Medical College, Cincinnati, in 1857.

Alfred A. Wall, of Tuscumbia, Ala., at the home of his son in Jasper, Ala., July 11, aged 80; a graduate of the University of Pennsylvania in 1849.

R. Bliss Kennedy, at his home in Burlington Junction, Mo., July 26; a graduate of Beaumont Hospital Medical College, St. Louis, in 1891.

Henry S. Kimmel, at his home in Dayton, Ohio, August 6, aged 70; a graduate of Cincinnati College of Medicine and Surgery in 1861.

Francis B. Ambler, at St. Mary's Hospital, Detroit, August 7, aged 38; a graduate of Denver College of Medicine, Denver, Colo., in 1897.

David Y. Winston, at his home in Clarksville, Tenn., August 7, aged 42; a graduate of the University of Pennsylvania in 1888.

Joseph Weaver, at his home in Miamisburg, Ohio, July 19, aged 87; a graduate of Medical College of Ohio, Cincinnati, in 1838.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 19, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
District of Columbia:	Washington	Aug. 6-13	1	
Illinois:	Chicago	Aug. 6-13	8	
Louisiana:	New Orleans	Aug. 6-13	9	
Maine:	Madawaska region	July 31-Aug. 6	11	
Massachusetts:	North Adams	Aug. 6-13	5	1
Michigan:	Grand Rapids	Aug. 6-13	1	
Missouri:	St. Louis	Aug. 6-13	1	
Nebraska:	Omaha	Aug. 6-13	1	
New York:	New York	Aug. 6-13		1
Ohio:	Cincinnati	July 19-Aug. 5	2	
Washington:	Tacoma	July 23-30	1	
Wisconsin:	Milwaukee	Aug. 6-13	3	
	SMALLPOX—INSULAR.			
Philippine Islands:	Manila	June 4-11	3	2
	SMALLPOX—FOREIGN.			
Brazil:	Bahia	July 8-23		15
	Pernambuco	July 1-15		23
	Rio de Janeiro	July 3-17	442	217
Formosa:		June 1-30	3	
France:	Paris	July 23-30	11	2
Germany:	Berlin	July 9-16	8	
Great Britain:	Edinburgh	July 16-30	4	
	Glasgow	July 28-Aug. 5	1	
	Leeds	July 31-Aug. 6	1	
	Liverpool	July 31-Aug. 6	1	1
	London	July 16-30	13	3
	Manchester	July 23-30	4	1
	Newcastle-on-Tyne	July 16-30	13	2
	South Shields	July 16-23	1	
India:	Bombay	July 12-19		6
	Calcutta	July 2-9	1	
	Karachi	July 10-17	3	
Mexico:	City of Mexico	July 24-31	3	
Russia:	Moscow	July 16-23	10	5
	St. Petersburg	July 16-23	3	1
	Warsaw	July 2-9		16
Turkey:	Alexandretta	July 16-23		2
	Beirut	July 23-30	Present.	
	Constantinople	July 24-31		5
	Smyrna	June 26-July 24		2
	YELLOW FEVER.			
Brazil:	Rio de Janeiro	July 3-17	4	1
Colombia:	Barranquilla	July 24-30		1
Mexico:	Coatzacoalcos	July 21-Aug. 6	4	2
	Vera Cruz	July 21-Aug. 6	2	
Panama:	Ancon	Aug. 1	1	
	Panama	June 25-Aug. 1	1	
Venezuela:	Maracaibo	July 17-24	1	1
West Indies:	Curacao	July 29-Aug. 5	1	1
	CHOLERA.			
India:	Calcutta	July 2-9		9
Persia:	Teheran	June 9-16	Epidemic.	
Turkey in Asia:		July 12	227	213
	PLAGUE—INSULAR.			
Hawaii:	Honolulu	Aug. 15	1	
	PLAGUE—FOREIGN.			
Africa:	Cape Colony	July 2-9	1	
Australia:	Brisbane	June 11-18	1	
	Maryborough	June 11-18	1	
	Perth	June 26-July 4	2	1
	Sydney	June 11-18	1	1
Brazil:	Bahia	June 8-23		7
	Rio de Janeiro	July 10-17	7	4
China:	Hongkong	June 18-25	44	40
Egypt:		July 9-16	14	8
Formosa		June 1-July 16	440	467
India:	Bombay	July 12-19		58
	Calcutta	July 2-9		18
	Karachi	July 10-17	1	1
Peru:	Lima	July 2-9	4	2

Changes in the Medical Corps of the U. S. Army for the week ended August 20, 1904:

SMITH, RODNEY D., contract surgeon, will proceed to Fort Lawton for duty upon arrival of Captain Jere B. Clayton, assistant surgeon, at Camp Skagway, Skagway, Alaska.

LYSTER, First Lieutenant W. J., assistant surgeon, is granted leave for thirty days, to take effect upon his return to station from the field exercises at camp at Rancho del Encinal, Cal., with permission to apply for an extension of thirty days.

COX, First Lieutenant WALTER, assistant surgeon, leave granted August 2 is extended to include August 27.

DE WITT, First Lieutenant WALLACE, assistant surgeon, is granted leave for one month from about September 20.

SMITH, RODNEY D., contract surgeon, will remain at Camp Skagway, Alaska.

The following changes in the stations and duties of officers are ordered: First Lieutenant Robert E. Noble, assistant surgeon, is relieved from duty at the U. S. General Hospital, Washington Barracks, to take effect September 5 and will then proceed to San Francisco, Cal., and report for assignment to duty at the U. S. General Hospital, Presidio, to relieve First Lieutenant Junius C. Gregory, assistant surgeon. Lieutenant Gregory will report for assignment to duty as surgeon on the transport Sheridan during the next voyage of that transport from San Francisco, Cal., to Manila, P. I., to relieve First Lieutenant William R. Davis, assistant surgeon. Upon arrival at Manila, Lieutenant Gregory will report to the commanding general, Philippines Division, for assignment to duty. Lieutenant Davis will report by telegraph to the military secretary, War Department, for further orders. Sergeant First Class Thomas Person, now at Seattle, Wash., will be sent to the infantry cantonment, Presidio.

TITUS, FRANK H., contract surgeon, is granted leave for one month to take effect when his services can be spared by the commanding general, department of California. Contract Surgeon Titus is relieved from duty in the department of California, to take effect upon the expiration of the leave granted him August 12, and will then proceed to his home, Portsmouth, Ohio, for annulment of contract.

RAYMOND, Major THOMAS U., surgeon, is relieved from further duty at the Louisiana Purchase Exposition, St. Louis, Mo., and will proceed to Fort Assinniboine for duty.

WHITNEY, WALTER, contract surgeon, leave granted April 27, 1904, is extended one month.

KILBOURNE, Lieutenant-colonel HENRY S., deputy surgeon-general, retirement from active service August 14 by operation of law, under the provisions of the act of Congress approved June 30, 1882, is announced. Lieutenant-colonel Kilbourne will proceed to his home.

CLAYTON, Captain JERE B., orders of August 9 are revoked. Captain Clayton will return to his proper station at Fort William H. Seward, Alaska.

JONES, First Lieutenant PERCY L., assistant surgeon, will accompany the battalion of engineers from Washington Barracks to Manassas, Va.

WHINNERY, JEAN C., contract dental surgeon, is granted leave for two months to take effect upon his arrival at San Francisco, Cal.

SCHWENKENBERG, JOHN, sergeant first class, upon relinquishment of furlough granted him from the Philippines Division on or before August 29 will be sent to Fort Brady to relieve Sergeant First Class Homer J. Robison. Sergeant First Class Robison will be sent to Manila, P. I.

PERLEY, Major HARRY O, surgeon, is relieved from duty at Fort Logan and will proceed to West Point, N. Y., in time to arrive at that place not later than August 25 and report to the superintendent of the U. S. Military Academy for duty.

RHOADS, First Lieutenant THOMAS L., assistant surgeon, is relieved from duty as attending surgeon and examiner of recruits, Philadelphia, Pa., and will proceed to West Point, N. Y., and report to the superintendent of the U. S. Military Academy for duty, to relieve Captain Walter D. Webb, assistant surgeon, who will proceed to Fort Huachuca for duty.

HARSON, HARRY, sergeant first class, Company of Instruction No. 2, Hospital Corps, Fort McDowell, will be sent to New York City, reporting to the attending surgeon, No. 39 Whitehall street, for duty in his office.

TIGNOR, EDWIN P., contract dental surgeon, is detailed to represent the dental corps of the Army at the meeting of the Fourth International Dental Congress, to be held in St. Louis, Mo., August 29 to September 3.

WARE, WILLIAM H., contract dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Logan for duty.

WADDELL, RALPH W., contract dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Leavenworth for duty.

HUSSEY, SAMUEL W., contract dental surgeon, is granted leave for two months from September 15.

RIETZ, HUGO C., contract dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Sheridan for duty.

GUNCKEL, GEORGE I., contract dental surgeon, now at Greenville, O., will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands, and upon arrival at Manila will report for assignment to duty.

Changes in the Medical Corps of the U. S. Navy for the week ended August 20, 1904:

FARENHOLT, A., surgeon, detached from the Concord and ordered to the Monterey—August 12.

LOWNDES, C. H. T., detached from the Chesapeake and ordered to the Naval Academy—August 13.

MEANS, V. C. B., surgeon, detached from the Monterey and ordered to the San Francisco—August 17.

HEINER, R. G., assistant surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the Southery—August 17.

FITTS, H. B., surgeon, detached from the Pensacola and granted leave for thirty days—August 18.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

PNEUMONIA.

BY

L. D. SHEETS, M.D.,

of Bloomfield, N. J.

To the Editor of American Medicine:—In *American Medicine*, for June 18, some remarks by N. S. Davis, one of the fathers of the American Medical Association, quoted from "International Clinics" in regard to the treatment of pneumonia, are deserving of attention.

Dr. Davis believes that the great mortality of pneumonia is owing to the injudicious selection and use of remedies, and that the treatment by venesection, sedatives, alteratives, etc., secured a lower mortality than by any other means. These are undoubted facts; and why the antiphlogistic treatment was ever abandoned is beyond my comprehension, unless to satisfy the restless desire for change. Surely every one must admit that, since the adoption of the new treatment, the mortality has been constantly increasing. Now it seems that if a person is attacked by pneumonia he might as well make his will and call in the undertaker!

The bacterial craze is doubtless responsible for the change in treatment. It is well, however, to remember that all changes are not improvements. It is presumed that the pneumococcus bacillus is the cause of the disease, and that it cannot be exterminated by the old treatment. We believe, however, that the old pathologists were correct, in that the disease is a genuine inflammation caused by the vicissitudes of weather, cold, dampness, etc., producing an irritation in the lungs; that *Ubi irritatio ibi fluxus*, thus causing the lungs to become congested with blood, which condition is best relieved by venesection. This intense congestion, extending to the right side of the heart, accounts for so many dying during the first two or three days of the disease. The patients are asphyxiated and quickly succumb, the fatality not being attributable to the innocent pneumococcus.

With the foregoing opinions on the nature of the disease I cannot believe that pneumonia is contagious. With a considerable experience in treating pneumonia, I never saw the least evidence of contagion. I never took the least precaution against its spread; and it never did spread. I do not remember ever having two cases in the same family during the same season.

During the period mentioned by Dr. Davis, viz.: The second and third quarters of the nineteenth century, I was in active practice in the West, and had much to do with this disease. My practice was to bleed almost universally, give calomel purgatives, then tartar emetic, and apply blisters, etc., with a mortality almost nil. I enjoyed being called to a case of pneumonia, as I felt I had something I could control without much difficulty. I never expected to lose a case, and if a patient happened to die it was entirely unexpected!

I have great faith in the Italian contrastimulant plan of Rasori, who gave large doses of tartar emetic. I usually commence its use with about ⅙ gr. (1 cg.) every three hours. The first few doses often produce nausea and vomiting, but tolerance is soon established. Sometimes I use a little morphin with the tartar emetic, in the beginning, to obviate the nausea.

Often, when making a visit about or near the end of the first week, I have been told that the patient had very loose bowels, which I was always pleased to hear, as it meant a crisis and that convalescence would soon follow.

When I came East, in 1861, we found an opposite course of treatment in vogue, such as stuffing with stimulants, quinin, food, etc., and I was compelled to discard bleeding, but continued the tartar emetic.

One point in treatment I learned by accident and have used ever since. Visiting a patient one day in winter, I found him bathed in profuse perspiration, the room being tightly closed and stifling hot. It happened that the furnace had gotten beyond control. On examination I found the patient so much improved that I advised him to maintain the same temperature, which he did, and a speedy convalescence followed. I have tried this expedient since then with very good results. I have had infants in their cribs drawn close to the fire with decided benefit.

There are fads in medicine as in many other things; and that of substituting the stimulant for the antiphlogistic plan has had its reign, and should be consigned to the tomb of the Montagues and Capulets. The pendulum has swung to the extremity of its arc, and it is time for it to return. And as the present treatment of pneumonia is so disastrous, let us return to that which was formerly so effective. There is nothing to lose by making the change. We believe with Dr. Davis that the mortality would be reduced half if not more.

A CASE OF FIBROMYXOSARCOMA OF THE SACRUM OF LARGE SIZE SUCCESSFULLY TREATED BY CATAPHORIC OPERATIONS, WITH PRESERVATION OF THE SPHINCTER.[1]

BY

G. BETTON MASSEY, M.D.,

of Philadelphia.

Mrs. C. A., aged 26, the mother of a baby aged 18 months, came to me from Royersford, Pa., in October, 1903. Mrs. A. had a history of two difficult childbirths several years before, with instrumental delivery and death of the children, but the last confinement had been normal.

In the spring of 1903 a tumor was discovered in the pelvis. After some delay she consulted a surgeon connected with the Hahnemann Hospital in this city, and on September 6, he performed an abdominal section and found that the tumor was attached to the sacrum. The abdominal incision was closed, and an unfavorable prognosis given.

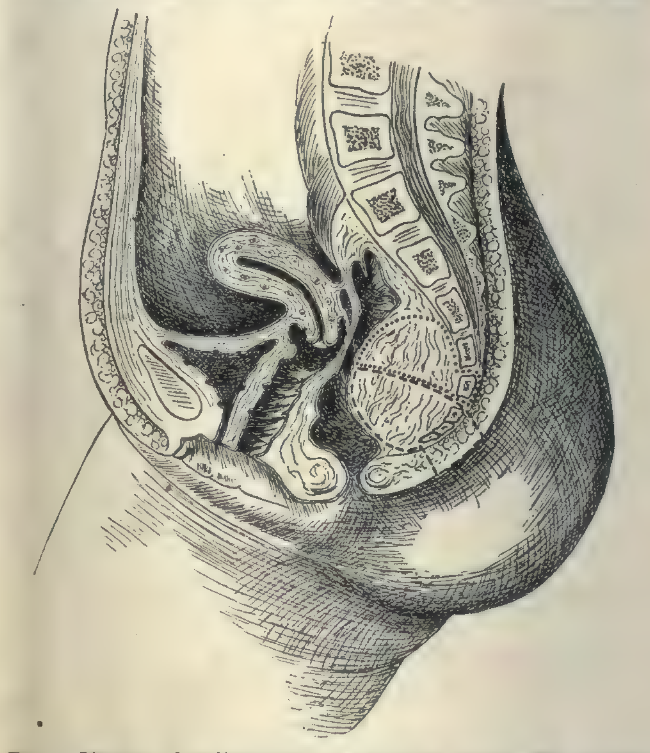

Fig. 1.—Diagram of median section of pelvis and tumor. The portion destroyed by the first operation is enclosed by a broken line, and includes the last three bones of the coccyx. The remainder of the tumor, including the first segment of the coccyx, was destroyed by the second operation, and is indicated by a dotted line.

The patient then went to Dr. W. W. Keen, of Philadelphia, who is reported to have concurred in the diagnosis of sarcoma, and to have said that an operation for its removal would be dangerous and would probably result in paralysis.

On examination a hard growth was found in the posterior portion of the pelvis. With the examining finger in the rectum this growth was ascertained to be posterior to the rectum and attached to the inner surface of the sacrum by a broad base. It was about the size of two fists and nearly filled the pelvis, the lower border curving back to the sacrum at a point about two inches from the anus. The upper edge could not be reached by the finger.

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[1] Read before the Philadelphia County Medical Society, June 22, 1904.

As the tumor was growing rapidly, it was decided that a desperate effort should be made to destroy it by the massive dissemination of mercuric ions with a strong electric current, under general anesthesia. The necessary batteries were accordingly taken to her home and the kind services of the family physician, Dr. James C. Mewhinney, of Spring City, were enlisted.

The application was made on October 5 at Royersford, with the assistance of Drs. Mewhinney and J. Elmer Porter, of Pottstown, whose effective help I am glad to acknowledge. After the patient was anesthetized and placed on a specially prepared negative pad on a cot, in the Sims' position, the skin over the upper portion of the coccyx was incised to admit a sharp-pointed zinc-mercury electrode somewhat larger than a lead pencil, the unusual thickness of the electrode being arranged to prevent breakage when softened with mercury. Through the slit thus made in the skin the electrode was forcibly thrust into the still healthy tissues surrounding the coccyx, and directed upward into the middle of the growth by a finger in the rectum. This route through the healthy tissues above the anus was selected to avoid interference with the anal sphincter, and also because it was anticipated, as it subsequently occurred, that the slough would be too large to come away through an intact anus. A powerful current was then slowly turned on; this quickly developed the ionized chemicals by electrolytic destruction of the anode, and dispersed them radially from the electrode, necrosing and sterilizing an increasing area of skin, subcutaneous tissue and malignant tissue surrounding the electrode. The current was gradually raised to 1,600 milliamperes, after two other electrodes of smaller size had been inserted alongside the first, and was allowed to flow steadily for three hours, when it was turned off and the patient placed in bed.

The conditions present after the application were as follows: A round, grayish-colored area of devitalized and sterilized skin, subcutaneous tissue and sarcoma tissue had been produced with a diameter of about three inches, extending deeply into the growth. The growth itself had became shrunken and softer, as ascertained by the rectal touch.

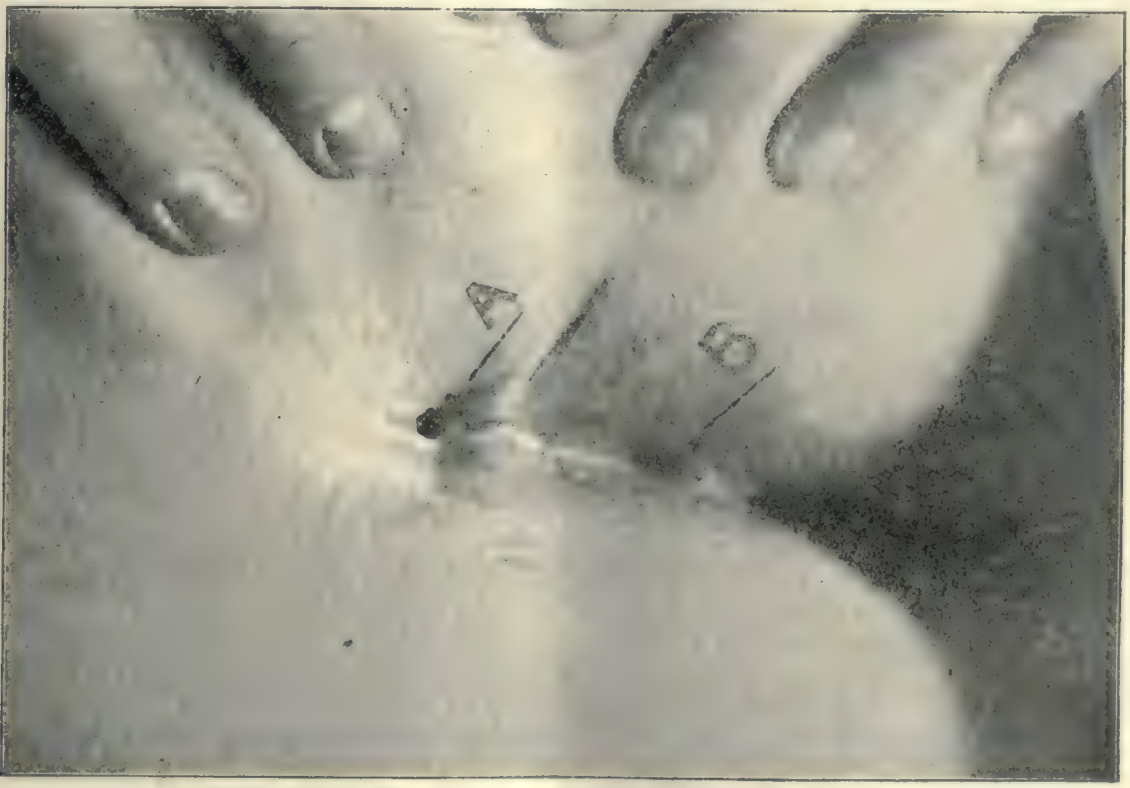


Fig. 3.—Scar 7½ months after cataphoric destruction of sarcoma of sacrum (full size). A, sinus leading into rectum; B, anus. The sinus has become still smaller since this photograph was taken.

Owing to faulty arrangement of the negative pad, the patient had several bad skin burns on different portions of the trunk, and these gave her more discomfort during the time she remained in bed than the area treated.

Two weeks after the application there was a sharp secondary hemorrhage from the wound, which was readily controlled by pressure.

On the twenty-first day after the operation three of the bones of the coccyx and about half of the tumor came away bloodlessly.

In the diagram of a median section of the tumor and pelvis shown in Fig. 1, the portion that separated at this time is enclosed by a broken line.

Through the three-inch wide opening thus made it was seen that the whole growth had not been destroyed, a red mass showing plainly at the bottom of the sinus. The finger in the rectum could now be hooked over the top of the remaining portion of the growth. The posterior wall of the rectum had been destroyed, and all fecal movements passed through the wound.

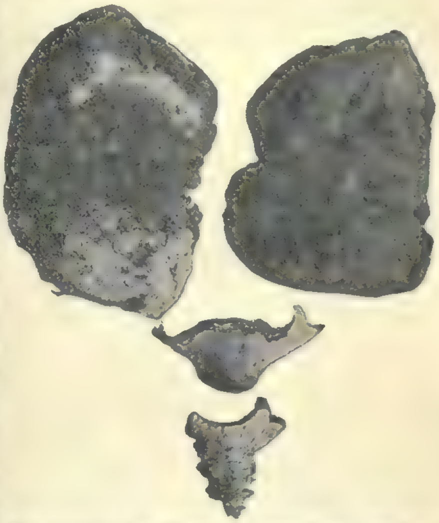


Fig. 2.—The two pieces of devitalized sarcoma tissue and the bones of the coccyx, as they appeared after separation (reduced to one-fourth size.)

The patient's condition was so fair that a second and what proved to be a final application was made one month after the first, or on November 4, 1903. At this time 1,200 milliamperes were turned on and maintained for two hours. Sixteen days later the remainder of the mass came away, somewhat larger than a man's fist, and three days later the detached, devitalized first segment of the coccyx was lifted out of the wound. (Fig. 2.)

During December efforts were made to direct the fecal discharges through the natural anal opening, about an inch below the wound, by inserting hard-rubber tubes of various sizes through the anus to keep it patulous, but the tubes failed to maintain an opening with a proper curve to intercept the dejecta and were finally abandoned, the fecal discharges continuing to pass through the wound until its gradual narrowing, late in the winter, diverted the feces into the natural channel through the anus.

The patient sat up in the second week of December, went downstairs on Christmas day, and walked out January 10. On January 13 she had the first natural movement through the anus.

At the present time, more than seven months after the last application the patient whom I present to you this evening, is in unusually good health, with no evidence of fulness or growth of any kind in the pelvis or elsewhere. She walks and sits easily, and the opening is so small as to scarcely admit a small pea (Fig. 3); it is believed that it will ultimately close entirely.

At the time of the second application a small portion of the growth was removed and sent to the Philadelphia Clinical Laboratory for histologic examination. The report characterized the growth as a fibromyxosarcoma.

TORSIO HEMATOKRIT AND CENTRIFUGE.

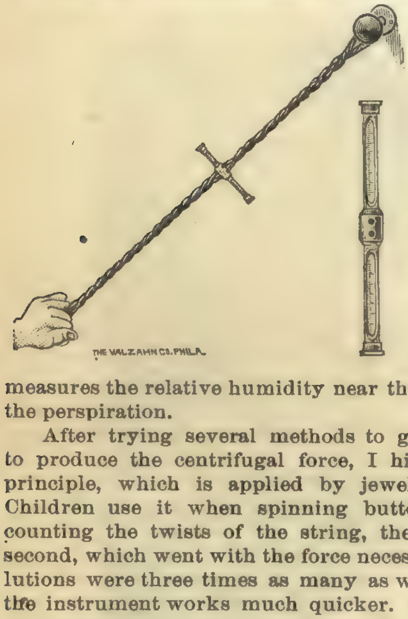
BY

HENRY EMERSON WETHERILL, M.D.,

of Philadelphia.

To the Editor of American Medicine:—On the suggestion of Dr. James Tyson for a quicker clinical method for determining the amount of blood cells, I settled upon this improvement of the hematokrit, after full consideration of several other methods. According to authorities on the blood, the instrument to be of practical value must be portable, compact, light, noiseless, accurate and free from danger. These factors were not obtained in this instrument without considerable experimental work, first one failure and then another, until all the parts were made with the desired factors of safety and accuracy.

The great objection to the hematokrit comes from the fact that we try to measure the number of corpuscles with an instrument giving volume. On the latter we should base our diagnostic data to make the centrifuge and hematokrit useful.



There is a difference, as with cobalt chlorid — papers for measuring the perspiration in absolute weight, and the medical hygroscope, which measures the relative humidity near the surface, as caused by the perspiration.

After trying several methods to get the necessary speed to produce the centrifugal force, I hit upon the whirligig principle, which is applied by jewelers in bow drilling. Children use it when spinning buttons on a string. By counting the twists of the string, the number of pulls per second, which went with the force necessary, I found the revolutions were three times as many as with the hematokrit, so the instrument works much quicker. But would the to-and-fro motion, and shaking from any lack of balance, and straightness of the tube container, make any difference? The trials showed these possible errors negative. The tube could be stopped in a vertical position when 2 cc. pointed centrifuge tubes were used. The double motion gave less precipitate on one side of the tube, as the corpuscles are thrown down in a zigzag course to the outer end of the tube. There is great force developed, and until the parts were made strong, nonleakable, and without "wabble," I had many accidents.

It is not alone for the centrifugation of blood, but as I remarked at the Microscopical Section of the Academy of Natural Sciences, Philadelphia, medusas of phosphorescent water could be precipitated for examination. Also, the quantity of chemic precipitate can be determined in urine, milk, sputum, and suspended solids can be determined quantitatively.

This instrument being scientific, mechanical and low priced, it is hoped that it will popularize more accurate diagnosis with our busy physicians, for the results can very quickly be determined at the bedside. The instrument, which weighs less than an ounce, is made of aluminium.

CASE OF INTERSTITIAL OR CORNUAL GESTATION?

BY

J. M. BURT, M.D.,

of Rhone, Pa.

To the Editor of American Medicine:—The following case is of interest, because of the difficulty of diagnosis previous to abortion and the question of the exact diagnosis remaining unsettled thereafter:

Case.—Mrs. A. K., an American, aged 22, has been married 18 months. Her menses began at 13, and have always been irregular, often missing three or four periods, painful, and accompanied by nausea and vomiting. The pain is most severe on the first day, the patient being confined to bed. She has an attack of pain about two weeks after each period. She has had some leukorrhea for three or four years. There is no history of pelvic disease and she has never been pregnant.

Her last menstruation, which occurred the middle of October last, was of the usual character. About December 1, morning nausea and vomiting began and occurred daily until January 29. In the middle of December there was a show of hemorrhage. On January 1, when patient was first seen at my office, flow had been quite free and was accompanied by cramping pains. Some clots were passed. There was slight backache. She has had some tenderness in the left inguinal region. Sleeps poorly, pulse 82, fair tension, hands and feet cold, appetite fairly good, bowels regular. January 2 flow resembled menses and was without pain.

January 9.—Some hemorrhage has continued, with bearing-down pains and expulsion of some clots. Pains are not sharp, and no distinct membrane has passed. She has some headache. Examination of breasts is negative. Cervix is hard, not dilated. Uterus has boggy feel and is enlarged, with prominence of right side noticeable and some tenderness on that side. Abdomen is not relaxed sufficiently to get the hand back of the fundus. External os is cyanotic, but cervix and vagina are not discolored.

January 11.—Thin, whitish membrane was expelled, with clots, and some clots covered with this membrane continue to be expelled.

January 15.—Hemorrhage occurs daily about 5 a.m. without pain. There are some pains in the afternoon, which the patient says are not bearing-down nor very sharp. Over a pint of blood lost this date. This is twice the usual amount. Pulse 98, temperature 99°. Some pallor, cold feet and hands. Heart-sounds normal. No breast signs of pregnancy. Body of uterus soft and right side swollen. Sound shows cavity 2¼ inches deep and direction normal. Cervix is somewhat congested and softened. Little erosion around os. Some mucous discharge from cervix.

January 25.—Vagina was packed January 15, since which time hemorrhage has been very slight until its return last night with former severity. Pulse 110, temperature 99.3°. Some dizziness and pallor. Increase of enlargement of right side of uterus at cornu. Cervix, which was before in median line, is pushed to the left, soft, enlarged, cyanotic, and patulous, os is eroded. Sound passes 2¾ inches. Vagina packed, and I advised sending the patient to the hospital.

January 26.—Seen with older physician with findings described January 25. Os sufficiently open to introduce curet, which was used quite thoroughly by consulting physician. A small quantity of membrane as described before, came away. Consultant considered it a congestion of one side of the uterus and said there was no pregnancy and had been none.

January 28.—Hot douches advised by consultant brought on severe intermittent pains. Frequent vomiting; pulse 120, temperature 99.3°. A malodorous discharge with some hemorrhage reported today. At 8 p. m. a 3 or 3½ months fetus was expelled per vaginam with placenta and membranes not broken. The patient recovered and her following menstruations were not painful.

At the time of consultation I considered this an ectopic gestation, possibly interstitial, but examination subsequent to abortion showed an anterior posterior ridge extending downward from the fundus about a half inch, so that the sound passed into each cornu.

I believe that passage of the sound two weeks before abortion; the use of the curet; tumor at right cornu with cervix pushed to the left as the tumor grew; uterine enlargement less than expected for the period of gestation; and following abortion with membranes unruptured, indicate either an interstitial or cornual gestation. As my consultant says it was probably a normal pregnancy and as I have seen no case of the kind reported, I would be grateful for an expression of opinion.

ORIGINAL ARTICLES

ABSTRACT OF PAPER REPORTING 615 CASES, WITH OPERATIONS DONE AT THE ALBANY HOSPITAL FROM MARCH 1, 1902, TO MARCH 1, 1903, WITH REMARKS.[1]

BY

ALBERT VANDERVEER, M.D.,

of Albany, N. Y.

This paper is intended to illustrate a service of 10 months at the Albany Hospital, in which I was aided by my assistant attending surgeon, Dr. Edgar A. VanderVeer, although not including any of his own operations; also to present an example of the variety of cases that come under the observation and treatment of the general surgeon, as we understand his work today. Other surgeons connected with the hospital as members of the staff are doing the same line of work. Time is so limited that I can only give a synopsis of the points that seem to be of greatest interest in the classification of these cases. If we take up the more important groups as they present, I feel we will make the best use of the time allotted.

I shall make no effort to refer to cases of fracture, except in a general way. Fractures of the thigh are invariably treated by extension and coaptation splints. Fractures below the knee are usually treated with plaster-of-paris dressing. Colles' fractures and fractures of the forearm are usually treated with anterior and posterior splints and extension; fractures of the elbow-joint, with internal angular splint. Fractures of the shoulder-joint, and of the humerus, with the shoulder cap and internal, lateral splint of felt or other like material. Fractures of the skull are treated promptly. When there is a suspicion of depression, trephining is done; hemorrhage is treated, gauze-packing used, if necessary, and with a rubber drainage-tube to afford drainage. In fractures of the upper and lower jaw, most decidedly satisfactory results have been attained by employment of the interdental splint, used by dental surgeon, Dr. Leroy Blatner.

There was a total of 18 tumors of the neck; three of the thyroid required thyroidectomy, and the patients made a good recovery; seven of tuberculous glands, these patients made a good recovery after thorough removal of the glandular structures; there were two cases of lymphosarcoma and six cases of chronic adenitis requiring operation; all of the patients recovered. There was a total of 19 tumors of the breast, 13 true carcinomas, 4 adenomas, 1 round-celled sarcoma and 1 true fibroma; all the patients recovered. In operations for malignancy, we are very thorough in removing the axillary and subclavicular glands, and in most cases the pectoralis major, and frequently the pectoralis minor muscles. This number of operations for tumors of the breast is not up to the average of other years.

There were 168 cases of abdominal section in which the peritoneum was opened. Of this total there were 12 gallbladder cases, 8 of them gallstones, in which cholecystotomy was done, each patient recovering; 3 cases, two of which gave symptoms of gallstone trouble, yet upon exploration no stones were found. The gallbladder was attached to the incision, drainage established, and, ultimately, these patients made a good recovery, with relief of their former pain. An exploration was done in the remaining case of this group of three, the gallbladder was found very much contracted, deep underneath the liver, and with many adhesions, but no stones were found. The patient died afterward of hemorrhage, but with no evidence of malignant disease. There was a case of biliary sinus in which curetment was done, and an application of full strength carbolic acid made, the sinus ultimately healing. I would say that I have seen most excellent results in the treatment of biliary sinuses by the use of full strength carbolic acid, introducing from 5 drops to 10 drops into the sinus once in three or four days. Of this group of gallbladder cases there was an exceedingly interesting one, the history of which follows:

> H. E., aged 62, native of Germany, and tailor by occupation. A gastroenterostomy was done for carcinoma of the pyloric end of the stomach; the gallbladder, which was found distended and containing a number of gallstones, was brought up into the median incision, the same as in an ordinary case of cholecystotomy and drainage was established in this way. The patient ultimately made a most excellent recovery. At present, June, 1904, he has gained in flesh and is very comfortable.

There were 4 uncomplicated cases of gastroenterostomy done for carcinoma of the pyloric end of the stomach, and of these 3 resulted in good recovery, the other patient dying at the end of the fourth day from exhaustion, her condition being very serious at the time of the operation. There was 1 case of gastroptosis, 3 cases of exploratory incision, in which the liver was implicated with the carcinoma of the stomach to such an extent that it was impossible to proceed to any further operative intervention, and these patients all recovered from the incision.

There were 33 operations for uterine fibroids, 3 patients dying. In connection with these 33 cases there were 3 of complications in the form of gallstones, in which cholecystotomy was done at the same time, all the patients recovering. Of the patients who died 1 had a very large tumor, 1 was in a feeble condition, and the third, while not having a large tumor, was evidently suffering from typhoid fever at the time of the operation, and died from this latter complication. This case presented many strange features. In reference to operations for uterine fibroids I would say that I usually tie the ovarian artery, then the vessels of the broad ligament, the uterine artery on each side, and remove the uterus as low down toward the cervix as possible, closing the stump with interrupted silk sutures and suturing over the peritoneum from one side to the other of the width of the incised tissue. I prefer to leave the cervix, if it is healthy, and in this way preserve the vault of the vagina. I believe that patients do better in their permanent convalescence.

The following cases I believe are of sufficient interest to report at this time:

> Mrs. C. G. S., aged 60, native of United States, and housewife by occupation. Diagnosis papillomatous ovarian cyst, with gallbladder complications. Ovarian cysts first removed. Gallbladder explored and found to contain a large number of stones, 96 in all. She had been ill for about six years with no diagnosis or supposed symptoms of gallstones. Papillomatous cyst returned in less than a year, when another operation was done, and later Coley's fluid was used very thoroughly, but death finally resulted. This was the third or fourth case of sarcoma in her family of sisters and nieces. Dr. MacDonald and myself have since operated upon another sister for double papillomatous ovarian cyst, this patient making a good recovery.
>
> Mrs. G. F., aged 35, native of United States, housewife by occupation. Diagnosis myoma of uterus. She has had attacks of biliary colic since a child, but not so severe until four years previous to present illness. History of fibroid of about two years standing. Gallbladder distended with stones. Cholecystotomy done and patient had a long convalescence, suffering from many hallucinations, but now is in good health.

In these cases of uterine fibroid and other conditions complicated with gallstones, after one has made the median incision and completed the operation, it is a very easy matter to pass the hand up to the gallbladder, discover the true condition there, and if desirable, operate. A quick incision may be made through the abdominal wall and the gallbladder easily reached, simplifying the operation quite decidedly.

Of cases of ovarian cysts there are 14 in which the tumor sprang from one ovary only, and 10 cases in which both ovaries were implicated, these being cases of double ovarian tumors. This is rather an unusual average. All of these patients, 24 in number, recovered.

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[1] Read at the annual meeting of the New York State Medical Society, January 26, 27 and 28, 1904.

There were 15 operations upon the ovaries for pus tubes, all of the patients recovering. There were 15 operations upon the appendages for removal of the ovaries and tubes, due to previous pelvic peritonitis and abscesses, all of the patients recovering.

There was a total of 56 cases of appendicitis. Of the acute cases, in which the symptoms had lasted from one to two and four days, there were 29. These cases were made up of perforations, foreign bodies in the appendix, gangrenous condition of the appendix, with pelvic and general peritonitis, and of these 28 patients recovered, the one death being due to general peritonitis.

There were nine cases of subacute appendicitis, *i. e.*, cases in which the operations were done soon after recovery from an attack, and in which there was yet a condition of inflammation present, all of the patients recovering. There were 18 cases of the relapsing, chronic form of appendicitis, all of the patients recovering.

Of operations for hernia there were 13 direct and indirect inguinal, two femoral, and three ventral. In the latter, abdominal section had been done; one, my own case, and the other two belonging to other surgeons; all of these patients recovered. The usual operation has been that of the Bassini method and no truss worn afterward.

There were two cases of bicornute uterus, the histories being as follow:

Mrs. W. S., aged 37, native of the United States, and housewife by occupation. Patient gave no unusual history. She had suffered from supposed stomach trouble for some time, but eructations of gas always afforded relief. She was operated upon for lacerated cervix at St. Luke's Hospital, New York, just previously. She came to Albany Hospital, January 8, 1903, presenting symptoms as follows: Endometritis, fibroid and gallbladder trouble. The patient was placed on the table in the lithotomy position. Left side of external os was very badly lacerated. Uterus was cureted out in the usual manner, a V-shaped piece removed from the left side of the cervix, and the incision brought together by means of three chromicized catgut sutures. Median incision was then made for supravaginal hysterectomy. Upon opening the abdomen a careful examination of the pelvis disclosed a double uterus, right—which was supposed to be the fibroid—evidently containing a fetus of about six weeks. The right ovary and tube, as well as the left, were so badly damaged that supravaginal hysterectomy was required. Examination of gallbladder revealed gallstones. Usual incision, 4 cm. long, parallel with border of the ribs, was made. Several gallstones were removed in the usual manner. Patient made a good recovery.

Upon examination the appendix was found normal. Examination of double uterus showed a fetus of about six weeks in the right side. Left uterus contained packing from curetment.

Miss H. W., aged 28, native of the United States, and teacher by occupation. In September, 1902, the patient had had the appendix and right ovary removed. She came to the Albany Hospital January 28, 1903, with symptoms of a floating kidney. Exploratory incision for floating right kidney was done February 2, 1903. Upon opening the abdomen and exploring the old incision, the point of a hypodermic needle was felt and removed from the right side of abdomen. This had evidently penetrated into the peritoneal cavity. Stump of appendix was in normal condition; right ovary and tube absent; left ovary and tube rudimentary. Bicornute uterus was also discovered, but not removed. Movable kidney was found on the right side. Gallbladder and liver were in normal condition. All adhesions were broken up, and remnants of the old scar dissected out.

The patient's strength permitting, February 17, 1903, the usual lumbar incision, 4 cm. long, was made. Kidney fat was exposed, a large amount removed, and the right kidney brought up into the wound. The capsule was split, edges fastened with interrupted catgut sutures to fascia, and the wound closed in the usual manner. The patient made a good recovery, and later reported happy and free from all pain.

Case of Undescended Testicle.—Mr. R. E. J., aged 51, native of Wales, and a slate maker by occupation, entered the Albany Hospital, January 19, 1903, complaining of inguinal hernia and undescended testicle. Patient gave the following history: For six months previously he had some trouble in the right groin, with pain and distress in region of the testicle. He is the father of nine children, alive and well; prior to present illness patient's health has been good. There was much tenderness in the region of the right testicle, and examination showed an undescended testicle on the right side, with hernial mass in the inguinal canal. Operation, January 21, 1903. Usual incision for inguinal hernia, 6 cm. long, was made. Upon opening the inguinal canal the testicle was found very adherent to the inguinal sac. The cecum protruded into the hernial sac, and the appendix was also found in the sac. The appendix contained a fecal concretion midway of its length, and was in a state of chronic inflammation. The appendix was separated from the cecum and hernial sac with difficulty, and removed in the usual manner. The hernial sac was dissected out as much as possible and the undescended testicle and cord then dissected off from the hernial sac and removed in the usual manner. All three were so matted together that dissection was very difficult. The cecum and remnants of the sac were reduced into the abdomen and the wound closed with layer sutures, number three catgut being used in deepest sutures. Standard dressings. Pathologic report showed subacute appendicitis with chronic periorchitis. The patient made an uninterrupted and complete recovery.

Of diseases of the vagina there were five cases of cystocele and rectocele.

There was an unusual number of cases of epithelioma of the vulva and walls of the vagina—eight in all; most of these patients I operated upon successfully, so far as the primary results go. In this class of cases I do not know of any condition more fatal. Although the glands and surrounding tissue may be removed with ever so much care, yet the disease returns or metastasis takes place. There were two cases of vaginal hysterectomy for cancer of the cervix; both patients recovered. For some time we made use of the angiotribe in doing this operation, but of late we are returning to the use of the ligature more especially.

Time will not permit me to speak of the 85 cases of endometritis, complicated with laceration of the cervix and of the perineum, or the different flexions, together with stenosis of the external os.

There was an unusual number of cases of tuberculous disease of the bones and joints—32 in all. In regard to the operation in these cases, we are greatly in favor of free incision into the medullary portion of the bone, making thorough use of iodoform.

In cases of sarcoma we have made thorough use of Coley's fluid, and perhaps with some success in one or two cases. In secondary deposits of carcinoma the röntgen ray treatment has been followed out very thoroughly with disappearance in many cases of the secondary deposits, but as yet we cannot report a case of absolute recovery.

It will be noted there was a mortality in the cases of uterine fibroids, but the percentage of recoveries is so markedly increased compared with five or ten years ago that we have every reason to be encouraged, and to continue this line of work. The mortality list is largely associated with cases that have been delayed too long, in which the tumor has grown to great size; large venous trunks developing in the broad ligament; pressure upon the ureters; distention of the pelves of the kidneys; pressure upon the rectum; in some cases producing pelvic peritonitis and increasing the number of adhesions. At times these cases become complicated with appendicitis. Then, in other cases, continued loss of blood brings the patient to us in such an anemic condition that while she may bear the operation and come off the table safely, and transfusion in some form is done, or the infusion of normal salt solution, still she dies from shock, or within a few days, the heart being unable to continue its work. In the cases in which large venous trunks develop, these patients sometimes suddenly die from venous thrombosis. While apparently doing well, sudden death ensues. As a result of pelvic peritonitis these large fibroids, and also fibroids connected with the broad ligaments often become adherent deep down in the pelvis, and are exceedingly dangerous to attack. In these latter cases the ureters are likely to become implicated at the time of the operation. Although my group of cases escaped any such complications, yet it is one of the serious results arising from delay in operating.

In all these cases of pelvic surgery it is becoming more and more my practice to examine the appendix, and if there is the least suspicion of disease, or if it is at all abnormal, to remove it, so that in the cases of operations upon the appendix the number would be increased to something like 70, had I reported the individual cases in which, while removing the fibroid, pus tubes, or ovarian cysts, I also removed the appendix.

As stated, time does not permit my speaking of congenital deformities, treatment of hemorrhoids, prolapse of the rectum, fissure and other surgical lesions of the rectum; diseases of the genitourinary tract, such as urethral stricture or vesical lesions; the various operations upon the kidneys; operations upon the nerves for relief of neuralgia, etc.; also the various abscesses connected with the cavities of the body; varicocele and tumors of the scrotum in the male. No reference can be made to the various amputations that come with the surgical lesions and present in hospital practice.

THE INJECTION TREATMENT OF INTERNAL HEMORRHOIDS.*

BY
COLLIER F. MARTIN, M.D.,
of Philadelphia.
Instructor in Diseases of the Rectum, Philadelphia Polyclinic and College for Graduates in Medicine.

The many adverse criticisms which the injection treatment for hemorrhoids has received in the past few years offer an excuse for this paper, and if any or all of the objections to the method can be overcome by a modification of the technic commonly taught, I shall feel that one good method has been placed where it belongs, among the reputable methods for the treatment of these patients.

When Mitchel, of Clinton, Ill., in 1871, began the use of carbolic acid injections for the cure of internal hemorrhoids he no doubt recognized the mercantile value of the method, knowing that by preying on the popular prejudice against surgical operations and by promising painless and permanent cures, the opportunity for making money was only limited by the number of patients that could be personally treated. Not satisfied with this, he sold his formula and methods to any one and every one who was willing to pay his price, under the promise of secrecy. In a short time the country was deluged with quacks and itinerant charlatans, who claimed to have discovered a wonderful cure for piles, in which no knife was used and which was absolutely painless.

In spite of unscientific and unsurgical methods, the results obtained by these quacks were wonderful, and the regular profession found that many patients were being treated and cured by this method. Careful investigations by Andrews resulted in his publishing in 1876 a number of the formulas employed, as well as a careful review of the results obtained in over 3,000 cases. Considering the class of men engaged in this work and the crude manner in which the treatment was carried out, it is truly remarkable that there were not more fatal results, the mortality reported being considerably under ½ of 1%, while such complications as hemorrhage, pain, and sloughing aggregated about 3%. According to Tuttle,[1] other complications occurred, such as embolism of the liver, 8; dangerous prostration, 1; abscess of the liver, 1; permanent impotence, 1; stricture of the rectum, 2; carbolic acid poisoning, 1; and severe inflammation, 10. As Tuttle truly says:[2] "Any other surgical operation for hemorrhoids in such inexperienced and unscientific hands would have produced a larger mortality and a longer list of accidents."

Following the publication of Andrews' book, "Rectal and Anal Surgery," the method was tried by many reputable surgeons, notably Kelsey, who endeavored to take the treatment out of the hands of the inexperienced and place it upon a scientific and surgical basis. In 1882, in his "Diseases of the Rectum and Anus,"[3] he writes: "I can only say that the method is constantly growing in favor with me personally, and that the more I practise it, the more confidence I gain in it." In 1885 Kelsey reported a series of cases in which the patients were treated in this way and reiterates his words of praise. Later on, after a series of unsatisfactory results, he wrote an article modifying his views on the subject, while in his book on "The Surgery of the Rectum,"[4] published in 1902, he says: "It is still, to my mind, a legitimate way of treating some cases, having in certain points exceptional advantages over all others, but liable to be followed by very disagreeable consequences. . . All that can be said of my own practice is, that while for a year or more I used it almost exclusively, and was much pleased with its results, a succession of bad cases has led me decidedly to modify my views of its value and universal applicability, and to seek for methods attended with less risk."

Cripps, in 1884, in his book, "The Diseases of the Rectum and Anus,"[5] writes that the method is limited in application, "being unsuited for hemorrhoids of any large extent, or those in which there is much hypertrophy of the connective tissue," and that while it arrests bleeding, he does not know whether the cures are permanent. Gant[6] says: "Only small piles which bleed freely and are situated above the grasp of the sphincter muscle should be injected."

Kelsey[7] states his objections to the treatment as follows: "Pain, ulceration, marginal abscess, fistula, the impossibility of giving any definite prognosis as to the length of time necessary to effect a cure, or the amount of suffering the treatment will entail, and the fact that the treatment does not result in a radical cure, but that the tumors reappear generally after two or three years."

Tuttle,[8] who seems to have had a more fortunate experience, writes: "Prolapse of an injected hemorrhoid may occur within the first 12 or 14 hours after operation." He states that he has only had sloughing in three cases and thinks it due to injecting too close to the surface of the tumor. He has had no cases of abscess, sepsis, or hemorrhage.

With regard to Kelsey's objection as to recurrence,[9] he says he "has had cases return to him for treatment after he had injected internal hemorrhoids, but upon careful examination it has nearly always been found that the hemorrhoid was at a different part of the anal circumference from that at which the original injection was made. In a very few cases recurrences in situ have taken place, and in only two instances in which the injection treatment was used has it ever been necessary to do a more radical operation."

Considering the bad name the method has been given by the general surgeon, the opinions of such eminent proctologists as Tuttle and Kelsey at first excite some surprise, for were the injection method followed by all the complications accredited to it we would expect much stronger expressions of condemnation from them. The reason probably lies in the fact that the general surgeon condemns the method without a trial, but bases his conclusions upon the bad results obtained by quacks and inexperienced practitioners, while both Tuttle and Kelsey have given the treatment a fair trial, and, while not having had such results as to justify the employment of injection as the operation of election, they have recognized the advantages of the method in selected cases.

Strangely enough since the first inception of the treatment there seem to have been no attempts made to perfect the method beyond the use of antiseptics, so as to eliminate the possibility of complications and add to the probabilities of a radical cure. Both the formulas of the injection solutions and the technic are practically what they were in 1876, and as might be expected, the results continue about the same.

An attempt will be made in this paper to show why certain complications were common, why so many patients had recurrence, and, if possible, how these objections can be overcome. In order to do this it will be necessary to review the methods as taught by Gant, Kelsey, and Tuttle.

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*Thesis presented for Fellowship in the American Proctologic Society, Atlantic City, June, 1904.

The basis of nearly all the injection solutions is carbolic acid in varying strength, although many other chemicals have been employed. According to Tuttle,[10] "there are two distinct schools in the injection treatment; the first injects strong solutions in large quantities, thus causing a sloughing of the entire hemorrhoidal tumor." Of the second school he says: "The principle upon which this method is based consists in the production of an inflammatory induration of the hemorrhoidal mass through which the circulation is retarded or partially cut off, but which does not go to the extent of cauterization or strangulation so as to result in sloughing."

In his experiments he followed the second school, and advises the use of Shuford's solution, the formula being as follows:

Carbolic acid (Calvert's)	8 gm.	(2 dr.)
Salicylic acid	2 cc.	(½ dr.)
Sodium biborate	4 gm.	(1 dr.)
Glycerin (sterile) sufficient quantity to make	30 cc.	(1 oz.)

Gant uses:

Carbolic acid Glycerin Water } of each	3.75 cc.	(1 dr.)

Inject 5 to 20 drops.

Gant[11] also gives several other formulas which I have taken the liberty of quoting to show the similarity in their ingredients. They are:

Yount:

Carbolic acid	1.5 gm.	(24 gr.)
Distilled water	30 cc.	(1 oz.)

M.—5%.

Overall:

Carbolic acid Fluid extract ergot Olive oil } of each	3.75 cc.	(1 dr.)

Powell:

Carbolic acid	.84 gm.	(13 gr.)
Tr. thuja	3.75 cc.	(1 dr.)
Distilled water, sufficient quantity to make	15 cc.	(½ oz.)

Brikerhoff:

Carbolic acid	30 gm.	(1 oz.)
Zinc chlorid	.52 gm.	(8 gr.)
Olive oil	150 cc.	(5 oz.)

Rorick:

Carbolic acid	32 gm.	(1 oz.)
Creasote		10 drops
Hydrocyanic acid		1 drop
Olive oil	30 cc.	(1 oz.)

Cripps, in 1884, gives the following formula as Kelsey's, although Kelsey in his "Surgery of the Rectum," 1902, does not give any formula, but he intimates that he used some combination of carbolic acid.

Carbolic acid	.65 gm.	(10 gr.)
Glycerin	3.75 cc.	(1 dr.)
Water	3.75 cc.	(1 dr.)

Four drops to be injected into the center of the pile.

The fact that Kelsey has omitted giving any formula would seem to indicate that he did not feel justified in teaching a method which in inexperienced hands might be followed by disastrous results.

It will be noticed that all of the foregoing formulas contain carbolic acid in varying degrees of concentration, as the active constituent, and that aside from the differences in strength, they are practically identical. If there is any choice between them, I should say that the Shuford solution, as used by Tuttle, might be slightly superior because of the presence of salicylic acid, which is said to soften and destroy epithelial and endothelial cells, thus favoring absorption.

A careful examination of the technic employed by authorities also shows a surprising similarity. I will quote in full the technic as advised by Gant,[12] as the other writers differ only in detail. He gives the following rules to be observed: 1. Cleanse the anus and surrounding parts. 2. Make a fresh solution for each injection. 3. Place the syringe and needle in boiling water until everything is in readiness. 4. Accurately gauge the amount to be injected. 5. Force the air out before introducing the needle. 6. Inject the fluid slowly into the *pendulous* portion of the pile. 7. Inject from 5 to 10 drops into small, and from 10 to 20 drops into large piles. 8. Leave the needle within until the pile turns white. 9. Do not inject the tissue beneath the pile. 10. As the needle is withdrawn, make pressure with the index finger to prevent the escape of the fluid and arrest hemorrhage. 11. Promptly return above the sphincter all prolapsed or injected piles. 12. Keep patient in recumbent position for a short time after operation. 13. A fluid or semifluid diet is best for a few days. 14. Use moderately weak, in preference to strong solutions. 15. Inject only one or two piles at a sitting.

He advises giving the patient a mild cathartic the morning preceding the operation, and an enema of warm water just before injection to empty the bowels and to make the piles more prominent. The injection is made through his hinged speculum.

Cripps only injects piles after they have been prolapsed through the anus, and advises that the patient be kept in the recumbent position for a day or two following treatment.

Kelsey,[13] before injecting, gives the patient an enema, and has him strain the piles into view. He states that "if the hemorrhoid does not protrude from the anus, a tenaculum may be used to draw it into view."

Tuttle[14] endeavors, when there is a spasmodic sphincter, to correct this by gradual dilation before beginning injections. He also has the patient "sit upon a vessel filled with hot water and strain for a few minutes in order to bring the tumors down." The piles are then carefully washed with soap and a 1 to 2,000 mercuric chlorid solution, then dried, and the injection made. After a few minutes the piles are returned to the rectum and a small compress placed on the anus, held in place by a T-bandage. He uses from .12 cc. to .60 cc. (2 m. to 10 m.) of Shuford's solution, and keeps the patient quiet for a few hours after the first injection to see if any excessive inflammatory reaction follows. "A suppository of opium, belladonna, and iodoform may be introduced for the first two nights to prevent the bowels from moving." After 48 hours a gentle laxative or cold water enema should be given. The patient may return to business after the first 24 hours.

The important features mentioned by these authorities which seem objectionable, especially as it will be shown that they can be eliminated, are: 1. The patient is required to strain the piles down below the sphincter either assisted by an enema or by having him sit over a vessel filled with hot water. This occasionally causes great discomfort and even pain, as well as being very embarrassing to female patients. Also, only large piles can be brought into view, the smaller ones remaining above the sphincter, although Kelsey advises dragging these small piles down with a tenaculum. 2. Tuttle advises the use of a T-bandage to prevent the hemorrhoids from slipping down and becoming strangulated. 3. The necessity of keeping the bowels from moving during the first 48 hours, especially if opiates have to be employed for this purpose. 4. The detention from business for the first 24 hours.

With the technic as outlined, I feel that the operation by clamp and cautery would be much simpler and certainly, under these conditions, I would prefer to have the latter operation if I were the patient.

If the patient has to be given considerable discomfort at every treatment and is forced to remain away from business for from 24 to 48 hours after these visits, beside running great danger of pain, strangulation and sloughing, then indeed all the boasted advantages of the injection treatment appear visionary and the sooner the patient is persuaded to enter a hospital for operation the better. The principal complications encountered by the authors quoted were pain, hemorrhage, strangulation, sloughing, abscess formation and general infection. Excessive pain was frequently produced. In nearly every case when the patient complains of great pain a careful examination will reveal a spasmodic condition of the sphincter muscles. In patients suffering with fissure, in which the pain is often out of all proportion to the gravity of the disease, the most pronounced example of this condition will be found. The anus is firmly contracted and pulled up toward the pelvis and appears as a small funnel-shaped depression instead of presenting the normal contour, that of an anteroposterior slit surrounded by a slightly elevated and corrugated border.

This same condition of the sphincters, only in a lesser degree, obtains in all the congestive and inflammatory anorectal conditions, whenever the process involves the anal tissues. Thus external hemorrhoids, internal hemorrhoids, fissures, fistula, abscess, and acute inflammations of the rectum extending to the vicinity of the sphincters are apt to be accompanied by pain as a more or less frequent symptom.

The condition of the muscles may best be ascertained by digital examination, the sphincters contracting tightly around the finger when it is introduced into the rectum. Occasionally a patient will complain of attacks of pain, but when examined, the sphincteric tone is apparently normal. Allow this patient to lie on the examining table for about 10 minutes and then investigate for the second time, when the sphincters will be found tightly contracted, showing a latent irritability, accounting in a large measure for the symptom.

It will be noticed that the sensitiveness of the anorectal structures decreases gradually from below upward, so that while even slight operations on the anal margin require a high degree of anesthesia, quite extensive manipulations may be carried on in the rectum above the sphincters, often with no attempt at anesthesia. The reason for this is probably the peculiar distribution of the sensory filaments which are particularly rich in the neighborhood of the anus. This being the case any undue contraction of the muscle interfering with the free vascular circulation must necessarily result in considerable congestion and irritation followed by pain.

It will be argued that pain itself causes a reflex contraction of the muscles, but while this may be true to a certain degree, it certainly is not always so. In proof of this it will be found that when there is excessive rectal or anal pain a full divulsion of the sphincters under the influence of an anesthetic will be immediately followed by relief even should all the pathologic conditions, other than the irritable sphincter, remain.

After divulsion, operations on and about the anus, produce but little pain other than would be felt from any open wound, and not the agonizing aching pain due to anal spasm or strangulation.

The reason that divulsion of the sphincters relieves pain does not appear to be due so much to the stretching of the muscle fibers, as to the stretching of the motor and sensory nerves supplying these structures, in much the same manner as the sciatic nerve is stretched for the relief of sciatica. This procedure, by lessening the irritability of the motor filaments results in an improved condition of the anorectal vascular system, reducing the congestion and quickly establishing the normal tone of the muscle. This improvement in the tone of the muscle and the removal of the congestion must result in materially diminishing the impulses transmitted by the sensory nerves.

Because of the direct bearing on the subject, I beg to quote some unpublished notes written by my father, Dr. Robert W. Martin, which give a brief summary of his experience with the injection method.

> After several years of rather more than ordinary opportunities of study of the more frequent forms of rectal disease, during which I had already observed the good effects of dilation of the sphincter upon hemorrhoids when the operation was done for the cure of fissure, (its only application up to that time), in 1876 Mitchel's method of treating hemorrhoids by injecting each tumor separately appeared in the East after a rapidly spreading usage in the West. The agent he used, as it came to me through a friend who had also used it successfully, was crystallized carbolic acid liquefied in the usual manner and combined with an equal bulk of olive oil.
>
> The procedure was to have the patient force the hemorrhoidal mass through the sphincter, and after bathing the surface of the tumor with a very weak solution of carbolic acid (2%), insert the needle of a Pravaz syringe, loaded with the mixture, straight into the middle of the selected hemorrhoid until the point of the needle was felt to enter the cavity, then depress the syringe to bring the needle parallel with the outer wall of the hemorrhoid with the bevel side of the point of the needle outward, then proceed slowly to inject drop by drop, watching carefully the change of color. When the whole or a large part of the visible surface of the pile had assumed a white or whitish color, to withdraw the syringe carefully, and, as the open end of the needle reached the point of exit, to inject carefully an additional drop to seal the opening and to prevent the escape of the injected fluid. The piles were then gently reduced and the patient permitted to go about his business. The injection was supposed to be painless, or nearly so.
>
> For some reason, not apparent until later, my first series of cases (six) gave ideal results, although they were mostly cases of very large and old piles. The limitations of the treatment soon became apparent. In a later experience, the injection was painful when made, and was followed by a slough, leaving an ulcer that was slow in healing. The patient did get well and was much pleased that he escaped a dreaded operation, which I expected to have to perform.
>
> During the period 1877–80, the injections were made in most cases with weaker solutions of the acid, even so low as 3%. The results were quite satisfactory, except in those cases that were of comparatively recent development, and in which the sphincter still retained its tonicity. In these cases pain and inflammation, followed by a sloughing, leaving an irritable ulcer, were certain to follow. Having to resort to the operation of divulsion—forcible stretching of the sphincters—for the relief and cure of this condition, the idea occurred to me about 1880 that an antecedent operation for the removal of the hypertonicity of the sphincters would prove to be a valuable prophylactic measure against the occurrence of the sloughs. The result proved the correctness of the idea, for subsequent injections made were, as a rule, less painful and nearly free from the tendency to cause sloughing. From that time (1880) the forcible divulsion of the sphincter became an indispensable part of my treatment for hemorrhoids. The various changes I made during the period 1880–93 in the substance injected were all made with a view to the mitigation of the initial pain at the moment of injection or the annulment of the constitutional symptoms. The former symptom attended injections made with carbolic acid in any degree of dilution, and the latter attended certain other substances tried during this period. The substances covered a wide range, from water to perchlorid of iron—ergotin, persulfate of iron, hamamelis distillate, alcohol—with frequent returns to the carbolic acid.
>
> In 1893 the use of phenol sodique seems to have gained the ascendency. Some doubt as to its painlessness had led to the use of a weak solution of cocain in combination. In 1894, all other agents were abandoned as lacking uniformity or certainty of action, and a mixture of phenol (Boboeuf) and water adopted. This has proved satisfactory in the highest degree, and is used daily in my practice. Improvements in technic have had much to do with the uniformly better results now obtained.

The Phenol Bobœuf employed is the original French preparation of phenol sodique. It has been found less irritating at the time of injection than the American preparation. Upon exposure to the light and the atmosphere it becomes opaque, with the formation of a reddish-black, greasy precipitate. If it does not make a clear reddish solution after mixing it with water and filtering, it should be discarded. The solution should be kept in a blue glass-stoppered bottle.

It will be seen from my father's experience that nearly all the complications were produced by two factors—sphincterismus or sphincteralgia, and the substances used for injection, the latter either causing irritation or toxic symptoms. He tells me that during the period he employed ergotin as an injection, the toxic effects were frequently instantaneous, the patient becoming extremely nervous, the nervousness often preceded by gasping, followed by rigidity and the rapid development of extreme cyanosis. These symptoms, while followed by no permanently bad results, were quite disagreeable to the patient, as well as somewhat alarming to the physician. The local effect of ergotin appeared in no manner superior to the other injection fluids, and was therefore discontinued about 1880.

Because of the difficulties experienced in keeping the hemorrhoids prolapsed during the process of injections, and also the discomfort to the patient and lack of precision attending the employment of the bivalve speculum, as well as the hinge-valved and the fenestrated, he adopted for routine use the small conic speculum shown in the drawing, which was finally perfected in this form in 1887.

It will be noticed that the distal end is cut off at an angle of 45°, and that the edge is protected by a small wire bead running completely around it. This thickening of the edge lessens the danger of traumatism to the mucosa when turning the instrument while in the rectum. The angle of the aperture allows the lateral wall of the rectum to prolapse into the speculum, thus allowing an injection to be made directly into the pile. The speculum has also great advantages over the bivalve pattern, as it can be turned freely while in the rectum, producing no discomfort, and allowing every part of the mucosa and anal lining to be examined.

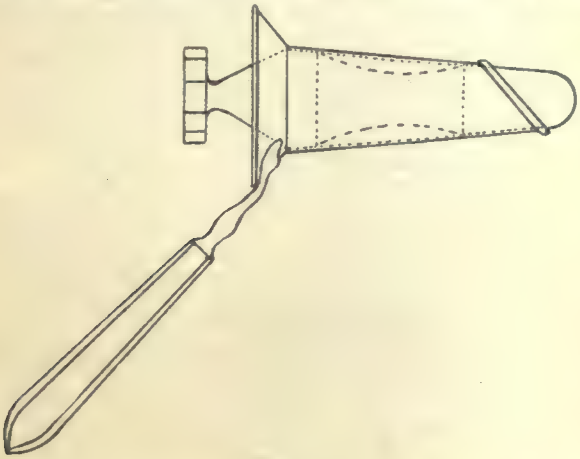

Fig. 1.

The procedure followed in the use of the speculum is, with the obturator inserted, to introduce the instrument to its full extent, then remove the obturator, and by a gentle rotary and downward motion, to examine carefully the mucosa. When the edge of the speculum is withdrawn as far as the upper margin of the internal sphincter any hemorrhoids present on the side examined will prolapse into the mouth of the aperture. Selecting the largest one for treatment, the patient, by coughing, renders this more prominent. Carefully swab off the surface with some mild antiseptic solution (such as creolin 1%) and make the injection directly into the most prominent portion of the pile. Then withdraw the speculum before removing the needle, allowing the rectal walls to collapse, thus preventing the escape of the fluid or any bleeding. Ordinarily I insert a suppository containing 32 mg. (½ gr.) of cocain to prevent the slight discomfort which may be felt for an hour or so, and also a suppository containing .18 cc. (3 m.) of ichthyol. These ichthyol suppositories are prescribed for the patient to use during the entire course of his treatment, inserting one after a bowel movement and one at bedtime. The bowels are to be moved daily, and after a thorough divulsion it is rarely necessary to resort to the use of a laxative for this purpose.

The syringe employed is an ordinary all-metal hypodermic fitted with a four-inch metal extension. The needles are as fine and sharp as can be obtained, usually No. 27 gauge and ¾ in. long.

The solution, as intimated before, is composed of equal parts of Phenol Bobœuf and distilled water, freshly prepared and filtered. Should the fluid become opaque it should be discarded. Ordinary cases require an injection of from .42 cc. to .92 cc. (7 m. to 15 m.) The injections should be made at intervals of from five days to a week and only one pile should be treated at a visit.

It might seem unnecessary to describe the forms of hemorrhoids which are suited to the injection treatment, but I have been asked so frequently if I inject external hemorrhoids that I wish my views to be thoroughly understood. Under no circumstances do I inject external hemorrhoids, nor any structures covered by true skin. Internal hemorrhoids and cases in which there is a prolapse of the mucous membrane only, are treated by this method. External hemorrhoids and hypertrophied anal folds are so readily and painlessly removed under local anesthesia, while the injection of these structures causes so much irritation, besides the danger of infection, that I do not believe we are justified in employing the latter treatment in these cases. When an internal hemorrhoid, from long-continued irritation and inflammation, has become excessively hypertrophied and fibrous, I feel that the wisest course to pursue, would be to anesthetize the tumor and remove it with a clamp or by ligature. Many piles of this variety can be absorbed by the injection, but the process is long and tedious and may result in failure.

It is rather important to keep a systematic record of the hemorrhoids treated, both for convenience during the course of visits, and also in case of a return of the condition, to know if the recurrence has been in situ or in some other segment of the bowel. For convenience, the mucosa is divided into eight segments, as shown in the sketch below, and the injections may be designated by the initials A, P, R, L, or Ar, Al, Pr, or PL. Also, note may be made of the amount of fluid employed. In the sketch the crosses (X) show where the injections have been made.

The only complication I have ever encountered has been the production of a small slough associated by a sense of discomfort and fulness in the rectum. No noticeable pain follows, unless the sphincter has not been thoroughly divulsed, and the slough heals readily after a couple of applications of the stick silver nitrate.

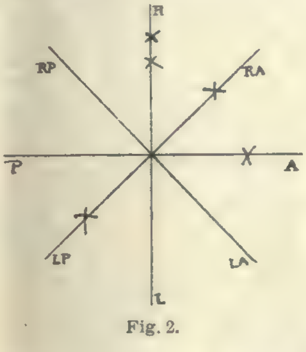

Fig. 2.

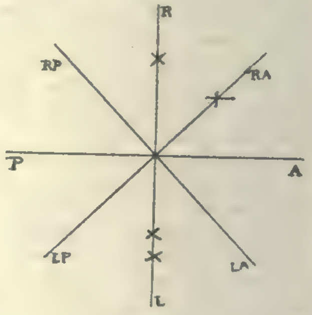

Fig. 3.

The injections should be continued until all the hemorrhoids have been absorbed and the rectal mucosa does not prolapse into the speculum to any extent when the patient coughs hard. The fact that the patient is comfortable and that the piles do not come down at stool does not indicate a cure, for if any hemorrhoidal tissue remains the percentage of recurrences will be materially increased. Under careful treatment I would estimate the recurrences at about 15%, these usually occurring after an interval of from three to five years. If the recurrence does take place and the primary divulsion has been thoroughly performed, a second divulsion is rarely necessary and the patient can usually be permanently relieved by a few additional injections.

A case presented itself today which clearly illustrates this point. The dates of the original treatment as well as the result of examination at the present time are given:

October 2, 1899, J. R. W., aged 38; teamster; semiirritable sphincter—small internal hemorrhoids, small saw-tooth papillas. Some pain at stool with slight protrusion and a trace of bleeding.

Treatment.—Divulsion under nitrous oxid anesthesia, October 3, 1899. October 5.—Placebo. October 9.—Injected right hemorrhoid. October 14.—Injected left hemorrhoid. March 16, 1904.—He returned complaining of a protrusion on the left side of the anus which occurs at stool, but is easily reduced by pressure. He had *no pain*, but a little discomfort at stool. Examination showed a nonirritable muscle, but one somewhat thick and hypertrophied. At the upper edge of the anus are four large saw-tooth papillas located as follows: P. L ; R. L.; and P. R. The rectal mucosa shows a fulness particularly on the left side, with a slight tendency to a hemorrhoidal formation, but there is no marked congestion.

Treatment.—Injected .74 cc. (12 m.) phenol sodique into left rectal fold. Inserted a suppository of cocain .32 mg. (½ gr.) and a suppository of ichthyol .18 cc. (3 m.). Patient is to return in a week for treatment.

In this particular case I attributed the absence of pain and congestion to the lack of spasm in the sphincter muscle.

A diagrammatic description of the case would appear as follows:

The causes of sloughing following injection are practically fourfold:

1. Spasm of sphincters interfering with the circulation. 2. Superficial injections causing destruction of the mucous membrane. 3. Strong solutions causing a blocking of the circulation with destruction of tissue. 4. Too large injections causing excessive irritation with pressure necrosis.

There is no doubt that the sloughs usually formed are sterile, but after separation begins, it is perfectly possible for the granulating surface below to become infected from the feces or rectal discharges. For this reason sloughs in the rectum, however produced, are to be avoided, and the fewer formed the less the likelihood of serious consequences following treatment. In my own practice, I doubt if sloughs ever occur in over 3% of cases, and when they do occur they are watched carefully until there is no danger of infection.

In connection with the injection treatment, the operation of divulsion of the sphincter seems to deserve some special mention. There are two methods to consider—one a gradual dilation with sounds and dilators, and the other a rapid divulsion under anesthesia, employing either the fingers or the mechanical dilators. Gradual dilation in my hands gave very imperfect results, and the effect of the process was not lasting. Often the procedure, instead of relaxing the muscles, seemed to add to their irritability by reason of the exercise given them, so that I have discontinued the practice. Rapid or forcible dilation or divulsion of the sphincters presents two distinct types of technic for study. In the first, the operation is performed in a few seconds under the influence of the anesthetic, in which the reflex action of the sphincters is preserved or even accentuated as with hyponitrous oxid and ethyl chlorid; in the second the procedure involves careful stretching and massage of the muscle while relaxed from the full anesthesia produced by means of ether or chloroform. This second variety is that usually performed by the general surgeon, and has been fully described in textbooks treating of this subject.

The administration of nitrous oxid is admirably adapted to the short operation of rapid divulsion. Under its influence, the sphincteric reflexes are retained, and even accentuated, this contraction offering a good index as to the amount of force to be used in the operation. After the patient is anesthetized the muscle is stretched manually until the fibers just begin to give away under the fingers. It is unsafe to continue beyond this point, as it is undesirable to lacerate the muscle fibers. As soon as the patient recovers consciousness a hot compress should be applied firmly to the anus for about five minutes. The patient may then be allowed to go home, being instructed to use the compresses every three hours if he has much soreness from the traumatism. He may return to work the next day. At the end of four or five days, after the muscle has recovered from the bruising, the treatment by injection may be commenced. Hemorrhoids which before were inflamed, ulcerated, or bleeding, have, from the improvement in the vascular condition of the muscle, been converted into simple internal hemorrhoids. Bleeding from hemorrhoids rarely persists after divulsion, a feature greatly appreciated by the patient.

The length of time necessary to complete a cure varies with the number of hemorrhoids present and the length of time they have existed. Ordinary cases require from 3 to 12 treatments, and, although some require more, yet the result is always positive if the treatment is followed out conscientiously. I have treated now about 350 patients by this method with nothing but good results, and I see no reason, from what I have seen of the results obtained by my father in over 4,000 cases, to expect anything but satisfaction from the employment of this method.

The technic I now employ, and for which I am indebted to my father, I believe to be superior to that as ordinarily taught; it may be recapitulated as follows: 1. Examine the patient. 2. Divulse the sphincters under nitrous oxid. 3. Apply hot compresses for five minutes after this operation. 4. Give patient a rest of from four to seven days. When he returns for treatment: 1. Place in Sim's position. 2. Wash off anal skin. 3. Make digital examination to find state of muscle. 4. Insert conical speculum with obturator. 5. Remove obturator. 6. Select largest hemorrhoid for treatment. 7. Let patient prolapse this into speculum by coughing. 8. Swab off surface of piles with some antiseptic solution. 9. Inject from .42 cc. to .60 cc. (7 m. to 10 m.) directly into the center of the pile. 10. Withdraw the speculum *before* removing the hypodermic syringe. 11. Insert a suppository of ichthyol .18 cc. (3 m.). 12. Inject only one pile at a treatment. 13. Make the treatments from 4 to 7 days apart. 14. Insist upon a daily evacuation of the bowels.

The advantages of this modification of technic are many. The primary divulsion practically excludes the probability of the occurrence of such complications as pain, hemorrhage, and strangulation. It will also be found that in many cases in which there is a pronounced tendency for the hemorrhoids to prolapse, due to spasm of the muscle, the piles will not come down except slightly at stool, and then they can be readily replaced without any disposition to become strangulated. The patient is often relieved of a preexisting constipation and there is no necessity for keeping the bowels locked up after treatment. The anesthesia is quite short, rarely extending over two minutes for the whole operation, and I have never experienced any difficulty in persuading the patients to take it, especially as so many of them have already taken gas at some previous time for the extraction of teeth. They can return home after the operation without experiencing any bad effects. The injection solution is practically painless, and beside being nontoxic, is rarely ever attended with sloughing. Should any of the solution leak out into the rectum, it does not cause the slightest irritation.

The use of the conic speculum in place of having the tumors prolapsed for injection, is a decided gain, as one can see exactly what is being done and there is no danger of overlooking a small hemorrhoid which by the other methods would be sure to remain above the sphincter. There is also less likelihood, when injecting a pile within the rectal cavity, of forcing the solution out of the tumor into the portal circulation, as is apt to be done when the piles are forcibly reduced through a contracted anus. The use of the speculum causes no pain and very slight discomfort and obviates the necessity of giving an enema before treatment, a point that will be greatly appreciated by all patients.

The fact that no opiates are required during the period of treatment is a distinct advantage, thus avoiding the possibility of having a patient contract the habit. Although I do occasionally use 32 mg. (½ gr.) of cocain after treatment, I never give a patient a prescription containing the drug. As there is no possibility of more than one suppository being used in from five to seven days, and, as I do not inform the patient that I have used it, I do not feel that there is any danger of their repeating the dose without my knowledge. The patient should always be instructed, should any unusual symptoms occur, to report immediately for examination.

In conclusion, I feel that if this technic is carefully followed or improved upon, the treatment of internal hemorrhoids will be satisfactory to the patient, and the results gratifying to the physician. In many ways the treatment is superior to the ligature, and the clamp and cautery operations, and certainly with the results I have so far obtained, I should not feel justified in advising a patient to undergo a more severe operation, unless I felt positive I could not cure the condition by this treatment. While believing that the treatment of internal hemorrhoids by injection properly carried out, will not result in anything but good, there is no doubt in my mind that injudicious experiments along this line can only result in bringing the method into disrepute. It requires a thorough knowledge of the peculiarities of the tissues injected, as well as the means of avoiding or treating the complications that may arise, to make the method successful. Like all surgical procedures, the results obtained by inexperienced operators will not ordinarily be as good as those in the hands of one who is thoroughly familiar with the treatment. For this reason I do not feel that the method is one that can be applied by every surgeon with equal results. If accidents and complications do follow, I trust the method will not be unjustly condemned, as I have tried conscientiously to teach a technic which in my hands has been followed by very gratifying results.

It must be insisted upon that no brilliant results can be expected from this treatment unless it is carried on systematically. It is necessary to develop a good technic, which should be adhered to in all cases. No detail or symptom is of too little importance to teach very valuable lessons from which the physician can broaden his knowledge and improve his results.

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Reorganization of the Red Cross Society.—There is now completed an entire reorganization of the Red Cross Society, with headquarters in Washington, D. C. An entire new set of officers has been elected, this being made possible and harmonious by the resignation of almost all of the old officers. Former Surgeon-General W. K. Van Ruypen, of the Navy, is the new president, and Dr. Walter Wyman, Surgeon-General of the Public Health and Marine-Hospital Service, is vice-president. The other members of the Board of Trustees, the secretary and the treasurer and members of the Executive Committee, are men of prominence, who have been active in bringing about a reorganization of the society. These trustees elected were Surgeon-General Walter Wyman, Charles J. Bell, Admiral Dewey, C. C. Glover, S. B. Hege and General J. M. Wilson, all of Washington; Dr. J. Wilkes O'Neill, of Philadelphia; Senator Proctor, of Vermont, and Representative William Alden Smith, of Michigan.

THE BENEFICENT AGENCY OF PERITONEAL EXUDATES, ADHESIONS, APERISTALSIS AND METEORISM IN PERITONITIS.[1]

BY

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It is 11 years since I had the privilege of addressing the New Jersey State Medical Society. I was then one of you and deeply interested in all the concerns of your organization. At our meeting in Asbury Park, June 28, 1893, I presented a paper entitled, "Salpingitis and Pelvic Adhesions," and it is with a desire to supplement some of the thoughts then expressed that this is now written. Two conclusions then reached were as follows: 1. Adhesions about an inflamed tube or ovary are conservative in design and effect, and should not be disturbed till the disease back of them is removed. 2. When the disease is removed the adhesions tend to absorption and usually disappear in time.

Both time and experience have served not only to confirm these earlier conclusions, but have led to the fixed belief that certain other inevitable accompaniments of peritonitis which we have regarded as baneful are in reality also somewhat beneficent in their agency.

If instead of regarding adhesions and exudations about infection foci in the peritoneal cavity as a phase of the disease to be combated, we now look upon them as possessing a valuable conservative power, the direction and purpose of our treatment will be conformed to this belief. Likewise, if tympanites and aperistalsis, or socalled "intestinal paralysis," can be shown to possess beneficent qualities, our attitude toward them as phases of the disease will be radically changed and their treatment correspondingly altered. It will scarcely be questioned that they are now generally regarded as wholly baneful in their effects and that vigorous measures for conquering them are demanded, chief among which are active purges.

In both the prevention and treatment of tympanites and intestinal paresis, salts, calomel, castor-oil and compound cathartic pills have heretofore been the vaunted specifics, and have held this place solely upon the theory that these symptoms of peritonitis were wholly vicious and to be overcome at any cost. Now that we are prepared to acknowledge that peritoneal exudates and adhesions may and do have a beneficent effect, though we formerly believed them entirely potent for harm, is it not worth while to inquire how far we may be in error in this other, even more important question?

Starting with certain accepted and established basic principles of modern medical science, it will be conceded: 1. That idiopathic peritonitis is a myth; that the disease is always either directly or indirectly of infective origin. 2. That transudation of serum, the formation of plastic exudates and adhesions, tympanites, peristaltic arrest and muscular rigidity are the first reactionary phases of the disease. 3. That the first effect of infective inflammation everywhere in the body is to bring about quiescence, muscular inactivity, and physiologic rest in and about the parts involved. 4. That the best treatment of all inflammation is based upon promoting such an arrest of functional activity. Inflammations of the heart, lungs, stomach and intestines, eye, larynx, bladder, pleura, peritoneum, and of the joints are alike in this particular. 5. The health and life of the patient depend upon the limitation and localization of the infective process.

Now let us determine what the effects of plastic exudates and adhesions, of tympanites and aperistalsis—which so quickly follow all peritoneal infections—are to be, and what attitude we should take toward them in the treatment of the patient. That all of these phases of peritonitis have in themselves the possibilities for harm we know very well. In fact, they have occupied a conspicuous place in our minds heretofore as the greatest menace of the disease. Their conservative agency in limiting and quarantining the focus of infection has been overlooked; and we have worse than wasted our energies in combating the most potent conservative forces of nature, and our ablest allies.

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[1] Read at the meeting of the New Jersey State Medical Society Atlantic City, June 6, 1904.

Very recently there has been an inclination among us to concede the beneficent effects of the exudates and adhesions during the acute stages of the malady, and that even afterward, the infection being removed, they were resolved and disposed of in most instances so as not to be a serious menace to life and health. This beneficence has been, and still is denied for tympanites and aperistalsis, however; and it is with the hope that I may help to establish such a place for them that I write.

There is much in a name. "Intestinal paralysis" implies loss of power and function, incapacity to act in the interest of the individual. Considered from such a standpoint, it calls for active measures for the reestablishment of peristalsis, even though the remedies employed are known to be exhausting and depressing in effect. "Aperistalsis" and "peristaltic arrest," however, are words which may convey a very different notion of the origin of the conditions described. If they are regarded as a natural sequence of the toxemia of peritoneal infection and inflammation, and conform to the accepted facts regarding muscular inactivity elsewhere in the body under such circumstances, our notions of their treatment will be materially altered. Then the natural inclination to promote mechanical and physiologic rest of the parts will be uppermost in our minds, as it would be with a joint or a lung. Hence, I protest against the use of the words paralysis or even paresis in this connection, as conveying a wrong impression of the pathology of this syndrome as leading to serious and irrational errors in treatment. Aperistalsis and peristaltic arrest are better terms. They convey a better idea of the true significance of the symptom and promote rational considerations of treatment. "Peristaltic inhibition" is objectionable also. It conveys an impression of a physiologic function, while the process under consideration is clearly the result of a pathologic toxemia of bacterial origin.

The *modus operandi* of the production of peristaltic arrest and meteorism in peritonitis is not perfectly understood, though the first is believed to be due to the toxic effect of bacterial products upon or through the plexus of Auerbach or Meissner, and the second the result of bacterial action within the intestinal canal, which is excited in some obscure way from the same sources, and which is exaggerated by the decomposition of the intestinal contents, but *is not dependent upon such contents or such decomposition.*

There is much misapprehension also of the true source of danger in the presence of peristaltic arrest and meteorism. Acting upon the supposition that the greatest danger lies in the toxemia, or autointoxication from the decomposition of the intestinal contents, we have purged the patient to get rid of this, thus promoting the diffusion of the more dangerous toxins and sepsis throughout the peritoneal cavity. Nobody maintains that autointoxication from intestinal decomposition and extreme distention of the abdomen from tympanites, aperistalsis and antiperistalsis, are not dangerous in themselves. But as results of a more malignant process outside of the intestinal tube, and in comparison with that, they drop to a place of secondary importance; and if necessity for treating them arises, the treatment must be directed with a due regard for their more dangerous neighbor. As signified in my title, I believe, and hope to lead others to believe, that these secondary phenomena of peritoneal infection have definite beneficent agencies; that properly considered and rationally treated, their beneficent qualities far outweigh their dangers; and that we must reconstruct our ideas of the pathology of these conditions, and make our treatment conform thereto.

Let us concede that peritoneal exudation, and adhesions play a very important part in protecting the patient from diffusion of infection during the acute stages of the disease, for we have all seen this exemplified many times in a walled-off appendix or tuboovarian abscess. Conceding this, can it be questioned that aperistalsis also favors the formation of a protecting barrier about the focus of infection, the very loops of the arrested intestines themselves serving to form a part of the abscess wall? Can it be questioned that meteorism, through ballooning the intestines and increasing intraabdominal pressure also serves the same beneficent purpose in bringing loop to loop closely about the infecting focus and splinting the abdominal wall and diaphragm so that not even the respiratory movement shall disturb the newly established quarantine station?

The surgeon who now ruthlessly breaks down the protecting wall of an acute appendiceal abscess in a too zealous attempt to remove an appendix lays himself open to censure, according to the prevailing opinion of the best surgeons of today. How much less culpable is he who in a vain attempt to eliminate a minor evil with purges, establishes active peristalsis and thus breaks down or prevents the construction of this protecting barrier in its formative stage?

After all intraabdominal operations the same reasoning holds good. Although we should make a great effort to empty the intestines before operating, we should do all in our power to promote peristaltic arrest after operation; for we know that under the most favorable circumstances our asepsis of hands and skin cannot be made absolute and that there always remains a certain degree of residual infection from these sources, that the peritoneum must take care of. It is incumbent upon us to minimize the virulence of this residual infection to the utmost through the exercise of the best known methods of antisepsis; it is also our duty to favor the natural resistance of the peritoneum to the development and distribution of the infection and its toxins. This is accomplished, among other measures, by maintaining aperistalsis. Even antiperistalsis, or socalled reversed peristalsis, is not without its beneficent agency insofar as it serves to empty the intestines of decomposing and fermenting materials which are producing autointoxication. If it be supplemented by the judicious use of the stomach siphon, even this serious and distressing condition may be made to serve some good end.

During the preoperating period, opium was our sheet anchor in the treatment of peritonitis, and from my standpoint it is easy to understand how its good results were attained. It promoted peristaltic arrest, and even tympanites; and in spite of its interference with the elimination of the bacterial toxins and intestinal ferments, its good effects in localizing the infection were paramount and far and away better than the treatment with salts and calomel and jalap.

Were I, or one of my very dear friends in the third, fourth, fifth or sixth day of a peritonitis of appendicular origin, and obliged to make a choice between the opium treatment of some gray beard, with half a century of empiricism back of him, and that of some modern surgical enthusiast of the "operate as soon as the diagnosis is made" sort, I would not hesitate a moment in choosing the former. However brilliant and dextrous and famous an operator might be, I would not select him if he had a penchant for operating on sight, and for removing the appendix regardless of its situation and surroundings. No human care or skill can eliminate the fearful risks of such interference with the natural limiting barriers of the disease. Furthermore, if famous, such a surgeon must bear the responsibility of the use of his great name and reputation in furthering untimely and injudicious operative work in the hands of many who are less capable and skilful than he. Immediate and ultimate operations (upon first or second day and interval cases) are known to be extremely safe; I am far from alone in believing, on the other hand, that intermediate operations are always attended with a high mortality, and that indeed, they are sometimes directly homicidal.

Rationally treated or left to themselves, adhesions and exudates, peristaltic arrest and tympanites play their beneficent parts during the acute stages of the infective process, and wall off or quarantine the point of invasion if it is in their power to do so. After the virulency of the attack has subsided and the surgeon has come to the rescue in the interval and removed the source of infection, these secondary phases of the disease disappear. Excepting such permanent adhesions as have resulted from the destruction of the peritoneal endothelium and the union of subperitoneal tissues, and these are rare, there will not be a vestige of the old process found after a few weeks or months. The tacking together of approximated and agglutinated surfaces is temporary, and such adhesions undergo speedy resolution after the infection is eliminated and normal peristalsis is reestablished.

Treatment.—Assuming that our premises are well founded and correct, the rational management of these coincident expressions of peritonitis begins with prevention. This comprehends the treatment of salpingitis, appendicitis, typhoid fever, gastric ulcer, gallbladder diseases, traumatisms, etc., by such dietary and medicinal means as tend to prevent the diffusion of a peritonitis should it arise from such a primary source. It presupposes such preparation for abdominal operations as will minimize all risks of infection and excessive intestinal fermentation. After operation it depends largely upon the exercise of a masterly inactivity in the care of the patient, at least so far as purges and some other time-honored orthodox measures are concerned.

In this connection it is proper to add that milk as an article of diet should be forbidden in all of those conditions in which peritonitis is threatened, and before and after all intraperitoneal operations. It is an ideal culture medium for the gas-forming bacteria of the intestinal tract, and in my opinion is the worst form of liquid food that can be administered, particularly in typhoid fever, gastric ulcer, appendicitis, and after abdominal operations.

When peritonitis occurs and the conservative forces of nature are called upon to fortify the individual against further invasion and diffusion of the disease by exudates and adhesions, meteorism and aperistalsis, we must treat them as allies. In extreme cases measures for the control of their excessive energy may be necessary. Opium must still be regarded as a valuable remedy in the acute stages of peritonitis as it relieves pain, conserves the energy of the patient, and promotes the peristaltic arrest which we desire.

Practically applied, this means actual fasting for all patients threatened with or suffering from peritonitis, and soup diet for those being prepared for intraperitoneal operations. It means also no purges or cathartics for such patients during an attack, for some hours or a day or two before intraperitoneal operations, and for a week after operation and recovery from all symptoms of peritoneal irritation.

For the discomforts and dangers incident to extreme degrees of meteorism and antiperistalsis, we may employ that safe and most satisfactory device, the rectal or stomach siphon, and stimulating rectal enemas containing glycerin, salts, turpentine, alum, castor-oil, etc. *I believe that no remedy is necessary or justified against simple peristaltic arrest in the small intestine, as it is wholly beneficent in its effects while it lasts, and it will be maintained only so long as it is needed.* Let it alone, and be satisfied with keeping the large hollow viscus at either end of the canal empty and free, and the rest will take care of itself besides taking care of the infecting focus. By this same token we are driven to conclude that such poisons as strychnin, atropin, nicotin, and eserin salicylate administered for the purpose of promoting peristalsis under such conditions are also counterindicated.

For about two years I have applied the principles here advocated to such cases of peritonitis as I have seen and to all of my patients who have had intraperitoneal operations. It is the established practice at the Denver Maternity and Woman's Hospital. Without quoting cases, it is enough to say that my results have never been so satisfactory, nor my operative cases so comfortable.

Operators there are without number, any of whom may do the mere mechanical work of intraabdominal surgery perfectly well, but the discriminating diagnostician and rationally conservative surgeon is not so common. He who wisely pilots a desperately ill patient through the breakers and brings him to a safe harbor for repairs, thus avoiding the performance of perilous operations in the midst of a storm, is after all the best and safest captain.

RETRODEVIATIONS OF THE UTERUS.[1]

BY

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The term "retrodeviations," as employed in this paper, includes retroflexion and retroversion. However, in treating the subject, the normal, transitory retroversion, produced by a distended bladder pushing the fundus backward or a distended rectum forcing the cervix forward is, of course, left out of consideration, excepting as a predisposing cause of pathologic displacements.

A comparatively solid, heavy, and oblong organ, like the uterus, suspended and held in place, as it is, by a series of elastic structures, normally movable within wide limits and subjected to varying degrees of pressure from different directions, is very prone to the occurrence of displacements. Besides the ligamentous supports, there is an extensive bed of cellular tissue below and at the sides of the uterus, which forms an additional elastic support.

Etiology.—The chief causes of retrodisplacements of the uterus are: A general weakness shared by the pelvic structures; the wearing of corsets or tight waistbands or the suspending of clothing on the hips, particularly during the developmental period; subinvolution of the uterus and its ligaments after abortion or labor; increased weight from any cause, as metritis, neoplasms, etc.; peritonitis with adhesions; inflammation of the adnexa, with increased weight and dragging on the uterus; rectocele and allied conditions, causing dragging on the uterus in the axis of the vagina; bilateral lacerations, atrophy or elongations of the cervix, allowing the uterus to sag in the axis of the vagina; pelvic cellulitis; abnormal distention of the rectum (pushing the cervix forward) or of the bladder (forcing the fundus backward); neoplasms of the uterus (increased weight) or of other pelvic tissues (encroachment on the uterine space); sudden tension on the uterine ligaments, as from a fall, jumping the rope, etc. It is probable that improper clothing during the period of puberty, together with lack of exercise and of development, cause fully as many retrodisplacements as subinvolution after labor. Of my 36 recorded cases, 15 (41.6%) were in nulliparas, and this I believe is a fair average of all my cases.

It is a common belief, shared by some physicians, that uterine displacements do not exist in virgins. This belief entails an untold amount of unnecessary suffering. Several observers have found retroversion in embryos and in the newborn, but it is a rare condition. Retrodisplacements in girls are not noticed until the uterus has become heavier at the period of its functional activity, when it may become an important source of disorder. The importance of retrodeviations in the causation of disability and disease is not considered so great as formerly, nevertheless, it is pretty well established that "simple" retrodeviations do frequently lead, directly or indirectly, to impairment of health, even in virgins. It is fair to infer that a normal uterus normally located will functionate more normally than a dislocated uterus. Yet there are eminent members of our profession who contend that "simple" retroversion is not a pathologic condition—does not of itself produce symptoms nor lead to their production. There are some, perhaps many, retrodisplacements existing for considerable periods without symptoms, but that they are devoid of danger few will affirm. This remark pertains only to marked, permanent displacements. Leaving out of consideration all theoretic dangers, there is the actual, not remote, danger of incarceration of the gravid uterus early in the period of gestation. However, most observers are confident that "simple" retrodisplacements are prone to become "complicated" ones. We know there are many "simple" hernias without symptoms, but we do not claim they are not prone to become dangerous. Should a retroversion cause directly no other symptom than obstructive constipation, that alone is sufficient to start the patient on the down grade. I would direct especial attention to the fact that retrodisplacements not infrequently lead, directly or indirectly, to pressure neuritis involving the sacral plexus, with disastrous results.

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[1] Read before the Texas State Medical Association, thirty-sixth annual meeting, at Austin, April 28, 1904.

Retrodisplacement of the uterus is a very common disorder. Schroeder says that over 25% of all women have retroflexion or retroversion. Among 303 patients examined by him at Königsberg having no pelvic symptoms there were 79 cases of retrodisplacements (26.7%), while among 108 complaining of pelvic disorder 39 (36%) had version or flexion. These percentages probably are higher than would obtain in this country, because the conditions of life among the European peasantry are, in many respects, much less favorable than we find among the same class here. In their combined observations, embracing some thousands of patients, Winckel, Lohlein, and Sänger found retrodeviations in nearly 18% of all gynecologic patients.

Symptomatology.—The general symptoms usually associated with retrodisplacements pertain largely to the nervous system, like hysteria, neurasthenia, headache, backache, syncope, palpitation, gastralgia, amblyopia. The menstrual flow usually is increased. Abortion occurs in about a third of the cases of those who conceive.

Diagnosis.—The diagnosis of retrodisplacements usually presents no difficulties under bimanual examination. Sometimes, however, it is impossible to diagnose between an adherent fundus and one incarcerated below the uterosacral ligaments, the latter forming a sort of buttonhole above the body of the uterus.

Treatment.—The prophylactic treatment for retrodisplacements pertains largely to hygiene, especially during the developmental period. A large percentage of acquired retrodeviations originate in the puerperium, hence, as a prophylactic measure, the necessity for repairing lacerations and for examination at the end of two and four weeks after parturition to determine the position of the uterus. Neglect of this routine by the accoucheur gives rise to a great amount of suffering and aids very materially in swelling the income of the surgeon.

The curative treatment includes general and local measures, operative and nonoperative. When unaccompanied by inflammation, retroversion may at first not be constant. It is in this class of cases that a general tonic treatment, with avoidance of overdistention of rectum and bladder, together with regulation of the clothing and, perhaps, local nonoperative measures, afford most satisfactory results. In many cases postural treatment with, in some cases, astringent douches will be all that is required, but in some the wearing of a properly fitted pessary for a few weeks or months is essential.

In cases of retroversion of the second or third degree the best treatment is often operative, whether the case be "simple" or "complicated." If time and expense are of little consequence to a patient, nonoperative treatment may be tried when otherwise operation would be advised. In a large proportion of cases a properly fitted and well-applied pessary will accomplish a cure, especially in comparatively recent cases. It is probable that the pessary always fails of a cure in the class of cases in which the round ligaments have pulled out of the inguinal canals into the abdomen, leaving practically none of the essential part of the ligament in the canal.

The mere suggestion of the use of the pessary to some physicians and gynecologists is strong evidence in their minds that one is either insane or obsolete. Nevertheless, the pessary is an exceedingly useful appliance if rightly used in properly selected cases. The trouble with most physicians is that they do not know how to use the pessary. It should not be necessary to say that the pessary must not be applied with the uterus in retroversion, yet we find many patients who have had a pessary applied without the uterus having first been replaced. The pessary must not press on prolapsed adnexas, nor on inflamed tissues, consequently such conditions must be remedied before the application of a pessary. A patient is not conscious of the presence of a well-selected and properly fitted pessary, and when a pessary produces discomfort it is a sign it is doing harm. None will deny that there are drawbacks to the employment of the pessary. If badly used it is a source of real danger, and in order to be used safely the patient must be kept under observation and must also be a fairly intelligent and careful individual. In considering the advisability of employing the pessary we have to take into consideration the class of patients who absolutely refuse surgical intervention. Many of these patients will resort to any amount of inconvenience and any expense to avoid operation, and often persistent treatment along right lines, and the use of the pessary, will remove their disability; in some cases it may require years of treatment, while in others treatment will be but palliative. Many patients will accept palliative treatment when they absolutely refuse operation.

Surgical treatment for retrodeviations is absolutely essential in a very large percentage of cases if we aim to obtain a life-time cure of the disorder and its complications. Some 50 methods of operating for the cure of this condition have been tried, the great number of operations being the strongest evidence of their shortcomings.

The attachments of the broad, round and uterosacral ligaments, and those of the bladder to the pelvic wall, assist very materially in supporting the uterus in position, the latter preventing, in a measure, anterior sagging. The tissues of the vagina and of the pelvic floor constitute important supports to the uterus, either directly or indirectly, and intraabdominal pressure is a large factor in preventing retroversion.

In order for the fundus to get into the hollow of the sacrum, the round ligaments must be stretched, while for the cervix to go much forward the uterosacral ligaments must be elongated, and at the same time the broad ligaments must be twisted and stretched. In the vast majority of cases, replacing the uterus and restoring the round ligaments to a practically normal condition, together with repair of lacerations of the cervix and of the pelvic floor when present, will serve every purpose.

Shortening the round ligaments for the cure of retrodisplacements of the uterus was first proposed by Alquie, of France, in 1840, but the suggestion was not well received, and the operation was not adopted until 1883, when Alexander, of Liverpool, carefully described the technic, having performed the operation first in December, 1881. Adams performed the operation independently a few months later than Alexander. The Alexander-Adams operation is right in principle, and will, in a general way, probably maintain its position as the best operative procedure for the treatment of retrodeviations. To be sure, the technic may be modified somewhat, and in a proportion of cases something additional will be indicated, as shortening the uterosacral ligaments and repairing lacerations.

Any operative procedure for "simple" retrodisplacement must be practically devoid of danger, and must yield a permanent service to the patient in not permiting a return of the displacement after subsequent parturition. The only operation which has withstood this test, practically without exception, is some form of the Alexander-Adams operation of shortening the round ligaments.

The round ligaments, being a part of the musculature of the uterus, grow with it during gestation and undergo involution with it after parturition, thus maintaining their function. None of the artificial "ligaments" can undergo normal involution. This operation, then, is a physiologic operation, so to speak, whereas all other methods of operating which have been devised for this condition are unphysiologic—they substitute one bad condition for another, although the second condition may be less objectionable than the first.

The Alexander-Adams operation as originally performed is applicable only to uncomplicated retrodisplacements, because without entering the abdomen it is practically impossible to break up adhesions, and utterly out of the question to remedy any surgical affection of the adnexas.

The operation so persistently and consistently exploited by A. Goldspohn, of Chicago, modified by opening the abdomen through the dilated internal inguinal rings and breaking up adhesions or examining and treating the adnexas, has the disadvantages that it requires a greater amount of time and energy than should be necessary to fulfil the indications, that it is a more extensive operative procedure than is necessary, that it increases somewhat the danger of the occurrence of hernia, that it is difficult to work through these inguinal openings, and that some of the conditions complicating retrodeviations cannot be adequately and safely treated through such limited openings. Nevertheless, this is the operation which I employed in nearly all cases during the last ten years. It is applicable in the great majority of cases, either simple or complicated, and was the best operation I knew of. Yet I was fully cognizant of the objectionable features.

Recently I tried an operation which approaches very near to the ideal. I refer to the operation devised by D. T. Gilliam, of Columbus, Ohio. It is a modification of the Alexander-Adams operation. The essential features of the Gilliam operation are these: An incision down to the aponeurosis is made in the median line, as for a ventral suspension operation; the adiposus is slid back from the midline to or beyond the outer border of the rectus muscle on each side; the incision in the linea alba is then continued into the abdomen; if complications are present they are treated; then the skin and adiposus are held back with retractors while the deep tissues of the abdominal wall, from the anterior surface of the aponeurosis of the external oblique muscle inward, are penetrated with a ligature carrier or other instrument, the round ligament grasped at about its middle, pulled through, doubled upon itself, to the surface of the aponeurosis and anchored to it with chromicized catgut or fine silk. The ligament can be brought out at a point as near the internal inguinal ring as may be desired, but it will serve the purpose if brought out through the rectus, as is done by Gilliam, about on a level with the internal ring—and this is, of course, a little easier to do than to anchor it further outward. I prefer bringing the ligament out as near the internal ring as it is practicable to do, because this restores it to its normal status. This method is simple, easy of execution, eliminates the weakest portion of the ligament, is applicable to practically all patients needing operation, fulfils all the indications for shortening the round ligaments, and does not substitute one abnormal condition for another. If necessary, the uterosacral ligaments can also be shortened in just a few moments. I have had but one opportunity to operate by this method.

Intraabdominal shortening of the round ligaments by doubling them upon themselves or by exsecting portions of them and anchoring the stumps of the distal ends to the uterus, and all similar procedures, are objectionable for the reason that the strongest portion of the round ligament is shortened, leaving a weak and inefficient anchorage within the inguinal canal. George H. Noble, of Atlanta, devised an operation very similar to the Gilliam operation, but it has a more complicated technic and has the great objection that the aponeurosis is cut transversely.

It has been so well established that the Alexander-Adams operation, when properly performed has yielded satisfactory permanent results which withstand the test of pregnancy in practically all cases that it would be supererogation to dwell upon this point. What are the facts regarding the results of the ventral suspension and fixation operations? Noble collected statistics of 56 pregnancies in suspension and fixation cases from American operators. Gordon, of Baltimore (1896), collected statistics of 175 pregnancies in the same class of cases from European statistics. Among these 231 cases were 23 abortions (10%) and 9 premature labors (4%). The complications: Thirteen artificial extractions, including forceps deliveries (5.6%); 5 versions (2.16%); 3 cesarean sections (1.3%); 3 deaths, including a Porro operation by Noble (1.3%). These statistics are sufficient to condemn this kind of operation during the reproductive period. Vaginal fixation yields, I believe, even worse results, to say nothing of its other disadvantages.

Some 8 or 10 years ago I performed ventral suspension in three or four patients in the reproductive period, and subsequently attended two of them in parturition. The first, a primipara, got on in her labor very well excepting that there seemed to be added pain. The other, a multipara, had dystocia. Version became necessary, owing to the os being close to the sacral promontory, and the child was lost. The anterior wall of the cervix thinned to such an extent that I poked a finger through, thinking it was the bulging membranes, but subsequently succeeded in finding the anterior margin of the os close to the promontory. Neither of these patients experienced undue trouble during gestation, and in both the uterus remained in place after the puerperium. Catgut was the suture material used.

While I have treated many scores of patients with retrodisplacement of the uterus I have available the records of only 36. However, the results in this small number of cases are of some interest. Of these 36 patients 17 were treated successfully with the pessary, though some of them were not traced long enough afterward to insure that the relief was permanent. In 14 cases the Alexander-Adams operation was done, with permanent relief in all, though in my first case (1891) the anatomic result was not perfect during the year the patient remained under direct observation, probably owing to adhesions. The relief from symptoms was perfect and remained so for several years to my knowledge. In 5 cases of ventral suspension the anatomic result remained good after 1 to 4 years, no effort to trace them beyond 4 years having been made. In 4 of them relief from symptoms was practically complete, while the other was almost a complete failure. In this case the lacerated perineum was not repaired, nor was the uterus suspended by the posterior surface of the fundus, the best way. Several of the patients operated upon had been treated by me with the pessary unsuccessfully, and in these I often found the inguinal portion of the round ligament drawn out to a mere thread. In 6 (42.8%) of the 14 Alexander-Adams cases I found it necessary to do intraabdominal work (as resection of ovaries, salpingectomy, appendicectomy and breaking up adhesions), and in 4 (28.5%) plastic operations on cervix and perineum were done. These cases were not followed up to determine the effects of subsequent pregnancy and parturition, but I happen to know that one of them sustained the test without trouble or recurrence of the displacement and that one is now pregnant near term.[1]

SUMMARY.

1. Rarely, retroversion is congenital, and it is common in virgins. It is probable that improper clothing during the period of puberty, together with lack of exercise and of development, act as causative factors in fully as many cases of retrodisplacement as subinvolution after parturition.
2. Retroversion is essentially a pathologic condition, in that it is, either directly or indirectly, in the majority of cases, a source of discomfort or disease.
3. Retrodeviations are present in at least 15% of all gynecologic patients.
4. The intelligent use of the pessary will effect a cure in a large percentage of the cases, but when used unintelligently the pessary is positively dangerous, as is the case with most surgical instruments and appliances.
5. Surgical treatment of retrodeviations is absolutely essential to a cure in a large proportion of the cases.
6. The Alexander-Adams operation of shortening the round ligaments is right in principle, and will, more or less modified, maintain its position as a classic operation for the cure of retrodisplacements.
7. No method of shortening the round ligaments within the abdomen will effect a cure in nearly all cases, because these methods fail to eliminate the weakest part of the ligament, the portion within the inguinal canal.
8. The Gilliam modification of the Alexander-Adams operation is the operation of choice in these cases, because it is easy of execution and meets all the indications for the successful treatment of the displacement and of intraabdominal complications which may be present.
9. Ventral suspension and ventral fixation are "unphysiologic" operations. They should not be performed in the cases of patients susceptible of childbearing.
10. Vaginal operations for retrodeviations in fruitful women are mentioned only for condemnation.

TREATMENT OF CHRONIC COLITIS.[2]

BY

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In this short paper it is my purpose to make no division of chronic colitis, but to treat under the one general head, chronic colitis, mucous colitis, membranous colitis, follicular colitis, and ulcerative colitis, believing they are simply different stages of the same disease, and that all properly belong under the name chronic colitis. The cases of mucous and membranous colitis that have come under my observation all presented a chronic, inflamed condition of the lower bowel, when viewed through the proctoscope. There was present in all great tenderness, and the use of the proctoscope gave pain and small hemorrhages were noted in different places. The colon could be easily traced by palpation throughout its whole course, from the pain produced. There were periods of exacerbation, when larger amounts of mucus were expelled, and greater soreness and pain were present, but mucus was never free from the stools for any length of time. These exacerbations or crises could, in nearly every case, be foretold one or two days in advance by the increased constipation, greater nervousness, mental depression, insomnia, and sallow complexion. The symptoms of chronic colitis are those of chronic intestinal indigestion, furred tongue, a sensation of heaviness, mental depression, melancholia, insomnia, sallow complexion, exhaustion, and chronic constipation, with the passage of hard fecal masses covered with mucus. Since most cases of chronic colitis occur in women, there must be some special cause peculiar to the sex. In seeking for this cause we find a large percent of women who suffer from gastroptosis, enteroptosis, and nephroptosis. Some specialists claim that one in every five women has gastroptosis. Tight lacing and childbirth are usually given as the cause. I never saw a case of chronic colitis in which gastroptosis or enteroptosis was not present in some degree. The effect of these displaced organs induces that tired, dragging feeling of which these patients complain, and in time is sure to leave them extremely nervous. It is no wonder that all of these patients are neurasthenic. Impaired digestion is but the natural sequence with all that follows. Every patient with chronic colitis will give a history of long-standing indigestion in some form, which, to the medical mind, means some pathologic condition in the organs of digestion. In my opinion, improperly prepared chyme entering the intestines, causing first irritation, later inflammation in almost all cases, is the cause of chronic colitis, and therefore in treating chronic colitis the first thing to do is to remove the cause of the indigestion. Believing this cause to be chiefly found in these displaced organs, it is my custom always to replace these organs and hold them in place by a properly fitted corset made to measure. This corset is the invention of a Paris physician, and has a long, straight front, coming well down over the hips, and as low as can be worn in front, and is held down to the hose by elastic fasteners. It is made to give firm pressure around the hips, and should be put on while the patient is lying down, and laced from below. I first got my idea of using a corset for these patients from Dr. Gallant, of New York City. The benefit to the patients by having these organs held in position is very great. They speak of the support as holding them up, and as curing that tired, pulling, dragging sensation that is so exhausting. It is often necessary to change the corset several times before it is suited to the individual case. Supports designed to hold any one organ in position generally prove fruitless. The next step in the treatment of this disease is the taking of a test-breakfast or test-meal to ascertain the digestive power and condition of the stomach, and by chemic analysis of stomach contents, to determine the kind of food that will be most suitable to the individual; whether a bland diet, leaving little residue, or a more bulky diet, leaving more residue, according to conditions and symptoms. A properly selected diet is of the utmost importance, and no fixed general rules to suit all cases may be laid down. An analysis of the stomach contents will aid us in selecting a suitable diet. When there is a deficit or absence of hydrochloric acid in the stomach, meats should be partially or wholly excluded in the beginning of treatment, especially when the motor power of the stomach is lessened. In cases with extreme constipation and passage of mucus, the diet of von Noorden, leaving a large residue, and consisting of graham bread, whole wheat bread, corn bread, spinach, kale, cabbage, lettuce, asparagus, cresses, fruits with skins and seeds, etc., has given the best results. To explain this, some claim that a bulky meal passes out of the stomach more quickly than a small liquid meal in these cases of gastroptosis, and the residue is less likely to be arrested in the progress through the intestines, thereby overcoming that most troublesome symptom, constipation. In cases with symptoms of diarrhea, a diet, consisting of milk, broths, clear soups, gelatin, custards, eggs, and peptone, leaving a small residue, is more suitable. When a patient is nervous and thin, a rest of one or two hours after the main meal should be insisted upon. In those cases in which the patients are thin, it is of the utmost importance for them to gain weight. To this end oils and fats are indicated, especially when constipation exists, and butter and olive oil, with plenty of cream, seem to be most generally accepted. Butter is eaten with the meals, and olive oil taken before breakfast, and in some cases before the other meals as well. Plenty of fresh air is essential. Change to a pure mountain air or to that of the seashore when the patient is free from anxiety often promotes a cure when all other treatment fails. The medical treatment consists of remedies to overcome the constipation, assist digestion, and allay fermentation. When the olive oil and diet fail to meet the first indication, castor-oil is one of the best, if not the very best, remedy. It is most important to keep the bowels open daily. Vaselin is a good laxative and lubricant for such purposes. Salines are not so generally useful. Salines do not evacuate the bowels as thoroughly as do the oils, and seem to be more irritating to the intestinal mucous membrane in these cases. The digestive ferments, pancreatin, papain, and diastase, are the best digestives and are very helpful. Hydrochloric acid and the bitter tonics, such as condurango, gentian, nux vomica, and strychnin, with intestinal antiseptics, such as salol, salicylic acid, resorcin, menthol, thymol, creasote, all play an important part in the treatment. Massage of the colon, as practised by von Noorden, is useful. Local treatment of the bowel by high enemas of alkaline solutions followed by astringent solution of krameria, pinus canadensis, and silver nitrate, give great relief, and are recommended. Large enemas of olive oil should be given while the patient is in a recumbent position, and allowed to flow by gravitation high up in the colon. They are soothing, healing, and lessen constipation. These enemas should be given at night, and retained as long as possible. The quantity should range from three ounces to as much as a pint, according to the ability of the patient to retain it. When hemorrhoids are present they should be removed or treated locally. When the lower bowel is greatly inflamed topical applications through the proctoscope with spray are beneficial. For the treatment of pain in chronic colitis, such as precedes the passage of mucus, and when enteralgia and enterospasm are present, a hypodermic of morphin and high enemas of oils or of some saline solution, and a large dose of castor-oil by the mouth to cleanse thoroughly the intestinal canal, give the best result. The treatment of this very chronic and troublesome disease is in many cases unsatisfactory at the best, relapses are frequent, and it is only by patience, care, and persistence that any progress is made.

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[1] This patient was delivered normally at term about the middle of July (1904).

[2] Read at the meeting of the American Therapeutic Society, held in New York City, June 1-3, 1904.

REVIEW.

1. Treat the attack of pain which precedes the passage of mucus by a hypodermic of morphin and atropin, and promote thorough evacuation of the bowels by large doses of castor-oil by the mouth, and high enemas of oils or of alkaline solutions.
2. A carefully selected diet to suit the individual case, after a chemic examination of the stomach contents has been made.
3. Assist digestion and allay fermentation.
4. Keep the bowels open by means of oils by the mouth, which have the double office of laxative and lubricant.
5. Apply suitable support to overcome any ptosis of the abdominal organs.
6. Local treatment by means of astringent enemas and oils, and topical application of the same when necessary.
7. See that the patient gets sufficient rest in the recumbent position, and when practical a change to the air of the mountains or seashore.

PARAPHIMOSIS: ITS MANAGEMENT AND TREATMENT.

BY

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The dangers attendant upon imprudent delay in instituting efficient measures for the immediate relief of paraphimosis are so imminent that the importance of a proper understanding of the management of these cases cannot be emphasized too forcibly. Deducting from a large clinical experience, I presume to offer a few practical suggestions, and it is from this standpoint that the facts incorporated herein are presented.

Whatever the causal factors may be, paraphimosis is primarily the consequence of a deformity or the terminal condition of a preexistent phimosis. The narrowed preputial meatus, for some purpose, is drawn forcibly back over the glans to the coronary sulcus, where it contracts, and becomes imbedded at this point, and the patient suddenly discovers his inability to cause the glans to reenter the foreskin. The constriction thus occasioned causes a mechanical disturbance of the circulation to the part, thus interfering with the venous return, and there rapidly ensues a transudation of the serum into the tissues. The penis is constantly increased in size, until, by contraction, it may become tortuous and twisted.

After every effort to effect its reduction meets with failure, the patient becomes alarmed, and he seeks to obtain relief, and it is this extremely painful and lamentable condition with which we are not uncommonly confronted. It is obvious, therefore, that if this state of affairs is not radically dealt with, gangrene must quickly develop. This sequel is, fortunately, a rare occurrence, owing to the timely intervention of nature, in her effort to overcome the constriction, emancipating the glans finally, by destruction of the unyielding tissue in the process of sloughing. Thus we have a condition which is almost invariably followed by secondary infection, in which, if there is any tendency to phagedena, it may go so far as to result in penile fistulas. Accompanying lesions, chancroidal or specific, are always ominous for this reason, the dangers being especially augmented. Under such conditions the treatment is somewhat modified, and will be accorded its respective consideration later.

For purpose of elucidation, paraphimosis may be classified into the reducible and irreducible types: First, that which yields to manipulation, bimanually; and second, that in which surgical intervention is necessary.

In the first class of cases, reduction is effected by directing the efforts toward expressing the prepuce over the corona glans. This is accomplished by grasping the everted preputial margin, laterally, simultaneously exerting judicious pressure and manipulation to the glans, and thus freeing it from the contracting band, and slipping it back into the orifice. Should this prove unsuccessful, attempt should be made by encircling the penis with the fingers of one hand, and making firm concentric pressure just below the unyielding ring, felt to be hard and indurated. With the other hand, taxis to the glans should be made. These methods may be facilitated by a dusting powder, of equal parts, boracic acid and lycopodium, freely sprinkled over the part to enable a firmer hold. This is more commendable than the use of a lubricant. Once reduced, subsequent care should consist in the application of leadwater and laudanum, for 24 to 48 hours, and constitutionally, sodium or potassium bromid, to allay any irritability or reflex spasm.

In cases of the second type, in which the degree of contraction is extreme, the condition assumes a surgical aspect, and it is necessary to divide the constricting ring by a dorsal incision on the median line, and no time should be lost in its performance when other measures fail. The patient may be anesthetized, using ethyl chlorid or ether as a general anesthetic—the part is thoroughly asepticized, any coexistent lesions should be gently touched with pure carbolic acid—cocain or eucain, 1% or 2% may, under some circumstances, be used subcutaneously, if permission is obtained from the patient, and is advantageous when expedition is desired. A curved pointed bistoury or straight tenotome, pair of straight scissors, and a few hemostats are all the instruments required. After dividing the band, it is well to make sure of its completeness by drawing the prepuce over the glans, which should be done with readiness. The whole procedure may be rendered bloodless by improvising a tourniquet with a simple twist of a catheter at the base of the penis. Any subsequent bleeding may be readily controlled by pressure.

In specific, or even suspicious cases, I prefer to allow healing to take place by granulation, instead of apposing the incised edges, thus allowing better access to the part in the event of secondary infection. Under such circumstances, the dressing par excellence is iodoform, either copiously as a dustig powder or upon gauze, loosely packed between the glans and the inner integument of the foreskin. Dry sterile gauze should subordinate this dressing, and then by means of a T bandage, the penis should be held vertically and against the pubes, thus minimizing the blood tension and adding increased comfort to the patient. If possible, he should be kept in bed for a few days.

The subsequent treatment is of signal importance. The dressings should be changed every 24 hours, the desiccated blood and pus removed by a spray of hydrogen dioxid; and the penis immersed in a hot solution of potassium permanganate, 1 to 2,000, for about five minutes. If there is any tendency to suppuration, gently apply by means of a cotton swab, 25% solution nitric acid, or acid mercuric nitrate solution, 10%, previously, of course, cocainizing the surface to be touched. Again dress with iodoform, or, if the patient objects to its use, iodomuth is an invaluable substitute. In cases complicated with verrucas, the growths should be immediately removed, as these are not infrequently the primary cause of this condition. Very often cases of paraphimosis are seen in which the chief obstacle preventing reduction is simply the accompanying edema which may be readily overcome by making multiple punctures over the edematous folds, thus considerably mitigating the degree of constriction. This in itself is not uncommonly the means of effecting relief.

Not Encouraged to Enter the Medical Profession.—Women who are desirous of entering the medical profession encounter a discouraging situation in Germany. An association of physicians has sent to the directors of 613 high schools a circular for distribution among the students, in which these are warned against entering the medical profession, which is described as being disastrously overcrowded, the number of physicians being nearly 30,000, or more than double what it was in 1876. The situation is aggravated by the abolition of the law against quacks, and by the insurance clubs, which hire doctors at starvation wages.

A THEORY OF THE SYMPTOM-REFLEX.

BY

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Too often in our study of a case we lose sight of its subjective aspect in an excessive regard for what is objective. Modern developments emphasize the details of objective study, chemicly, mechanicly, microscopicly, as it may be, and we are easily tempted to think the whole rationale one of vivisection and objective analysis, when the poor patient may suffer really from an essentially subjective disorder, and one that will yield only to an understanding of the psychologic factor of its etiology.

It will be necessary at the start to deny any belief in the limitation of consciousness to the brain, for that organ can claim merely a coordinating influence on consciousness. Very likely the brain is the true seat of the organism's self-consciousness, yet even this is scarcely verifiable. Ancient efforts to place the soul in the liver, or the heart, or elsewhere, have failed, just as modern attempts to lodge the soul or self in the brain must fail, for the simple reason that our localization of cerebral function will extend our knowledge of special values and eliminate the vague and general, in the same way that hepatic and cardiac functions when finally known replaced the vague ideas of the ancients.

Where, then is bodily consciousness? It is disseminated through all the organism. But in the nervous system, and *à fortiori*, in the central nervous system, it is at its apogee; there all consciousness is correlated and intercommunicated. By such correlation and communication alone the idea of self or personality arises in the complex of organism. Yet every cell and every simple tissue retains to an extent its primitive and essential consciousness—that which makes possible to the lowest life responsive and initiative action, contractility and irritability, as well as the conduct of metabolism, reproduction and oxygenation. If consciousness were not inherent to protoplasmic life, it is inconceivable that the process of evolution could create it or induce it in the higher organism.

Zero to the ninth power is still zero. And the marvel of evolution is not how peculiar qualities can come into existence out of nothing, but how those qualities have developed out of the potential and simple, through adjustment, readjustment, and adaptation. It will be granted that no cell loses its faculty of metabolic function, however well the gastrointestinal tract may specialize therein.

Neither can we deny consciousness to the cells and body tissues while admitting the extreme development attained by the nervous system. It is the supreme function of the nervous system to coordinate the whole consciousness of the organism. When this is not done successfully a condition of objective disruption or disease occurs, or one of subjective incorrelation or insanity; the subjective and objective disorders may be combined in a more or less complete personal disorganization.

As a matter of fact, disaster is rarely complete. The weakest link, the more susceptible tissues give way first to the morbific influence. By analogy, degeneration takes place in nervous tissue along the line impulses would be transmitted, which is because habit has accustomed the cells to resist transmission in one direction and to facilitate it in another; all changes occur in the easier line of resistance. All mutations of consciousness are coordinated in the line of least resistance. The consciousness of every single cell is essential to the content of the general consciousness, however, only in proportion to its essential relationship. The primitive alterations in cell consciousness reach the nervous system in its ramifications by primitive cell-to-cell communication. Just as every cell retains unspecialized its original faculties, however well developed any one faculty may become, so all cells descendants of originally identical ones retain the faculty of intercommunication. This faculty of coinfluence will exist in a degree corresponding to the limitations of cell existence. If in cell division the daughter cells become separated and subjected to a separate and different environment, by so much will their sympathies be divided. If, however, the daughter cells continue organicly joined, and undergo a harmonious and united experience they have the faculty of communication of impulses and sympathetic experience and consciousness to a corresponding degree. In no way else can we explain the organic unity of tissues. Muscle tissue will not graft functionally to nerve tissue. But skin may replace skin, and nerve tissue other nerve tissue, if metabolism be establishable. Even carrying the analogy into the lives of separate individuals, we notice the sympathetic appreciation between parents and children. If, however, they were to be long separated, living under different conditions, this would less readily be brought about. It is to the common experience that great works of art and great truths of science and religion appeal.

But to return to the theory of reflex symptoms. What are they? They are facts. If any one doubt this, let him put on a pair of lenses which imperfectly refract his vision, and something in his body, outside the visual tract, will protest in short order; it may be the stomach, it may be the vasomotor organism, it may be nothing at first, but sooner or later such reflex will appear. Let us not emulate the obstinacy of the medieval astronomers, who preferred not to see the plainest explanations.

It is a fact that reflex symptoms do occur. Why does some distant part of the body suffer? Because it is hurt. Pain, suffering, and adjustment are different and actual views of the same process.

It is for us to explain how such a distant part of the body may be made to readjust itself, and why it should be that particular tissue which is so distinctly hurt. Not a great many factors enter into this understanding. In the first place, the organism is a unit, or an effort to form such a unity. If the various tissues are abnormal in structure, or function, this unity is impaired. The coordinating function of the nervous system is consequently put to a proportionate amount of strain, which it may or may not succeed in reacting to, so as to restore its conscious and executive unity. Hallucinations and delusions are sane or insane according to the character of such a strain, and the mode of cerebral reaction. The reaction, however, may not be cerebral. Organic adjustment takes place along lines of least resistance. If a nerve fiber be cut, degeneration occurs in that direction impulses would flow, and this is because the whole experience of the fiber has tended to establish resistance to impulses in one direction and to transmit them in another. Function and structure go hand in hand.

Assume, then, that the senses, on account of some anatomic or physiologic defect, natural or artificial, attempt to disturb the adjustment of the organism by false or deceptive information. The special consciousness of that sensory tract is no more in harmony with the general consciousness. Hallucinations or delusions may ensue, or the brain may succeed in establishing a modus vivendi which shall accommodate to the sensory error. The strain, however, is not to be disregarded. It cannot be.

Adjustment will occur along some line of less resistance. This line will accord with some common anatomic or physiologic relationship. Metastasis in disease is no more unusual than in health. The eye and the stomach in health are in close partnership. Whether the taste of food has been the primary source of the eye's acquaintance with good things to eat or not, in some way the gastric function is stimulated by the sight of edibles. Sight and hearing of repulsive things produce vomiting in those whose gastric organism is a line of less resistance to the process of adaptation. The sexual instinct is easily stirred by distant senses. Whether this occurs centricly is not an important matter.

The reflex does occur, however, along the lines of previously established relationship, and with the additional factor of unequal resistance to this organic readjustment. The whole character of this adjustment is one of a correlation of consciousness, which, if impeded by functional or structural difficulties must be felt as pain or disorder. All bodies have certain minor difficulties of this sort to contend with. The sort of personality which is consequently developed is the outcome. When one disturbing factor amounts to an excessive opposition to the general consciousness and personality, the strain passes off in some line of less resistance in the form of a symptom-reflex.

Medicine in Ancient Egypt.—An exchange states that medicine in Ancient Egypt was the subject of Dr. R. Caton's Harveian oration before the Royal College of Physicians, which contained many facts of general interest. The most remarkable of the early physicians was a priest named I-emhotep, who lived during the third dynasty nearly 6,000 years ago. Judging from the references to him in the temple inscriptions and the papyri, he was a man of extraordinary genius and versatility. In addition to his professional work, which apparently included lectures on medicine, he was an architect, the first (according to Manetho) who built with hewn stone, a writer of divine books, an astronomer, alchemist, magician, and king's counsellor. Later he became in popular esteem a demigod, and temples for his worship, which were also hospitals for the sick, were built first at Memphis and then in other parts of the land. Here the priest physicians not only treated the sick, but also embalmed the bodies of men and the sacred animals. In this process the heart and viscera were removed, and they had thus an opportunity of learning something of anatomy, and of the changes produced by disease, being probably the first to acquire a rudimentary knowledge of the circulation of the blood. The medical papyri contain references to the heart, the bloodvessels, the pulse, and the changes which took place in disease. In one, distention of the heart and shortness of breath are attributed to the fact that the blood had stagnated and did not circulate properly. Among the prescriptions for various maladies was one advising rest in certain forms of heart disease, and Dr. Caton concluded his lecture by strongly recommending the method prescribed by Egyptian priest physicians 4,000 years ago.

Plague a Soil Infection.—In a paper read by Captain E. F. G. Tucker before the Bombay Medical Society, an abstract of which appears in reports of the Public Health and Marine Hospital Service, it is stated that: Although much is known of the characters and toxic products of *Bacillus pestis*, very little is known of it as a saprophyte in nature. Even in laboratory cultures it is polymorphic, and the question arising is whether these involution forms, so easily produced, represent forms under which the bacillus may remain latent or nonvirulent for long periods in houses, clothing, some host other than man and rodents, or the soil, Changes of temperature can not be the essential features in determining the onset of an epidemic. For although in Bombay there is an exacerbation of the disease between January and April of each year, with a great reduction in its mortality when the hot weather comes on, nevertheless in Poona, only 120 miles away, the epidemic recurs eight or nine months after the subsidence of the previous epidemic, and at no particular season of the year. In Captain Tucker's opinion, rats are infected from man indirectly through the infection of house and soil. He believes that dead rats are only found at the stage of local place infection, and says, "The theory that an epizootic in rodents is the cause of an epidemic among human beings is a pernicious theory, not so much because it is only half true, but because the modern tendency to put rat destruction in the forefront of preventive measures diverts the attention of the authorities from more important details." In opposition to the theory of transmission by fleas, Captain Tucker says that the rat flea (*pulex pallidas*) has not been found on man, and that if fleas could transmit plague it would be a contagious disease. This has been disproved. Captain Tucker's theory, then, is that as in China, the soil in India is saturated with human and animal excreta, the subsoil poorly drained, and a congested population lives in close contact with the soil, their standard of health being lowered by insufficient or innutritious food, and their dwellings having poor light and ventilation. In this way the plague bacillus gains access from the soil to man.

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3. Cover-glass Cultures and Their Possibilities in Studying Epidermic Fungi. J. FRANK WALLIS.
4. Neoplasm (Epithelioma) of the Pulp. V. A. LATHAM.
5. Ascaris Texana: A Note on a Hitherto Undescribed Ascaris, Parasitic in the Human Intestine. ALLAN J. SMITH and RICHARD A. GOETH.
6. The United States Public Health and Marine-Hospital Service: Part I: A Historic Sketch. (Continued.)
7. Dr. Wyman's Administration (1891 to the Present.)

1.—Static Foot Error.—W. P. Blodgett includes in the study only those cases in which there is an error of weight bearing. He gives tables of statistics as to sex, age, season, occupation, etiology, foot involved (right or left), duration, symptoms, localization of pain in the foot and above the ankle. Among predisposing causes are a long, slender foot, hallux valgus, mild fleeting polyarthritic symptoms, probably toxemic, and depression of physical vigor without local symptoms, except in the feet. Pain was the leading symptom in more than 95%. This was often diffuse, so it could not be referred to any exact site. When localized it was most frequent in the astragaloscaphoid joint. The calf was the commonest place above the ankle. The commonest type was moderate rotation of the subastragaloid tarsus about an anteroposterior axis into a valgus position, with depression of the longitudinal arch, but without much abduction of the forefoot. The next commonest was moderate valgus, decided abduction of the forefoot, and an arch unusually high, even during weight bearing. In nearly all cases the anterior arch was somewhat involved. The degree of deformity was no indication of the severity of symptoms. In 86.7% of the cases steel sole plates were advised, either at initiation or after failure of other means. These support nearly the whole width of the sole from just anterior to the weight-bearing surface of the heel to the sesamoid bones of the great toe. A posterior outside flange to keep the foot from slipping off and a small inside flange were used, but neither side, as a whole, was rolled up, and the scaphoid and base of the fifth metatarsal were not inclosed. Local and general tonic treatment was also instituted. As far as cases could be followed, a third were relieved. The cooperation of the patient is necessary to success. [H.M.]

2.—Ointments, Their Use and Abuse.—L. D. Bulkley calls attention to the necessity of freshness to avoid irritation. Vaselin is valuable as a lubricant but not as a protective unless stiffened with powder, wax, etc. Lanolin is inferior to it in promoting absorption. Glycerite of starch is an excellent excipient in irritable conditions. Mutton tallow, goose grease vasogen and eudermol are also unirritating. Cold cream is of all, the most serviceable base. Gritty particles must be avoided. It is well to begin with mild applications especially for itching. The mode of application is important. When used for lubrication as in ichthyosis, xeroderma, etc., friction should be used until much of the ointment has been absorbed. On a raw surface this would be injurious. Healing is often prevented by applications of soap. In some acute conditions powders and lotions are better than ointments. The writer gives some formulas which he has found useful. [H.M.]

3.—Cover-glass Cultures of Epidermic Fungi.—J. F. Wallis finds greater facility in this method than in others for observing development and for registering the different stages by staining and mounting. His specimens exhibit the formation of mycelia from spores, the growth of the colony above and below the media and the character of the conidia. A drop or two of culture medium is placed on a cover-glass, first liquefying it, if solid, by gentle heat. The hair or scale is then embedded, from four to eight glasses being used for each subject. These are placed in a moist chamber consisting of a shallow glass dish furnished with a circular barrier of glass, a half inch in height, separating it into two parts, and affording a shoulder over which is fitted a thin glass dish three inches high. In the inner compartment are placed petri dishes holding the cover-glasses. Moisture is produced by keeping limewater in the bottom vessel outside the hooded barrier. This excludes air and prevents evaporation and contamination. Sometimes, to prevent drying, the cover-glasses must be placed on moist circles of blotting paper. Room temperature is sufficient. To observe the growth, a cover-glass is held to a slide by a drop of water. The article is illustrated by cuts of the moist chamber and microphotographs. [H.M.]

4.—Neoplasm of the Pulp.—V. A. Latham reports a case of epithelioma with the microscopic findings, and notes in conclusion the freedom from urgent symptoms beyond neuralgia, the great rarity of neoplasms of the pulp, the lack of literature and of complete examination of tooth structures in relation to neoplasms. He suggests the question of metastasis in the pulp from periodontal tumors, and urges microscopic study in the schools. He emphasizes the dangers which may attend the killing of pulps by irritants and the importance of thoroughly cleansing pulp canals. Fistulous openings in the gingivas should be closed to avoid further infection and irritation of the peridental membrane, which may cause neoplasms. Dead teeth should be looked for and treated as early as possible. He notes the frequency with which hypercementosis is found at the radical point of dead teeth, the embryonic origin of the various structures of the pulp, and the especial importance of removing all causes of irritation in elderly patients. [H.M.]

5.—See *American Medicine*, Vol. VII, No. 25, p. 974.

Boston Medical and Surgical Journal.

August 18, 1904. [Vol. CLI, No. 7.]

1. Mind Cures from the Standpoint of the General Practitioner. ROBERT T. EDES.
2. A Consideration of Mental Therapeutics as Employed by Special Students of the Subject. JAMES J. PUTNAM.
3. Operations on the Stomach, with Report of Cases. (Continued.) JOHN C. MUNRO.

1.—Mind Cure.—R. T. Edes discusses those morbid processes which can and cannot be influenced by mental action. Fever, except that of excitement, many of the processes of nutrition, idiopathic anemia, pulmonary tuberculosis, valvular disease, and, generally speaking, infections, degenerations, slow organic processes which control the duration of life, the general health, and vigor of the constitution are not amenable to direct psychic influences. Secondary anemias sometimes seem so, but in an indirect way. The secretions are largely under mental influence. There are many and great disappointing limitations as well as great triumph of psychic therapeutics in those diseases we usually call functional. In many insanities we get nothing more than relief, great or small, of some accidental symptoms. We find little left except cases in which symptoms constituting in themselves a psychic disorder, counterfeit something of a more serious and organic nature. In neurasthenia proper when if there is real deficiency of nervous force, this can hardly be restored at once by brief stimulation of one part of the circuit. When the physician is sure he is dealing with a case of neuromimesis he cannot be too strong in his encouragement. [H.M.]

2.—Mental Therapeutics.—J. J. Putnam thinks persons with a tendency to obsessions deepened by habit and expanded into complex systems or "temperaments" are far more susceptible of relief than is commonly supposed. It is usually wise to make general or local treatment the starting point of a new departure of hopefulness. In neurasthenic cases the question of nutrition and reflex excitation is more important than in hysteria. Disdain for nervous weakness is the cause of much needless distress. It should be regarded in the same light as other forms of illness. Most therapeutic influences under this head have taken their coloring from philosophy or religion. Grohmann has inaugurated an enterprise in which the healing influences are represented by real work and simple habits of living in a small community. In the class represented by morbid fears, fright, psychoses, insistent ideas and epileptiform or hysteric outbreaks, some of our best work has been done. Under competition a strong instinct has developed to push into the field of habitual consciousness only those memories and motives which seem of distinct utility. But it often happens that painful memories refuse to be banished, and as the patient cannot or will not assimilate them and acknowledge the lessons which they could have taught, they lead a sort of parasitic existence in the mind hostile to his wellbeing. A breach is made in the unity of conscious life. This is termed "dissociation of consciousness." The aim ought to be to bring back the hidden experience into the full light of consciousness, so that its real significance can be estimated, after which reorganization of the mind is likely to take place of itself. Sometimes this can be attained by inducing the patient to talk about the details of the onset of his illness, and this can be done better in some cases in the hypnotic trance. [H.M.]

Medical Record.

August 20, 1904. [Vol. 66, No. 8.]

1. A Possible Cause of High-Tension Pulse in Nephritis. W. H. Thomson.
2. Treatment of Rupture of the Posterior Urethra. Weller Van Hook.
3. Primitive Medicine. E. J. Kempf.
4. Alcoholism and Drug Habits: Their Pathology and Treatment. Kanute Arvid Enlind.

1.—High Tension in Nephritis.—W. H. Thomson is assured that high-tension pulse sets in too soon to be the result of any change in arterial texture. The ischemia is due to some agent apparently having direct action on the arterial muscular tissue causing cramp. This antedates sclerosis and causes more strain on the left ventricle than the latter. The nature of the agent is conjectural. The secretion of the adrenals offers a close parallel to the action of this body. The diminution of urea in kidney disease with a high-tension pulse may be assigned to this cause. Conversely high-tension may go along with a normal excretion of urea. He finds that tension yields more certainly and permanently to aconite than to any other means excepting veratrum viride or free venesection. Its superiority to the nitrites is very marked. It may be given in 5-drop doses every three hours, day and night. In the second week the urea excretion may become quadruple what it was in the first week. The excretion is most marked in chronic interstitial nephritis with cardiovascular changes, especially in patients not far advanced in life. This drug may prove a valuable prophylactic against arterial sclerosis. [H.M.]

2.—Treatment of Ruptured Posterior Urethra.—Weller Van Hook says it is practically imposible to pass a catheter in the usual manner when the posterior urethra is ruptured. The only rational treatment lies in immediate perineal section. Actual experience with the human subject, and many experiments on the lower animals show that the regenerative power of the urethral tissues is very great. Reference is made to a case reported by Ljunggren, in which the ends of the ruptured posterior urethra were separated a distance of 6 cm. (2½ in.), thus precluding approximation by primary suture. A soft catheter was passed through the entire urethra and perineal drainage established. After four weeks the catheter was removed and the patient could pass his water through the natural channel but a small sinus at the site of the old rupture persisted. Two months later an operation to close this was performed and it was found that the interval of 6 cm. (2½ in.) had been spanned by regeneration of urethral tissue, the lumen being even larger than that of the normal portion. That this good result is not attained in all cases is illustrated by a case reported by Van Hook in which the gap between the ruptured ends was filled with scar tissue. A method of finding the proximal end of the ruptured urethra, without retrograde catheterization is suggested by Van Hook. It consists in simply palpating the tissues in the open wound beneath the pubic arch. The membranous tube can be recognized and located. [A.B.C.]

New York Medical Journal.

August 13, 1904. [Vol. LXXX, No. 7.]

1. Aberrant Thyroid Tissue, and Its Relation to Intratracheal Growths. Jeremiah S. Ferguson.
2 The Best Method of Operating to Effect a Radical Cure of Senile Hypertrophy of the Prostate Gland: Based on the Study of 150 Radical Operations. (Continued.) Orville Horwitz.
3. The Suppresion of Rotary Vertigo: Its Bearing on the Prevention and Cure of Seasickness. J. Leonard Corning.
4. Technic in General Anesthesia. Joseph D. Sternberg.
5. Is Milk a Factor in the Spread of Tuberculosis? J. O. Cobb.
6. Morphinism: Its Symptomatology. Charles J. Douglas.
7. Adenoids in Infants. Herman Jarecky.

3.—Rotary Vertigo and Seasickness.—J. L. Corning has devised an apparatus to produce vertigo mechanically in a subject. It is a chair supported upon a shaft in such a manner that its occupant may be rotated at any speed desired. By such simple contrivance it is possible, at one's convenience, to induce vertigo of all degrees of intensity, and then to make trial of various means for aborting or preventing it. A number of the remedies commonly employed in the management of vertigo of pathologic origin were put to the proof. No results were obtained from potassium iodid, ergot, gelsemium, pilocarpin, quinin, digitalis, sodium salicylate, or antipyrin. Of purely secondary value, *i. e.*, as adjuvants, were belladonna, nitroglycerin, and amyl nitrite. Only when their administration was begun 48 hours before the induction of vertigo, and the dosage pushed till somnolence was induced, did the bromids render obvious service. First among the agents to alleviate the vertigo is hyoscin, and second, opium or its chief alkaloid. Each of these, when carried to the point of inducing obvious hebetude, is capable of suppressing rotary vertigo of considerable severity. Hyoscin is the better of the two; and better still are both together. When to these resorcin is added to obtund the sensibility of the stomach, and nitroglycerin (if well borne) to expand the capillaries and stimulate the heart, empiric demands are met and physiology satisfied. The author later applied these inductive data in the management of seasickness, and found the results very satisfactory. [C.A.O.]

5.—Milk and Tuberculosis.—J. O. Cobb believes that milk is not a factor in the spread of tuberculosis. He calls attention to the fact that the cattle of the isles of Jersey and Guernsey are free from tuberculosis and are admitted into this country without the tuberculin test, yet the residents of these islands do have tuberculosis just about as much as we should expect to find elsewhere under similar environments. The Alaskan Indian has tuberculosis to a great and increasing extent, yet he does not use milk of any kind as an article of diet to any extent, and cow's milk not at all. He also states that the majority of the people of the world do not use milk as an article of diet. The people of China, Japan, Hindustan, and most of the Oriental races do not use milk to any great extent, yet tuberculosis prevails here as elsewhere. In the Philippines milk is seldom used, and in Cuba and in all the Spanish American countries, milk is invariably boiled before using, and yet we know they have tuberculosis. [C.A.O.]

6.—Morphinism.—C. J. Douglas reviews the symptomatology of this condition and states that these patients should not be treated as moral delinquents, but rather as sufferers from a painful and serious malady. The moral symptoms are but secondary. Morphin patients are great sufferers in both body and mind, and they deserve the most kindly and sympathetic care. The disease is entirely curable, and in view of its serious nature and its prevalence deserves more attention than the medical profession has accorded it. [C.A.O.]

7.—Adenoids in Infants.—Herman Jarecky reports five cases of adenoids in infants under 3 months of age. The growths were removed in each case with complete cessation of the symptoms. The author has devised an instrument for removing these growths in infants. It consists of an oval curet on a slightly pliable shaft about 20 cm. long. No anesthetic is used. Jarecky emphasizes the fact that adenoids do exist in infants, and that an early operation saves the patient from the defects caused by ignoring their presence. [C.A.O.]

Medical News.

August 20, 1904. [Vol. 85, No. 8.]

1. Technical Errors in the Use of Rubber Gloves. Howard D. Collins.
2. Interstitial Gingivitis or Scorbutus. Eugene S. Talbot.
3. Some Weather Observations in the Adirondacks. Lawrason Brown.
4. The Biologic Interpretation of Cancer. Alexander Spingarn.
5. Appendicitis: Pathology and Surgical Treatment. Edward N. Liell.
6. Beginning General Paresis: Its Recognition and Management. Charles Lewis Allen.
7. The Bacteriology of Panophthalmitis. Richard H. Johnston.
8. Autointoxication of Gastrointestinal Origin. Clifton Mayfield.
9. Bacteriuria, with Special Reference to Coli Bacilluria. Arthur R. Elliott.

10. The Uses of Röntgen Ray in Medicine and Surgery. RUSSELL H. BOGGS.

1.—Errors in the Use of Rubber Gloves.—H. D. Collins says the consensus of opinion is that rubber gloves are essential to aseptic surgery, but some serious errors are made in using them. They are worn because the hands cannot with certainty be sterilized, and yet the surgeon will take hold of and manipulate the glove with his bare hands in putting it on, thus contaminating it and defeating its purpose. Gloves should be made of pure rubber and should be sterilized by boiling. The more important points in the technic of sterilizing and putting on rubber gloves, as suggested by Collins, are: A wide-mouthed bottle filled with pulverized starch and provided with a piece of gauze tied over the mouth in a single layer, is with several towels and two pairs of long dressing forceps sterilized in a live steam sterilizer. The gloves are then turned wrong side out, placed in a wire cage and submerged in clean water in the ordinary instrument boiler. The gloves are allowed to boil for from 5 to 10 minutes, and are then taken from the cage and allowed to drain hastily. With the sterile forceps the gloves are placed on one of the sterile towels spread out flat and another sterile towel laid over them. The upper towel is then turned back and the gloves dried, both back and palm, thoroughly dusted with the sterile starch from the bottle. They are now turned right side out with the forceps, and they are not touched outside with the naked hands, sterile gauze being used to handle them. [A.B.C.]

2.—Intestinal Gingivitis or Scorbutus.—Eugene S. Talbot refers to the many reported cases of "scurvy" occurring among the British soldiers and the burgher concentration camps of South Africa, as well as among voyagers and British soldiers returning from other fields. Talbot says since other symptoms than those pertaining to the mouth are not mentioned, it is assumed that they did not exist, and yet scurvy produces profound constitutional symptoms. Talbot appears to believe that the condition was really an interstitial gingivitis which is readily induced under conditions which prevent free elimination from the body, and especially when there is constipation leading to autointoxication. He says constitutional secondary consequences of interstitial gingivitis could mimic scurvy, even as to the hemorrhages, and here antiscorbutic treatment would be useless. The first test of all these states is the gums, and here treatment with proper stimulus of elimination will aid assimilation and remove these "scorbutic" tendencies. [A.B.C.]

4.—The Biologic Interpretation of Cancer.—Alexander Spingarn says that we must seek not the pathologist nor the bacteriologist, but the biologist to explain the incidence of cancer. The tendency to unlimited cell proliferation is but a reversion to the original type, from which we escaped through the process of evolution. The original and earliest conception of organic life is to be found in the individual cell. Here life is immortal, no death, but constant cell proliferation and cell division. It is only the multicellular animal in which immortality is limited to the reproductive cells. Death is the result of natural selection and the conformation to type. Any injury or irritation to tissue, any disturbance of the proper balance which holds riotous proliferation of cells in check, any change in the habits of life, favors a tendency, inherent or latent in the species, to return to the primitive state—the state of cell immortality, the state of unlimited cell proliferation, which means cancer in the organized body. [A.B.C.]

5.—Appendicitis.—Edward N. Liell reports a series of 14 patients operated upon for appendicitis, with two deaths. One death occurred in the case of a girl of 13 with a fulminating appendicitis; another was that of a young man of 19 with a huge appendiceal abscess. Both could have been saved had the surgeon been called earlier. Liell emphasizes the fact that needless delay in operating is a factor leading to increased mortality. The diagnosis having been made, surgical rather than medical care is demanded. Were surgical intervention a prompt procedure, that is, operation on the first or second day of the attack, practically all cases of appendicitis could be saved. In every fatal case of appendicitis there has been a period in which the patient could have successfully undergone the operation. There is no other major surgical operation which is so reasonably sure of success, after early operation and when prompt interference means as much to the patient. [A.B.C.]

6.—Beginning General Paresis.—C. L. Allen finds this disease more common in urban than rural populations, and among men than women. In the majority it begins slowly, the patient's mental condition seeming to change, though derangement is not apparent. The victim may show exaltation, excitability with irritability and restlessness, or vague depression and fears. As a rule, he sleeps badly. There are three types, the dement, the socalled classic, and the melancholic. These all, however, end in death in marasmus or by some intercurrent disease. It is the first stage which is important for if recognized by the physician he may be able to preserve the victim from courses hastening the end, and protect the family from humiliation. Whether depressed or exalted the patient exhibits defects of intelligence, shown in loss of memory and judgment. Delusions are not built up and defended logically as in the paranoiac. Paresis is an essential feature. The symptoms in the earlier stages are alteration of knee-jerk, failure of the pupil to react to light, and optic atrophy. Disturbances of speech and handwriting are specially characteristic. There is inability to properly bring out and combine syllables, the voice becomes monotonous and its pitch lowered, and there is a tremor about the lips. Local anesthesias and paresthesias present may not always be easy to elicit. A paretic seizure may be the first evidence of the disease. This may vary from slight twitching to an epileptiform convulsion or may have an apoplectiform character. The writer discusses the differentiation from neurasthenia, cerebral syphilis and alcoholic insanity. The prognosis is of the worst. We are reduced to treating symptoms. [H.M.]

7.—Bacteriology of Panophthalmitis.—R. H. Johnston reviews the findings of other investigators and reports two cases in both of which the pneumococcus was found. It is probable that the organisms in the normal conjunctiva are nonvirulent and in order to prevent infection following cataract operation it would be advisable to ascertain whether or not the pneumococcus is present. If so, operation should be deferred until measures are taken to get rid of it. Hirota's observations have shown that mucocele increases greatly the danger of pneumococcus infection. It would be a simple matter to investigate this disease for the same organism. [H.M.]

9.—Bacteriuria.—Elliott says the symptom known as bacteriuria is a condition in which bacteria are excreted in large numbers in a pus-free acid urine, without any sign or symptomatic indication of cystitis or infective nephritis. The typhoid bacillus is present in at least a fourth of all cases of typhoid fever, often in enormous numbers, in some cases the urine being a pure culture of the germ. The virulence of the bacillus is retained. Pneumococci have been found in the urine in large numbers in pneumonia during the height of the fever. The tubercle bacillus has been repeatedly demonstrated in the urine without pus being present in cases of miliary tuberculosis. Phillipowicz discovered the bacillus of glanders and of anthrax in the urine of animals suffering from those diseases, and was able to cultivate streptococci from the urine in erysipelas and ulcerative endocarditis. Schweiger has proved that the urine of scarlatina and varicella may carry contagion. Jeanbeau collected 67 cases from literature, in 56 of which *Bacillus coli* was the infecting agent. Barlow collected 65 cases, in which 19 were due to *Bacillus coli*—17 in pure culture; of the remainder, sarcinas were present in 22 cases, and staphylococci in 3. Elliott reports 5 cases in which *Bacillus coli* was the predominant organism in 3. [H.M.]

10.—The Uses of Röntgen Rays.—Boggs states that the two important uses of the röntgen rays are (1) for diagnosis, and (2) therapeutic. The paper is devoted to the therapeutic use of this agent. He reports a series of cases treated, and states that those which should be subjected to röntgen ray treatment may be classified under four heads: 1. Those cases which respond readily, and as a rule, do not need surgical interference, viz., lupus, epithelioma of the face, acne, eczema, and tuberculous glands. 2. Those which should be treated for a short time, the mass removed, and then continue röntgen ray treatment to prevent recurrence, viz., carcinoma. 3. Those cases of carcinoma which are considered inoperable should be treated to prolong the patient's life and make him more comfortable. 4. Tuberculosis. Many of these cases in the initial stage respond to röntgen ray treatment. But here the röntgen ray should only be considered a useful adjunct. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

The Etiology of Infantile Diarrhea.—The announcement by Duval and Bassett in 1902 of the isolation of *B. dysenteriæ* from the stools of a large percentage of a series of cases of infantile diarrhea led to extended bacteriologic and clinical investigations upon that subject. During the summer of 1903, under the auspices of the Rockefeller Institute for Medical Research, studies were made in New York, Boston, Philadelphia, and Baltimore. Individual investigators from time to time published their findings, the chief points of which are familiar to all. These papers are now published collectively by the institute[1] in the form of a neat monograph, made particularly valuable by bacteriologic and clinical conclusions deduced, respectively, by Dr. Simon Flexner and Dr. L. Emmett Holt. Both make plain the fact that, notwithstanding the brilliant work accomplished, there is yet very much to be learned regarding *B. dysenteriæ* and its relation to infantile diarrhea. That it is the etiologic factor in at least some cases can hardly be doubted, and yet this cannot be positively affirmed. Of the 412 cases of diarrhea studied, it was present in 279, or 63.2%; this appears very significant, but Duval found it in very small numbers in the stools of two healthy, milk-fed children. Flexner suggests the possibility that the bacillus is an occasional—perhaps a constant (?)—saprophytic inhabitant of the intestinal canal, and that repeated insults to the intestinal mucosa permit it to assume parasitic and invasive properties that give to it pathologic significance. That the organism itself is imperfectly understood, is shown by Flexner considering five groups, which are yet only partially differentiated, the "Shiga," "Flexner-Harris," "Bacillus Y," Duval and Shorer "Bacillus A," and Duval and Shorer "Bacillus B." He regards the central fact brought out by the collective investigations to be the frequent occurrence in the diarrheal diseases of children of a specific organism hitherto supposed to be associated only with that form of dysentery in adults and children characterized by necrotic and pseudomembranous lesions of the intestine and marked infectiousness—in short, acute epidemic or bacillary dysentery. In the bodies of these children coming to autopsy, however, pseudomembranous enterocolitis is rarely found. This appears to indicate that the bacillus is capable under different circumstances of giving rise to diverse histologic lesions. Careful study and experiment are needed to throw light on many obscure points regarding this organism, whose natural habitat and mode of entrance to the human body are essentially unknown.

The clinical conclusions regarding diarrheal diseases in infancy deduced by Dr. Holt are of practical value. Infection with *B. dysenteriæ* occurs with about equal frequency in the four cities above named, and in breast-fed as well as in artificially fed infants. Cases vary greatly in severity. Of the 237 cases observed the Flexner-Harris type of the organism was present in 207, the true Shiga in 23, and both in 7; no difference in the clinical manifestations was noted. Owing to lack of knowledge regarding the organism, prevention of its spread is difficult. The infection is mildly contagious, and most likely spreads by way of the discharges. This calls for disinfection and the greatest care to prevent contamination of food and water by persons handling the napkins. In the way of treatment, Holt's ideas as to diet during the attack will be considered by some clinicians as mildly heretic. To the necessity of stopping milk in severe acute cases he is agreed, but in those of moderate severity without elevation of temperature he regards properly modified milk superior to any substitute; with the latter loss of weight is very rapid. The question of serum treatment is of great importance. Antidysenteric treatment was employed in 87 cases of the series, and 38 died. Holt considers the results as a whole disappointing. As nearly two days are necessary for bacteriologic examination, the serum must be injected on a clinical diagnosis. At present a serum from animals immunized to both of the principal types of the bacillus had best be employed. Much more extensive studies must be made before its true value can be determined. The high scientific character of all the papers in this collection is particularly gratifying. There is commendable absence of efforts to foist on the profession a series of preconceived notions; the actual results of investigations concerning a most interesting and fertile subject are set forth with a minimum even of legitimate speculation.

REVIEW OF LITERATURE

Hereditary Syphilis.—Neumann[1] belives: 1. That the wife may remain free from syphilis notwithstanding the fact that she has borne a syphilitic child, infected through the father. 2. In postconceptional syphilis, that is, when at the time of conception the parents are healthy, the disease may pass over to the offspring. 3. When the mother is infected during the latter months of pregnancy the fetus does not inherit. 4. When the father only is infected at the time of conception the mother may at each pregnancy be infected with a syphilitic primary affection. 5. In spite of a simultaneous infection and conception, though rare, the offspring may not be syphilitic. 6. The greater the interval between conception and infection, the greater the probability that the child will escape the disease. Of 333 cases studied, 156 aborted; 24 were stillborn or macerated fetuses; 43 were syphilitic; and 79 were not syphilitic. Of 71 cases in which infection occurred before conception, 27 aborted; 7 were dead or macerated; 6 were syphilitic; 12 were healthy and full term; and of 16 nothing could be determined. Of 96 cases in which infection and conception occurred simultaneously, 55 aborted; 7 were dead or macerated; 12 were syphilitic; 14 were healthy and full termed; and of 8 the facts were unknown. Of 166 cases in which infection followed conception, 74 aborted; 10 were dead or macerated, 22 were syphilitic; 53 were healthy and full term; and of 7 the facts were unknown. In 75 cases in which infection occurred at least 4 years before conception with 84 births, 8 aborted; 34 were dead or died soon after birth; and 42 were healthy. In 52 cases of tertiary syphilis with 109 births, 41 of the offspring were healthy and full term. Neumann reported a series of 14 cases in which at the time of observation the mother displayed no specific symptoms, but in which the children were, without exception, syphilitic. In conclusion he states that: 1. In the case in which a woman conceiving by an infected man aborts or bears specific offspring, if the man is treated properly she may have healthy children which will remain so. 2. It is a convincing fact in favor of the heredity of syphilis when a woman married to a syphilitic man and bearing specific children, contracts soon after a second marriage and without receiving antisyphilitic treatment bears healthy children. The conception that syphilis is exclusively inherited from the mother cannot be substantiated after a review of these facts, nor can the view held by some—that hereditary syphilis comes alone from the father—be maintained. [J.H.W.R.]

Occult Gastric Hemorrhages.—O. Schloss[2] reports the results of over 500 examinations of the stools for the presence of blood, and asserts that this test is assuming considerable diagnostic importance. He modifies the Weber turpentine-guaiac test by the addition of another—the aloin test, the details of the procedure being given in full. His investigations show that occult hemorrhages almost never occur in cases of achylia or gastritis anacida, or in nervous gastric affections; while blood was invariably found in the stools in gastric ulcer and carcinoma. Schloss also tried by this test to determine the therapeutic effect of bismuth on gastric ulcer. He found that the occult hemorrhages diminished after the administration of bismuth was begun, and finally ceased altogether in a few days. But they invariably returned sooner or later, after the drug was stopped. It is therefore evident that bismuth is not a specific for gastric ulcer, but may be an important adjunct to the diet and rest cure. [B.K.]

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[1] Diarrheal Diseases of Infancy: The Rockefeller Institute for Medical Research, 1904.

[1] Wiener klin. Woch., No. 20, 1904, p. 552.

[2] Archiv für Verdauungs-Krankheiten, Bd. x, Heft 3, p. 267.

Direct Action of Acids, Soaps, Ether, and Chloral Introduced through an Intestinal Fistula.—A. Frouin[1] injected various substances, as HCl, fat, ether, and chloral into duodenal and jejunal fistulas of dogs and noticed a considerable increase of the secretion of the pancreas, liver, and small intestines through this. He concludes, from his experiments, that intestinal secretion can be increased through chemic excitants as well as direct mechanical and electric; this conclusion, he says, is directly contrary to current teaching. HCl by inducing increased flow of gastric juice provokes increased flow of pancreatic, biliary, and intestinal juice, thus aiding intestinal digestion. Fats, ether, and chloral had the same action. They possess this action, whether taken normally by mouth or injected directly into the intestines. [E.L.]

Retention of Urea in Disease.—From their clinical and experimental researches, C. Achard and G. Poisseau[2] conclude that urea may be retained in the organism in pathologic conditions. Among the most frequent of these conditions are diseases of the kidneys. Circulatory disturbances also play a part, as do nutritive disturbances, which cause an increase in the production of urea. The urea which does not escape from the body accumulates in the blood. This excess of urea is especially marked in uremia, but is not to be regarded as the cause of that condition; it is rather an index of the retention of other more toxic substances. The excess of urea causes concentration of the blood and rise in the blood-pressure. The urea is accompanied by a certain amount of chlorids, the retention of which causes a salt hydration of the tissues, manifested by edema. When the retention of urea ceases, the excess is discharged into the urine, taking with it the retained chlorids also; there is thus produced a salt crisis following the urea crisis. Urea and sodium chlorid thus play similar parts in the animal organism, there being, however, a great difference in the intensity of their action. [B.K.]

Superinfection and Primary Infection.—Ladislaus Detre-Deutsch[3] attempted to throw some light upon this subject in regard to syphilis. He succeeded experimentally in superinfecting guineapigs with tuberculosis, and concluded that the superinfection brings about a change in the focus of infection which is different from the primary infection. He further concluded that (1) a virus can produce in an animal already infected by the same virus different initial symptoms; (2) the presence or absence of the primary affection does not yield any criterion of the subsequent infection; (3) not merely the immunity, but the change in the biochemic conditions of the organism following the early infection, explains the fact that the primary symptom-complex shows a deviation from the normal; (4) the diseased organism can acquire a superinfection nevertheless in complete absence of the typical primary infection. It is certain that one infected with syphilis cannot acquire again a typical primary lesion, but it is a question whether, in spite of this absence of a primary sore, or even in the absence of secondary symptoms, a superinfection is not possible. There may be found here an explanation of the severe cases of syphilis of prolonged duration. [J.H.W.R.]

Abdominal Pain of Intestinal Origin.—Frederick Holme Wiggin[4] discusses the various pathologic entities which may occasion abdominal pain, and in closing, says the chief value of abdominal pain as a diagnostic symptom in abnormal intestinal conditions is not only to call attention to patients suffering from intraabdominal disorders, but also, in the class of cases requiring surgical intervention, to indicate to the surgeon the locality of the trouble. It becomes the duty of the physician, in all cases in which abdominal pain is a prominent factor, to make careful note of the patient's condition and symptoms when first seen, to refrain from administering narcotics and cathartics until a surgeon has seen the patient, a diagnosis made, and treatment decided upon. Severe, sharp, persistent abdominal pain almost invariably means peritonitis, provided the chest has been carefully examined and disease excluded; and sudden cessation of such pain, accompanied by a rising pulse-rate and increased frequency of respiration, with or without lowering of bodily temperature, usually denotes gangrene of the gut and its perforation. Lives will be saved and many patients made more comfortable when physicians generally come to recognize that in all cases of persistent abdominal pain of obscure origin exploratory operation should be performed. In other words, when in doubt, operate, for Osler has said, "the surgeon is often called too late, never too early." [A.B.C.]

Destruction of Tubercle Bacilli in Heated Milk.—A large number of experiments with guineapigs have taught W. Rullmann[1] that to kill all tubercle bacilli in milk, it is necessary to keep it at a temperature of 68° C. (156° F.) for one hour; during this time the milk must be kept constantly in motion. Experiments at 60° and 65° for periods of 20, 30 and 60 minutes failed to destroy the bacteria. If the milk is carefully heated and quickly cooled off afterward, its taste does not suffer in the slightest; its albumin and lecithin content does not change; if the heating is carried on to greater height than 68° the enzymes are sure to be diminished, but at 68° they are not interfered with. As this method, therefore, does not injure the chemic composition of the milk, and kills all the pathogenic bacteria, it is warmly recommended by the author. [E.L.]

Limits of Proteid Digestion in Disturbances of Gastric Secretion.—V. Tabora[2] finds that in cases of normal or increased gastric secretion, proteids can be digestd to the extent of three times the normal requirements of the body. Even in cases of subnormal hydrochloric acid secretion, the digestion limits for proteids do not fall far below this mark. But in cases of achylia gastrica all proteids beyond those actually required are not digested. Administration of hydrochloric acid will greatly facilitate their digestion in such cases, the improvement being the result of a specific exciting action of the acid on the pancreatic secretion. Administration of alkalies diminishes proteid digestion in all cases, on account of the neutralization of the hydrochloric acid in the stomach, and also the inhibiting influence of the alkali on pancreatic secretion. [B.K.]

Experimental Cirrhosis of the Liver.—George Joannovics[3] believes that the results of experiments justify the conclusions that degenerative changes in cirrhosis of the liver are primary, and appear in repeated exacerbations. To this is added the proliferation of the interstitial tissues and the efforts at repair originating from the remaining liver parenchyma intact. The fact that the avenues of introduction of the poison are different (through the stomach and by inhalation) points to the conclusion that the cause of cirrhosis is not always the same, and that in the development of the disease many factors and mechanisms play a part of which nothing is at present known. [J.H.W.R.]

Chronic Streptococcus Endocarditis, Treated by Serum Specially Prepared by Use of the Organism Obtained from the Patient.—T. J. Horder[4] reports the case. The patient was a woman of 25, who until the present illness had enjoyed good health. In August, 1903, she developed an endocarditis. A chronic illness continued, and in November blood cultures showed the streptococcus present. All of the various serums were tried without result; they were continued for seven weeks, then a specially prepared serum was made by injecting cultures made from the patient's blood into the horse, and the patient was treated with this specially prepared serum. Treatment was continued over a period of more than two months, during which time some 550 cc. was given, the great bulk being administered subcutaneously and intramuscularly. At no time did the temperature chart suggest that there was any good effect from the treatment. Death resulted. The various theories adduced by the writer to account for the failure of the serum are: 1. The infection may have been a mixed one and only the streptococcus grew in the blood. This, Horder considers, unlikely, in view of the chronicity of case. 2. The serum may have been deficient in the "immune body." 3. The patient's blood may have been deficient in the "complement" necessary to fix the "immune body." [A.B.C.]

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[1] Comptes Rendu de la Société de Biologie, 1904, lvi, 461, No. 10.
[2] La Semaine Médicale, July 6, 1904.
[3] Wiener klinische Wochenschrift, 1904, No. 29, p. 765.
[4] The Lancet, July 23, 1904.

[1] Münchener medicinische Wochenschrift, 1904, li, No. 12, p. 508.
[2] Zeit. für klin. Med., Bd. liii, p. 460.
[3] Wiener klin. Wochenschrift, 1904, No. 27, p. 757.
[4] The Lancet, July 16, 1904.

Does a Physiologic Albuminuria Exist?—A. Oswald[1] expresses himself in the negative concerning this point. The appearance of albumin in the urine of the socalled physiologic albuminuria is in the greater part of the cases associated with well-defined and objectively visible injuries to the organism. In all cases it is the result of an irritating injury to the renal epithelium; it must, therefore, be considered at least transiently pathologic. The fact that the albumin in these cases is mostly euglobulin speaks for this irritation of the kidney epithelium. It is usually excreted alone, but sometimes also with the other albuminous components of the blood-serum. Euglobulinuria gives a better prognosis than other albuminurias, however. [E.L.]

Iodism and Iodin-Starch Reaction of the Stomach Contents in Hyperacidity.—From his observations, A. Bjelogolowy[2] concludes that iodism is a compound phenomenon, having more than one cause. A significant factor is the presence of nitrites in the stomach under certain conditions; these disintegrate the iodin preparations, with the liberation of free iodin. The extent of this action depends upon the amount of nitrites present; it requires an acid medium, hence the frequency with which iodism occurs in cases of hyperacidity. The amount of iodin produced does not depend upon the degree of acidity. The nitrites in the stomach contents are probably the result of defective action of the gastric juice on the swallowed saliva; they are only found in cases of hyperacidity. The setting free of iodin and the presence of nitrites are not accidental phenomena, but are constant in those individuals in whom they are found. The splitting up of iodin preparations can also be demonstrated in the cases of socalled "masked hyperacidity," and it is probable that the nitrites are responsible for many of the symptoms of that condition. [B.K.]

Facial Noma in Male Adult.—Case reported by Carlo Mastri.[3] The patient's age was 49, laborer, with history of diseases common to childhood, and several attacks of malaria, but no venereal or nervous taint, normal mode of life, and robust health. Ulceration began on inner aspect of left cheek, and invaded the structures at the angle of mouth, accompanied by typic fetid odor. Because of the rapid outspread, while benefitted by the Paquelin cautery, a cheiloplasty was decided upon. This proved entirely successful. Observers have recorded six other instances in adults with ages between 17 and 78, but it is agreed that the usual period is in the first decade of childhood. The writer finds the mortality exceeding 75% in all cases. Cases are much ameliorated by use of the thermocautery. Marmorek's antistreptococcic serum, suggested by Montini, is of doubtful value in these cases; the writer looks on the results of experiments so far, as uncertain because conditions in the children are not well understood. [T.H.E.]

Investigation of Mucus in Stools.—C. Lorentzen[4] describes the method of investigation, which consists in passing the stool through two sieves of different fineness, a stream of water being employed to wash it through. The mucus remains in the meshes of the sieves, although a small part of it is naturally carried away by the water. A certain amount of mucus will be found in normal stools, but an excess denotes the presence of a catarrhal condition. The principal exception to this rule is the membranous mucus discharged in cases of mucous colitis, the foundation for which is a secretory neurosis. In cases of pure gastritis the amount of mucus in the stools is seldom increased; large quantities of it must certainly pass from the stomach into the intestines, but it is thoroughly broken up in its passage through the intestinal tract. It is sometimes hard to tell whether the mucus comes from the small or large intestine. If from the former, it is incorporated with the feces, while if it comes from the latter, it usually covers the already hardened masses. In cases of diarrhea, however, irrigation of the colon must be employed to make the diagnosis; in cases of colitis, the water will carry away abnormally large quantities of mucus. Several cases are reported, illustrating the importance of these methods of examination. [B.K.]

Neuritis in Traumatic Tetanus Successfully Treated by Serum Therapy.—Victor Grünberger[1] reported a case of tetanus in which there developed, during the treatment by antitoxin, a neuritis of the left leg. There was a loss of power, and pain and tenderness were complained of, but there was no other disorder. The patient recovered entirely. Neuritis is a rare complication of tetanus, Grünberger having found reference to only two other cases, those of Engelmann and Kallmann. In the latter case no antitoxin was employed, which speaks against the theory that the neuritis is due to the antitoxin. Grünberger believes that neuritis occurring during the course of tetanus is analogous to the neuritis of diphtheria, which is claimed to be due to a toxon, a poison different from toxin. The toxophore group is different from that of the toxins, while the haptophore group is identical in both. [J.H.W.R.]

Presence of Long Thread-like (Boas-Oppler) Bacilli in Blood Clots of the Stomach Contents.—S. Heichelheim[2] has studied the question regarding the significance of Boas-Oppler bacilli in carcinoma of the stomach. He finds that these organisms can be most readily discovered in the dark brown blood clots, which occur in the gastric contents. The presence of the bacilli in large or even moderately large numbers after a test-breakfast, together with the absence of free hydrochloric acid, speaks very strongly for the presence of carcinoma. If only a few bacilli are found in the clots, a suspicion of carcinoma may be considerably strengthened. If free hydrochloric acid is present, the repeated demonstration of bacilli in the blood clots is also a strong proof of carcinoma; but care must be taken in making a diagnosis, if only a few organisms occur under these circumstances. [B.K.]

Hereditary Syphilitic Nephritis in Infants and in Fetuses.—Cassel[3] maintains that this disease in infants does not produce symptoms during life, that the macroscopic evidences of the morbid condition of the kidneys in fetuses and infants suffering with this type of disease are only exceptionally identified; but that histologic changes are found in the majority of the cases. In the children who have lived for some time the interstitial, the periadventitial changes and the cystic degeneration of the glomeruli stand out prominently. In fetuses, beside these lesions there is a hypoplasia of the kidneys. He says by these observations we are able to understand why those individuals suffering with hereditary syphilis and parasyphilitic affections remain undeveloped and infantile for so long a period of time; and why it is that these individuals possess so little resistance to the infectious diseases. [J.F.]

Behavior of Pepsin in Various Gastric Affections.—W. Robin[4] finds that Hammerschlag's method is the best for the detection of pepsin. The normal amount of pepsin is 50% to 70%, and there is no relation between its secretion and the amount of hydrochloric acid. In gastric ulcer the quantity of pepsin may be normal, high or low. In gastric catarrh normal quantities were usually observed. In the transition from ulcer to carcinoma, the amount of free hydrochloric acid first diminishes, while the pepsin does so only after the lapse of some time. Central nervous affections may influence the secretion of pepsin. In gastric carcinoma the amount is usually small, although it may be normal, or may be altogether wanting. In achylia gastrica pepsin was absent in half of the cases, and was present in subnormal quantities in the rest. A complete cessation of gastric secretion was noted in some noncarcinomatous cases between the ages of 32 and 56. Some cases were characterized by an increased pepsin secretion with normal hydrochloric acid secretion; the author calls this condition "hyperpepsinia." [B.K.]

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[1] Münchener medicinische Wochenschrift, 1904, li, 654, No. 15.
[2] Arch. für Verdauungs-Krankheiten, Bd. x, Heft 3, p. 204.
[3] Il Policlinico (Rome) No. 15, 1904.
[4] Arch. für Verdauungs-Krankheiten, Bd. x., Heft 3, p. 225.

[1] Wiener klin. Woch., No. 26, 1904, p. 737.
[2] Zeit. für klin. Med., Bd. liii, p. 447.
[3] Berliner klin. Wochenschrift, 1904, No. 21.
[4] Arch. für Verdauungs-Krankheiten, Bd. x, Heft 3, p. 242.

GENERAL SURGERY

MARTIN B. TINKER
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EDITORIAL COMMENT

Two Thousand Operations for Appendicitis.—The opinions of a surgeon who has operated on 2,000 cases of any one lesion are entitled to the greatest respect of his fellows, even though they choose to differ with him in minor or even essential points. For this reason the deductions of Dr. J. B. Murphy,[1] based on the findings in 2,000 cases of appendicitis, are of very great interest alike to surgeon and internist. Dr. Murphy in no uncertain language pays his respects to those members of the profession slow to accept modern views on appendicitis, those who prefer "to theorize and dream rather than analyze, investigate, or accept facts." They are still to be found—"everyone recalls how reluctantly the advocate of the soothing death lullaby of the opium treatment vacated his position, and how equally persistent and belligerent was the advocacy of the death-groaning calomel and castor-oil participant; the still unconquered, nine-lived procrastinator has not yet capitulated, each and everyone of these standing out against the most convincing presentation of pathologic phenomena." In endeavoring to outline the article, we pass hastily over the consideration of the anatomy of the appendix and the etiology of appendicitis, saying only that little or no etiologic significance is attributed to indiscretions in diet. Regarding the symptomatology of appendicitis, Dr. Murphy is more positive than most surgeons. This is commendable. Positive, clear-cut statements by authorities are needed by the general practitioner; he then knows what the writer means and can verify by observation the correctness or otherwise of the views expressed. The symptoms, in their order of occurrence, are: (1) Pain in the abdomen, sudden and severe, followed by (2) nausea or vomiting; (3) general abdominal sensitiveness, most marked in the right side, or more particularly over the appendix; (4) elevation of temperature, beginning from two to 24 hours after the onset of pain. When this order of occurrence varies, Murphy always questions the diagnosis. If nausea and vomiting or temperature precede pain he feels certain the case is not one of appendicitis. The character of the pulse has little value in the differential diagnosis, and the leukocyte count is on essentially the same basis. The clinical course of acute infective appendicitis is fairly uniform. After 50 hours the picture changes from that of lesions of the appendix to that of infection of the periappendiceal regions. All of the later and grave lesions of those regions are the sequence or direct result of omission on the part of the surgeon or medical attendant who had charge of the case during the first 48 hours.

Time for Operative Intervention.—Dr. Murphy divides this into four stages: 1. Early, within the first 48 hours. 2. In the active, increasing inflammatory process, from the second to the fifth day. 3. In the subsiding inflammatory process from the fifth or seventh day on. 4. In the intermediate stage—between attacks. The first is the period of election. To Murphy there is no excuse, no explanation, no logical process, no justifiable hope that relieves the patient of the danger of the disease. Procrastination he interprets not as a manifestation of knowledge, experience, judgment, or true conservatism but as a stigma of their opposites. Operation in the second stage must be limited; simple opening and relief of pus tension with removal of the appendix if accessible and easily amputated. The great mortality reported in this stage is largely due to excessive manipulation, sponging, flushing, adhesion separating, and prolonged operation. All the acute infective cases, even though perforation has not occurred, should be drained. We wish to emphasize a point very clearly brought out by Dr. Murphy, namely the evil that comes from periodic waves of conservatism voiced in leading medical societies. His mortality in each 100 operations diminished from the first until after the meeting of the American Medical Association in 1896 when there was a great cry against the frequent operations for appendicitis. The general practitioner heeded, hesitated to recommend operation, and the mortality again arose. This was succeeded by a gradual decline as the error of the position was recognized until a second epidemic of "expectant treatment" reaped its harvest of lives. Such periodic revulsions in opinion result from the refusal of physicians to believe the statements of those who are qualified by experience. Murphy has reached the conclusion that every death from appendicitis is chargeable directly to the people for not calling in the physician early or to the physician and surgeon for not acting promptly when called; he states distinctly that the latter represents the greater percentage. We should like to place Murphy's paper in the hands of every physician. Not all need it for some are in advance of many surgeons in handling this disease; others still need to be convinced of the enormity of allowing their patients with appendicitis to progress to pus and peritonitis.

REVIEW OF LITERATURE

Method of Closing an Abdominal Wound.—John D. Malcolm,[1] when doing a median laparotomy, carries the incision through the rectus muscles instead of the median line. He describes in detail his method for closing the abdominal wound, pointing out the defects in various other methods. He first passes deep sutures through all the structures of the abdominal wall, except the peritoneum; these are passed at an interval of one or two inches, depending on the thickness of the abdominal wall. Before these are tied, a silk suture is passed through the skin above the upper angle of the wound, and as a running suture is made to close the peritoneum and is brought out below in a manner similar to its entrance above. In exactly the same way another suture unites the fascia of the recti muscles; these approximate the principal layers of the abdominal wall. The through-and-through sutures are now tied, which unites firmly the incision and prevents all dead space, the running sutures closing the peritoneum and the fascia of the recti muscles are drawn out after 14 days, and the through-and-through sutures are removed. This leaves the cicatrix without any buried sutures whatever. The advantages claimed for the method are: 1. That the interrupted sutures by opposing the whole of the gut-surface, prevent the formation of a hematoma or a collection of serum between them. 2. That exact apposition of the layers, and especially of the divided edges of the fascia of the recti is attained. 3. That in case a wound does become infected, the sutures are removable. [A.B.C.]

The Pathogenesis of Diseases of the Gall Passages and Indications for Surgical Interference.—Johann Pruszynski,[2] after an extensive review of the subject, concludes that infection plays a very important role in inflammatory conditions of the gallbladder. That infection of the intestinal tract, beside diathesis, and the conditions under which the gall passages and particularly the gallbladder are choked up, are important etiologic factors in the development of lithiasis. In the majority of cases there is a latent cholelithiasis, without other symptoms. In many cases (not less than 10%) even when there are very severe preceding symptoms the stone can be removed in the natural passage way, even when it becomes lodged in the ductus choledochus. Lithiasis may call forth very threatening symptoms, even when gallstones, or a gallstone alone, are present in the gallbladder. Operation is absolutely indicated in cases in which inflammation of the abdomen follows disease of the gall passages, whether it is a lesion of the gallbladder, or as a result of perforation into the peritoneal cavity. Operation should not be delayed in cases in which there is infection of the gall passages with icterus and intermittent fever associated with profuse sweating, even if the position of the stone is unobserved. There may exist the socalled fièvre hépatique which may not be associated with colic. When there is a constant intermittent fever associated with a great amount of urobilin in the urine, then operation is imperative. Operation should be done in cases in which the ductus choledochus is permanently closed, even when there is no infection of the gall passages present. Operation is indicated in cases of adhesions associated with constant pain. Operation should not be postponed in cases in which empyema or serous hydrops of the gallbladder is present, even if the course of the process is mild. It is much better to operate when the gallbladder is free, rather than when it is incarcerated by adhesions. In cases of carcinoma the operation must depend upon the probable duration of the patient's life. In repeated attacks of colic, operation is indicated not only on account of the severity of the pain, but also because the inflammatory process in such cases is intense and shows no tendency to abate. Operations may be delayed in cases in which the interval between the attacks of colic is long, and in which the fever and jaundice are of short duration, and in acute closure of the gall passages of short duration, whether it be due to the passage of a gallstone, or dilation of the duct in the diverticulum in which the stone remains fixed, if it calls forth no other symptoms. [J.H.W.R.]

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[1] American Journal of the Medical Sciences, August, 1904.

[1] The Lancet, July 23, 1904.
[2] Wiener klin. Woch., March, 1904, No. 11, p. 293.

Unsuspected Lesions in Movable Kidneys Discovered during Nephropexy.—Frank E. Taylor[1] reports that in 30 instances in which nephropexy for movable kidney was performed at the Chelsea Hospital for Women, in London, there were three in which lesions existed in the kidney, two being instances of movable kidney with unsuspected renal calculus; nephrolithotomy and nephropexy. A third was a case of movable kidney with unsuspected primary renal tuberculosis; partial nephrectomy and nephropexy. A fourth case is reported occurring in a different series in which there was movable kidney with unsuspected hydronephrosis and congenital smallness of the ureter; nephropexy. A fifth case is also cited in which there was movable kidney with unsuspected renal tuberculosis; nephropexy was abandoned for nephrectomy. Taylor states that these cases constitute a plea for the more frequent performance of nephropexy for the movable kidney. In performing the operation the kidney should be thoroughly exposed and examined to see that no unsuspected lesion exists. Should the condition of the kidney appear doubtful at any spot the renal parenchyma should be freely incised for examining purposes, otherwise a lesion may be overlooked. By so doing extensive disease may be revealed or the presence of stone discovered and a contemplated nephropexy may have to be abandoned for a nephrectomy. [A.B.C.]

Treatment of Malignant Edema.—The bacillus of malignant edema produces the disease so named, while gaseous gangrene has as its microorganism the butyric acid bacillus. In the latter the skin breaks down very quickly, large gas bubbles forming very early and all through the disease; in the latter the skin is rarely affected and gas collections are not the rule. The lesions are edematous and gelatinous infiltration of the subcutaneous and muscular tissues extending far beyond the immediate area of infection. If pus or gas bubbles form they are due to mixed infection; the gas being produced by *Bacillus coli communis*. A correct diagnosis can only be made by bacteriologic examination, and only if this is made early can the proper treatment be instituted; both aerobic and anaerobic cultures must be made. The only treatment, which will preserve life, is amputation or excision through healthy tissues, and this can only be performed if the diagnosis is made at a time before the disease has spread to the trunk. Until the proper diagnosis is made, or permission for operation is obtained, hydrogen dioxid aided by free incisions is of very great value in limiting the spread of the disease. Hydrogen dioxid should be permitted to drop into the wound constantly or be injected subcutaneously. It does not cure, but only prolongs life. Lotheisen[1] reports a case in which the diagnosis was made in plenty of time to save the patient's life at the expense of a humeral amputation; at the time he refused to have this done, and hydrogen dioxid was applied both locally and subcutaneously; before the disease had reached the trunk he gave his permission to a shoulder-joint enucleation; he escaped with his life. Without hydrogen dioxid he would have been dead before the two days were over. The general health of the patient influences the prognosis greatly. The treatment of gaseous gangrene is the same as of malignant edema. Of 23 cases of gaseous gangrene which he could collect, 8 recovered, 6 as the result of amputations; of malignant edema no case has been known to recover without amputation. [E.L.]

Physiologic Salt Solution.—Frank S. Matthews[2] states that various experiments have determined that the osmotic pressure of blood is equivalent to that of a sodium chlorid solution of from .84% to .9% concentration, therefore this should be the strength of socalled physiologic salt solution. His conclusions in part are: 1. It is best not to use the term "normal salt solution," as "normal solution" has a distinct chemic significance in no way related to the solution under consideration. Even "physiologic" solution admits of some ambiguity. 2. Theoretically we can not make a perfect physiologic salt solution, though we can make one to answer all practical purposes. 3. Hypodermoclysis is preferable to intravenous infusion when carefully prepared solutions are not available, as in emergency. 4. Table salt can be used for an emergency solution. This contains, as a rule, potassium, sodium chlorid, calcium as a chlorid or sulfate, and magnesium, similarly combined. 5. An emergency solution should contain as nearly as possible 138 grains of sodium chlorid to the quart. 6. When large quantities of fluid are used in the peritoneal cavity they should contain calcium, potassium, and sodium in the proper proportions. The following solution is suggested: Sodium chlorid, .9%; potassium chlorid, .03%; calcium chlorid, .02%; water, 100%. Inquiries into the method of preparing physiologic salt solution in various New York hospitals showed solutions varying from .5% to 2.2%. [A.B.C.]

Paralysis of the Internal Rectus Muscle of Traumatic Origin.—Delneuville[3] reports a case in which a man of 28 fell and cut himself at the level of the lower border of the right orbicularis, a little within a vertical line dividing the orbit through its center. At first the patient complained of diplopia which, at the examination a month later, had disappeared. There was right-sided ptosis, and at the level of the inferior border of the orbit there was a cicatrix partly adherent to the bone. The eye was not hyperemic or prominent, but the movements were entirely abolished. The cornea was normal, the iris was intact; and there were no signs of luxation of the crystalline lens. The pupils were mydriatic and did not react to light, the fundus was normal, and there was no trace of intraocular hemorrhage. In fact, there was paralysis of all the muscles of the eye, including the sphincters of the pupil. The visual fields were intact, and the lacrimal ducts functionated properly. The sensation of the skin was greatly diminished, and almost abolished in the distribution of the thalamic branch of the trigeminal nerve. Some two months later there persisted homonomous diplopia in looking upward, and some slight abolition of sensation around the caruncle. The author asks the question whether some foreign body had not penetrated to the posterior part of the orbit, injuring some organ, such as the cavernous sinus, or the internal carotid artery. Three months after the accident the patient died suddenly in an apoplectiform attack. The autopsy showed the presence of varicose dilation of the cavernous sinus on the left side, a rupture of which was the cause of death. The internal oculomotor nerve had been very much reduced in size. There were two openings into the wall of the carotid artery. The author concludes that a splinter penetrating into the orbit, had ruptured the orbital vein, causing hemorrhage and projection of the globe forward. At the same time the violence of the shock produced a fracture of the inferior orbital wall, which was not, however, complete. The extravasation of blood had compressed the different oculomotor nerves, including the ophthalmic branch of the trigeminal. As the blood was reabsorbed, the compression of the nerves ceased and the paralysis disappeared, with the exception of the weakness of the internal oblique. The persistence of the paralysis of this muscle was probably due to the fact that the anterior branch of the inferior branch of the oculomotor nerve, which supplies this muscle, was caught in the cicatrix formed on the inferior orbital wall. [J.H.W.R.]

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[1] Annals of Surgery, August, 1904.

[1] Münchener medicinische Wochenschrift, 1904, li, Nos. 13 and 14, pp. 548 and 617.

[2] Annals of Surgery, August, 1904.

[3] Journal Méd. de Bruxelles, 1904, p. 378, July 28.

Surgical Treatment of Tuberculous Glands of the Neck.—W. G. Sutcliffe[1] believes that in the great majority of cases tuberculous cervical adenitis should be treated surgically, though he asserts that the condition but rarely becomes a general tuberculous infection. The old method of carrying the incision along the anterior border of the sternomastoid from mastoid process to clavicle, or of making multiple incisions, is condemned, because most unsightly scars are left. When the diseased glands are limited to the anterior triangle, the most frequent site, the incision is one following the creases of the neck, as suggested by Kocher. Usually two grooves or sulci are seen running obliquely across the neck from the thyrohyoid region to below the lobe of the ear. One of these is selected for the site of the incision. If there is a mass in the posterior triangle also, an additional longitudinal incision is made from the posterior edge of the swelling downward and obliquely forward to strike the posterior border of the sternomastoid about its middle or lower, and the flap formed by the intersection of the incisions above and posterior, is now turned forward and downward, exposing the field. The sternomastoid muscle should not be severed, the internal jugular vein should not be ligated, and the spinal accessory nerve should not be severed. If the subclavian glands are involved, a second and separate operation is generally best. They are best reached by a transverse incision an inch above the clavicle. Here the capsule of the glands is often adherent to the pleura, and it is best to leave them, after a thorough curetment. Skin wounds are closed with interrupted sutures which are removed after four days. [A.B.C.]

Cocain Adrenalin Injection followed by Prolonged Suppuration.—Aronheim[2] removed a hygroma from the tendon of the tibialis anticus from a man of 70 under cocain adrenalin anesthesia. He injected 0.0002 gm. ($\frac{1}{350}$ gr.) of adrenalin, and 0.02 gm. ($\frac{3}{10}$ gr.) of cocain, using scrupulous asepsis. Within a few hours the patient began to suffer very severe pain about the point of injection, the foot becoming markedly swollen. An abscess developed over the painful point, and much fetid pus was evacuated. The phlegmon spread, extending to the center of the leg before being checked. Several pus collections had to be opened. It was fully a month before the patient recovered fully. The accident was due, in the author's opinion, to the anemia producing action of the adrenalin, and the sclerotic state of the arteries of the aged patient. In such cases he thinks it were better to employ an Esmarch bandage and to permit the solution to drop over the area of operation. [E.L.]

Operative Treatment of the Hypertrophied Prostate.—Francis S. Watson,[3] in an exhaustive and interesting article, states that the special danger in connection with the performance of all the operations upon the prostate is from uremia. Sepsis has played the most important part in the fatalities associated with the performance of the Bottini operation, the least in connection with that of the radical perineal and suprapubic operations. Contrary to what would be inferred from the writings of various authors we do not, in all cases, have a free choice of a number of operations, but are more or less confined to the selection of one or other of them according to the conditions present. The most important single factor in determining whether or not radical operations shall be performed is the condition of the renal function. Radical operative treatment has not yet reached the state when we are justified in saying that all cases of prostatic hypertrophy should be submitted to it so soon as the condition is clearly made out, but we are justified in holding that patients should have the benefit of operation at a much earlier stage of the malady than has heretofore been customary. Early operations, performed when the patient is in fair condition will give a much lessened mortality rate and the risks are not nearly so great as those entailed by the use of the catheter, assuming the latter to have been employed instead, and under the usual conditions. When any condition is present which makes the perineal operation too difficult of performance or there is contraindication to its application, the suprapubic operation is the one of choice; this being contraindicated, the Bottini becomes the operation of choice. [A.B.C.]

Trophic Disturbances of the Fifth Pair of Nerves.—H. N. Moyer,[1] in an address before the Chicago Dental Society, stated his one-time belief in the neuritic origin of trifacial neuralgia, local infection, associated with the teeth, being supposed the most frequent cause. This was seen to be a fallacy, being largely proved by the results of castor-oil treatment. Such treatment will not cure every case, but two-thirds will be benefited, and of these, half will be almost cured—that is, go from three to eight months without return of pain. The central idea of a vasomotor disturbance as the cause of neuralgia, is the one that explains the effect of this eliminative treatment. Autointoxication is the foundation in 90% of cases; Moyer believes that in 10% his original conception holds good. Here the disease begins in the peripheral nerves and travels up as a neuritis, ultimately involving the ganglion, and such cases only are benefited by the more severe surgical operations. In many of the first class of cases removal of the superior cervical ganglion gives unquestionable relief, simply by interfering with the vasomotor nerve supply of the affected side of the head. [A.G.E.]

Intradural Tumors of the Cervical Meninges.—Harvey Cushing[2] reports the case in detail. The patient was a man of 30 years. A synopsis of the case is as follows: An intradural fibrosarcoma compressing the lower portion of the cervical cord was removed by Cushing, November 19, 1903, from the patient mentioned, in whom root symptoms had first appeared 18 months before. Evidence of compression of the cord had been present for about six months, and had not quite advanced to the Brown-Sequard type of hemolesion; the patient was able to move about with a dragging foot. Improvement in the cord symptoms began immediately after the operation, and by February 20, 1904 (three months) or earlier, there was no trace of the palsy observable and the patient had returned to his former occupation. On account of the rarity of the condition, Cushing reports this case and all others of intradural tumor of the cervical meninges, nine in number, which have heretofore been reported in literature, in which operation was performed for the condition. These tumors are, as a rule, easily removable, and recovery is the rule. [A.B.C.]

The Surgical Treatment of Obstetric Paralysis.—Royal Whitman[3] divides cases of obstetric paralysis into (1) those seen soon after birth, in which the paralysis is associated with other injuries, such as fracture; (2) cases seen in the latter part of the first year, when complete recovery is doubtful; (3) cases seen later on in life when relief for the disabled arm is sought. In the latter case the deltoid, the flexors of the forearm and supinators are usually involved, giving rise to the fixed inward rotation of the arm and subluxation of the head of the humerus. When the paralysis is more general in its distribution subluxation may be absent. Treatment of the first class of cases consists of rest, general massage and manipulations, as soon as the pain will permit. In the second class of cases forced manipulations and systematic exercises are indicated. The chief distortion in older cases is a backward and downward subluxation of the humerus, reduction of which the author believes to be the essential preliminary in the treatment of these cases. The patient is anesthetized and the contractions overcome by leverage, then the arm is placed in an elevated position, then pushed upward by lowering the arm, and finally it is adducted forcibly at the same time the scapula is fixed. Sometimes it is wise to divide the operation into two or more sittings. The contractors of the forearm are stretched by repeated forcible supination and the limb fixed by adhesive plaster. A plaster bandage is then applied with the elbow behind the thorax and the forearm across the chest, if possible. The arm is held in this position for a number of weeks or months. When the bandage is removed the manipulations must be carried out daily to prevent the tendency to recurrence. These are performed in the following manner. The scapula is fixed with one hand while the elbow is drawn behind the plane of the body, thus forcing the head of the humerus forward and upward. It is then adducted and finally rotated over and over again. In cases in which the brachial plexus has been extensively injured, the subluxation of the humerus is not present, but the hand is distorted and useless. In such cases arthrodesis of the metacarpal phalangeal joint of the thumb is performed, and a similar operation is performed at the wrist. Whitman calls attention (1) to the importance of preventing secondary distortion in these cases by systematic passive movements; (2) to the influence that the subluxation has upon the disability, and the measures for its remedy; and (3) to the operations which may be employed to lessen the disability in extreme cases. [J.H.W.R.]

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[1] The Lancet, November 14, 1903.
[2] Münchener medicinische Wochenschrift, 1904, li, No. 14, 615.
[3] Annals of Surgery, June, 1904.

[1] Medicine, August, 1904.
[2] Annals of Surgery, June, 1904.
[3] Journal of Nervous and Mental Disease, August, 1904, p. 497.

The Treatment of Postoperative Vomiting by Gastric Lavage.—Charles S. White[1] says that it has been clearly shown that the etiology of postoperative vomiting is due in the vast majority of cases directly to the anesthetic absorbed and discharged into the stomach, and that gastric lavage will remove the irritating anesthetic and thereby prevent nausea and vomiting. The necessity for such prevention is at once apparent, when we recognize that subsequent ventral hernia is doubtless due in many instances to retching and vomiting after operation. The multiplicity of drugs which has been employed to prevent such vomiting is sufficient proof that none of them succeeded in accomplishing the desired results. The only method which has given uniformly good results in White's hands is gastric lavage, immediately after the anesthetic is stopped and before the patient leaves the table. This is easily and quickly accomplished and is without danger to the patient. In no case has he failed in his attempt to introduce the tube in the stomach, and in no instance has any complication arisen. In a series of 20 consecutive cases, though, the method has been used in many more in which ether was used, he found 60% did not vomit, while in 100 consecutive cases of ether anesthesia without lavage only 30% did not vomit. It is contraindicated in operations on the stomach and in very young children. [A.B.C.]

Lipomatosis a Sign of Degeneration.—Kisch,[2] in discussing this subject, groups the individuals of this class under four heads. The first includes individuals ranging from 9 to 15 years, in whom the disposition toward lipomatosis was already present from birth. In the second group the individuals ranging from 16 to 50, in whom the tendency to obesity was already manifest in early childhood. In these two groups evidences of degeneration were present in each case. The factors which constitute the degeneration are: Deformity of the nasal septum, underdeveloped teeth, femininity in the male sex, the early appearance of puberty, and also the early development of menopause. The third group includes cases in whom the lipomatosis developed later in life as a result of incidental causes, either physiologic or pathologic. In the fourth group are included those cases in whom there was no hereditary tendency to obesity, and in whom the deposition of the excessive adipose tissue occurred late in life. In the third group evidences of degeneration were present in 13.2% of the cases examined, and in the fourth group in 1.3% only. Kisch states that from his observations he believes hereditary lipomatosis already manifest in early childhood is a symptom of inherited degeneration, and is constantly associated with other degenerative signs. He has noted the development of diabetes in nearly all such cases between the thirtieth and fortieth years. When there is a hereditary disposition, but the lipomatosis does not manifest itself until the later years of life, he has seen diabetes develop in half of the cases. [J.F.]

Extensive Subcutaneous Laceration of the Abdominal Muscles.—Daniel N. Eisendrath[1] reports that a laborer of 50 was caught between the sides of two street cars passing in opposite directions and badly crushed. He was immediately admitted to the hospital and on examination there was found a swelling the size of an orange at the summit of the iliac crest and extending somewhat below it; the tumor was tympanitic and could be made to disappear with a gurgling sound into the abdomen. A diagnosis of traumatic hernia in the triangle of Petit was made; operation was immediately performed and extensive laceration of the abdominal muscles was unexpectedly found. The only structure which separated the general peritoneal cavity from the external air was the skin, all of the muscles normally attached to the crest of the ilium, as well as the transverse and peritoneum, were torn from their attachments. The skin incision was prolonged and the lower edges of the torn muscles were sutured to the tough aponeurotic gluteal fascia from the quadratus lumborum to Poupart's ligament. The patient made a good but slow recovery. [A.B.C.]

A Case of Volvulus of the Stomach.—Fritz Pendl[2] reported a case of this condition occurring in a man of 63 who after eating was suddenly seized with flatulence and pain in the belly. No gas was eructated, and the left epigastric region was greatly swollen while the remainder of the abdomen was depressed. Percussion over the swollen area gave a tympanitic note, and revealed a high position of the diaphragm. The patient was operated upon and the volvulus reduced only after puncture. The transverse colon and mesocolon were unusually long, and the ligamentum gastrocolicum was short and thick. Pendl believed that the loaded stomach was lifted up and thrown backward by an abnormally strong peristaltic movement of the colon. The patient recovered entirely. Only one other case is reported in literature, that of Wiesinger in 1901. [J.H.W.R.]

Diet after Gastric and Intestinal Operations.—The cause of death after gastric and intestinal operations, according to F. Ehrlich,[3] is not so much shock as exhaustion, brought on by starvation before and after the operation. To prevent this he feeds his patients immediately after the ether nausea has worn off, and he feeds them well. Of 12 gastrointestinal operations performed last year he lost only three, and they died of peritonitis, establishment of a vicious circle and angina Ludovici, but not of exhaustion. The recoveries included three total gastric resections for gastric carcinoma, five gastroenterostomies for inoperable gastric cancer, pyloric stenosis, and ulcer of the stomach, and one intestinal resection for incarcerated gangrenous hernia. He feeds his patients by a routine method in the following manner: So soon as the nausea from the anesthetic has worn off, the patient gets tea, red wine or gruel; on the day after the operation he is given sweetbread in bouillon, even if it nauseates him; if the nausea is persistent his stomach is washed. On the second day, finely chopped, cooked squab, chicken or veal is added; on the third day, beef, potato puree, and cakes; on the fourth, chopped ham raw, soft zwieback, and soft boiled eggs; on the fifth day, white bread and spinach. After the seventh day the meat is not chopped and then the patients return gradually to normal diet. The bowels are regulated with oil enemas. The shock of the operation does not usually last beyond the third day. [E.L.]

Investigations concerning Ligation of the Extremities and Autotransfusion.—W. Plaskuda's[4] experiments concerned the effects of stagnation produced by Bier's method of tying off the extremities, and also the autotransfusion produced by applying Esmarch's bandages to the limbs. He finds that considerable quantities of blood may be withdrawn from or carried to the trunk and head by these procedures, the amount varying from .75 liters to 1.25 liters. Marked stagnation in three or four extremities will reduce the blood-pressure about 20 mm. Hg., or 14%. In nervous persons the effect is uncertain. Occasionally a much greater fall in blood-pressure will produce a condition of collapse, which rapidly disappears when the ligatures are removed. Esmarch's method of emptying the blood from the extremities, produces a rise in blood-pressure, which seems, however, to depend on nervous influences rather than on the mechanical effects. [B.K.]

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[1] Annals of Surgery, August, 1904.
[2] Berliner klin. Wochenschrift, 1904, No. 21

[1] Annals of Surgery, June, 1904.
[2] Wiener klinische Wochenschrift, 1904, No. 17, p. 476.
[3] Münchener medicinische Wochenschrift, 1904, li, 613, No. 14
[4] Deut. Archiv f. klin. Med., Bd. lxxx, p. 492.

Primary Spasm and Hypertrophy of the Pyloric Sphincter, with Resultant Enormous Dilation of the Stomach.—Michael A. Rebert[1] reports that a girl aged 18 had complained of increasing gastric disturbance for two years; there was no hemorrhage and no local pain, though vomiting occurred after ingestion of any and all kinds of food. Her normal weight of 120 pounds had been reduced to 80 pounds. A stomach-tube introduced could be felt at the level of the pubes; the stomach, dilated with carbon dioxid, practically filled the entire anterior aspect of the abdomen. A diagnosis of pyloric stenosis, probably due to cicatrized ulcer, was made. Laparotomy showed an enormously dilated stomach, but inspection and palpation failed to show any sign of thickening or narrowing of the pyloric lumen, but invaginating the pyloric end of the stomach and passing the finger toward the pylorus revealed a diaphragm obstructing the normal opening. Pyloroplasty after the Heineke method was done, the incision being prolonged into the pylorus and stomach about 4 cm. (1½ in.). In the folds of the pyloric valve was a retracted bundle of muscular fibers 6 mm. (¼ in.) in diameter. There was no evidence of cicatrix or former ulcer. The serious condition of the patient prevented gastroplication. She regained almost her normal weight, but vomiting continued, and gastroplication was done. This was five years ago, and since then the patient has enjoyed good health. Rebert believes now that a gastroenterostomy, in addition, should have been done. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

Wilmer Krusen Frank C. Hammond

REVIEW OF LITERATURE

Serum Treatment of Puerperal Fever.—H. Peham[2] proved the character of his cases by studying bacteriologicly the uterine secretion by the method employed by Döderlein, and the blood obtained from the disinfected finger. The serum was injected into the subcutaneous tissue of the upper thighs in doses of 50 cm. to 100 cm. (1.6 oz. to 3.2 oz.). In a few cases 250 cm. (8 oz.) had been injected in the course of a few days. This was in contrast to the method of Marmorek, who rarely injected more than 30 cm. (1 oz.). In no case was the injection followed by any great sensitiveness nor abscesses, but from the third to the sixth day or later there developed an erythema of short duration. In some cases there was an elevation of temperature. Of 26 cases treated by the antitoxin serum, the presence of the streptococcus was proved in 18, of which 7 were a mixed infection, and 11 pure streptococcic infection. In three cases no bacteriologic examination was made; in two the examination was negative; and in two the bacteriologic findings were incomplete. In the cases in which the infection was not streptococcic the results were negative, as was true in a case in which there was a pyelitis of coli origin, and in a case in which the autopsy revealed a diplococcic meningitis. In no case of true streptococcic infection was there an unfavorable termination. In one case of puerperal peritonitis in which the prognosis was most unfavorable the patient recovered entirely. Peham believes that in the serum treatment we have in part a valuable measure in severe cases of puerperal fever. [J.H.W.R.]

Triple Birth.—The seventh pregnancy of the woman in question resulted in a triple conception, with birth of all three at the thirty-sixth week. At this time the mother's age was 41, says F. Rocchi,[3] who reports that shortly before parturition the unusual uterine relaxation allowed the positions and number of the fetuses to be made out very plainly; two were head downward, and the third was horizontally placed. Grave hemorrhage followed the expulsion of the first, a girl. Uterine atony indicated podalic version. The remaining two were of different sex. All the children and the mother made a good recovery. There were three amniotic sacs, and while the placentas of the fetuses were also three, that of the boy was quite adherent to one of the others. [T.H.E.]

Menstrual Icterus.—L. Metzger[1] reports a case of a healthy woman of 45, in whom icterus appeared regularly before or during menstruation, disappearing completely between the periods. The menses were irregular, the patient being at the climacterium. There were no symptoms of gall stones. The author believes the icterus to be the result of nervous phenomena that are so common at this period of life. There is probably a reflex contraction of the biliary passages, which leads to the development of jaundice. [B.K.]

Eclampsia Gravidorum.—Alexander Szili[2] injected into dogs and guineapigs cerebrospinal fluid and blood-serum taken from patients suffering from eclampsia, and also blood-serum from normal pregnant women. In two cases in which lumbar puncture was performed the results were negative, and the fluid obtained possessed no toxic properties. On the other hand, the blood-serum injected into animals rapidly produced death. This was also true of the serum from the normal pregnant woman. Solution of sodium chlorid was injected, in most cases without untoward results. Szili goes no farther in his conclusions than to state that the serum of eclamptics and healthy pregnant women possesses a toxic property. [J.H.W.R.]

The Blood in Pregnancy.—W. L. Thompson[3] has studied the blood of 12 patients, 11 colored and 1 white. Each was examined once a month from the time when first seen. The summarized results are: 1. A moderate decrease is observed in red corpuscles rather early in pregnancy, remaining subnormal throughout the middle months, to rise again to normal at the termination of pregnancy—not, however, in all cases. 2. Hemoglobin is constantly low during the first seven months, rapidly approaching normal as pregnancy draws to a close. 3. A slight absolute leukocytosis exists in every case of pregnancy, but not support the theory that it is due to any positive chemiotaxis. 4. There is no deviation from normal in the different forms of colorless corpuscles, the leukocytosis affecting all forms of white cells alike. 5. The specific gravity is high at the onset of pregnancy, diminishes by progressive steps to reach its lowest level in the middle months, and rises to normal at term. [A.G.E.]

LARYNGOLOGY, RHINOLOGY, and OTOLOGY

D. Braden Kyle

EDITORIAL COMMENT

Foreign Bodies in the Air Passages.—The subject of foreign bodies in the air passages, and the modes of extraction of the same, is necessarily one of perennial interest. One of the first surprises of every medical student on learning a little physiologic anatomy is the discovery of the fact that every morsel of food which he had ever swallowed in the whole course of his previous existence had actually meant for him a hair-breadth escape with life. The quadruple series of movements by which the material destined for deglutition is excluded from the windpipe is one of the specially interesting revelations afforded by anatomic study. The reflex contraction of the muscles which surround the glottis, in obedience to the stimulus afforded by the presence of the "foreign body," has the effect of closing its orifice; the folding of the epiglottis backward and downward by the pressure of the same intrusive matter has the mechanical effect of covering it; the contraction of the various groups of neighboring muscles called into play has the resultant effects of drawing the larynx upward and forward, and the tongue upward and backward, so that the base of the latter actually comes to cover the opening of the windpipe in the second stage of deglutition. An acquaintance with this complex combination of muscular movements reveals the skill of nature in saving us from the dangers to which she elects to expose us—in apparently capricious fashion. When a foreign body happens to evade all those physiologic obstructions and gets into the opening of the windpipe, its first mechanical resistance will be met with at the glottis itself, the reflex contraction of whose muscles is sure under most circumstances to offer the physiologic obstacle above referred to. When it has cleared the glottis, which will readily be effected by a body not too large for the orifice, in cases of anesthesia of the mucous membrane or acinesia of the muscles, the further obstacles are more purely mechanical. The next will be in the lumen of the cricoid cartilage if the body be large enough to fill this, for here is the narrowest part of the windpipe from the rima glottidis to the tracheal bifurcation. The next obstruction will, of course, be in the latter position. Having regard to the much greater obliquity of the left bronchus, a diagrammatic view of the lower end of the windpipe would lead to the opinion of the greater probability of a foreign body finding its way into its left branch. But there are other hard facts against this course. One is that the right bronchus is somewhat wider, although the difference in caliber is hardly an influential factor of much moment. But the cartilages at the opening of the bronchi, instead of displaying the horseshoe outlines of those of the trachea, form complete rings, and the first of either side coalesce at their surface of contact so as to form a cartilaginous figure 8. At the line of intersection of the 8-curve there projects upward into the lumen of the trachea, a small cartilaginous plate, which does not stand quite vertically, but leans somewhat to the left side. This small process of cartilage is sometimes spoken of on the other side of the Atlantic as "Stokes' spur"—the famous Dublin physician William Stokes having specially insisted upon its importance in directing foreign bodies into the right bronchus—or rather, should it be said, excluding them from the left.

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[1] Annals of Surgery, August, 1904.
[2] Wiener klin. Woch., No. 15, 1904, p. 405.
[3] Il Policlinico, Rome, No. 42, 1904.

[1] Zeit für klin. Med., Bd. liii, p. 149.
[2] Wiener klinische Wochenschrift, No. 16, 1904, p. 443.
[3] Johns Hopkins Hospital Bulletin, June, 1904.

Operation for the Removal of Foreign Bodies from the Air Passages.—When foreign bodies find their way into the bronchial tubes and have arranged to stay, the consequences are, of course, extremely disastrous. According to Bourdillat, the mortality of tracheotomy for the extraction of foreign bodies has been 30%, while in the cases in which that operation was not performed it reached 56%. We suspect that if all the cases were traced to their final termination the results of consequences and complications of foreign bodies abandoned in the air tubes would be found to have raised the mortality to—very approximately—100%. Nature's method of expelling foreign bodies from the air passages is, of course, by coughing—only. Violent thoracic percussion—in the form of resounding slaps and thumps on the posterior areas of the chest wall—often have a good effect if applied immediately; but hardly afterward, except the body of the patient is inverted. The "knowledgeable" old woman's procedure of blowing in the ear is sometimes followed by sudden ejection of a choking morsel from the glottis, when the operation has been performed on the spot. Death may take place in a few seconds when a foreign body becomes entangled in the glottis—even if it does not fill the opening, as the reflex spasm wholly excludes the air. Death has occurred in three days—when the substance had passed the glottis, and in 11 days when it had reached the lung. On the other hand, the intrusive piece of matter has been expectorated from a pulmonary abscess cavity after a lodgment of 17 years. In that case the patient had become a hopeless hectic, and died after being emaciated almost to a skeleton, a year and a half afterward. Of course, before the discovery of the röntgen rays the presence of foreign bodies in the air passages necessarily remained, in a good many cases, a matter of suspicion—which might be either unduly confirmed or discounted by misleading symptoms and physical signs. Even when there was no doubt of the presence of the body, its definite localization was, necessarily, often quite impossible. In such cases the idea of a surgical operation could hardly be entertained. The adoption of tracheotomy was practically confined to the cases in which the foreign body was engaged in the glottis.

Use of Radioscopy and Bronchoscopy in Localization of Foreign Bodies in the Air Passages; of the Electromagnet in Their Removal.—Of recent years the definite localization of a foreign body on one side has sometimes inspired an operation of transmediastinal bronchotomy—anterior or posterior. The results have not, however, been very encouraging. The left bronchus, passing as it does under the arch of the aorta, occupies a necessarily unapproachable position. The question of transmediastinal operation on the right bronchus has recently been discussed by Dr. A. Ricard,[1] who points out that the posterior operation is more direct and less perilous than the anterior; but still regards the question as a sterile one, on account of the cent-percent mortality. He then gives the details of a case which occurred in the clinic of his colleague, Dr. Henri Meunier. A boy of 3½ years had "swallowed" a carpet tack. After a period of spasmodic fits of coughing he became easier, and the physician reassured the family, three days afterward, a rigor, followed by fever and severe cough, inspired the diagnosis of la grippe. After more than a month he was sent to the hospital, with a diagnosis of bronchopneumonia—possibly of bacillary origin. Radioscopy was, however, suggested by the history; and the metallic bacterium was sighted. A special electromagnet was constructed—of a form capable of admission to a bronchus—and also a special forceps. Tracheotomy was performed; and the electromagnet and forceps were introduced through the wound. The first attempt failed, but the "clou" was successfully grasped and extracted three days later—after a sojourn of 57 days in the left bronchus. Dr. Ricard, however, thinks that the new procedure of bronchoscopy, introduced quite recently by Kitlian (in Germany), will be that of the future, in all such cases of obscure diagnosis. By its employment, the physician is enabled to see not merely the shadow of the foreign body, but the body itself. He quotes his colleague, Lermoyez, to the effect that: "This bronchoscope may be passed into the various ramifications of the bronchi, notwithstanding the angles of their bifurcations; this is a thing which would seem a priori to be unrealizable; but practice, nevertheless, demonstrates its facile realization, thanks to the elasticity of the lung, which lends itself very complacently to the arrangement in right line of the whole bronchial tree." There should be a great future before this instrument. We hope for early reports of its application on this side the Atlantic.

REVIEW OF LITERATURE

NOSE.

Nasal Infection of the Ocular Conjunctiva.—Halasz[2] reports the case of a woman of 32, who shortly after a violent attack of sneezing which lasted a week, noticed first a serous then a purulent discharge from the left side of the nose. Several days later the left eye discharged pus, the eyelids were pasted shut, the eyeball became inflamed, vision disappeared almost entirely, and there was violent headache. Closer examination revealed a corneal ulcer of considerable dimension; it was very near to perforation. Examination of the nose raised a suspicion of antral abscess; the antrum was opened and drained by removing a molar tooth and boring an opening into the antrum through its socket. A large quantity of pus escaped; recovery took place. The ulcer healed promptly, leaving behind a large white scar. The nasal disease existed first as a serous inflammation of the antrum; through some unknown cause it became infected. The pus, bathing the infected meatus, extended upward through the lacrimal duct into the eye, setting up the ocular disturbance. A spine extending from the septum to the left nasal wall and constantly touching it, was probably the primary cause of the sneezing attack. [E.L.]

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[1] Gazette des Hôpitaux, 25 Fevrier, 1904.

[2] Archiv für Laryngologie, 1904, xv, 240.

Constitutional Results of Affections of the Nose and Nasopharynx.—W. S. Syme[1] states that the local effects produced by affections of the nose and pharynx are well known, but he calls particular attention to effects upon the general system which are observed when these conditions are present, and pays particular reference to the bodily condition when adenoids exist. He believes that the secretion from the nose and nasopharynx which occur in these diseased conditions are swallowed, and it is reasonable to suppose that this secretion, entering the stomach, may tend to destroy the appetite, derange the digestion, and set up these conditions of ill-health which obtain as a result of chronic septic poisoning. This is especially true when the secretion from the adenoids is reinforced by that from a concomitant rhinitis. He holds that the chronic discharge from rhinitis may give rise to digestive disturbances and general derangement of health, even when the discharge is not purulent. The anterior part of the nasal cavity is usually the abode of pyogenic organisms, giving rise often to small furuncles, which, in turn, may complicate the condition. Given, then, an increase in the secretions and stagnation also, especially, when there is obstruction from turbinal hypertrophy we find that the nasal secretion is a pure culture medium; there is a tendency for it to become mucopurulent and add to the irritating character and possibility of absorption of septic material, producing a chronic toxic condition. [A.B.C.]

Treatment of Inward Suction of the Alas of the Nose.—Inability to breathe through the nose is sometimes due to too great flexibility of the nasal alas, they being drawn toward the septum at each inspiration, preventing nasal breathing, and forcing the individual, particularly during forced respiration, to breathe through the mouth. Changes are thus produced in the upper respiratory tract, which may in certain cases give rise to a form of asthma. K. M. Menzel[2] has treated two such cases after Gersuny's method by the injection of paraffin between the structures of the alas with good results. [E.L.]

Latent Intermittent Nasal Obstruction.—Mayo Collier[3] says that apart from the ordinary forms of nasal obstruction due to growths, deflections, etc., there is a form of obstruction which is more common and more harmful than all these put together. The interesting feature is that it comes on in a nose that is most of the time physiologically perfect, the patient breathes naturally during the day, when he is up and about, but at night while lying down the nose becomes obstructed and respiration difficult. Consequently, if the patient is seen during the day, no abnormality can be found. This is explained by the fact that while the patient is in the vertical position, gravity returns the venous blood in the great vessels of the neck, the chest, and abdomen, whereas when he assumes the horizontal position the blood flows into the veins and sinuses of the head and neck in response to the same force. When seen in the obstructing condition, the distended turbinal bodies touch the septum on either side and press upon it so vigorously as to form a groove or exact cast of themselves and completely obliterate the lumen of the nasal chambers. The subject of treatment is deferred to a future paper. [A.B.C.]

Adrenalin in Diseases of Nose and Throat.—Bukofzer's[4] anesthesia mixture for nose and throat work consists of 10 gm. (2½ dr.) of a 1 to 1,000 solution of adrenanlin hydrochlorid and 0.5 gm. (7½ gr.) of cocain hydrochlorate. He applies it with a brush, and apart from a slight tendency to sneezing and a watery discharge, he has never noticed unpleasant after-effects. Through its local action on the mucous membrane it dilates the lumen of the nose, facilitating examination as well as operation. It reduces the loss of blood to a minimum but makes prophylactic tampons necessary during the first 48 hours on account of possible secondary hemorrhage. If there is a retention of secretion from any of the perinasal sinuses, its application to the orifices will dilate them and favor the discharge of the secretion. It aborts coryza and prevents the formation of synechias after operations. In capillary epistaxis due to vasomotor dilation it is useful as it produces a capillary anemia. It is not an astringent as proved by the fact of the absence of secondary congestion. It is contraindicated in tonsillectomies and the removal of adenoids. [E.L.]

Perforations of the Nasal Septum not Caused by Syphilis.—E. Felix[1] divides these perforations into idiopathic and symptomatic. A rather rare form of the idiopathic variety is the simple perforating ulcer of the cartilaginous septum. More common are the industrial perforations, occurring in workers in cement, chromic acid salts, phosphorus matches, cobalt mines, arsenic, hydrochloric or nitric acid, salt crushing, etc. This form may also result from atrophic rhinitis, traumatism, perichondritis, and the pressure of a foreign body in the nose. Symptomatic perforations are rarely seen complicating typhoid fever, diphtheria, and variola. Tuberculosis of the nose may cause perforation, either in the form of nasal tuberculosis proper, or more frequently as lupus vulgaris. It also occurs often in leprosy. Glanders and rhinoscleroma may rarely cause the lesion. Sarcoma, mucous polyp, dental cyst, nephritis, and tabes have all been mentioned as causes. [B.K.]

Collargol in Ozena.—Roques[2] reports a series of cases of ozena, in whom improvement followed at once after the use of collargol applications, collargol in powder and collargol in douches. Some of the patients had been suffering for years and had tried many other things without the slightest improvement. Crusts and secretion disappeared after five or six treatments with collargol. He prefers the powder insufflations to the other methods, employing sugar of milk as excipient. [E.L.]

The Etiology of Nasal Polyps.—F. R. Packard[3] speaks of the confusion among writers regarding the nomenclature of nasal polyps, this depending upon a lack of definite knowledge as to their true nature. He cites several cases to sustain his view that they are symptoms of underlying conditions and not "tumors," the mere removal of which will result in a cure. Packard believes that recurrence is especially frequent when polyps are the result of caries or necrosis of the ethmoid bone and that they can be finally extirpated only by the removal of the diseased bony tissue. This view has been confirmed by at least six cases in his private practice. Four gave the history of recurrence; in all the middle turbinate was wholly or partially diseased and was removed. In none of the cases has recurrence taken place since removal of the bone. [A.G.E.]

Rhinogenic Pyemia, with Recovery.—Grunert[4] reports the case of a girl 10 years of age, whose illness began suddenly with headache and pain in the left eye. A fetid discharge from the left nostril followed soon after; the entire left side of the face, including the eye, became swollen, and the eyeball became prominent. Symptoms of sepsis appeared. A diagnosis of empyema of the left ethmoidal and frontal sinuses was made, and a radical operation, during which the ethmoidal, frontal, and maxillary sinuses were cleaned out, was followed by a recovery of the patient. [E.L.]

MOUTH AND PHARYNX.

Diagnosis and Treatment of Diphtheria.—Curtius[5] discusses his experience with diphtheria gained in the position of district physician during a period of 13 years. He is an ardent advocate of the antitoxin treatment and never waits for a bacteriologic diagnosis before injecting the serum; so soon as the clinical diagnosis is made he injects 1,000 units. He disagrees with Behring, who insists that no other treatment is necessary. Curtius says that death in diphtheria is usually due to a combination of diphtheria and streptococcic infection, and antitoxin is of no value in the treatment of conditions produced by the latter organisms. To fight them it is necessary to make local applications, and the best solution for this purpose is Löffler's solution, which is markedly bactericidal. Even if the disease is a pure diphtheria, local applications are of value, as they destroy the bacilli, thus preventing their spread and the excessive formation of toxins. He thinks that many cases of membranous croup are prevented if local applications are made to the pharynx as soon as the membrane is discovered. He does not consider the diagnosis of diphtheria very easy. The membrane usually appears first on some of the posterior folds of the tonsils and the adjacent pharyngeal wall; or they may appear first on the lower parts of the pharynx. Extratonsilar membranes usually develop into diphtheria. The membrane at first is grayish and waxy white and is in the form of connected masses; after a few days its color changes to a grayish-yellow or green. The history of the case is also important; children kept in the house and suddenly developing membranes are more likely to have diphtheria than children exposed to wind and weather; high temperature and constitutional symptoms on the first day of a membrane point to tonsillitis. [E.L.]

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[1] British Medical Journal, March 19, 1904.
[2] Münchener medicinische Wochenschrift, May 5, 1903.
[3] Lancet, February 13, 1904.
[4] Deutsche medicinische Wochenschrift, 1903, No. 41.

[1] La Semaine Médicale, February 10, 1904.
[2] Archives International de Laryngologie, d' Otologie et de Rhinologie, 1904, Vol. xvii, No. 130.
[3] American Journal of the Medical Sciences, November, 1903.
[4] Münchener medicinische Wochenschrift, April 7, 1903.
[5] Münchener medicinische Wochenschrift, 1903, i, No. 36.

Bacteriologic Study of Cases Thought to be Diphtheric.—A. Michelazzi[1] reports 37 investigations and includes that local symptoms may occur, simulating diphtheria when all the conditions are the result of coccic, usually streptococcic, invasion. Even the bacillus of Friedländer may cause a pseudodiphtheric faucial and tonsillar inflammation of such nature as to require bacteriologic differentiation. Laryngeal cases, of a form commonly thought to be diphtheric, will yield no microorganisms except cocci, and these are often grave cases on account of pulmonary and renal complications and sequels. It must be remembered that no benefit can be hoped for in serum therapy if it be a case not due to Friedländer's bacillus. [T.H.E.]

Croup Due to the Streptococcus.—Albert Delacourt[2] reports a case of this disease in a child 3½ years old, who displayed a pseudomembrane on the right tonsil. The symptoms of croup became marked, and, asphyxia being imminent, a tube was introduced into the glottis, and the child given two injections of antidiphtheric serum. Streptococci and the staphylococcus were present, but not the Klebs-Löffler bacillus. The tube remained in place three days, and on the tenth day the patient was practically well. However, three days later the temperature rose, there developed an erythema, and still later a fatal pleurisy. The pleuritic effusion examined postmortem, showed the presence of the streptococcus. Delacourt believed that the pleurisy was secondary to the streptococcic infection of the tonsil. He discusses the skin eruptions that may follow the injection of antidiphtheric serum. [J.H.W.R.]

LARYNX, TRACHEA AND ESOPHAGUS.

Curative Value of Tracheotomy in Laryngeal Tuberculosis of Pregnant Women and of Children.—Henrici[3] reports four cases (one woman and three children) in whom he performed this operation. The children had rapidly advancing laryngeal tuberculosis, with slight, if any, involvement of the lungs. In the first case stenosis was threatened; tracheotomy was followed by not only total recovery from the laryngeal disease within two years, but improvement of the general health. The second and third patients recovered from their affliction within eight months. In all three cases no other measures were employed after the trachectomy, so that to this alone must be credited the recovery. In none of the cases did the pulmonary disease advance after the tracheal operation. With the pregnant woman tracheotomy had to be performed because of dyspnea and dysphagia. She improved considerably, but being in an advanced state of pulmonary tuberculosis, death occurred a short time later. On account of these very favorable results, the author recommends tracheotomy in laryngeal tuberculosis. It does good, because it removes at once the constant irritation to the larynx, produced by breathing, speaking and coughing, thus giving the body powers a chance to fight and defeat the tuberculous process. [E.L.]

Retained Intubation Tubes.—W. T. Watson[1] details two interesting cases of long retention of an intubation tube. The first patient was a child of one year in whom dyspnea necessitated intubation. Diphtheria bacilli were found once in cultures from the throat, but no membrane was seen during the course of the disease. The tube was often coughed out, when urgent dyspnea would occur and immediate intubation be required. It was found necessary to watch the patient constantly, to have a second tube in readiness, chairs in position, and assistants ready to come at a moment's notice, so urgent was dyspnea when the tube was expelled. In the space of 38 days, 34 intubations were performed. Tracheotomy was not considered advisable. The stenosis was apparently caused by the falling together of swollen structures above the glottis. The second patient was three years old. The tube was worn 83 days, being replaced seven times during that period. No membrane was seen in this case, and no diphtheria bacilli were found. It is not believed that traumatism was the cause of retention in the first case, as no undue efforts were necessary to insert the tube. [A.G.E.]

Intralaryngeal Growths Treated by Means of the Galvanocautery.—J. Dundas Grant[2] states that the final removal of the stump of an intralaryngeal growth is often as difficult as that of the mass of it is easy. The removal of this residual stump from which the regrowth is very apt to take place often baffles instrumental interference, especially when the growth is on the edge of the vocal cord, but so near the anterior commissure that there is no room in front of it for the anterior blade of the gland-cutting forceps. In two such instances which he reports, he used the galvanocautery for the removal of these stumps, with entire satisfaction. The cautery must answer certain requirements: It must be of the curve and length proper for the particular spot in the particular case. For this purpose it should be introduced cold and modified in shape and length until it can be made to touch the exact spot without difficulty, and it should be instantly responsive to the make and break of the current. For a small stump the slightest touch of the cautery is all that is desired, and ought to be less than at the time appears sufficient, for in addition to the destruction which actually takes place, the stump undergoes shrinkage. A complete burning away of the growth would be attended by risk of cicatrization of the normal underlying structures. [A.B.C.]

Lymphangioma of the Larynx.—K. M. Menzel[3] reports from Hajek's clinic in Vienna the case of a man, for whom on account of hoarseness he removed a polypus of the left vocal cord. At the same time a sessile mass, shaped like a ball, was observed attached to the left false cord; it could not be sharply defined from its surroundings, was covered with a normal, smooth mucous membrane, was compressible and showed variations in size during the same examination. It enlarged during respiration and became smaller during phonation. Cough and pressure increased its resistance, but not its size. A diagnosis of cavernous lymphangioma was made and the mass removed with a snare. The pathologic examination confirmed this diagnosis. A small shallow fistula from which a drop of clear liquid exuded occasionally, remained after the operation. Menzel announces that this is the first case in which a diagnosis of cavernous lymphangioma was made before operation. [E.L.]

Treatment of Asthma by the Direct Route.—Colin Campbell[4] advises intratracheal treatment not only to relieve acute symptoms, but to prevent their recurrence, relying mainly on menthol, glycerin, and gelatin, although many other drugs are available when special indications are found. The rationale is very simple. The pulmonary condition is twofold: (1) Spasm of the smaller bronchi, and (2) an anhydrous condition of their mucous lining. The menthol relieves the spasm, while the glycerin, which conveys it, compels the mucous membrane to secrete. With bronchial secretion comes expectoration, and with this the end of the attack. Or, if the asthma is induced by dried up chronic catarrh, with inspissated mucus containing Curschmann's spirals, the dehydrating action of glycerin with gelatin, which dissolves sputum, causes a complete emptying of the tubes with immediate relief of symptoms. These results are not to be obtained from ordinary dosage. The bronchial tract tolerates stronger and larger doses than the stomach. The writer would not hesitate about injecting 30 gm. (2.0) of menthol with 2 oz. (30.0) of glycerin at a single sitting. He believes there is some germ present which is either destroyed or expelled. [H.M.]

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[1] Il Policlinico, Rome, No. 9, 1904.
[2] Jour. Med. de Brux, 1903, No. 13, p. 196.
[3] Archiv für Laryngologie, 1904, xv, 323.

[1] Maryland Medical Journal, May, 1903.
[2] The Lancet, April 9, 1904.
[3] Archiv für Laryngologie, 1904, xv, 178.
[4] Liverpool Medico-Chirurgical Journal, January, 1904.

Fixation of Intubation Tubes in Difficult Detubation.—F. Cuno[1] proposes a method by means of which intubation tubes may be fastened in cases where tracheotomy had been performed and where it is difficult or impossible to again accustom the patient to breathe through his mouth. By this method the tube is sewed to the tracheal fistula, and may be retained for as long as two weeks without injury to the tissues. [E.L.]

Condition of the Upper Air Passages before and after Intubation.—Louis Fischer[2] gives statistics of two series of cases intubated some years ago, recent examinations having been made to determine the after-results of intubation. The first series includes 10 hospital cases, the second, 26 cases in private practice. None of the patients had normal throats at the time of intubation. Adenoid vegetations, enlarged tonsils, and chronic rhinopharyngitis were met with in almost every case. From this fact Fischer believes it safe to presume that chronic throat disease invites diphtheric infection and that physicians should urge mothers to have diseased tissue removed from the throats of their children. As to the remote results of intubation no chronic cough due to the wearing of a tube was encountered. Comparing an equal number of children who had never had diphtheria nor were intubated, of the same age and development, it was found that they suffered from pneumonia and other infectious diseases in the same proportion as those that had been intubated. No deformity of the chest due to imperfect oxygenization could be attributed to the effects of the intubation tube. [A.G.E.]

Esophagotomy for Extraction of Foreign Bodies from the Esophagus.—Balacescu and Kohn[3] report the case of a man of 42, who swallowed an artificial plate containing five teeth; it was located at the upper constriction of the esophagus on a level with the cricoid cartilage and removed by means of external cervical esophagotomy. They review 326 cases found in literature similarly treated, and offer the following rules for the removal of foreign bodies from the esophagus: Small, regularly formed and smooth foreign bodies located in the neighborhood of the cardiac orifice and swallowed but a short time, may be pushed into the stomach, or if not too large and their surface be smooth, they may be extracted through the mouth, no matter in which part of the esophagus they are found. All other cases must be treated by operation. External cervical esophagotomy is indicated in adults in all cases where the foreign body is located to below the second esophageal constriction; intrathoracic esophagotomy where it is located between the fourth and seventh thoracic vertebras, and gastrotomy where it is fixed in the diaphragmatic and abdominal part of the esophagus. [E.L.]

New Method of Demonstrating Laryngeal Image in Intralaryngeal Operations.—Eugene S. Yonge[4] reports that Meyer, of Berlin, has devised an apparatus by which he is able to show an image of the larynx, practically identical in every respect with that seen by the person examining the larynx, to as many as six observers at one time, the latter being situated at convenient distance from the patient, from the examiner, and from each other; also by which laryngeal operations can be as clearly seen by the observers as by the examiner. The images are conveyed to the observers often by means of reflections on two circular plane mirrors placed one on either side of the illuminating apparatus, and observers situated at a distance of six or eight feet from the mirror obtain as good an impression of the laryngeal image as the person situated close to the reflected surface. From a mechanical point of view, the apparatus consists, briefly speaking, of a strong, straight-backed chair, on the right side of the seat of which is affixed a vertical arm, this latter is hollowed out to receive a small vertical arm, and to this in turn is attached at right angles a flat horizontal piece of wood. On that part of the horizontal piece which is nearly opposite the middle of the back of the chair, that is, facing the patient's mouth when he is seated, the laryngoscopic portion of the apparatus is placed. The latter consists of a small electric lamp and two circular mirrors, each of the latter being three inches in diameter. Clear and unimpeded images of the larynx or of intralaryngeal operations are reflected upon these mirrors. [A.B.C.]

Congenital Membrane on Posterior Wall of Larynx.—Harmer[1] reports a case, in which such a membrane was found over the posterior wall; he has found only one other such case (Chiari) reported. He gives a detailed macroscopic and microscopic description. The only clinical symptom noted was hoarseness from early youth. The case is undoubtedly a congenital one, scar formation being excluded by its position, histology, etc. [E.L.]

Laryngeal Extirpation.—A new method is given by F. Durante[2] whereby he endeavors to avoid the danger of a pulmonitis "ab ingestis," which present methods do not sufficiently guard against. The writer uses a flap of tissue turned inward and upward to occlude the passageway from the alimentary canal, so to prevent liquids or food entering the trachea from above. After the second day the patient may eat liquid and semiliquid food. Four illustrations are appended. [T.H.E.]

Relationship between Laryngeal Tuberculosis and Gravidity.—A. Lewy[3] adds four cases to the list of cases of laryngeal tuberculosis accompanying pregnancy. All four progressed rapidly during the state of impregnation, the patients and infants dying within a few weeks after confinement. He has collected 71 such cases from literature; in 57 of these cases reports of their early death could be found, in 13 no mention of life or death could be discovered; only one patient lived eight years after delivery. Of the infants, at least 27 are known to be dead, but this is probably true of a much larger number. The author considers incipient laryngeal tuberculosis with coexisting pulmonary disease, not too far advanced, an absolute indication for the induction of abortion. [E.L.]

EAR.

Suppuration of the Labyrinth.—William Milligan[4] concludes his discussion of this subject by stating that in the indications for operation we are faced by the fact that in cases running a severe acute course resolution may take place, whereas, cases which appear slight and with mild symptoms may suddenly grow worse, and end in acute intracranial infection. He lays down the following guides to operation: 1. In any case of suppurative middle-ear disease with well-marked deafness on the affected side, vertigo, sickness, and nystagmus, either constant or intermittent. A careful search should be made for the fistulous tract leading to the labyrinth, which being found, such tract should be explored; if not found, exploratory opening should be made through the horizontal semicircular canal or foot of the stapes. 2. In cases of suspected labyrinth disease of septic origin, the vestibule should be promptly opened. 3. In cases of chronic suppurative middle-ear disease, accompanied by cholesteatoma and erosion, free opening of the area involved should be effected. 4. In cases of septic cerebellar abscess accompanied by symptoms indicative of a labyrinth involvement, the operative route is by way of the mouth and internal way to the posterior surface of the petrosa. In this way the labyrinth is opened, the anterior portion of the cerebellum exposed and any abscess located and drained. [A.B.C.]

Treatment of Chronic Middle-ear Deafness by Ozone.—G. Stoker[5] gives the symptoms of chronic dry catarrh of the middle-ear as progressive deafness with tinnitus of varying kinds and varying intensity. In a large number of cases the hearing is comparatively more defective as to sounds close at hand than to those at a distance. The condition is analogous to presbyopia, and might be called presbyaudia, and is possibly the result of some loss of power of accommodation in the muscles, due to thickening of the mucous membrane covering them. Stenosis of the eustachian tube must affect the mucous membrane of the middle-ear by preventing free ingress and exit of air, and by causing an unhealthy condition of the secretions and preventing their exit. The effect of oxygen, and particularly of ozone, on the nasal mucous membrane suggested a trial in chronic progressive deafness. The ozone is generated by an electric current acting on a Ruhmkorff coil, to which the ozonizing tube is attached. The ozone is passed in a gentle current through the eustachian catheter into the middle-ear for about four minutes at a time, the operation being repeated several times a week, daily if possible. The author reports 12 cases showing improvement in hearing. In some it has been remarkable. It is probable if treatment had been carried out daily and for a longer time results would have been better still. There was disappearance of tinnitus in nearly every case. [H.M.]

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[1] Münchener medicinische Wochenschrift, May 5, 1903.
[2] Archives of Pediatrics, February, 1904.
[3] Archiv für Klinische Chirurgie, 1904, lxxii, 347.
[4] The Lancet, April 30, 1904.

[1] Wiener klinische Wochenschrift, November 13, 1902.
[2] Il Policlinico, Rome, January, 1904.
[3] Archiv für Laryngologie und Rhinologie, 1903, Vol. xv., No. 114.
[4] Lancet, February 13, 1904.
[5] Medical Press and Circular, March 16, 1904.

The Influence of Telephoning on the Ear.—I. Braunstein[1] examined 160 employes of the telephone bureau of Munich from the standpoint of their auditory mechanism. The employes varied in age from 18 to 42, 66% being between 20 and 25; they varied from point of service between three days and 10 years. He finds both from otoscopic examinations and the methods in vogue to test the hearing power, that habitual telephoning does not exert a harmful influence on the healthy ear. In several cases temporary injury, the result of thunderstorms, was confessed to. Only two individuals were found with preexisting ear disease, and in neither case did the telephoning lower the hearing power; 12 cases were noted having symptoms of ear disease at various times of their employment, but all of them recovered without having to stop work. Fatigue and diminution of hearing were not complained of, nor did the work produce undue nervousness. [E.L.]

Serous Meningitis, Originating from Disease of the Ear.—V. Pechère[2] reports a case of suppurative otitis media in a man of 36 who during the course of the disease developed headache, bilious vomiting in the morning and hyperemia of the papillas. The day after trephining the mastoid and cureting the middle-ear there appeared facial paralysis. The sphenoid was trephined two days later and the brain exposed. It did not pulsate nor was there any hyperemia or pus discovered. The brain was punctured with no results except a return of the pulsation of the brain. All symptoms rapidly abated and the patient recovered entirely. [J.H.W.R.]

Operations in Otitic Thrombosis of Transverse Sinus.—Heine[3] believes that mechanical compression, together with thickening of the sinus wall, induce stenosis of the lateral sinus, either partial or complete. Incision into the sinus and outflow of blood does not rule out a channeled or a mural thrombus. The more virulent the infection, the more rapid the formation of thrombi, with the least evidences of it on the external walls of the sinus. Ligation of the internal jugular, and laying open of the sinus, is the operation to be considered. The latter is indicated when there is a continuation of a septic temperature, chills, headache, vomiting, anxious expression. He is not inclined to remove the entire clot. He removes the center of the thrombus, and when suppuration continues he packs frequently to absorb the secretion. Suppuration will soon cease, the remaining clot organize, and the sinus will close quickly. In certain cases only does he ligate the jugular vein. The chills and fever continuing after ligation are usually accredited to particles of infected material that have entered the circulation before ligation. Heine, however, believes these chills and fever are due to retrograde metastasis. He concurs in the views of Briegers, that ligation of the internal jugular in mural thrombosis of the lateral sinus, even with severe pyemic symptoms, is unnecessary. He ligates when complete stenosis of the bulb exists, producing pyemic symptoms; when the vein itself is diseased; when the proximal end of the thrombus is not reached; but always awaits high fever and chills following the primary sinus operation. He considers ligation of the internal jugular in mural thrombi justified only when severe pyemic symptoms continue after the sinus has been opened and emptied, and when periphlebitic abscesses are found. [A.B.C.]

Artificial Closure of Eustachian Tube.—E. V. Segura[1] attempts it to prevent infection from contiguous structures; through this tube the middle-ear suffers oftener than by extending of morbid processes inward from the outer ear. Closure of the tube is proper only in cases that do not have the tympanum intact. The indication is reasonable, since the principal use of the tube is to equalize air pressure and with the partial or total absence of tympanum the tube is not essential. Cases of chronic disease of the nasopharynx threatening such an ear are to be chosen. An Itard sound containing a galvanic cautery is the instrument; there is little distress to the patient. The nose should not be blown violently for some time following cauterization, to allow cicatrization to become complete. As yet there are but few cases to report. [T.H.E.]

Hemorrhagic Otitis Media Connected with the Eruption of the Anterior Molar.—R. Haug's[2] patient, a girl of 12, presented herself with pain and bloody discharge from the right ear, and pain in the upper jaw. At the point where the first right molar should have been, a hematoma was seen, which when touched produced pain in right ear; the latter was inflamed, as shown in several small ecchymoses, dull distended drum, and deficient hearing. Treatment directly to the ear restored the normal condition, except subjective roaring; this disappeared when the hematoma was incised. [E.L.]

Treatment of Chronic Suppurative Otitis.—F. F. White[3] says that in the absence of deep implication of the bone there is a simpler way of curing otorrhea than by the use of the chisel. He advises removal of the membrane with the malleus, and perhaps the incus, and cureting the middle-ear and attic. The membrane must be cut out as cleanly as possible, and all granulations removed. After operation the ear is irrigated with a solution of silicofluorid or acetozone, and after drying, traumatol is insufflated. The operation gives rise to very little disturbance. No serious complication has occurred in two years' use of this method, except two cases of temporary facial paralysis. In no cases has he noticed marked diminution in hearing, and in some the hearing has certainly improved. Only those cases in which there is difficulty in irrigating are thus operated upon, but they furnish support to the belief that chronic suppurative otitis is generally curable by treatment through the meatus. The notes of 13 cases thus treated are appended to the paper. [A.G.E.]

Ménière's Disease.—T. Watson Parry[4] reports that a farmer of 43, who had previously enjoyed good health had complained for a number of years of vertigo, mild attacks at first, but gradually they became worse until in many of the attacks the patient would fall to the ground, close his eyes, and suffer intensely from the vertigo. The wearing of glasses afforded temporary relief only. All the known drugs that were likely to afford relief were tried on the patient without affording anything more than temporary relief. Finally the author placed a seton in the neck with the result that marked relief was afforded for a number of weeks. It was removed, the patient remained comparatively well for some time, when the attacks began to recur. A seton was again used with a like result and, while it did not cure the condition, each introduction of the seton afforded relief or entirely checked the attacks so long as the patient remained away from his work and at rest. The author hopes that the seton will be given further trial in these cases of auditory vertigo. [A.B.C.]

The Symptomatology of Acute Inflammatory Processes of the Auditory Apparatus.—A. Eitelberg[5] discusses the various phases of pain and temperature in relation to acute inflammation of the auditory organ. He considers violent pain at the onset of good prognostic importance. The height of the fever is not of so great importance in determining the presence or absence of pus, as the general curve. He illustrates his statements with case histories. [E.L.]

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[1] Archiv für Ohren Heilkunde, 1903, lix, 240.
[2] Journal Medical de Bruxelles, 1903, No. 45.
[3] Arch. für klin. Chirg., Heft 3, Bd. lxx, 1903.

[1] La Escuela de Med. (Mexico), February 29, 1904.
[2] Archiv für Ohren Heilkunde, lix, 318, 1903.
[3] The Practitioner, December, 1903.
[4] The Lancet, March 5, 1904.
[5] Deutsche medicinische Wochenschrift, January 29, 1903.

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D. BRADEN KYLE

Ophthalmology
WALTER L. PYLE

Pathology
J. EDWIN SWEET

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Special instruction of examiners in life insurance, during the medical college course, is urged by Dr. F. A. Smith, in a paper to be read before the National Fraternal Congress in Milwaukee. He says that there are in this country more than 8,694,017 men and women upon whose lives are placed insurance in excess of $15,383,195,815. Fraternal insurance societies alone have exceeding 4,332,973 holders of benefit certificates and more than $6,374,471,930 of insurance in force, and this great work is annually rapidly increasing. Fraternal societies added to their ranks 841,596 holders of benefit certificates during the past year, and put at risk $1,022,380,457. It is estimated that the examining physicians of these companies are paid at least $5,000,000 annually for their services and that the medical colleges have not been mindful of their duties in neglecting some special instruction fitting examiners for this peculiar work. But, it might be asked, if the college outfits its students generally in such a way as to make them capable of the best general practice, has it not thereby made them capable of becoming competent life insurance examiners? "When and where did you graduate?" thus becomes of more importance than "Have you had special instruction, etc.?" The "laws of life expectancy" and "those of average on which correct rules governing the eligibility of applicants are based" should not be so difficult of acquirement as to cost the company much money for the mistakes of the examiner during the first few years of service. And there is always remaining the question as to the good and wisdom of a strict interpretation of these laws, not only on the part of the community, but also on the part of the companies. Do not the latter tacitly instruct a certain winking at the "less perfect risk?"

An antiquackery congress is planned by the French profession. But if they have need of it there, how much greater is the need in our country! We can surely furnish them ten quacks to their one, and of a far more thoroughgoing and sublimated sort; and their peculiar brand seems to differ radically from ours if an illustrative story may be believed: A street dealer in nostrums was asked by the police to show his diploma, which he did, as he was a well-equipped physician. But he begged that his secret should not be given to the people, because they would have nothing to do with a man with a regular education and a diploma. We do things differently over here, for the quack, bitter against the medical profession, takes great pride in advertising himself M.D., Professor, or even higher types of D.'s. Our French colleagues will have no difficulty, probably, in securing the enactment of the laws they wish, as the profession is much respected in France—again a noteworthy difference from conditions here. But one may doubt if the laws there are passed whether the vogue of quackery will thereby be much lessened. Lord Populus wishes to be deceived, says the old proverb, and with the wish it will find the means of getting the humbuggery it desires. With us, too, the difficulty is largely in getting the laws executed which we have. A large part of the time of the congress is to be devoted to illegal practice by chiropodists, druggists, dentists, midwives, etc.—classes about which we seem little concerned. The last item of the program is as to methods of enlightening the public regarding the dangers of quackery. This would seem to be the most important. We can imagine few ways some generous philanthropist could do more good than to set about this enlightenment of the common people in some effective way.

The railway casualties in the United States for the year ending June 30, 1903, were 86,393—9,840 killed and 76,553 injured. One passenger was killed for every 1,957,441 carried, and one injured for every 84,424 carried. For each passenger killed, 58,917,645 passenger miles were accomplished, and for each injured 2,541,096 passenger miles. One employe in every 364 was killed, and one in every 22 injured. There is a qualifying thought to our indignation which so far as we know, has not been brought out in the report of the Interstate Commerce Commission, but which has been emphasized by a correspondent to the *New York Evening Post* of recent date. If the facts are as there stated, the railway managers of the United States may hold up their heads and no longer be ashamed. It is contended that the number of miles of railway should form the basis of comparison with other countries. England, *e. g.*—and this is the country cited against us—had 22,152 miles of railway in 1903, and our country 202,471. In accordance with these figures the total (1903) casualties in the United Kingdom per 1,000 miles were 831.6, and in the United States, 268.6. It is also averred that the block system introduced in our railways since 1893 has not much lessened the number of casualties, which is given as follows:

	Number of passengers for one killed.	Number of employes for one killed.
1893	1,985,153	320
1894	1,668,791	428
1895	2,984,832	433
1896	2,827,474	444
1897	2,204,708	486
1898	2,267,270	447
1899	2,189,023	420
1900	2,316,648	399
1901	2,153,469	400
1902	1,883,706	401

Where, then, is the trouble? Whatever basis of calculation is taken, the enormous number, 86,393 killed and injured by the railways of the United States in one year, is a sad price, and largely an unnecessary one, to pay for "intercommunication." There is plainly too much "death in the pot."

Vacations for Working Girls.—One of the works which should commend itself to women's clubs, civic societies, and to the philanthropic generally is that of securing for working girls a bit of vacation under the best hygienic and restful conditions, and especially if the girls are in bad health. In New York there is, for instance, a Working Girls' Vacation Society, which for 20 years has been carrying on its beneficent labor in behalf of poor and diseased working girls. About 200 are on the waiting list with their applications, but funds are wanting. A two-weeks vacation can be given one patient for $10.00, and $40.00 will send a tuberculous patient for a month to a mountain sanatorium. The society usually helps those only who are broken down in health. It has a number of pleasant vacation houses scattered about neighboring territory. At Santa Clara 124 tuberculous girls staid at least one month each, in all 770.5 weeks, and gained on the average one pound two ounces each week. Were there more of these societies, physicians could by their recommendations secure a desired and beneficial outing for many of their patients sadly in need of help and rest. The address of the New York society is 361 W. 34th street, New York.

Sanitation and the Panama Canal.—It has been said that as many as 50,000 men lost their lives by disease during the French attempt to dig the Panama Canal. It is evident that the United States will go about the job in a better way, and is already taking steps to avoid such a scandal. Surgeon-Major Edie, whose experience at Manila should enable him to judge intelligently, has studied the sanitary problem for our government, and Colonel Black, described as "the man who cleaned up Havana," has made a sanitary survey of the canal zone. Comfort is said to be derived from the fact, that there will be little upturning of new earth, only extending deeper the cuts already begun, etc., but is there really any scientific basis for the belief that new diggings in the earth liberate the causes of disease and greatly increase the deathrate? Everything points to the necessity of a strict military control of the sanitary conditions and lives of the workmen. Today the inhabitants of Panama, although in a tropical country, close their windows at night and sleep in a fetid atmosphere, because of the fear of malaria, thus reducing vitality and increasing the chances of many terminal diseases. They have not learned the role of the mosquito, and the workmen must be instructed in this and in the use of pure water, etc., as if they were children. More than that, they must be compelled to practise those hygienic precautions which we now know prevent disease. The French cared nothing for these things, and their failure was largely due to the immoral neglect. Practical morality, in fact, in the prevention of disease, the subordination of the financial and stock-broking elements to those of a higher order, can only insure the construction of the canal without the reckless waste of life and money formerly exemplified. This is emphasized by Dr. C. A. Stephens (*Youth's Companion*), who says, as a result of the French neglect of these sanitary measures, there was a direct loss of about 70,000,000 francs. "The indirect loss from delay and demoralization can never be determined! Such a premium does nature set on the health-protection of laborers at Panama. Almost any sum, the expenditure of $5,000,000, indeed, in an up-to-date system of health-protection, will return to the government threefold before the canal is completed. It will prove the best of all economic investments."

The Prevention of Progressive Myopia.—Foreign oculists and journalists are fond of contending that they fully recognize the value of correcting ametropia, and do practically carry the proceeding out. But at the same time they usually let drop a remark showing they neglect the very *conditio sine qua non* of refraction. Thus *The Lancet* some time since said that English oculists corrected refractive errors, but held with Dondus that those of one diopter or less were inconsiderable. Before the last meeting of the British Medical Association one essayist stated that his habit was to "fully correct the myopic error of refraction found, but not to give cylinders under one diopter unless they improved vision." To most American oculists this statement contains a sorry jumble of scientific blunders and practical nonsense. It ignores the fact that any existing astigmatism properly corrected does improve vision; it does not know that the great cause of increasing myopia and eyestrain is precisely these scorned low astigmatisms; it ignores asymmetric astigmatism; it replaces a right optical correction of the ametropia by an overcorrection of the myopia; "it demonstrated," what is not at all so, "that excessive convergence is the main factor in causing progressive myopia," and, most atrocious of all, no allowance for near work was allowed of this overcorrected myopia and noncorrected astigmatism. The "eyes-examined-free" optician, the "optometrist," the "ophthalmic specialist in lenses of the eye," the "refracting optician," etc., could not all combined do worse than that. On what grounds, therefore, can the contention of foreigners be justified that refraction work should be limited to physicians?

"Hans Breitman Gif a Barty."—It would be a pity not to take seriously any well-meant movement for the improvement of the health of the people, and it would be stupid to check by unseemly laughter the production of such circulars as are being sent out by the "American International Congress on Tuberculosis." The seriocomic of exquisite quality is too rare, at least in medicine, to miss such capitally illustrative exhibits. In the first place will be noticed the language used in these circulars. The philologist in search either of instruction or amusement will chuckle as he pounces upon them. We have taken the pains to count the number of words in one sentence ("there are others," too), and found there were 164. It is our good fortune that the distinguished Hans, LL.D. (Chairman, etc.), did not get some young lawyer with a grammar-school education to go over the "English slanguage" of the document before it was finally sent to the press. But here was another press that could not brook such delay and interference, and so we have the admixture of singular subjects and plural verbs, usually vice versa, often the absence of all verbs in delightful abandon, and with an incoherence that would puzzle all the alienists in congress assembled, even under the distinguished auspicies of 129 vice-presidents, the Executive Board, the United States Government, the universal exposition, etc., and of the chairman of the Executive Board, Hans Breitman, Esq., LL.D. The plan as to the choice of invited guests of the "barty," of vice-presidents, etc., is to choose all such as Hans would like to have come. If they reply that they cannot come, or, if they naturally scorn to reply at all, leave their names in the list just the same. Those that surely would not accept, do not invite or print—until it is too late to get in the correction of their refusals. Put 'em down as vice-presidents anyway. Keep on printing the names of those who have resigned! Keep on inviting! There is no human power or disgust that can prevent, there is no modesty that can be spared, no suit for damages that can be won. The strut and vant is ludicrous, of the old-time melodramatic actor appealing to the gallery with "the terrible devastation of this scourage," "appalling, appalling," "burning issues," "the ravages of this awful, this terrible disease, etc." It is plain that Hans, Esq., LL.D., does not like the medical profession, and we are sniffed aside—"too absurd and too untenable to even discuss." The motto of the pamphlet before us is said to be by that great author, "*Anonymous.*" We suspect that Hans himself did it, because he altered his mind about it after it was printed, and changed the wording by two corrections. If we understand these alterations, Hans Anonymous, Esq., LL.D., would now have it read as follows:

> There is no room in the world of science today for the medical Pharisee or Sadducee. He who thinks of another, "I am holier than thou," should be put out of the temple. Gifts, genius, and intellect, and not the width of the phylacteries, determine merit in science, as it did in the time of Christ.

We did not know that merit in science in the time of Christ was determined by the phylactery-width, nor that such was supposed to be the test today, even by the absurd medical man. In October let us inquire, "Ver ish dot Barty now?"

The Influence of Ingested Boric Acid and Borax.—From a contemporary[1] we glean some of the conclusions to be embodied in a bulletin announcing the results of government investigations regarding the influence on the health of individuals, of food containing boric acid or borax. These investigations, under the direction of Dr. H. W. Wiley, were made upon 12 young men and extended from December, 1902, to July 1, 1903. Among the conclusions reached we note the following: When boric acid or its equivalent in borax is taken in food in quantities not exceeding a half gram daily, no immediate effects are observed; after a time there occurs occasional loss of appetite, a feeling of fulness in the head, gastric discomfort and general ill-feeling. Only the more sensitive persons develop symptoms from the amounts named. When the drug is given in larger and increasing doses, these symptoms in accentuated form develop more rapidly; most common is persistent headache with slight clouding of the mental processes. The quantity of boric acid required to produce definite symptoms varies greatly with different individuals. In some, one to two grams daily produce decided distress, in others three grams cause little if any discomfort. Conclusions regarding the use of less than half a grain daily were not reached but from the effect of the larger quantities taken for a short time it is reasonable to infer that smaller doses during an extended period would also prove injurious. The results in general indicate that it is not advisable to use borax in articles of food intended for common and continuous use. When placed in foods used only occasionally and in small amounts the quantity of the contained preservative should be stated plainly that the consumer may know what he is eating. Considering the high standard of these experiments they should go far toward settling the vexed question of the use of boric acid as a food preservative. Above all it is to be hoped they will put an end to the wrangling of experts in test cases, an occurrence which too often defeats the honest endeavor of authorities to protect consumers from designing manufacturer or merchant.

"Liquozone" is the name of a proprietary preparation extensively advertised as a cure-all for about all the diseases that afflict the human race. A sample of this remedy bought in the open market was analyzed by trustworthy chemists, with the following results:

Water	98.61%
Sulfuric acid	1.05%
Sulfurous acid	0.28%
Hydrochloric acid	trace
Fixed residue	0.06%
	100.00%

The report adds that "the above data show that the material called 'Liquozone' is composed of water, to which sulfuric acid and sulfurous acid have been added. The hydrochloric acid found is probably due to chlorids preexisting in the water. The fixed residue doubtless comes from the fact that the water used has not been distilled. There appears to be no justification whatever for the claims made in the advertisements relating to this simple mixture. The cost of its preparation probably does not exceed one cent per gallon."

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[1] Science, July 1, 1904.

The Dunbar Serum Treatment of Hay-fever.—We desire sincerely to avoid premature enthusiasm regarding new therapeutic suggestions, but it is with considerable satisfaction we chronicle the results of prevention and treatment of hay-fever by means of pollen antitoxin during the summer of 1903, the first season of its introduction. These results are summarized in a timely paper by Dr. R. A. Glegg,[1] who, through the courtesy of Professor Dunbar, has had access to the publications and private correspondence, detailing the general experience of physicians and patients during last summer. It is unnecessary more than to mention the experiments by which Professor Dunbar demonstrated in the pollen of various plants the presence of a toxin, and further proved this toxin to be the cause of hay-fever. The production of an antitoxin by the injection of horses with the pollen toxin soon followed. In the summer of 1903 specimens of pollen toxin, and antitoxin were sent to physicians throughout Europe, and also in the United States. The results from the use of antitoxin by many of these observers have already been published, and serve to heighten interest in the collective findings. In all, 222 persons suffering from European hay-fever were given the serum treatment, with the following results:

	Positive results.	Partial results.	No impr'v'nt.
Uncomplicated cases	127	71	24
Cases complicated by asthma	14	6	9
Result in percent	57%	32%	11%

In the United States 63 cases were treated:

	Positive results.	Partial results.	No impr'v'nt.
Uncomplicated cases	44	12	7
Cases complicated by asthma	8	2	3
Result in percent	70%	19%	11%

These results are distinctly encouraging to thousands of sufferers from an annoying, and even dangerous, annual disease. Especially gratifying to persons in this country is the higher percentage of positive results here obtained. The outcome of serum treatment during the present summer, in view of the technical knowledge gained during the past year, will be awaited with the utmost interest. It should be added, that the antitoxin appears to be absolutely harmless, and that its power in preventing hay-fever is even greater than in relieving actual attacks.

To "Command" Hospitals.—Surgeon-General Rixey, of the navy and the Bureau of Medicine and Surgery, of which he is the head, have gained an important victory. Hereafter surgeons will be in "command of," instead of "in charge of" hospitals. This order was issued by Acting Secretary Darling: "Medical officers in charge of naval hospitals, or other medical departments of a naval station under the command of the station, are hereby authorized to use the term 'in command of,' instead of 'in charge of' to designate their respective official positions."

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[1] Journal of Hygiene, July, 1904.

BOOK REVIEWS

The Colorado Medical Journal and Western Medical and Surgical Gazette. Special Tuberculosis Number, March, 1904. 162 extra pages. Price, $1.00. Denver, Colo.

An editorial announcement states that with this number the *Colorado Medical Journal* begins a new policy of devoting much more attention to the subjects of climatology and tuberculosis. This is considered appropriate because of the site of publication, a resort for pulmonary invalids. In its new form the journal will in a great measure be made to fill the place of the suspended *Journal of Tuberculosis*. The contributions and support of all members of the profession interested in tuberculosis and climatology are asked. The present number of 209 pages contains 28 articles dealing with tuberculosis in all its aspects, but particularly that of climatic and sanatorium treatment. All the papers are by men competent to write on the subject and form a very practical symposium on the problems of tuberculosis. Among the better known writers are Krauss, Bergey, Wynn, Herrick, Pottenger, Hinsdale, Meyer, and Arneill. The Journal is to be congratulated on the present issue and on its commendable intentions for the future. We extend heartiest wishes for success in furthering our knowledge of tuberculosis.

Digest of Researches by Laboratory Workers.—Smith, Kline & French Company, Philadelphia, 1904.

In this pamphlet of 66 pages are brief abstracts of some 200 articles written during the past 11 years by the corps of laboratory workers employed by the above company. Reference to the original paper is given in each instance. The subject-matter includes a wide range of topics, such as the manufacture of compounds, commercial history and analyses of plants, alkaloidal assaying, practical data on food products, and chemic synonyms of the newer synthetic chemic compounds. The last-mentioned table is also printed separately in convenient pocket form. A table of the weight in avoirdupois ounces of one pint of various liquids is a valuable feature. The pamphlet contains much interesting and practical information for both druggists and physicians.

A Textbook of Physiology.—By ISAAC OTT. F. A. Davis Co., Philadelphia.

This is a volume of some 550 pages, devoted to the essentials of physiology. No pretense is made by the author to make a complete and exhaustive work on the subject of physiology, but rather an elementary work containing those facts which it is essential that students of medicine should know and understand. The arrangement of the whole is after the manner usually found in such books, the subjects are clearly and concisely elucidated, and the experience of the author as a teacher in physiology is evidenced throughout the work. It meets all the requirements necessary for the medical student. The technic of the laboratory has been omitted, as it was not essential to the author's purpose.

Practical Materia Medica for Nurses.—By EMILY A. M. STONEY. Second edition, 1904. Philadelphia, New York and London. W. B. Saunders & Co.

Miss Stoney gives all the information in regard to drugs that a nurse should possess. In teaching the method of administration, careful attention is paid to important details. The symptoms caused by an overdose of a drug, or by its prolonged use are accurately described, and the treatment of poisoning is stated in a manner that will permit of its being carried out thoroughly and intelligently.

Radium, Radioactive Substances and Aluminum.—By MYRON METZENBAUM, B.S., M.D., Cleveland, O. Second edition. Babbitt & Crummell Co., 1904.

The results of painstaking experimental researches on these substances are embodied in this little monograph. In addition to the metals named, Metzenbaum finds that two substances not hitherto reported as affecting photographic plates in the dark possess that property; they are zirconium nitrate and yttrium. These researches form a substantial addition to our knowledge of radioactivity and should be read by all who are interested in that subject. The author solicits articles on this topic.

The Practical Medicine Series of Year-books.—Comprising Ten Volumes on the Year's Progress in Medicine and Surgery, issued Monthly, under the General Editorial Charge of GUSTAVUS P. HEAD, M.D., December, 1903. The Eye, CASEY A. WOOD, C.M., M.D.C.L.; The Ear, ALBERT H. ANDREWS, M.D.; The Nose and Throat, GUSTAVUS P. HEAD, M.D. Chicago: The Year-book Publishers, 40 Dearborn street.

The general plan of this admirable series is continued in the foregoing volume. The editors are men of prominence in their specialties, and the results of their conscientious labors are very creditable. A rather close inspection shows a preponderance of intelligent digests, covering about all that is new or valuable in the year's literature. The necessity and practical value of such work places the entire medical profession under obligations to the self-sacrificing editors, and enterprising publishers.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Radium, Radioactive Substances and Aluminum; with Experimental Research of the Same.—By MYRON METZENBAUM, B.S., M.D. Second edition. Babbitt and Crummell Co., 1904.

Transactions of the Röntgen Ray Society. Fourth annual meeting, Philadelphia, Pa., December 9 and 10, 1903. Murdoch-Kerr Press, Pittsburg, 1904.

Seventeenth Annual Report of the Ohio State Board of Health. Year ended December 31, 1902. Springfield Publishing Company, 1904.

Bacteriologic and Clinical Studies of the Diarrheal Diseases of Infancy. From the Rockefeller Institute for Medical Research. 1904.—Edited by SIMON FLEXNER, M.D., and L. EMMETT HOLT, M.D.

Mechanical Vibration Charts.—By M. L. H. ARNOLD SNOW, M.D. The charts are 25 x 28 inches, printed from costly lithographic plates on fine heavy paper. Price, $2.50 net Scientific Authors Publishing Company, New York City.

Illinois State Board of Health. Report of Sanitary Investigations of the Illinois, Mississippi, and Missouri Rivers: With relation to the effect of the sewage of the city of Chicago and the sanitary conditions of the water-supplies of the cities of Chicago and St. Louis. 1901–1902.

Diseases of the Nose and Throat.—By D. BRADEN KYLE, M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia; Consulting Laryngologist, Rhinologist, and Otologist, St. Agnes' Hospital. Third edition, thoroughly revised and enlarged. Octavo volume of 669 pages, with 175 illustrations, and 6 chromo-lithographic plates. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $4.00 net; sheep or half morocco, $5.00 net.

Progressive Medicine, Vol. II, June, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences.—Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 334 pages, 47 illustrations. Per annum, in four cloth-bound volumes, $9.00; in paper binding, $6.00, carriage paid to any address. Lea Brothers & Co., publishers, Philadelphia and New York.

Uric Acid. An Epitome of the Subject.—By ALEXANDER HAIG, M.A., M.D., Oxon., F.R.C.P., Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women. Philadelphia: P. Blakiston's Son & Co., 1904. Price, $1 00 net.

Transactions of the Berks County Medical Society, 1903.

The Ophthalmic Year-book for 1904.—By EDWARD JACKSON, M.D., of Denver, Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic. Substantially bound in cloth, 260 pages, one colored plate; 45 illustrations in the text. The Herrick Book and Stationery Company, Denver, Colo. Price, $2.00.

Chemic Synonyms.—Some of the common ones compiled and presented with the compliments of the Smith, Kline & French Co. Philadelphia.

The Clinical Study of Blood-pressure. A guide to the use of the sphygmomanometer in medical, surgical, and obstetric practice, with a summary of the experimental and clinical facts relating to the blood-pressure in health and in disease.—By THEODORE C. JANEWAY, M.D., Lecturer on Medical Diagnosis, Univerlity and Bellevue Hospital Medical College; and Visiting Physician to City Hospital, New York City. Seventy-five illustrations in the text—many in colors. D. Appleton & Co. New York and London. 1904.

Annual Reports of the Director of the Department of Public Health and Charities, Philadelphia. 1904. Dunlap Printing Co. Philadelphia.

A Textbook of Mechanotherapy. (Massage and Medical Gymnastics). For medical students, trained nurses, and medical gymnasts.—By AXEL V. GRAFSTROM, B. Sc., M.D., Attending Physician to the Gustavus Adolphus Orphanage, Jamestown, N. Y. Second edition, revised, enlarged, and entirely reset. 12mo of 200 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co. 1904. Cloth, $1.25, net.

Materia Medica for Nursing.—By EMILY A. M. STONEY, Superintendent of the Training School for Nurses in the Carney Hospital, South Boston, Mass. Beautiful 12mo volume of 300 pages. Second edition, thoroughly revised. Philadelphia, New York, London: W. B. Saunders & Co. 1904. Cloth, $1.50, net.

AMERICAN NEWS AND NOTES

GENERAL.

The Army and the Canteen.—An exchange states that the Paymaster General's Department of the regular army reports that since the abolishment of the army post exchange, or the canteen, as it is familiarly called, the savings of the soldiers deposited with the paymaster's office have shrunk nearly $2,000,000. This is not, of course, an absolute demonstration that the soldiers have lost their thrifty habits; but the army officers and the persons who are intimately connected with the army are of the opinion that the money which was formerly stored away now goes in wild debauches to the dens, joints, vile resorts of every description which have grown up on the outskirts of all army barracks and camps in large numbers, since the passage of the law which forbade the sale of beer and light wines in the camps under strict regulation and under the supervision of the army officers. The strongest kind of support for the canteen has come from total abstainers, physicians and chaplains, who have no objects to serve but to make the discipline good, the soldier efficient and the army cleanly and decent.

Miscellaneous.—New York and New England Association of Railway Surgeons: The fourteenth annual meeting of the New York and New England Association of Railway Surgeons will be held at the Academy of Medicine, New York City, November 17 and 18, 1904, under the presidency of Dr. C. G. J. Finn, of Hempstead, Long Island. Railway officials and all surgeons interested in this work are cordially invited to attend.—**The Cumberland Valley Medical Society** will hold its second annual meeting at the Blue Mountain House, Penmar, Maryland, Tuesday, September 6, 1904.—**American Röntgen Ray Society** will hold its regular meeting at the Louisiana Building, 911 Vandeventer avenue, St. Louis, Missouri, September 9 to 13. An attractive program has been prepared under the auspices of the American Röntgen Ray Society.—**The Mississippi Valley Medical Association** will hold its meeting in Cincinnati, October 11 to 13, 1904. An attractive and extensive program has been prepared for the occasion.—**The Tri-State Medical Society** of Alabama, Georgia, and Tennessee, will hold its sixteenth annual session at Chattanooga, Tennessee, October 12 to 14, 1904, the headquarters being at the Read House. Addresses will be delivered by Dr. William J. Mayo, of Rochester, Minnesota; and Dr. A. J. Ochsner, of Chicago. Information may be had by addressing Dr. Raymond Wallace, Loveman Building, Chattanooga, Tennessee.—**Fourth Pan-American Medical Congress:** President Amador, of the Republic of Panama, has appointed the following officers of the Fourth Pan-American Medical Congress, to be held in Panama the first week in January, 1905: Dr. Julio Ycaza, president; Dr. Manuel Coroalles, vice-president; Dr. Jose E. Calvo, secretary; Dr. Pedro de Obarrio, treasurer.

NEW YORK.

Resigns to Take Charge of Another Journal.—Dr. Kenneth W. Millican, who, since April, 1898, has held the position of associate editor of the *New York Medical Journal*, has resigned to take charge of the *St. Louis Medical Review*.

Vereinigung Alter Deutscher Studenten in Amerika.—The Union of old German students in America will give a "Commers" in honor of the German scientists who will visit the St. Louis Congress of Art and Science. Most of the eminent guests are medical men. The date is fixed upon October 8, 8.30 p.m., at the Arion Hall of New York.

Typhoid in the Bronx.—There are now over 200 cases of typhoid fever in the Bronx, according to a canvass made among private physicians there by Dr. M. S. Gregory, acting superintendent of Bellevue Hospital, and other officials of that hospital and its allied institutions. This number is far above the normal rate. The number of patients is so large that it is causing Bellevue and its allied hospitals trouble in caring for them.

United States Laboratory for Detecting Impure Foods.—A branch laboratory is about to be established in New York by the Bureau of Chemistry of the National Department of Agriculture, and the work of examining imported foods and detecting adulterations and imperfections will be conducted on a large scale. The need of the laboratory has been abundantly shown. A brief investigation recently made proved that in the last two months three shiploads of food products imported here were returned whence they came because of adulteration. It is stated that one of these shipments was a cargo of sausages from Germany.

SOUTHERN STATES.

Copper Sulfate a Destroyer of Germs.—News from Washington, D. C., states that the infection with typhoid germs of the water taken from the Potomac into the reservoirs that supply Washington has led to the determination on the part of the District of Columbia authorities to make use of the copper sulfate remedy discovered by Dr. George T. Moore and Karl

F. Kellerman, bacteriologists of the Department of Agriculture, for the destruction of algæ and disease germs in water by the copper sulfate solution. The District Commissioners have made formal request on the Secretary of Agriculture to aid in the matter. Since the announcement six months ago of the discovery, it has been used with success in several large cities, among them being Indianapolis, Butte, Mont.; Springfield, Mass.; and Baltimore, with asserted success.

FOREIGN NEWS AND NOTES

GENERAL.

Hospital Extension.—The new hospital in Vienna, of which the foundation stone was laid recently by the Emperor of Austria, will, it is stated, cover the largest proportion of space ever allotted to hospital purposes, and will include the newest technical appliances and plans, the whole comprising the most important and complete erection for hospital purposes yet conceived. There will be 32 separate clinics, or hospitals, within the great enclosure, it is stated, each of which will have a roof garden; 18 separate pavilions with 2,300 beds for patients are planned, the air space for each patient being 1,030 square feet, the largest in any hospital. A noteworthy feature is the fact that, in the clinics for infectious diseases, the patient will be separated from the professor and the students by a glass partition. The total cost is estimated at $8,000,000.

What a Nation Eats.—A committee of the Royal Statistical Society of Great Britain has recently been engaged in investigating the production and consumption of meat and dairy products in that country, and while they find that there has been increased production, yet it has not been on a scale proportional with the increase in population. According to its report, submitted at a recent meeting of the society, the average consumption per head in Great Britain was, of meat 121.8 pounds, of milk 15 gallons, of cheese 10.5 pounds, and of butter 18.5 pounds. The amount of meat included 56.8 pounds of beef and veal, 27.5 pounds of mutton and lamb, and 36.8 pounds of bacon and pork. In addition, the British people consume extensive quantities of poultry, game, rabbits, etc., which are not included in the above summary. The average of 15 gallons of milk does not include separated or skim milk or condensed milk, both of which are consumed to an appreciable degree. In comparison with the Continental countries, England consumes much more meat, but considerably less than the United States and Australia.—[*Harper's Weekly.*]

Physical Deterioration.—Statistics from recruiting stations of the British army show that the number of soldiers below 5 feet 5 inches has nearly doubled during the last 15 years, while the number of those measuring less than 33 inches around the chest has increased from 17 per 1,000 to 23 per 1,000. The percentage of soldiers weighing less than 120 pounds is doubled. An exchange commenting on these facts justly remarks: If the army tables held good for Englishmen in general there would be evidence of physical deterioration, but they do not. It is harder to get fit men for the army than it was 20 years ago, for the reason that army pay was not so much out of proportion to the wages of civilians as now. The men in the class from which the army is recruited who are in the best condition and are sure of work cannot afford to enlist. The theory of physical deterioration is a false one, in civilized countries at least. In them, in spite of all that may be said—most of it is exaggerated—about the unfavorable influences of urban as compared with rural life, the average man is physically as good a fellow as his great grandfather was, if not better.

British Scientists and Radium.—Important discoveries in connection with cancer were announced recently at the annual meeting of the general committee of the Cancer Research Fund, at which the Prince of Wales presided. Distinguished experts briefly summed up their year's work as follows: Civilization is not the cause of cancer, which pervades animal as well as human life and attacks all its subjects at relatively the same age and periods. Cancer is not an infectious disease and is not transmissible from one species to another. A cancer cell can reacquire powers of self-propagation. Cancer is not caused by a parasite. The malady is not on the increase. Radium has been found to exercise no curative effect. A serum has been discovered from which good results are hoped. The first authentic cases of cancer in animals were minutely described by experiments which had been made on fish and wild mice. The Prince of Wales urged the public to consult surgeons at the first indication of any cancerous symptoms, though the report of the experts said that no sign has yet been discovered by which medical men can surely recognize the presence of cancer.

The Tea Cigaret.—London physicians declare that the tea cigaret has taken the place of the morphin tablet with many women of the smart set. The result is summarized by a well-known physician who said: "I have at least a dozen women on my hands under cure for the tea cigaret habit. Once let a woman begin to cultivate a taste for this compound of the flavor of Souchon and Hyson and she is doomed. Souchon and Hyson are simply a blend of black and green teas. The taste is by no means disagreeable, but the after-effects are that 'one's head swims,' there is a desire to clutch at things to prevent falling, a dazed condition, semi-stupor and then visions of an extravagant nature." Many physicians of the West End are seriously considering the advisability of preparing a petition to the House of Commons recommending the introduction of a bill providing heavy penalties for those of the Bond street tea houses which retail these cigarets to their customers. It is in these places that the largest number of clients is to be found. Within the last two weeks upward of 20 women have been taken to the private sanatoriums suffering from the effects of tea cigarets.

Cause of Physical Deterioration in England.—The report of a British commission on physical deterioration, which appears as a Parliamentary Blue Book, is of general interest because the conditions which bring about the alleged deterioration are present in the United States. Whether or not there has been widespread and acute deterioration, the commission cannot, of course, determine from the brief period spent in studying the subject and from meager data, but for such deterioration as is patent and indisputable the commission finds the causes to be, first of all, alcohol and tobacco. One of the authorities on the subject consulted, Dr. Scott, mentions the significant fact that of all the undergrown children examined only 2% had not been habitual smokers. Beside stunting the user, tobacco is said to cause, especially in youth, shortness of breath, loss of vitality, weak heart and general inefficiency. The opinion is a unanimous one against the habit of cigaret smoking among boys. The teapot has also become a scourge to the British, and accounts for much of the deterioration of the poor. The rush to the cities, overcrowding, the slum life are contributing causes, and ignorance, weak character, shiftlessness are responsible for the surprising fact alleged that in the past 25 years there has been no decrease of infant mortality. The commission recommends that the State deal radically with overcrowding in the cities by fixing limits of congestion beyond which it shall be unlawful to go.

Surgical Equipments on Russian Warships.—An interesting article appears in the *Deutsche medicinische Wochenschrift.* The author is Dr. Wada, fleet surgeon in the Japanese navy and chief medical officer of the Red Cross Hospital at Chemulpo, in Korea; his patients were Russian sailors wounded in the naval battle of Chemulpo, where the Korietz and the Variag were destroyed. Of the Russian crew 100 were wounded, the majority being taken on board the French cruiser Pascal and the others on board British and Italian men-of-war. The wounded Russians at first declined to leave the French ship, but eventually 24 of them were taken ashore. They told the Japanese surgeons that the hospital arrangements on board the Russian ships were very defective, and that there were only five hospital beds for a crew consisting of 26 officers and 556 men. Moreover, the conditions experienced on board the French vessel were not of the best, the patients being placed in a small, damp room and supplied with inadequate food. The condition of the sufferers confirmed this account, for some of their wounds were gangrenous. Dr. Wada says that the Japanese shells exploded when they touched water or the human body and burst into 1,000 small pieces without evolving noxious gases. In most cases the fragments of shell had been removed by the French medical officers, but there were a few patients from whom Dr. Wada withdrew pieces of iron of the size of a small finger. The wounds were nearly all complicated by fractures of the bones, but there was only one instance in which a fragment of shell was found in a bone. He further remarks that the Russians often cried when their wounds were dressed, the Japanese never.

Asepsis Versus Antisepsis.—Professor O. Rosenbach, of Berlin, in his "Arzt contra Bakteriologie," says: The time is not far off when antiseptics will, in most cases, be used only for disinfecting the external skin and the instruments. Water and soap will be reinstated in their place of honor as cleansing materials. The quintessence of antiseptics, as explained long since by many successful operators whose work is done without the aid of bactericides, which, in truth, had better be called tissue destroyers, or protoplasm poisons, will be reduced to an endeavor to avoid the introduction of additional virulent agents into the human organism by our operative measures which must in part destroy the protective barrier of the organism owing to the necessity of entering the interior of the body; therefore, to operate with clean hands, clean skin, and clean instruments, as well as, above all, to handle or squeeze tissues as little as possible in order not to reduce their defensive apparatus by local necrosis, and thus to assist in facilitating the process of regeneration. That all this may be accomplished by the simplest means of relief, provided practice and dexterity are in evidence, reducing the insults to a minimum, is illustrated by the history of ovariotomy. An operator who works gently and deftly, and does not imagine that under cover of strict antisepsis any and every abuse of tissue is licensed, will always command brilliant results. The dogma of the efficacy of purely external disinfection being such absolute protection as to render superfluous any regard for the patient or the healing powers of nature, has been provocative of more mischief than the adherents of absolute protection by means of toxic antiseptics will ever care to acknowledge.

Malignant Growths in the Lower Animals.—The paper which the superintendent, Dr. E. F. Bashford, read before the general committee of the Cancer Research Fund in London recently shows the wide and systematic process of this investigation by which it is hoped to discover the secret, and the cure, of this affliction. Some important facts have been brought to light by the examination of tumors taken from various animals. Through the collaboration of private persons at home and abroad, specimens of malignant newgrowths have been obtained from many lower vertebrates, including 14 cases of carcinoma in fish. Two cases of malignant newgrowths in fish possess a special value, because derived from marine fish living in a state of nature, and similar interest attaches to a spheroidal-celled carcinoma discovered in a wild mouse. These are the first authenticated cases of cancer in wild animals. More than 2,000 specimens have been examined, secured from various subjects: Human, 266; horse, 116; cow, 99; dog, 247; cat, 43; pig, 8; frog, 6; bird, 13; mouse, 850; fish, 80; rat, 28; rabbit, 32; sheep, 8; goat, 7; bull, 1; miscellaneous, 329. In this way it has been proved that cancer pervades the whole vertebrate kingdom and presents constant fundamental characters. The great diversity of the food, habitat, and conditions of life generally of the animals in which cancer occurs indicates that such external agencies have no causative influence. The origin of cancer has to be sought in the life processes of the cells, and it has been demonstrated that a transplanted tumor will grow only on an animal of the species from which it was taken. There is much significance, too, in the discovery of the conjugation that occurs between the nuclei of cancer cells, as it points to the nature of the problem which has to be solved before growth can be prevented.

What is Brandy?—A case which was decided on May 30 by Mr. Fordham at the North London Police Court raised a point as to the definition of the term "brandy." A wine and spirit merchant of Hornsey Road was summoned for selling a bottle labeled "Fine old pale brandy," which was not of the nature, substance, and quality demanded by the purchaser. This constitutes an offense under the Sale of Food and Drugs Act. According to the evidence of Dr. Teed, upon which the prosecution was based, analysis of a sample from the bottle which was found in the possession of the defendants showed that the alleged brandy contained 60% of spirit not drawn from the grape, whereas pure brandy should be derived entirely from the grape. It appeared that the analyst arrived at this conclusion by an estimate of the amount of socalled impurities in the sample which was before him. While it is of course impossible to say whether the ethyl alcohol which forms the chief ingredient of every spirit is derived from grape or grain, it appears to be recognized that brandy derived from the grape should contain ethers in the proportion of 80 parts in 100,000. The analyst found that the alleged sample of brandy contained only 40 parts of ethers, and he apparently deduced from this that the spirit must have come from grain and not from grape. The magistrate said: "It is not necessary for me to rule as to whether highly rectified spirit flavored with a grape spirit is brandy or not. It is enough for the purposes of this case for me to hold that brandy is an alcoholic liquid, the spirit of which is obtained by the distillation of wine from the grape." In giving this definition the magistrate appears to have been influenced by the *British Pharmacopeia*, which states that brandy is exclusively derived from the spirit of the grape. This, said the magistrate, was important, because it was common knowledge among buyers, sellers, and consumers that brandy is largely used as a medicine. In the event the defendant was convicted and was ordered to pay a fine of £5 and £50 costs. This case is likely to have far-reaching consequences. It is an authority for the proposition that the consumer is entitled to have what he asks for. It is to be observed, however, that for a prosecution under the Sale of Food and Drugs Act to be successful the sale must be to the prejudice of the purchaser. Thus it was found in a case tried in 1901 that it was not an offense to sell marmalade which contained a certain amount of glucose.—[*British Medical Journal.*]

OBITUARIES.

William Rice Pryor, of New York City, died at St. Vincent's Hospital from a general down breaking of his system, brought on by overwork, August 26, aged 46. Dr. Pryor was a graduate of the College of Physicians and Surgeons, New York City, in 1881. He began practising in the city of New York, where he achieved distinction as one of the foremost gynecologists in the United States. Dr. Pryor had been professor of gynecology in New York Polyclinic Hospital since 1881; was a visiting gynecologist at St. Elizabeth's Hospital, and consulting gynecologist at St. Vincent's Hospital. He was a member of the International Periodical Gynecological and Obstetrical Congress; the American Gynecological Society, the Southern Surgical and Gynecological Society, American Medical Association, New York Academy of Medicine, the New York State Medical Association, and the New York Obstetrical Society. He was the author of the following books: "American Textbook of Gynecology," 1896; "Pelvic Inflammations," 1900; and "Textbook of Gynecology," 1903.

C. F. H. Wilgohs, the centenarian physician, at his home in Akron, Ohio, August 26, aged 100 years and 8 months. He was of remarkable mental and physical vitality until a week before his death, and was able to walk for miles. He was born in Denmark in 1803. His father was a doctor in the German Army, and he followed the German Army in the same capacity. He enlisted in the cause of Polish independence, and was wounded four times in the battle of Ostrolanka. In 1827 he went with an Arctic exploring expedition in a sailing vessel. He came to America later, and spent most of his years practising medicine at Doylestown, O.

John Womack Hayes, from an overdose of morphin, at his home in Eureka Springs, Ark., August 8, 1904; a graduate of the University School of Medicine, Baltimore, in 1870; a member of the American Medical Association, president of the Tristate Medical Society of Mississippi, Arkansas and Tennessee; past president of the Arkansas State Medical Society, and a member of various minor medical organizations.

William J. Lodge, at his home in Baltimore, August 21, aged 72; a graduate of the University of Maryland in 1859. He became surgeon in the United States Navy, and was later in Federal service during the Civil war, after which time he practised for a period in Missouri and Kansas. In later years he returned to Baltimore, retired from practice and made extensive research in Maryland genealogy.

Henry C. Coty, of Shreveport, La., in New York City, August 10, from uremia, aged 45; a graduate of the University of Louisville, Ky., in 1880; a member of the Louisiana Medical State Society, of the Shreveport Medical Society, and local physician for Texas and Pacific, and Houston East and West Texas Railroads.

Ralph Chandler, at his home in Milwaukee, August 12, after an operation for intestinal obstruction, aged 41; a graduate of Rush Medical College, 1886; member of the American Medical Association, of the Wisconsin State Medical Society and the Association of the Military Surgeons of the United States.

David McClean Crawford, at his home in Mifflintown, Pennsylvania, August 25, aged 78; a graduate of the Medical Department of the New York University in 1851. He was a physician of prominence in central Pennsylvania, and was for two terms a member of the State Legislature.

Frank Howard Payne, at his home in Berkley, Cal., August 8, from erysipelas, aged 53; a graduate of Rush Medical College, Chicago, in 1874; a member of the American Medical Association, Medical Society of the State of California, and the Alameda County Medical Society.

Esther Woodman Taylor, who for many years practised in Boston, at her home in Wells, Maine, August 25, aged 70. She was formerly a partner of Dr. Sarah A. Colby, deceased, but retired from practise several years ago.

Harriet R. Goodrich, of Boston, at the Salem Hospital, August 23, aged 35, as the result of an accident sustained while jumping from a moving street car. She was a graduate of Tufts Medical College, Boston, Class of 1901.

Millard Fillmore Cyphers, at his home in Philadelphia, August 27, aged 45; a graduate of the University of Pennsylvania in 1887. He formerly practised in Wilkesbarre, subsequently removed to Philadelphia.

George A. Thomas, at his home in Linton, Ind., August 1; a graduate of Louisville Medical College, in 1878; member of the American Medical Association; surgeon to the Indiana railroad.

George Ernest Mayhew, of Red Bluff, Cal., at Colyear Springs, Cal., July 19, aged 32; a graduate of the College of Physicians and Surgeons, Chicago, in 1897.

Thomas Ballard McDow, at his home in Charlestown, S. C., July 26, aged 49; a graduate of the Medical College of the State of South Carolina in 1879.

William B. Rehling, of Alhambra, Ill., at the home of his mother in Waterloo, Ill., July 28, aged 26; a graduate of Rush Medical College, Chicago, in 1903.

Robert L. Gattis, at his home in Chapel Hill, N. C., July 29, aged 34; a graduate of the University of Maryland School of Medicine, Baltimore, in 1888.

Levi Westfall Elliott, who practised in Valparaiso, Indiana, for 30 years, but for the past three years of Chicago, died in the latter city August 25.

John McClary Steele, committed suicide at his home in Worcester, Mass., August 21, aged 37; a graduate of the Laval University, Quebec, in 1890.

John J. Adderhold, of Worth, Ga., at the Macon City Hospital, July 30, aged 38; a graduate of the Atlanta (Ga.) Medical College in 1891.

Clarence M. Boyd, at his home in St. Joseph, Mo., July 17, aged 33; a graduate of the Western Medical College, St. Joseph, Mo., in 1892.

William O. Griggs, of New York, August 27, aged 35; a graduate of the Baltimore City College, and of the University of Maryland.

James Hutchinson, at his home in Boling, Kans., August 3, aged 62; a graduate of Missouri Medical College, St Louis, in 1876.

Benjamin E. Egleston, at his home in Churchville, N. Y., July 25, aged 58; a graduate of the University of Buffalo, in 1882.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended August 26, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Georgia:	Macon	Aug. 13-20	1	
Illinois:	Chicago	Aug. 13-20	6	
Louisiana:	New Orleans	Aug. 13-20	2	
		Traced to importation.		
Michigan:	Grand Rapids	Aug. 13-24	1	
Missouri:	St. Louis	Aug. 13-20	2	1
Pennsylvania:	Philadelphia	Aug. 13-20	1	
South Carolina:	Charleston	Aug. 13-20	1	
Tennessee:	Nashville	Aug. 13-20	2	
	SMALLPOX—INSULAR.			
Philippine Islands:	Manila	July 2-9	1	
	SMALLPOX—FOREIGN.			
Africa:	Cape Town	July 8-16		1
China:	Shanghai	June 25-July 16		6
France:	Paris	July 30-Aug. 6	12	1
Great Britain:	Glasgow	Aug. 6-12	9	
	Leeds	Aug. 6-13	2	
	London	July 30-Aug. 6	2	1
	Manchester	July 30-Aug. 6		1
	Newcastle-on-Tyne	July 30-Aug. 6	5	
	Nottingham	July 23-30	1	
India:	Bombay	July 19-26		5
	Calcutta	July 9-16		1
Italy:	Palermo	July 23-Aug. 6	31	15
Mexico:	City of Mexico	July 31-Aug. 7	3	1
Russia:	Moscow	July 23-30	18	2
	St. Petersburg	July 23-30	5	1
	Warsaw	July 8-16		27
Spain:	Barcelona	Aug. 1-10		9
Turkey:	Constantinople	July 31-Aug. 7		2
	YELLOW FEVER.			
Equador:	Guayaquil	July 20-27		7
Mexico:	Coatzacoalcos	August 6-13	2	1
	Merida	July 31-Aug. 13	2	2
	Tehuantepec	July 31-Aug. 13	5	4
	Vera Cruz	August 6-13	5	1
	CHOLERA.			
India:	Bombay	July 19-26		1
	Calcutta	July 9-16		7
	PLAGUE—INSULAR.			
Hawaii:	Hilo	Aug. 19		1
Philippine Islands:	Manila	July 2-9	1	1
	PLAGUE—FOREIGN.			
Africa:	Cape Colony	July 9-16	1	
Brazil:	Bahia	June 6-July 24	24	10
Egypt:		July 16-23	16	8
India:	Bombay	July 19-26		57
	Calcutta	July 9-16		5
Mauritius:		May 6-June 16	8	7
Peru:	Lima	July 16-30	15	7

Changes in the Medical Corps of the U. S. Navy for the week ended August 27, 1904:

KENNEDY, R. M., surgeon, detached from Naval Hospital, New York, and granted sick leave for one month—August 10.

HUNTINGDON, E. O., surgeon, detached from Naval Hospital, Portsmouth, N. H., and ordered to the Naval and Marine Recruiting Stations, Chicago, Ill., August 24—August 20.

BRAISTED, W. C., surgeon, detached from the Relief, and ordered to the Pensacola—August 20.

GUTHRIE, J. A., passed assistant surgeon, granted an extension of leave for three months—August 20.

WILSON, H. D., passed assistant surgeon, ordered to duty at the Naval Hospital, Portsmouth, N. H.—August 20.

WISE, A. H., acting assistant surgeon, detached from the Naval and Marine Recruiting Stations, Chicago, Ill., and ordered to duty with Naval Recruiting Party No. 1, August 25—August 20.

DUNCAN, G. F., acting assistant surgeon, detached from the Franklin and ordered to duty with Naval Recruiting Party No. 3, August 24—August 20.

DABNEY, V., acting assistant surgeon, ordered to duty with Naval Recruiting Party No. 2, August 25—August 20.

LEWIS, D. O., medical inspector, commissioned a medical inspector from January 4, 1904—August 23.

WHEELER, L. H., assistant surgeon, detached from duty at the Naval Hospital, Boston, Mass., and ordered to duty as recorder, Naval and Medical Examining Boards, Washington, D. C.—August 24.

Changes in the Public Health and Marine-Hospital Service for the thirteen days ended August 24, 1904:

PURVIANCE, GEO., assistant surgeon-general, granted leave of absence for one month from August 1, 1904, on account of sickness—August 23, 1904.

WILLIAMS, L. L., assistant surgeon-general, relieved from status of "absent on leave," and directed to assume temporary command of the Cape Fear Quarantine Station during the absence on leave of Assistant Surgeon B. S. Warren. Upon the return of Assistant Surgeon Warren, to resume status "absent on leave"—August 13, 1904.

WILLIAMS, L. L., assistant surgeon-general, granted extension of leave of absence for fifteen days from August 18, on account of sickness—August 15, 1904.

BAILHACHE, P. H., surgeon, granted leave of absence for seven days from August 14, 1904, under the provisions of paragraph 191 of the regulations.

FOSTER, M. H., passed assistant surgeon, granted leave of absence on account of sickness for one month from August 18, 1904—August 17, 1904.

FOX, CARROLL, assistant surgeon, granted leave of absence for three days under the provisions of paragraph 191 of the regulations—August 17, 1904.

SCHERESCHEWSKY, J. W., assistant surgeon, to proceed to Philadelphia, Pa., for temporary duty in connection with the inspection of alien immigrants during the absence on leave of Passed Assistant Surgeon Taliaferro Clark—August 21, 1904.

FRANCIS, EDWARD, assistant surgeon, granted leave of absence for seven days from August 8, 1904, under the provisions of paragraph 191 of the regulations.

FRANCIS, EDWARD, assistant surgeon, granted extension of leave of absence for twenty-one days—August 13, 1904.

WARREN, B. S., assistant surgeon, granted leave of absence for six days—August 12, 1904.

HUNT, REID, chief, division of pharmacology, granted leave of absence for six days from August 22, 1904, under the provisions of paragraph 210 of the regulations.

WALKLEY, W. S., acting assistant surgeon, granted leave of absence for three days—August 15, 1904.

HALLETT, E. B., acting assistant surgeon, granted leave of absence for four days—August 13, 1904.

BEAN, L. C., acting assistant surgeon, granted leave of absence for five days from August 22, 1904—August 22, 1904.

SIMONSON, G. T., acting assistant surgeon, granted leave of absence for fifteen days from August 26, 1904—August 23, 1904.

GRACE, J. J., acting assistant surgeon, granted leave of absence for thirty days from September 23, 1904—August 18, 1904.

ROEHRIG, A. M., pharmacist, detailed to represent the Service at meeting of American Pharmaceutical Association at Kansas City, Mo., September 5 to 10, 1904—August 16, 1904.

BROCK, G. H., pharmacist, relieved from duty at Delaware Breakwater Quarantine and directed to proceed to St. Louis, Mo., and report to medical officer in command for temporary duty—August 16, 1904.

GIBSON, R. H., pharmacist, granted leave of absence for thirty days from September 7, 1904—August 23, 1904.

O'GORMAN, T. V., pharmacist, granted leave of absence for thirty days from August 18, 1904—August 13, 1904.

MILLER, CHARLES, pharmacist, detailed to represent the Service at meeting of American Pharmaceutical Association at Kansas City, Mo., September 5 to 10, 1904—August 16, 1904.

KOLB, W. W., pharmacist, relieved from duty at the Savannah (Ga.) Quarantine Station and directed to proceed to Washington, D. C., and report at the Bureau preliminary to assignment to duty in the Hygienic Laboratory—August 17, 1904

ROGERS, EDWARD, pharmacist, relieved from duty at Cleveland, Ohio, and directed to proceed to New York, N. Y. (Stapleton), and report to the medical officer in command at that port for duty and assignment to quarters—August 17, 1904.

MASON, M. R., pharmacist, granted leave of absence for fifteen days from September 1, 1904—August 18, 1904.

SOUTHARD, F. A., pharmacist, granted leave of absence for four days from August 8, 1904, under the provisions of paragraph 210 of the regulations.

SOUTHARD, F. A., pharmacist, relieved from duty in the Hygienic Laboratory, Washington, D. C., and directed to proceed to Cleveland, Ohio, and report to the medical officer in command at that port for duty and assignment to quarters—August 17, 1904.

SPANGLER, L. C., pharmacist, relieved from duty at the Tampa Bay (Fla.) Quarantine, and directed to proceed to Savannah (Ga.) Quarantine and report to the acting assistant surgeon in charge for duty and assignment to quarters—August 17, 1904.

VAN NESS, G. I., JR., pharmacist, relieved from duty at New York, N. Y. (Stapleton), and directed to proceed to Louisville, Ky., and report to the medical officer in command at that port for duty and assignment to quarters—August 17, 1904.

Boards Convened.

Board convened to meet at the United States Marine-Hospital, Stapleton, N. Y., August 13, 1904, for the physical examination of a chief engineer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon A. C. Smith, chairman; Passed Assistant Surgeon C. H. Lavinder, recorder.

Board convened to meet at Washington, D. C., August 25, 1904, for the physical examination of a candidate for appointment in the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

ACQUIRED CARDIA DEXTRA.

BY

H. LOWENBURG, A.M., M.D.,

of Philadelphia.

Lecturer on Pediatrics at the Medico-Chirurgical College; Assistant Pediatrist to the Medico-Chirurgical and the Philadelphia General Hospitals; Pediatrist to St. Joseph's Hospital Dispensary.

The history of the case which I have to report is as follows:

Case.—C. D., male, aged 13.

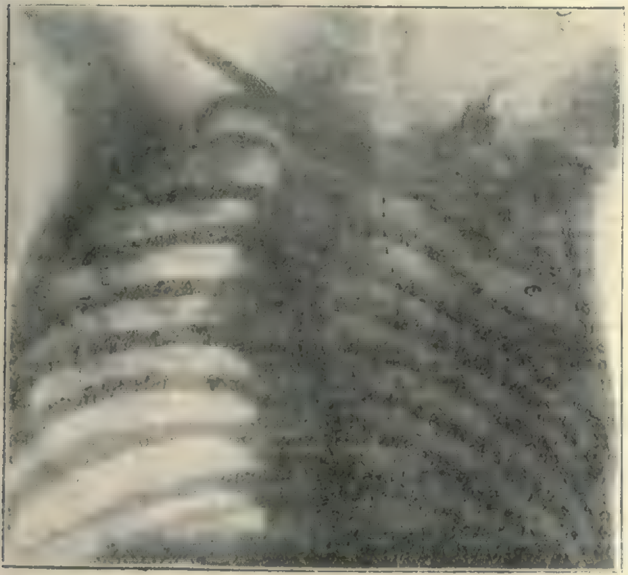
Family History.—Father died of *phthisis florida* when child was 4 years of age. Mother died after an operation, the character of which cannot be determined. Two brothers and two sisters are living and well. Two brothers dead, cause unknown.

Previous History.—Vaccinated at 1 year. From birth up to the age of 4, no other information can be secured. At the age of 4 he had measles, followed by acute lobar pneumonia of the right side at the time his father's body was still in the house. He has had no other sickness, but from the time he recovered from pneumonia he has been weak and never gained in flesh or strength, and has had more or less cough without expectoration. He fractured his right clavicle one month ago, which united with deformity.

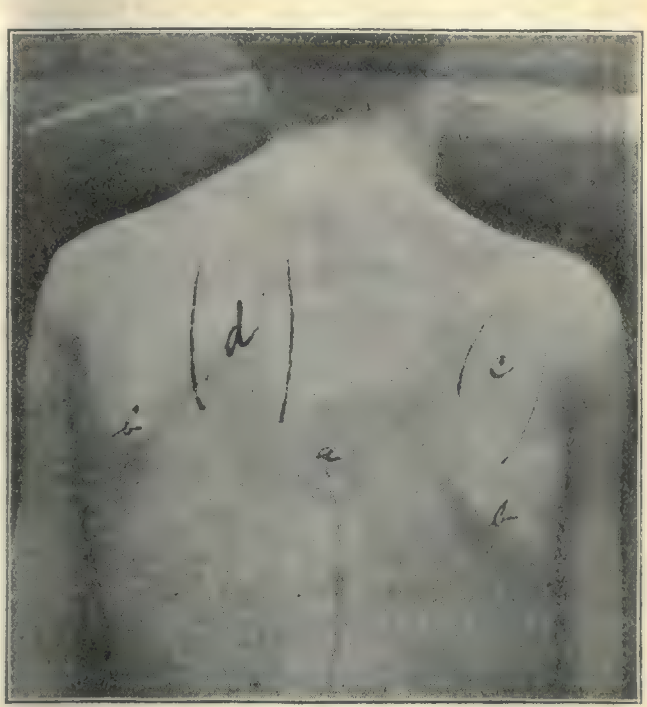
Present History.—June 13, 1904. Patient presented himself today at my clinic at St. Joseph's Hospital, complaining of indefinite chest pains, which have troubled him at intervals for some time. Bowels are regular; appetite is fair; tongue clear. Temperature, 101.5°. Pulse, 100. He has never had hemoptysis.

INSPECTION.

Physical Examination.—The boy is wasted, freckled, and a mouth-breather. Teeth are sound. Mucous surfaces and skin are pale. The supraclavicular space on the left side is visible, that on the right is distinctly depressed. The superior border of the trapezius muscle is much higher on the left side. The right clavicle is shorter than the left, and, at the junction of the outer with the middle third, shows the site of union of a recent fracture. The chest, as a whole, seems longer than normal, and the inferior border of the right side is lower than that of the left. The right shoulder is considerably lower and more angular than the left. The infraclavicular space is slightly bulging on the left side. The sternum is somewhat prominent. The respiratory excursions of the right side are very feeble. Those on the left are slightly more marked, and the whole left side moves up and down almost as one piece, the expansile movement between the ribs being practically absent. At each inspiration intercostal retraction is distinctly seen. The thoracic angle is narrowed. The right nipple is slightly lower than the left. The cardiac impulse is not seen on the left side. It is visible on the right side in the second, third, and fourth intercostal spaces, extending along the right border of the sternum to the right anterior axillary fold. It is most marked in the fourth interspace just below the right nipple. The anteroposterior diameter of the left side is considerably increased. The same diameter of the right side is equally decreased. Posteriorly, the same emaciation is noted, and the scapulas are winged. The angle of the right scapula is lower than that of the left, reaching the tenth rib, while the latter reaches the seventh rib. The posterior axillary fold is lower on the right side than on the left. Intercostal retraction during inspiration is noted on both sides behind, more on the right. The left side bulges distinctly in all directions. There is distinct scoliosis of the spine in the upper and lower dorsal region, the convexity of the curve being toward the left in the upper, and toward the right in the lower region. The abdomen and joints present nothing of interest, except that the fingers are markedly clubbed. (See cut.)



Patient of Dr. Lowenburg, examined by Dr. Pfahler June 16, 1904. Posterior view. Skiagraph shows (E) in the left lung marked compensatory emphysema; complete displacement of the heart to the right; consolidation of the right lung with two good-sized cavities (C–C); curvature of spine to the left.



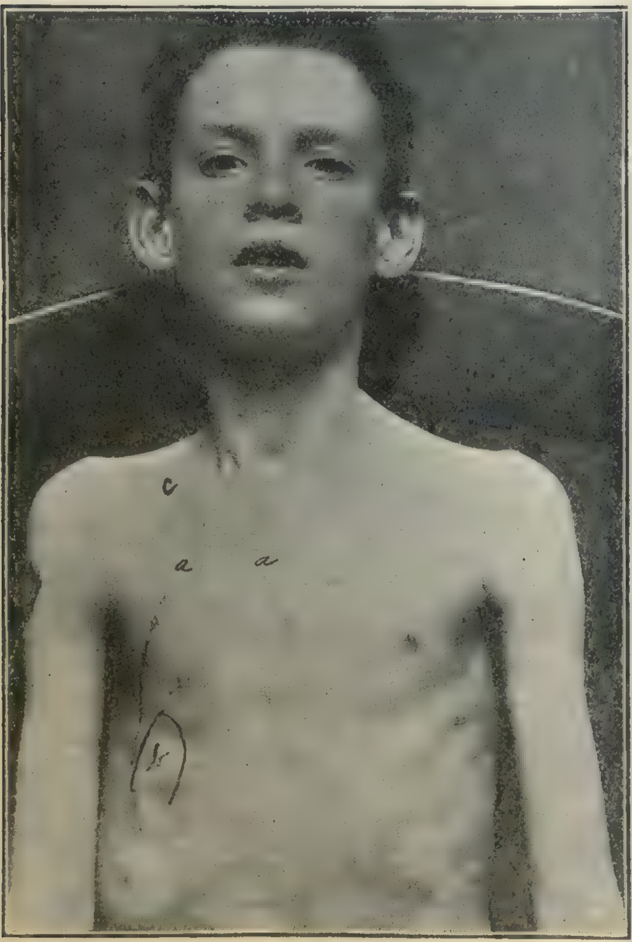
Posterior view showing *a*, line of spinal curvature; *b–b*, position of right and left scapula; *c*, area of dull tympany, amphoric breathing and Wintrich's change of sound—cavity; *d*, area of dulness in the left lung which is hyperresonant elsewhere—tuberculous consolidation. Note the difference between height of right and left trapezius, right and left shoulder, and right and left posterior axillary folds.

Palpation confirms inspection in every way. The right side lags during inspiration. Expansion is poor on the left side, but mobility is greater than on the right. Vocal fremitus is increased all over the right side and is diminished over the left. Rhonchal fremitus is felt on both sides back and front, more on the right. The cardiac impulse is felt to the right of the sternum in the second, third, and fourth intercostal spaces, forcible and regular. The apex beat is apparently in the fourth interspace, just below the right nipple. Friction fremitus and thrills are absent. The absence of the apical impulse is noted on the left side. The lower edge of the liver is felt on the right side. The spleen is not palpable.

Percussion.—On the right side in front the percussion note is flat, except just below the right nipple, at which point a dull tympanitic note is elicited. At this point too the pitch is raised when the patient opens his mouth (Wintrich's change of sound). This area of dull tympany extends to the seventh rib. The area of cardiac dulness, as discovered by percussion, is indicated in the cut. It corresponds almost exactly to the area of visible cardiac impulse to the right of the sternum, approaching a little nearer the middle line however. It is continuous, below, with the liver dulness, except for the interception of the area of dull tympany just described. Behind, on the right side, percussion yields a flat note, except over the upper portion of the infrascapular triangle, where dull tympany is elicited. Wintrich's change of sound is noted here.

On the left side, in front, the note is distinctly hyperresonant and resistance to the plexor finger is much diminished when compared with the right side. The area of normal cardiac dulness is also hyperresonant. On the lateral aspect of the left side hyperresonance is obtained and the same note is found behind, excepting that just to the right of the left scapula the note becomes dull and resistance becomes positive. This area corresponds about to the lower portion of the upper and the upper portion of the lower lobes.

Auscultation.—The inspiratory sound over the apex of the right lung is harsh. The expiratory sound equals inspiration—prolonged, high-pitched, and blowing in quality—tubular breathing. The same quality of breathing is heard all over the right side, except over the area of dull tympany just below the right nipple and over the infrascapular triangle behind. In both these positions the expiratory sound is cavernous, being almost amphoric behind. Vocal resonance is increased decidedly over the right chest and pectoriloquy is heard over the area of dull tympany front and back. Just below the right nipple gurgling rales are present. Fine crackling rales are heard over the right apex front and back.



a-a, Area of cardiac dulness outlined; *b*, area of dull tympany, cavernous breathing and Wintrich's change of sound—cavity; *c*, point of union of recent fracture of clavicle; x, apex beat of heart. Note difference between height of right and left trapezius, right and left shoulder, right and left anterior axillary folds, and right and left nipple.

On the left side the inspiratory sound is harsh and accompanied by fine rales. The expiratory sound is prolonged and low in pitch. Behind, just to the right of the left scapula, between it and the spinal column (area of dulness mentioned before), the expiratory sound is prolonged and higher in pitch than in front, but not so high as on the right side—bronchovesicular breathing. Vocal resonance is absent over the left side front and back, except over this area of dulness where it is increased.

The first and second sounds of the heart are not heard at the normal position on the left side. They are heard best just below the right nipple in the fourth interspace and just to the right of the sternum. The second aortic and second pulmonary sounds are most distinct in the second interspace to the right of the sternum. The second pulmonic sound is accentuated. There are no murmurs or friction rubs.

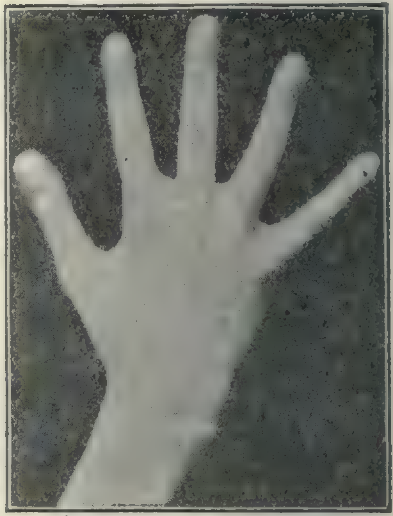
Mensuration.—The anteroposterior diameter of the right side, measured through the nipple, is 13 cm. (5.11 in.). The anteroposterior diameter of the left side is 15.5 cm. (6.1 in.). The right nipple is 1.9 cm. (¾ in.) lower than the left. The circumference of the right side of the chest is 28.57 cm. (11¼ in.), while that of the left side is 31.11 cm. (12¼ in.) during expiration. The circumference of the chest during expiration is 58.48 cm. (23½ in.), and during full inspiration it reaches 61.58 cm. (24¼ in.), *i. e.*, total expansion equals 1.9 cm. (¾ in.). The expansion of the right side equals .63 cm. (¼ in.) while that of the left side is 1.26 cm. (½ in.).

Diagnosis of Cardiac Condition.—Acquired cardia dextra.

Diagnosis of Pulmonary Condition of Right Side.—Chronic interstitial pneumonia (tuberculous), cavity of upper lobe posteriorly and of lower lobe anteriorly. Pleuropericardial adhesions, chronic pleural adhesions.

Diagnosis of Left Pulmonary Condition.—Compensatory emphysema. Tuberculous consolidation in upper and lower lobe behind.

Etiology.—The entire pathologic condition can probably be traced as a sequel to the attack of pneumonia following measles in early childhood. The history is clear on this point that the child was well up to this time, and after this has been in ill-health. Further, the hygienic surroundings of his early childhood were poor, the boy living in an atmosphere infected with tubercle bacilli by his father, who died from the disease at the time the patient was ill with pneumonia.[1] Pneumonia attacked the right side. As is not unusual in delicate children the acute attack was followed by chronic fibroid induration—usually a tuberculous process or a condition upon which tuberculosis is often engrafted sooner or later. Pneumonia is nearly always associated with plastic pleurisy. The latter probably became tuberculous, as the same condition progressed in the lungs, spreading and causing tuberculous adhesions between the pleura and the pericardium. Fibroid induration caused retraction of the right lung, which, together with the pleuropericardial adhesions, pulled the heart toward the right side. The right lung, now practically functionless, caused increased labor for the left lung, which gradually became enlarged from emphysema (compensatory). The left lung in enlarging required more room, and in accommodating itself to the new order of things, encroached upon the heart and pushed it toward the right.



Clubbed fingers.

August 6, 1904. After a violent fit of coughing, the patient complained of a sudden sharp pain in the left side, especially in the left axilla, radiating down the side of the chest into the epigastrium. The left side bulged enormously and the intercostal spaces were obliterated. Before a complete physical examination could be made the patient died.

Autopsy.—This was performed five hours after death. Only a partial examination was permitted and none of the organs could be removed for microscopic examination.

An incision in the middle line was made as far as the epigastrium. In severing the costochondral junction of the second rib on the left side there was an escape of gas as the point of the knife entered the pleural space. After removing the breast plate the following gross lesions were observed:

Left Lung.—The left lung was twice its normal size, extending beyond the sternum into the right side and filling in the normal cardiac area. It was separated from the ribs by a distance of fully 3.78 cm. (1½ in.), the pleural space being filled with air. The surfaces of both the parietal and the visceral pleura had attached to them fiddle-string adhesions which had been torn before death. The left lung was whitish gray in color and its surface was studded with little balloon-like air vesicles. These were particularly plentiful at the left apex and varied in size from a split pea to a good-sized cherry. At the left apex one of these distended air vesicles had ruptured, permitting the air to enter the pleural space. This accounted for the symptoms immediately preceding death. In other words, rupture of the lung had been followed by an acute pneumothorax. The lung substance cut with ease and was decidedly crepitant. The cut surface did not bleed and only exuded a little frothy serum. A piece placed in water floated readily. The upper lobe was distinctly emphysematous. The lower lobe was dark red, did not crepitate, cut with resistance and sank when placed in water. The cut surface exuded a dark brown serum and exhibited small grayish tubercles scattered throughout its substance.

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[1] As the boy does not expectorate the sputum could not be examined for tubercle bacilli.

Right Lung.—This was removed with considerable difficulty, as it was firmly bound down by fiddle-string adhesions. In removing it a large opening was torn into the pericardium where it was firmly adherent to the pleura. The entire right lung, including all three lobes, which could not be distinguished from each other, was no larger than an adult hand, measuring about 13 cm. (5.11 in.) in length and about 1.26 cm. (½ in.) in thickness. The lung was dark red, did not crepitate, and sank rapidly when immersed in water. There was complete atrophy of all vesicular substance. On section the knife met great resistance; the entire cut surface showed thick bands of fibrous connective tissue. No serum exuded from the cut surface, the entire lung being apparently transformed into a solidified mass of fibrous connective tissue. The upper portion contained a small cavity, as did the middle portion, just below the apex of the heart.

Heart.—As noted before, the pericardium was adherent to the right pleura. The heart was well drawn over into the right pleural space, its left border being directly under the right edge of the sternum. The apex pointed downward and toward the right. At this point, being requested to discontinue the examination, no more data could be recorded, except that the liver and spleen were in their normal positions. Brief and incomplete as the necropsy was, it was, nevertheless, confirmatory of the results of physical examination and the skiagraph.

THE RÖNTGEN RAY EXAMINATION, BY G. E. PFAHLER, M.D.

The röntgen ray examination made June 16, 1904, showed complete displacement of the heart to the right, the left border being found in the median line. (See dotted line in the skiagraph.) The right lung is almost completely consolidated, as is indicated by the dense, irregular shadows. There are two light areas shown in the right lung about an inch in diameter, surrounded by dense shadow—one is situated in the outer portion of the upper lobe on a level with the second intercostal space, and one is located in the outer portion of the lower lobe beneath the seventh rib. These have the appearance of cavities.

The left lung shows, mostly, compensatory emphysema indicated by the brilliant transparency. In the upper part of the lower lobe are found scattered dense shadows, which indicate tuberculous deposits.

The spinal column is curved strongly to the left, but shows no disease.

In this case the röntgen ray is simply used to confirm the physical signs and diagnosis, since it stands next to the autopsy in exactness. It has the advantage of an autopsy in showing the organs in their relative positions, and the varying positions as noted during movement. It has an advantage over physical signs in that by it earlier and smaller lesions can be detected, but the röntgen ray examination and the physical signs should be weighed together in making a diagnosis.

A CONVENIENT FORM OF ELECTRIC KYMOGRAPH.

BY

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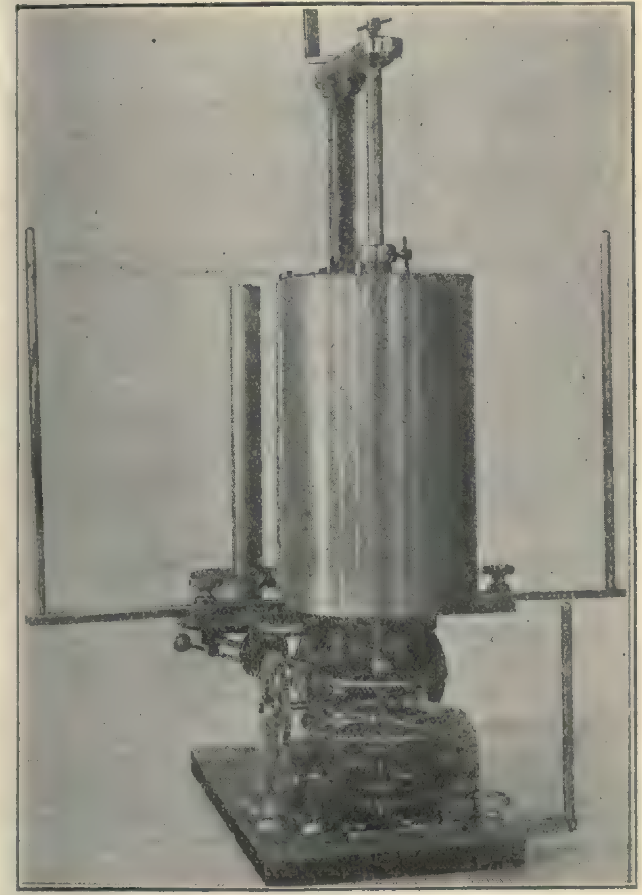
As our experience in pharmacologic work with the ordinary kymograph driven by clockwork and used in connection with the continuous roll of paper has not proved as satisfactory as could be desired, owing to the marked variation in speed, and also to the frequent necessity of rewinding the spring, we were led to use the electric motor as a motive power in running our kymograph for work in connection with the investigations of stock-poisoning plants. At the time our machine was designed we had not seen the description of the one described by Blix.[1] From the fact that our machine is very simply made, and its wheels and worms are those which are regularly carried in stock, and can be put together by almost any mechanic, we thought a brief notice would be desirable.

The machine consists of a broad base which supports the motor, and at about the center of this base is a firm upright, which by means of arms aids in supporting the drum. Springing from this upright are two other arms which support the cylinders carrying the paper. Any small motor, shunt wound, and preferably reversible, can be used. We used the smallest "Peerless." We selected a high-speed motor so that by gearing it down there would be even less possibility of fluctuations in speed. This in connection with storage cells would be especially desirable, but even using the ordinary 110-volt direct current as we do, we have noticed no variation in the speed from that at which the machine is set. By means of a clutch the axis of the motor was continued out and the speed reduced by wheels and worms until some desirable but arbitrary speed was obtained. The second worm used in this reduction plays in the teeth of a wheel on the axis which carries the drum. Above this is another toothed wheel which also plays against a separate worm. In the case of our machine the number of teeth in this second wheel is so arranged as to make the speed of the drum a fourth that when running at maximum speed, that is, when connected with the first or smaller wheel. Both of these worms play loosely on their own axes, so that either the very slow or fast speed can be used independently. If the machine is moving in its normal direction, that is, with the drum from right to left, these worms are held in position by centrifugal force, but by reversing the motor, the worm is thrown out of contact with the toothed wheel, unless it is desired to run the drum reversed, when in this case it is held in position by a small catch. The object of having these two wheels was to obviate the necessity of controlling the speed of the drum entirely by the rheostat, as we found that by using one wheel with a very fast speed, when it became necessary to use an extremely slow one, as required in muscle and nerve work, the reduction of the voltage by the rheostat caused some variation in the speed of the drum, but by our present arrangement the motor may run at full speed and on full voltage while the drum revolves either very slowly or very fast, according as it is connected with one or the other of these wheels. Other wheels and worms can be added if desirable, and thus a greater variety of speeds secured, but we obtain these intermediate speeds by use of the rheostat without any irregularity in motion. We thought this arrangement of two or more wheels in connection with their own worms preferable



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[1] Pflüger's Archiv f. d. gesam. Physiol., 1902, Vol. lc, p. 405.

to having one worm and a number of wheels sliding up and down on the central axis. Above these wheels is another toothed wheel against which plays a smaller one. This smaller one is connected directly by means of an axis with a friction wheel playing against the disc of the cylinder which winds the paper. By a screw-like arrangement this friction wheel can be moved nearer or farther from the center of the disc, so that the speed of the winding may be varied at pleasure.

The drum itself is made of brass, as light as desirable, six inches in diameter and ten inches high, so that either a ten or six inch paper can be used at pleasure. We prefer the brass to the aluminum drum, as it will stand much rougher treatment, and there is no special object in securing lightness in this case as there is ample motive power. The drum can be taken out of the frame and blackened paper can be used on it. The drum can be raised and lowered at pleasure by means of a screw and crank. We have not put the automatic arrangement for raising and lowering the drum on it as yet. Between the drum and the receiving cylinder the paper passes under an adjustable roller, which aids in keeping it taut, and this is further aided by placing a drag worked by a screw on the base of the cylinder supplying the paper. We have had no trouble with sagging or slipping of the paper on this kymograph.

The machine is also provided with two uprights, as in the "Baltimore kymograph," which serve for carrying accessory apparatus, such as time markers, tambours, etc., and by an extension to its posterior extremity similar to that used by Hering, may be converted into one resembling the large Hürthle kymograph. The drum as it revolves closes an electric current and thus, by means of a time marker, registers on the moving paper so that the speed, provided the paper accurately follows the movement of the drum, can be easily calculated. On the base is also an upright which carries the manometer. The gearing is open and one can see at a glance if anything should go amiss. If it is desirable to use the drum in a horizontal position this can be arranged for by changing the base plate and using a universal joint. The only possibility of injury to the machine would be from connecting both wheels on the drum axis simultaneously with their worms. This could only happen as the result of careless handling.

CONCERNING THE "PANCREATIC REACTION" IN THE URINE.

Described by Robson and Cammidge.

BY

J. HENRY SCHROEDER, M.D.,

of Cincinnati, O.

A. W. Mayo Robson and P. J. Cammidge[1] have recently published their observations and researches on the chemistry of the urine in diseases of the pancreas. These studies have received considerable attention in the medical journals in this country. Without reviewing in detail the work of Robson and Cammidge, the subject is of sufficient importance to warrant the following observations regarding its purely scientific and technical aspect.

Cammidge based his work upon the hypothesis that the urine in certain diseases of the pancreas contains glycerin; this he tries to prove by converting any glycerin present into glycerose, by the action of hydrochloric acid. The glycerose is then precipitated in the form of osazone, with phenylhydrazin hydrochlorate; it is a fact that glycerose is an oxidation product of glycerin. While glycerin, under certain conditions, may be converted into glycerose by careful oxidation with nitric acid, it cannot be accomplished by hydrochloric acid. Cammidge does not produce any experimental proof which should form a basis for his work, and which should have convinced him that hydrochloric acid, acting upon a solution of glycerin does not, and cannot produce any substance having the nature of a ketone or aldehyd. This fact removes the foundation of the work of Cammidge.

With a desire to differentiate between different diseases, in which, according to Cammidge, the urine gives the positive reaction, presumably due to the same reagent (glycerin), this author declares that in some instances the reaction may be prevented by mercuric chlorid, while in other diseases this is not the case. This conclusion is certainly devoid of chemic basis, and is not logical.

It is certainly against all laws of physics and chemistry to assume different sizes of crystals of the same substance (if that substance did occur in the urine in various diseases), as characteristic of certain diseases.

It is likewise unreasonable to assume that the rapidity with which the crystals of the same substance dissolve in 33% sulfuric acid, points to a certain disease of the pancreas (influence of the size of crystals having been excluded).

The work of Robson and Cammidge cannot have clinical value until the observations of Cammidge have been given a different and more logical interpretation.

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[1] The Lancet, March 19, 1904.

PTOMAIN POISONING.

BY

GEO. W. LAWRENCE, M.D.,

of East Berlin, Conn.

The following cases of ptomain poisoning are reported, as indicating the danger of purchasing prepared or ready cooked foods:

A young man of 20 was taken with severe vomiting about 10.30 a.m. There was no pain; no preceding nausea or bad symptoms. Vomiting was extremely severe, and there was intense thirst. I first saw the patient about 3 p.m. He was vomiting at 10-minute intervals a slight amount of frothy mucus; no pain; no tenderness; no temperature; pulse inclined to be weak, but 72 and regular; countenance good; only complaint was straining during the act of vomiting.

While attending this patient another member of the family (a girl about 16) was taken suddenly with severe vomiting; she had had no previous symptoms. This patient emptied the stomach of her dinner, taken about three hours previously. Symptoms were so similar to those of the other patient that it was decided the sickness was due to something they had eaten.

About 4.30 the head of the family (a man about 50) was brought home from his barn, about an eighth of a mile away by a neighbor who found him vomiting, and so prostrated that he was unable to walk or give any account of himself.

It was now evident that something which they had eaten had produced this result, and after a careful investigation it was found that the article partaken of by these three persons was some boiled ham purchased in a public market the day previous. On inspection this ham looked good, smelt good, and gave no evidence of any putrefactive changes.

The young man had eaten a small amount at 7.30 a.m. He was taken with vomiting at 10.30. The girl ate a small amount at 12 m., and was taken with vomiting at 3 p.m. The father ate quite heartily and of nothing beside the ham except a slice of bread, at 1 p.m., and as nearly as can be ascertained was taken with vomiting at 4 p.m. The interval following the ingestion of the ham, together with the interesting fact that no one else ate of it except these people at these stated times, proves very conclusively that the ham was the source of the trouble.

The father was in such a condition that energetic measures had to be taken to insure his recovery. His stomach was very thoroughly washed out, first with plain water, afterward with milk, and brandy was administered. All these patients had in intervals of a couple of hours after vomiting, quite a severe diarrhea, which however was without any premonitory pains, or much disturbance.

A little after the diarrhea began, cramp pains in the muscles were experienced, those of the young man being confined mostly to the calves of the legs and forearms and fingers; those of the girl being almost wholly confined to the muscles of the forearms and hands. The father, however, had severe cramps extending throughout nearly the whole muscular system, the cramps in the legs being especially severe, giving him considerable pain for 10 or 12 hours.

Within 24 hours the symptoms had passed, excepting some rigidity of the muscles and muscle soreness and the weakness which would naturally follow severe vomiting and purging.

Discovering that the ham was purchased in the market of a near city, as soon as possible the market was notified, and also physicians who would be likely to have patients in that locality. Within the next six days, 27 cases were traced to this source. All the patients made a good recovery.

ORIGINAL ARTICLES

METEOROLOGIC CONDITIONS IN THE CAUSATION OF LOBAR PNEUMONIA.*

BY
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Professor of Medicine and Clinical Medicine at the Medico-Chirurgical College; Physician to the Medico-Chirurgical Hospital; Consulting Physician to the Jewish Hospital, etc., Philadelphia.

In considering the question of the relation of meteorologic phenomena to a microbe affection such as lobar pneumonia, I shall attempt to divorce their effects upon the growth, development, and propagation of the specific microorganism of the disease and its conveyance from the sick to the healthy, from their influence in determining predisposition or individual susceptibility.

The present state of our knowledge concerning the influence of the agencies that brings about predisposition to lobar pneumonia is far from satisfactory. Respecting the etiologic importance of meteorologic conditions in this disease, a few fundamental truths may be regarded as being definitely settled. Although certain assumptions previously laid down may be admitted, the general truth remains that there is a marked conflict of opinion as regards vitally important aspects of the subject, as the divergent views and summarized results of the observations of authors presented below will clearly indicate.

It is to be remarked that temperate zones include areas which are quite diverse climatically. Obvious differences in meteorologic elements are determined also by proximity to the coast, by altitude above the sea-level, and other considerations. Hence the climatic data of no single locality convey a clear idea of the meteorologic conditions of large divisions of country defined by selected isotherms. Again, in order to determine the exact values of the different meteorologic elements, observations extending over a large number of years are necessary, on account of the variability in the means in corresponding months of successive years. It is therefore here proposed to consider the data bearing upon the climatic factors as recorded at the United States Weather Bureau for a period of 20 years;† and in the first instance, to note the effect of the seasons upon the incidence of lobar pneumonia for a period of 10 years, or for the interval of time during which the deathrate from this affection has been recorded in Philadelphia.

Jurgensen[1] and other writers hold that "disposition for pneumonia is entirely different from that for catarrh of the respiratory tract."

Grimshaw[2] has set forth the weekly average number of deaths in London and Dublin from pneumonia and bronchitis respectively, in the 10 years, 1876 to 1885, as well as the actual weekly number of deaths from those diseases in the year 1886. From these statistical results it appears that the fatality and prevalence of lobar pneumonia do not correspond with the seasonal prevalence and fatality of bronchitis, the former increasing less quickly in winter and remaining more prevalent and fatal in spring and summer than bronchitis, and *vice versa.*

It has been incontestably shown by collective investigations in different parts of the world that the disease is, in a measure, due to seasonal influences, and that the greatest incidence is observed in the winter and spring months. Seitz's[3] large Munich statistics showed that 36.8% occur in the spring, 32% in the winter, 15.7% in the autumn, and 15.3% in the summer. In London, according to Herringham's statistical account, the period of highest incidence is from the end of March to the end of June.

Hirsch[4] gives an elaborate table of percentages of pneumonic prevalence in the various months at a large number of localities in Europe and America. He found that the greatest number of cases falls in the months from February to May. The average for all places mentioned in the table gave 34.7% in spring (March to May inclusive), 29.0% in winter (December to February), 18.3% in autumn (September to November), and 18.0% in summer (June to August).

Riebe[5] has tabulated the cases occurring in the garrison at Posen for each month during the years from January, 1873 to October, 1881, inclusive (vide Table):

TABLE I.

Months.	1873	1874	1875	1876	1877	1878	1879	1880	1881	Summary.
January	4	14	8	8	2	10	7	1	19	73
February	......	18	14	9	4	4	15	10	12	86
March	1	13	12	32	9	4	23	7	24	125
April	6	11	15	14	3	3	20	5	14	91
May	16	6	3	10	4	8	7	1	22	77
June	8	9	8	5	2	2	6	2	6	48
July	5	6	3	......	1	4	4	3	4	30
August	1	9	4	3	......	5	......	......	4	26
September	......	5	......	1	1	7	2	2	1	19
October	......	3	4	......	1	1	1	......	......	10
November	......	1	8	4	1	2	1	3	......	20
December	5	8	19	2	3	5	7	2	......	51
Summary	46	103	98	88	31	55	93	36	106	656

Kohnhorn[6] obtained similar results at the garrison in Wessel.

E. Aufrecht,[7] in 1,501 cases of pneumonia, found the seasonal distribution as follows: First quarter, 544=36.2%; second quarter, 462=30.7%; third quarter, 182=12.1%; and fourth quarter 313=20.8%. Musser[8] states that of 195 cases under the care of his colleagues and himself at the Presbyterian Hospital, Philadelphia, 169 occurred in the first quarter; 57 in the second quarter, 31 of which were in April; 18 in the third quarter; and 51 in the fourth quarter. Seibert's[9] statistics, collected in New York (embracing 600 cases) place the highest percentage of cases in February and March.

W. Ziemssen,[10] who studied extensive statistics in regard to the meteorologic factors in the causation of pneumonia, found that in all cities a short distance from the sea, spring and winter together give a percentage which is generally double that of the other six months. This observer is of the opinion that an insular climate should be distinguished from an inland climate; in the first, winter furnishes the highest number and summer the lowest, while in the center of Europe, the maximum occurs in spring and the minimum in autumn.

Says Linden:[11] "The southern hemisphere, in which the divisions of the seasons is the inverse of that of the northern hemisphere, pneumonia has its maximum frequency during the months in which it is most rare in Europe, and reciprocally. Thus at Brisbane, in Australia, pneumonia presents its maximum in August and September, and its minimum in January and February."

In the appended table (II) I have presented the monthly mortality list of cases of pneumonia, covering the decade from 1894 to 1903 inclusive, for Philadelphia:

TABLE II.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Summary.
1894	498	230	218	190	156	90	66	72	73	117	122	145	1977
1895	353	454	283	302	217	105	68	73	64	137	171	230	2457
1896	428	353	452	289	166	109	90	60	132	108	177	343	2705
1897	368	468	470	268	220	183	77	86	78	113	172	220	2723
1898	269	286	376	265	268	99	64	79	56	102	212	404	2480
1899	587	358	243	234	184	80	78	78	79	108	177	273	2424
1900	429	337	420	521	322	120	95	81	78	129	209	223	2959
1901	354	358	316	262	248	105	96	91	77	174	218	279	2577
1902	439	451	385	340	209	123	141	106	100	161	272	299	2976
1903	535	422	383	368	248	151	139	79	94	122	206	444	3191
Summary	4210	3717	3496	3039	2238	1165	918	800	826	1269	1936	2860	26469

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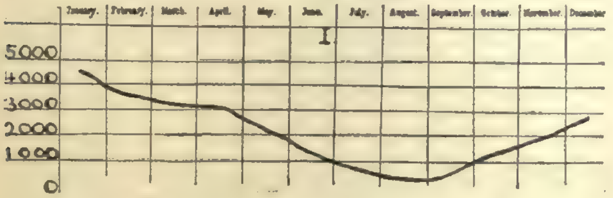
* Read at the meeting of the American Climatological Association, Philadelphia, June 3 and 4, 1904.

† My grateful acknowledgment is here due and cheerfully made to Mr. T. F. Townsend, for furnishing these records, and also to Dr. R. H. Spangler, for kind aid in preparing the tables and diagrams.

The above table gives the deathrate from pneumonia month by month for a period of ten (successive) years.* These observations agree in the main with those of the authors previously cited. A glance at the figures indicating the total number of deaths during each month for the past ten years reveals the following numerical order: January, 4,210; February, 3,717; March, 3,496; April, 3,039; December, 2,860; May, 2,238; November, 1,936; October, 1,269; June, 1,165; July, 913; September, 826; August, 800.

The average maximum mortality has occurred in the month of January and the minimum in August. The first quarter, or the months of January, February, and March, shows the highest deathrate—11,423; the third quarter gives the lowest—2,539. Again, the first six months of the ten years show 17,865 deaths, which is more than double the number for the last six months, or 8,604. The calendar spring months—March, April, and May—do not show as great a totality of cases as the three winter months—December, January, and February—the figures being 8,773 for the former period as compared with 10,787 for the latter.

This result is somewhat at variance with that of many writers who contend that pneumonia is a disease of spring rather than winter. W. Ziemssen has pertinently suggested that a distinction should be drawn between an insular climate and a continental climate; in the first, winter furnishes the highest number of cases and summer the lowest, while conversely in the center of Europe the maximum prevalence occurs in spring and the minimum in autumn. Philadelphia probably partakes of the nature of both an insular and a continental climate. The accompanying graphic tracing based upon the sum of the cases indicates the rise and fall in the deathrate during the year in Philadelphia:



Curve showing total deathrate per month for ten years, 1894-1903.

According to my figures there has been a slight increase or rise in incidence during the past decade. Decided exacerbations, traceable to epidemics of influenza, obtain, but quite independently of these outbreaks, the result of the present observations as well as those of Seitz, Linden, Ziemssen, and other investigators furnish a real foundation for the belief, which has long since gained currency, that the etiologic influence of the seasons is undoubted. We shall next inquire what share of the combined effect of the various climatic elements, if any, is borne by each of the principal meteorologic phenomena?

Alongside of an investigation into the question of the comparative influence exerted by the different meteorologic components that enter into the unfavorable season, which varies with the latitude, and keeping these in mind, it is hoped that a clearer insight into the combined influence upon the prevalence of lobar pneumonia of the temperature range, the degree of humidity, the barometric pressure and the velocity and direction of the wind-currents, will be obtained.

(*a*) *Effects of Changes in Temperature.*—It is generally conceded that abrupt and marked oscillations of temperature are the most influential favoring factors: Cold, *per se*, however, is incapable of giving rise to the disease. Osler[12] states that in Montreal, January, the coldest month in the year, but with steady temperature, has usually a comparatively low deathrate from pneumonia.

Moreover, the mountain climate of the temperate zone has a reduced temperature, but does not show an increased incidence of pneumonia as compared with adjacent, interior lowlands. On the other hand, the mean diurnal, monthly and annual ranges of temperature are less than at sea-level.

This question is closely related to the processes of physiologic heat regulation in the human economy. Within certain limits, a continuous, low external temperature is consistent with health, but "a naked man cannot maintain his temperature in an external temperature below 27° C." (Lazarus-Barlow.) We know with certainty that the constancy of temperature in well persons is dependent on an equilibrium maintained by an interaction both of thermogenesis and thermolysis. With regard to the range of external temperature within brief intervals of time, however, our knowledge is as yet incomplete and unsatisfactory.

That the balance of heat production and heat loss may be readily disturbed beyond the limits of variation consistent with health, by wide, abrupt oscillations of the external temperature can scarcely be doubted, particularly if the existing mean range is low. The heat loss may suddenly become enormous, giving rise to a striking, deep fall of body temperature unless the mechanisms that counteract thermolysis and bring about abnormal heat production, be called into play. Hypothermia may result, as shown by coldness and pallor of skin, sensations of chilliness, cyanosis of the extremities, and a decided "sluggishness of nerve and muscle." This condition is pathologic, (and not to be compared with the sensations of cold so commonly experienced by healthy individuals) but whether it favors the invasion of the tissues by *Diplococcus pneumoniæ* is unknown, although from what is known on other grounds, that it may do so, would seem to be a reasonable inference.

Aufrecht[13] states that the prevalence of pneumonia is directly dependent upon the prevalence of unequal and changeable meteorologic conditions, especially on the occurrence of abrupt and marked changes of temperature at a time when the mean temperature is very low. Schramm[14] believes that the disease prevails in proportion to the extent of the changes in the external temperature and the velocity and variability of the wind-currents.

Huss[15] states: "During the spring months the most rapid changes of temperature are noted, not only from one day to the next, but during the different hours of the same day, and especially between day and night. These changes appear to be the plainest predisposing causes of the development of inflammations of the lungs, and as they are more conspicuous in some years than in others, this probably explains the fact that in some years there are more cases of pneumonia than in others."

Hirsch[16] insists that the maximum incidence bears a certain relation to the temperature changes at particular seasons in certain localities. "In the countries situated in the higher latitudes (Russia, Sweden, Denmark, Germany, England, the northern districts of France, the northern United States of America), in which the most abrupt changes in temperature occur in spring, the maximum of the frequency of disease is noted in the spring. On the other hand, in the warmer and subtropic countries (Italy, the islands of the Mediterranean, Greece, Algiers, the southern United States of America, Chili, Peru), in which the previously mentioned meteorologic influence makes itself especially felt in the winter, the latter represents the especial pneumonia season."

Jurgensen,[17] after comparing monthly returns in Vienna, for a series of years, concludes that sudden change of temperature may exercise a limited influence in favoring the origin of pneumonia. Bouchard and Brissand,[18] on the other hand, point out that at Cologne, the month of March in 1885 showed oscillations of 8.4°, and gave 70 deaths from pneumonia, while in 1886 the same month furnished much greater oscillation, 13.8°, with only 45 deaths. It is but fair to interpret isolated instances of this sort as permitting of numerous exceptions.

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* It is admitted that the mortality-rate does not bear a constant relation to the totality of cases. Lobar pneumonia, however, is not a returnable disease in Philadelphia.

From a consideration of my own figures (see Table III), it is obvious that abrupt oscillations of temperature *per se* have a restricted influence, if any, as a favoring factor.

TABLE III.—TEMPERATURE.

MEAN MAXIMUM.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1894	42.3	38.5	55.8	60.0	73.0	82.3	86.8	81.4	77.2	64.5	48.3	42.7
1895	37.2	32.3	45.7	60.2	71.5	83.4	81.8	86.8	81.6	61.3	53.8	46.0
1896	36.6	41.5	43 9	64.5	76.7	78.6	85.3	85.6	76.2	60.2	58.3	41.3
1897	37.3	40.8	50.8	62.6	71.8	77.6	84.1	82 5	78.1	66.9	53.1	44.4
1898	41.2	42.9	56.4	57.9	69.7	82.2	87.1	84.4	79.9	66.5	51.3	42.0
1899	39.5	34.4	47.5	63.9	72.8	84.2	85.7	82.2	75.3	65.9	53.6	44.4
1900	42 4	40.4	45.6	62.6	73.5	81.8	88.4	88.0	80.1	68 5	55.8	43.3
1901	39.1	33.8	52.2	57.4	68 5	82.2	87 4	84.2	77.7	66.2	47.5	43.0
1902	38.5	35.6	54.7	60.9	72 3	79.9	84.0	81 4	74.7	65.8	58.1	40.0
1903	39.3	43 6	57.6	61.3	75 7	73.0	85.1	77.7	75.6	65.5	49.8	38.2

MEAN MINIMUM.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1894	30.9	25 3	38.3	43.0	54 4	63.3	68.7	64 5	62.7	50.0	35.8	31.1
1895	24.0	18 6	30.5	43.1	53.3	64.8	64.7	68.1	63.1	44 0	39 8	32 3
1896	25.6	25.7	27.8	46.0	57.6	62.1	69 8	67.6	59.4	47.0	42.5	28.2
1897	24.2	29.7	35 4	42.7	53.5	60.2	68.6	66.2	58.7	49 6	38.7	31.8
1898	29.5	28.3	39.6	41.1	52.6	62.6	69.3	69 2	62.8	50.7	37.8	29.8
1899	25.1	21.7	33.9	42.8	53.7	65.6	67.7	67.0	58.7	51.2	39.0	30 6
1900	27.2	24.5	29.3	44.7	52.6	64.1	69.9	70.4	64 7	54.6	42.8	30.0
1901	27.1	20 5	33.4	42.8	52.5	63.0	71.1	69.6	61.3	48 0	35.0	28.8
1902	24 0	23.4	37.8	44.3	52.8	60 8	67.2	64.5	59.5	50.3	43 7	27 4
1903	26.0	29.4	41.2	45.2	55.5	58.5	67.6	64.2	59.7	50.2	35.2	25.3

RANGE OR FLUCTUATION.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1894	11.4	13.2	17.5	17.0	18.6	19.0	18.1	16.9	14.5	14.5	12.5	11.6
1895	13.2	13.7	15.2	17.1	18.2	18.6	17.1	18.7	18.5	17.3	14.0	13.7
1896	11.0	15.8	16.1	18.5	19 1	16.5	15.5	18.0	16.8	13.2	15.8	13.1
1897	13.1	11.1	15.4	19.9	18.3	17.4	15.5	16.3	19.4	17.3	14.4	12.6
1898	11.7	14.6	16.8	16.8	17.1	19.6	17.8	15 2	17.1	15 8	13.5	12.2
1899	14.4	12.5	13.6	21.1	19.1	18.6	18.0	15.2	16 5	14.7	14.6	13 8
1900	15.2	15.9	16.3	17.9	20.9	17.7	18.5	17 6	15.4	13.9	13.0	13.3
1901	12.0	13 3	18.8	14 6	16.0	19.2	16.3	14.6	16.4	18.2	12.5	14.2
1902	14.5	12.2	16.9	16 [illegible]	19.5	19.1	16 8	16.9	15 2	15.5	14.4	12.6
1903	13.3	14 2	16.4	16.1	20.2	14.5	17.5	13.5	15.9	15.3	14.6	12.9
Average	12.98	13 65	16.30	17.56	18 90	18.02	17.11	16.29	16.57	15 57	13.95	12.98

An inspection of Table III proves that the months furnishing the greatest number of cases (January, February, March, April, May), for a decade are not those characterized by the most extreme daily and mean variations of temperature. Conversely, the months that show the most striking mean variations of temperature furnish the very lowest mortality rate from this disease in Philadelphia. It appears warrantable that sudden, great ranges of the mercury of the thermometer during periods of existing low temperature, exercise a more powerful causative influence than like changes during the warm seasons. Except this be granted, sudden, frequent and decided oscillations of temperature do not rise to the dignity of a contributing factor, according to my investigations.

Moreover, it is a well-established fact that in the temperate zones the diurnal temperature changes are most marked in summer and in clear weather. Per contra, this diurnal instability is equaled by the shifting storm winds in winter. Since the mean monthly and annual temperature in the middle and eastern United States show a large range, it is found that successive lustra are not in perfect agreement. It was deemed advisable, therefore, to make a comparison with an identical, previous period (vide Table IV).

A comparison of the figures in Table IV with those in Table III, which gives the mean maximum, mean minimum and mean daily range of temperature for the succeeding decade (1893-1903, inclusive), will reveal a striking similarity in the results for the two periods of time covered by our observations.

TABLE IV.—TEMPERATURE.

MEAN MAXIMUM.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1884	36 9	47.5	48.3	57.4	70.9	82.3	80.9	81.8	81.1	67.5	53.5	41.2
1885	38.2	31.5	38.6	60.9	69.0	80.8	87.8	81.6	75 8	63.4	51.9	44.6
1886	36.3	40.5	48.4	64.3	70.2	78.5	84.7	82.5	79.3	67.8	54.9	37.7
1887	39 5	43.4	43.8	60 4	78 3	81.1	89.0	82.0	71.9	64 0	53.2	43.8
1888	35 4	41.7	43.4	60 3	69.0	83.5	83.1	84 9	73.1	58.9	54 3	43.8
1889	45.0	35.9	49.4	61.4	72.1	83 0	83.1	80.9	73.5	60.1	53.2	51.0
1890	49.0	49.0	46.2	61 6	74.1	79.4	83.4	81.3	74.8	61.5	54.0	38.3
1891	43.2	46.8	45.2	63.4	70.1	81.8	80.0	82.0	80.3	62.8	51.6	50.7
1892	38.1	41.1	42.5	58.8	71.1	83.1	85.6	83.8	75.5	65.0	50.0	38 0
1893	30.2	38.5	46.4	58.9	69.6	81.4	86.0	84.8	73.8	65.4	50.2	42.9

MEAN MINIMUM.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1884	23.5	32 8	35 5	40.8	53.2	60.9	63.9	65.6	61.7	48 8	36.5	28.2
1885	22.2	17.2	23.1	40.4	51.2	61.3	68.6	64.9	57.4	47.4	38.1	29.5
1886	23.6	23.3	31 9	44.8	52.8	60 5	66.8	66.2	60.8	50.6	38.6	25.0
1887	23.7	29.1	28.9	41.1	57.9	62.0	72.3	65 9	57.4	48.8	38.8	30.4
1888	20.2	26.1	27.0	41.8	53 5	63.2	64.7	66.7	58.5	44.4	40.4	30.4
1889	32.4	23.1	35.1	42.7	53.4	64.2	67.5	64.7	59.4	45.4	40 8	36.1
1890	34.3	33.9	31.5	44.8	55.3	63 3	65.7	66.0	59.6	49.5	38.9	26.0
1891	29.7	32 4	30.9	45.2	51 8	61.8	63.8	66.6	63.0	47.0	36.9	34.8
1892	24.8	29.3	29.1	43.0	52.7	65.9	67.6	67.5	58.0	47 9	37.3	27.5
1893	17.9	25.5	31.9	42.8	52.3	63.1	67.3	66.5	57.7	49.9	37.7	29.8

MEAN DAILY RANGE.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1884	13.4	14 7	12 9	16.5	17.9	21.5	17.0	16.2	19.2	18.7	17.0	13.0
1885	15 9	12.2	15.5	20.5	17 8	19 5	19.3	16 7	18.4	15.7	13.9	15.1
1886	12.8	17.2	16.5	15.5	17.4	18 0	17.9	16.3	18.5	17.2	16.2	12.7
1887	15.8	14.2	14.8	19.3	20 4	19.2	16.7	16 1	14.7	15.2	14.4	13.4
1888	15.2	15.6	16.5	18 5	15.5	20.3	18 4	18 3	14 6	14 5	14.0	13.4
1889	12 6	12.8	14 3	18.7	18.6	18.8	15.5	16.2	14.1	14 7	12.4	14.4
1890	15 1	15.0	14.7	16.7	18.7	16.1	17.7	15.3	15.3	11.9	15.1	12.3
1891	13.5	14.4	14.3	18.2	18.3	20 0	16.2	15.4	17.3	15.8	14.7	15.9
1892	13.3	11.8	13.4	15.8	18.4	17.1	18.0	16 3	17.5	17.1	12.6	10 5
1893	12.3	13.0	14.5	16.1	17.3	18.3	18.7	18.3	16.0	15.5	12.5	13.1
Average	13.99	14.39	14.74	17.68	18.03	18.88	17.54	16.51	16.56	15 63	14.28	13.38

The influence of the relative humidity of the atmosphere, more especially during seasons of variable, meteorologic conditions in general, has been emphasized by certain writers.

Seibert,[19] who drew graphic lines for each weather constituent for every month of three years in New York, found that a rise of the relative humidity of the atmosphere during "descending or existing low temperature was attended by an increased number of cases of pneumonia." If the relative humidity increases while the mercury of the thermometer is at the same time falling, and if this happens suddenly, then not only one, but several cases of pneumonia will be found, even if the highest percent is not above the mean—70%. In other words, this writer holds that the sudden appearance and long prevalence of a cold, moist atmosphere, especially influence the origin of croupous pneumonia.

It is generally conceded that similar conditions of the atmosphere favor the presence of tuberculosis, and in short, bring about increased vulnerability or heightened receptivity to catarrhal states in general. Griesinger's[20] findings would appear to be diametrically opposed to this view; thus out of 212 cases which he observed in Munich, only four gave a history of having contracted "cold."

(b) *The Influence of the Relative Humidity.*—Respecting the question of the effect of relative humidity of the air as a predisposing factor and more particularly when considered in connection with the temperature range, it must be recollected that with a given absolute humidity, the relative humidity will rapidly rise as the temperature falls, and vice versa. "An amount of vapor that is sufficient to produce only about 25% of relative humidity at a temperature of 80° F. will suffice to saturate the air when the temperature falls to 40.°" (W. M. Davis).[21] A study of the periodic ranges of relative humidity shows that they are usually the reverse of those of absolute humidity, except in the north polar regions where both the relative and absolute humidity are often low. It is generally held that continental interiors in which the climate resembles that of the eastern part of the United States, are generally drier in summer and by day than in winter and by night.

This statement is scarcely warranted according to the results recorded below (vide Table V). The explanation is not far to seek. Thus there may be very little moisture present in the cold northwest winds of winter. These come down from a northern interior region where their temperature is very low and the air is equally dry. They advance into warmer latitudes so rapidly that their augmented capacity for moisture is to a limited extent only satisfied. In a damp, cold atmosphere, an uncomfortable reduction of temperature is readily experienced, more especially when the body is not protected against loss of heat by an extra covering of clothing. Hence to maintain an internal temperature of 98.2° in the cold season, especially during changeable weather, becomes a difficult problem. Per contra, the degree of relative humidity determines largely the mean range of temperature, so that a fair degree of saturation of the atmosphere during the pneumonic season possibly exerts a favorable influence in that it tends to diminish the range of temperature.

Riebe[22] believes that an auxiliary cause of the disease in Posen is found in excessive humidity. On the other hand, Brunner[23] declares that the three months in which most cases arise are characterized by a minimum of atmospheric pressure and low relative humidity.

There is a paucity of comprehensive and reliable reports concerning the influence of the relative humidity upon the incidence of pneumonia furnished by the literature. I have been unable to investigate this phase of the question as thoroughly as could be desired, for the reason that the findings at the United States Weather Bureau at Philadelphia are taken only twice daily—8 a. m. and 8 p. m.

TABLE V.—MEAN RELATIVE HUMIDITY (PERCENT).

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1894	76	73	69	66	74	71	69	72	79	75	71	74
1895	76	68	63	68	70	72	65	66	67	61	78	70
1896	71	71	64	65	66	68	70	66	72	73	75	68
1897	74	76	70	63	62	66	78	70	67	72	72	77
1898	72	73	73	62	73	64	72	75	73	75	74	70
1899	71	77	74	59	66	66	71	74	73	76	72	69
1900	74	72	66	57	63	66	65	69	72	78	70	70
1901	73	66	70	66	72	66	74	78	77	69	63	75
1902	72	74	72	65	63	65	71	69	76	72	81	77
1903	73	71	75	65	70	77	66	78	77	72	65	65
Average	73.2	72.1	69 6	63.6	67.9	68.1	69.2	71.7	73.3	72.3	72.1	71.5

PRECIPITATION (IN INCHES).

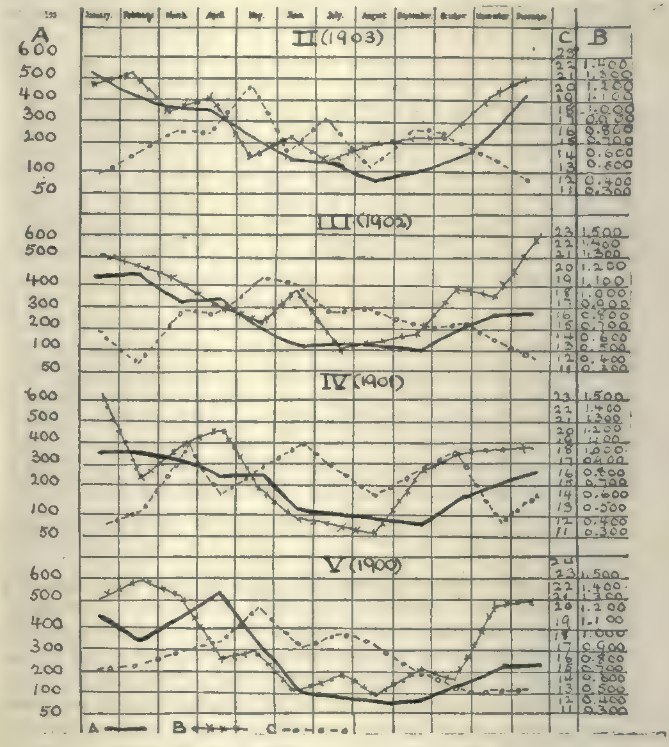
1894	1.78	3 07	1.45	2.99	9.46	1.63	0.75	2.15	5.11	4.66	3.26	4.03
1895	4.52	1.39	2.61	6.14	1.72	3.15	3.23	0.59	0.61	2.97	2.32	1.76
1896	1.57	6.87	4.11	1.19	2.27	4.07	3.27	0.46	2.76	2.08	2.50	1.00
1897	2.17	2.97	2.03	3.03	4.33	4.53	7.70	3.52	1.10	1.70	4.44	4 52
1898	4.10	2.80	3.05	2.93	4.84	1.75	3.63	9.06	1.82	4.85	7.19	3.21
1899	4.01	6.20	6 47	1.04	2.30	1.09	4 69	5.18	3.66	1.98	1.93	1.41
1900	3.34	3.71	3.13	1.94	4.11	2 82	2.77	3.95	6 31	3.00	3.42	2.41
1901	2.47	0.86	3.39	4.77	4.05	1.15	4 88	9.42	3 68	1.51	2.64	6.72
1902	2.77	5.49	3 97	3.29	2.01	6.08	3.51	2.34	4.97	6.66	2.04	6.63
1903	3.52	4.29	4.38	3.00	0.93	5.48	3.84	5.57	2.31	3.86	1.03	3.29

TABLE VI.—MEAN RELATIVE HUMIDITY (PERCENT FOR EACH MONTH.)

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1884	73	80	78	82	87	80	78	76	68	68	68	75
1885	68	72	67	68	70	60	65	74	69	76	75	68
1886	74	72	68	74	73	73	73	77	70	67	61	71
1887	69	77	64	58	63	65	71	69	70	66	62	71
1888	71	70	67	53	70	63	66	70	79	72	76	69
1889	72	68	68	68	72	74	76	73	80	72	76	72
1890	68	74	68	61	69	64	68	76	78	74	70	69
1891	74	73	70	59	63	68	71	77	77	70	72	73
1892	73	71	65	61	71	73	68	73	75	66	73	73
1893	79	73	68	70	65	70	64	68	70	73	71	74

The accompanying tables, based upon these night and morning observations, which are not regarded as conclusive in their results, yet show that the mean relative humidity is probably higher for the months furnishing the smallest number of deaths than for those giving the highest number. A moment's reflection affords reasons for believing that it is not the amount of vapor in the air that is the great predisposing cause of lobar pneumonia. With reference to the precipitation, it was observed that the greatest rainfall (vide Table V) often showed the lowest mortality and perhaps never did a high mortality list coincide with excessive precipitation. As intimated above, greater value might have been attached to the results relative to the effects of the varying degrees of relative humidity if the observations had been recorded at frequent intervals of time each day. In this way considerable variations may be detected and they are due to convectional currents which convey masses of air from higher and lower levels alternately past the observer.

(c) *Influence Exerted by High Barometric Pressure.*—The influence of the barometric pressure is still perhaps *sub judice*, and opinions gathered from the literature respecting this question are divided. For example, Jurgensen holds that a high barometer is coincident with a diminished prevalence of the disease. Knovennagel,[24] on the contrary, states that an almost epidemically arising appearance of inflammation of the lungs is dependent on "dry air continued for a long time with high atmospheric pressure."



A, deathrate per month. B, barometric range per month. C, temperature range per month.

In 1879 and 1880, 44 out of 80 cases of pneumonia for the entire year occurred during three short periods of raised barometric pressure. Stortz likewise found that the months during which the pressure was raised furnished the most cases of pneumonia.

Seibert[25] obtained contrary results; he found in 78% of 600 cases that a more or less strong falling in the barometer had taken place during the three days prior to the reception of each case in the German Dispensary of New York. In the remainder, the barometer had either ascended or remained stationary.

The investigations of Linden,[26] at Stockholm and at Helsingfors, showed results that agree with those of

Seibert. Thus in 1887, the least barometric pressure furnished the highest number of cases, the increase at Stockholm being 9.8%, at Helsingfors 7.2%. Linden also carefully noted the influence of the variations of barometric pressure within given months and found that the months in which these changes reached their widest limit furnished obviously the most pneumonias —14.5 to 100 in Stockholm and 16.1 to 100 in Helsingfors.

It is in respect to this meteorologic component that my investigations yielded strikingly uniform as well as significant results (vide Tables VII and VIII).

TABLE VII.

HIGHEST BAROMETER.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1894	30 540	30.727	30.485	30.329	30.341	30.188	30.105	30.082	30.434	30.240	30.606	30.323
1895	30.352	30.427	30.403	30.537	30 235	30.353	30 130	30.168	30.358	30.462	30.546	30.049
1896	30.437	30.416	30.498	30.419	30.295	30.158	30.276	30.201	30.238	30.383	30.649	30.790
1897	30.584	30.495	30.636	30.532	30.267	30.132	30.196	30.074	30.274	30.506	30.490	30.442
1898	30.423	30.504	30.544	30.164	30.191	30.188	30.240	30.138	30.300	30.335	30.450	30.446
1899	30.827	30.543	30.345	30.278	30.229	30.170	30.154	30.163	30.310	30.431	30.376	30.532
1900	30.439	30.614	30.462	30.334	30.250	30.044	30.081	30.208	30.238	30.343	30.531	30.399
1901	30.640	30.238	30 243	30.363	30.059	30.097	30.092	30.095	30.379	30.507	30.353	30.414
1902	30.641	30.215	30.369	30.227	30.324	30.400	30.159	30.135	30.226	30.437	30.391	30 602
1903	30.463	30.469	30.472	30.334	30.367	30.233	30.047	30.299	30.334	30 203	30.594	30.479

LOWEST BAROMETER.

1894	29.222	29.348	29.506	29.319	29.499	29.552	29.608	29.691	29.579	29.008	29.508	29.124
1895	29.172	29.168	29.387	29.235	29.523	29.678	29.627	29.624	29.609	29.429	29.323	29.448
1896	29.572	28.655	28.964	29.586	29.545	29.430	29.606	29.686	29.606	29.518	29.486	29.514
1897	29.457	29.482	29.191	29.427	29.487	29.558	29.530	29.561	29.718	29.543	29.318	29.175
1898	29.250	29.200	29.683	29.332	29.420	29.497	29.626	29.665	29.600	29.348	29.252	29.063
1899	29.249	29 265	28.882	29.488	29.562	29.693	29.694	29.653	29.569	29 507	29.312	28.980
1900	29.165	29.148	29.117	29.531	29.367	29 540	29.450	29.758	29.506	29.724	29.257	29.102
1901	29.074	29.447	29.189	29.172	29.390	29.639	29.680	29.736	29.530	29.514	29.268	29.378
1902	29.314	29.008	29 210	29.324	29.540	29.327	29.639	29.574	29.577	29.372	29.353	29.090
1903	29.213	29.071	29 419	29.224	29.767	29.485	29.486	29.608	29.623	29.436	29.409	29.174

RANGE.

1894	1.318	1.379	0.979	1.010	0 842	0.636	0.497	0 391	0.855	1.232	1.098	1.199
1895	1.180	1.259	1.016	1.302	0 712	0.675	0.503	0.544	0.649	1.033	1.223	1.201
1896	0.865	1.761	1.534	0.833	0.750	0.728	0.670	0.515	0.632	0.865	1.163	1.276
1897	1.125	1.013	1.445	1.105	0.780	0.574	0.666	0.513	0.556	0.963	1.172	1.267
1898	1.173	1.244	0.861	0.832	0.771	0.691	0.614	0.473	0.700	0.987	1.198	1.383
1899	1.578	1.278	1.463	0.790	0.667	0.477	0.460	0.510	0.741	0.924	1.064	1.552
1900	1.270	1.466	1.345	0 803	0.883	0.504	0.631	0.450	0.732	0.619	1.274	1.297
1901	1 566	0.791	1.054	1.191	0 669	0 458	0.412	0.359	0.849	0.993	1.085	1.036
1902	1.327	1.207	1.159	0.903	0.784	1.073	0.520	0.561	0.649	1.065	1.038	1.512
1903	1.250	1.398	1.013	1.110	0.600	0.748	0.561	0.691	0.711	0.767	1.105	1.305
Av.	1.256	1.279	1.186	.997	.745	.656	.553	.500	.607	.944	1.142	1.302

TABLE VIII.—BAROMETRIC PRESSURE.

HIGHEST.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1884	30.757	30.624	30.343	30.106	30.194	30.417	29.916	30.205	30.391	30.477	30.349	30.554
1885	30.729	30.398	30 357	30.477	30 187	30.182	30.078	30.154	30.276	30.215	30 250	30.640
1886	30.736	30.398	30.345	30.436	30.221	30.188	30.145	30.217	30 316	30 424	30.352	30.479
1887	30 51	30.82	30.63	30.55	30.22	30.22	30.09	30.19	30.35	30.38	30.70	30.81
1888	30.70	30.55	30.44	30.47	30 18	30.13	30.14	30.18	30.44	30.29	30.63	30 51
1889	30.50	30.73	30.28	30.37	30.26	30.34	30.14	30.18	30.21	30.28	30 56	30.75
1890	30.63	30.48	30.45	30.54	30.19	30.24	30.17	30.14	30.26	30.25	30.28	30.49
1891	30.416	30.583	30.445	30.407	30.300	30.109	30.241	30.118	30.297	30 406	30.713	30.486
1892	30.524	30 576	30.385	30.414	30.232	30.189	30.390	30.102	30.303	30.330	30.340	30.494
1893	30.337	30.684	30.488	30.378	30.256	30.190	30.131	30.103	30.207	30.406	30.534	30.755

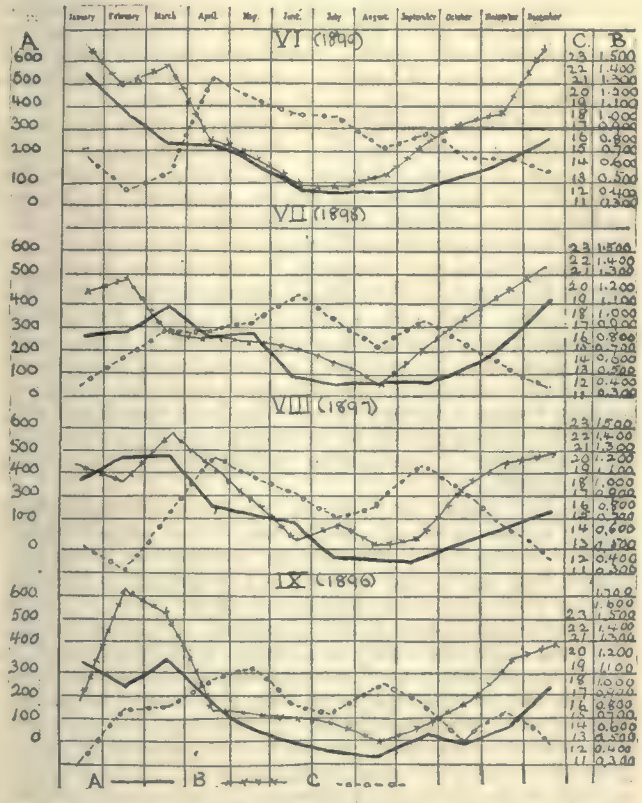
LOWEST.

1884	29.002	29.169	29.393	29.097	29.496	29.624	29.494	29.601	29.634	29.653	29.310	29.431
1885	29.209	28 970	29.471	29.376	29.460	29 365	29.608	29.522	29.348	28.986	29.503	29.142
1886	28.571	29.175	29.179	29.251	29.469	29.415	29.622	29.520	29 599	29.698	29.378	29.388
1887	29.30	29.25	29.19	29.24	29.49	29.56	29.57	29.62	29 49	29.41	29.34	29.22
1888	29.49	29 37	29.24	29.45	29 59	29.60	29.54	29.30	29.52	29.87	29.20	28.91
1889	29.06	29.82	29.28	29.15	29.53	29.56	29.55	29.64	29.41	29.44	29 32	29.48
1890	29.52	29.48	29.19	29.86	29.49	29 68	29.60	29 56	29.76	29.31	29.53	29.29
1891	29.099	29.358	29.414	29.35	29.645	29.610	29.653	29.590	29.765	29 563	29.184	29.430
1892	29.180	29.242	29.216	29.525	29.481	29.590	29.632	29.637	29.586	29.469	29.345	29.451
1893	29.135	29.166	29 267	29.451	29.236	29.438	29.559	29.346	29.520	29.191	29.606	29.376

RANGE.

1884	1.755	1 455	0.950	1.009	0.698	0.793	0.422	0.604	0.757	0 824	1.039	1.123
1885	1.520	1.428	0 886	1.101	0.727	0.817	0.470	0.632	0 928	1.229	0 747	1.498
1886	2.165	1.223	1 166	1.185	0 752	0.773	0.523	0 697	0.717	0 726	0.974	1.091
1887	1.24	1.57	1 44	1.140	0.73	0.66	0.52	0.57	0.86	0.97	1.36	1 59
1888	1.21	1.18	1.20	1.02	0.59	0.53	0 60	0.88	0.92	0.92	1.43	1.60
1889	1.44	1.41	1 05	1.22	0.73	0.78	0.59	0.54	0.80	0.84	1.24	1.25
1890	1.11	1.00	1.26	1.18	0 70	0.57	0.57	0.58	0.50	0.94	0.75	1.50
1891	1 317	1.230	1.031	1 057	0.655	0.499	0.588	0.528	0.532	0 843	1.529	1.056
1892	1.344	1.334	1.174	0.889	0.751	0.599	0.758	0.465	0.717	0 861	0.955	1.043
1893	1.202	1.518	1.221	0.927	1.020	0.752	0.572	0 757	0.689	1.215	0.928	1.379
Av.	1.430	1.334	1.187	1.072	0.735	0 677	0.561	0.625	0.784	0.936	1.095	1.313

The monthly range of barometric pressure for the decade from 1894 to 1903 corresponded closely with the deathrate (compare Tables VII and I). Then the months in which the highest deathrate occurred gave the maximal monthly barometric range; and vice versa those months showing the minimal barometric pressure gave the lowest deathrate.



A, deathrate per month. B, barometric pressure per month. C, Temperature per month.

It is to be recollected that the atmospheric pressure is higher in January than in July in continental interiors and over the eastern part of the United States. It cannot be said that the distribution of pressure is wholly determined by that of the temperature, since low pressures are met in polar regions. The expected high pressure at the poles may be, as suggested by Davis, reduced to low pressure by the excessive centrifugal force of the circumpolar whirl of the winds. In general, however, the continents have low pressure in summer and high pressure in winter (Davis). The regions of elevated temperature cause the air to expand, and, as a consequence, the upper layers pass off to more northerly areas of lower temperature. There are, however, tropical belts of high pressure, for which no adequate explanation has been advanced. The question, do these high pressure belts show a high incidence of pneumonia cases, similar to that which occurs during the seasons of maximum pressure in temperate climes, is pertinent. No answer to this question can be rendered at present writing.

At first sight, it would appear that the higher percentage of cases in winter and spring is dependent upon the increased barometric pressure during these seasons, but it must be recollected that this comparatively high pressure is merely the result of condensation of the atmosphere in consequence of existing low temperature and the contained moisture, and may, therefore, not stand to pneumonia in the relation of cause and effect.

The principal pneumonia season coincides in point of time to the anticyclonic systems, not only over the Western Hemisphere, but also the vast continent of the Eastern Hemisphere (formed by Europe and Asia). In equatorial regions the annual variation in atmospheric pressure is slight, indeed, owing to the constancy in the temperature and humidity. It is found that the diurnal range of pressure is also highest or most clearly perceptible during anticyclonic weather, especially in spring time, when the air is dry and the thermometric changes most pronounced. This is not the season of highest incidence of pneumonia cases in insular climates, and not in Philadelphia, according to our investigations.

(*d*) *Influence Exerted by the Winds.*—The influence of the winds or severe drafts, is etiologically important in the view of some authors. Individual instances are recorded in which severe winds appeared to exercise more or less control as predisposing agencies. The writer may be pardoned for referring to a case in his own person at the age of 17 years; it developed during exposure to a damp, chilly, penetrating northeaster. It is conceivable that the severe cold winds by rapidly abstracting the heat of the body, especially if the latter be unprotected by sufficient clothing, may induce susceptibility, although its duration may be brief. A greatly reduced temperature of the body combined with muscular exhaustion as seen among recruits unquestionably exercises a controlling influence in determining susceptibility.

Welch[27] holds that the part played by exposure to strong winds or severe drafts may be of signal importance. He writes, "Pneumonia occurred in a battalion which had been stationed for six years at a Mediterranean port and was transferred from there to North America during raw winter weather. Of these troops, 330 men were stationed in a frame building, which no doubt would have been very habitable in the summer season, but in the winter did not give sufficient protection against the weather, as it was exposed on every side, and the thin walls through their numerous cracks gave the wind free access to the interior. Two hundred and fifty-six men were stationed in well-protected barracks, and 66 married soldiers found quarters in the city. Among the men stationed in the wooden building 38 developed pneumonia, whereas among the other soldiers only three had pneumonia, which might easily be referred to the influence of the weather. The severest cases among those in the wooden building occurred in those living in the upper rooms, which were most exposed to the sharp winds coming from the north and west. The disease unquestionably arose from the fact that during the night the body was exposed to a draft and to the general low temperature."

TABLE IX.—AVERAGE HOURLY VELOCITY FOR THE MONTH (IN MILES).

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1894	10.3	12.3	10.2	12.1	10.6	9.0	9.3	7.9	9.7	10.6	10.7	10.1
1895	11.0	12.5	12.1	11.6	9.6	8.4	9.0	8.9	9.4	10.8	10.0	11.4
1896	10.9	13.8	13.9	10.3	9.8	8.9	10.0	8.2	9.9	10.2	9.9	9.8
1897	11.3	11.0	10.9	10.9	11.4	10.1	8.4	7.6	9.5	10.7	9.7	10.2
1898	10.5	10.3	9.9	12.3	9.8	9.5	8.5	8.3	8.6	9.7	10.2	10.6
1899	10.7	11.6	12.2	9.7	9.3	9.2	9.6	8.6	8.7	8.5	9.0	10.2
1900	10.1	11.2	12.0	11.4	10.2	8.7	8.7	7.4	8.4	9.0	11.0	9.3
1901	11.1	12.9	13.0	14.1	10.8	9.2	9.4	8.5	8.4	9.5	12.3	11.6
1902	11.4	13.9	13.0	11.6	10.8	10.8	9.7	8.7	9.2	10.8	10.4	12.0
1903	10.9	10.2	10.4	11.9	9.6	9.0	9.4	7.0	8.3	12.4	10.1	12.2

An analysis of the accompanying table (vide Table IX), which gives the average hourly velocity for each month in miles covering a period of 10 years (1894–1903 inclusive) shows that the mean velocity corresponds with the mean deathrate, thus holding practically the same relation to the fatality of pneumonic fever as the mean atmospheric pressure. A reference to diagram No. XI will serve to show how nearly parallel are the mortality line, barometric pressure curve and that of the winds in their seasonal course.

It is well known that the influence of winds upon climate is well marked; they may influence the temperature and humidity and interrupt sunshine by creating clouds, or render the sky clear when falling from the higher strata of the atmosphere. Attention has been called to the fact that the winds accelerate evaporation from the surface of the body, and Dr. Theodore Williams well says that "they serve a distinct hygienic object in dispersing noxious exhalations, whether animal or vegetable, in permitting free evaporation and thus preventing the accumulation of moisture and maintaining the circulation of the air which is necessary for the purification of the atmosphere."

TABLE X.—PREVAILING DIRECTION OF WINDS.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1894	N W	N E	N W	N W	S W	S W	S W	S W	S W	N E	N W	N W
1895	N W	N W	N W	N E	N W	N E	N W	S W	S W	N W	N W	N E
1896	N W	N W	N W	N W	S W	S W	S W	S W	S W	N	S W	N W
1897	N W	N W	N W	N W	S W	N W	S	N W	S W	N E	N W	N W
1898	N W	N W	N	N W	N E	S W	S W	S W	S W	N W	N W	S W
1899	S W	N W	N W	N W	S W	S W	S W	N E	S W	S W	N W	N W
1900	N W	N W	N W	N W	S W	S W	S W	N	N W	N E	N W	N W
1901	N W	N W	N W	N E	N E	S W	S W	S W	N	S W	N W	N W
1902	N W	N W	N W	N W	S W	S W	S W	S	N E	N W	S W	N W
1903	W	N W	S W	N	N E	S E	W	S	N	N	N W	N W

An examination of Table X, which indicates the prevailing direction of the winds, fails to reveal a constant connection between their mean monthly course and the mortality list from this disease. In general, however, the northwesterly winds were found to coincide with the principal pneumonic season. Conversely, isolated months, during which a southwest wind prevailed, gave unusually high mortality rates. In the winter of 1898–99, the same conditions obtained for December and January, but it must be recollected that a severe and widespread grip epidemic was at its height during the two months just named, and doubtless caused in a measure at least the exaggerated deathrate of pneumonia for the same period. From the foregoing considerations the assumption is warrantable that, as a rule, the direction of the wind (northwest) bears a close relation to the period of maximal mortality from pneumonia.

By throwing the foregoing numerical results into curves or tracings, we can best correlate the influences of the several meteorologic phenomena. It will be observed in the various diagrams (I to X inclusive) that the temperature is inversely as the deathrate from this disease, while the barometric pressure and average velocity of the winds practically parallel the rise and fall of the mortality line. Quite different are the facts with reference to the relative humidity of the atmosphere; this line clearly disproves any noticeable effect upon the seasonal mortality from lobar pneumonia.

The unusually severe and variable weather in Philadelphia of the Winter of 1903–1904 just closed, has been held responsible by certain health officials for the concurrent high deathrate from lobar pneumonia. It was therefore deemed a matter of practical importance to investigate into the question statistically, following the same lines as in the foregoing observations (vide Table XI). It is to be observed that the weekly ranges of the different meteorologic elements are indicated by the figures instead of the monthly range, as in the previous tables.

The curves (vide diagram No. XIII) graphically repre-

TABLE XI.

Week ending.	Death-rate.	Temperature range.	Barometer range.	Relative humidity.	Mean average hourly velocity of winds.
Dec. 5.....	61	8.5°	.16	76.8	10.4
" 12.....	97	10.6°	.34	65.2	9.6
" 19.....	94	15.4°	.28	59.2	12 1
" 26.....	97	12.0°	.33	65.5	14 3
Jan. 2.....	95	16.4°	.31	69.5	12.3
" 9.....	94	11 5°	.32	90.5	9.8
" 16.....	93	11.1°	.34	73.0	12.6
" 23.....	80	15 5°	.34	73 7	12.0
" 30.....	66	11.2°	.34	70 4	11.6
Feb 6.....	69	17 5°	.37	67.7	10.5
" 13.....	59	17.3°	.22	62 5	13.1
" 20.....	90	15.0°	.26	67.5	12 1
" 27.....	87	17.8°	.38	67.9	11 8

senting the figures, are based upon a scale which likewise differs materially from previous diagrams. These graphic lines do not bear to one another as close an interrelation as do those previously recorded (vide diagram No. XII). The deathrate was no higher for most of the weeks represented in the table than in previous years, while the mortality line in the diagram (No. XIII) as well as those indicating the barometer, temperature, and relative humidity are at variance with similar tracings based upon the mean monthly ranges for the preceding 10 years. During the months of December and January, however, the barometric pressure and the temperature maintained about the same parallelism to one another as indicated in previous diagrams, but an inspection of the table will show that this relation was totally lost during the latter part of January and the beginning of February. Conversely, the relative humidity follows more closely the death line than in the 10-year observations recorded above. The curve indicating the average velocity of the winds is wholly at variance with the corresponding line in the previous composite diagram. In view of the results obtained, it is clear that the data gained from the observations covering the brief period of three months are no aid to the solution of the question of the relation of weather phenomena to the disease in question.

Although the deathrate from pneumonia may be largely independent of climate, yet the seasons of the year exert a marked influence upon pneumonia prevalence. Coincident with influenza epidemics, and under other circumstances, extensive outbreaks of pneumonia may appear at all seasons, but almost regularly with each recurring autumn the mortality curve rises, reaching its topmost level in January, rarely later, and declining slightly during spring, then more rapidly from the commencement of summer onward until August, when the lowest level is reached (vide diagrams).

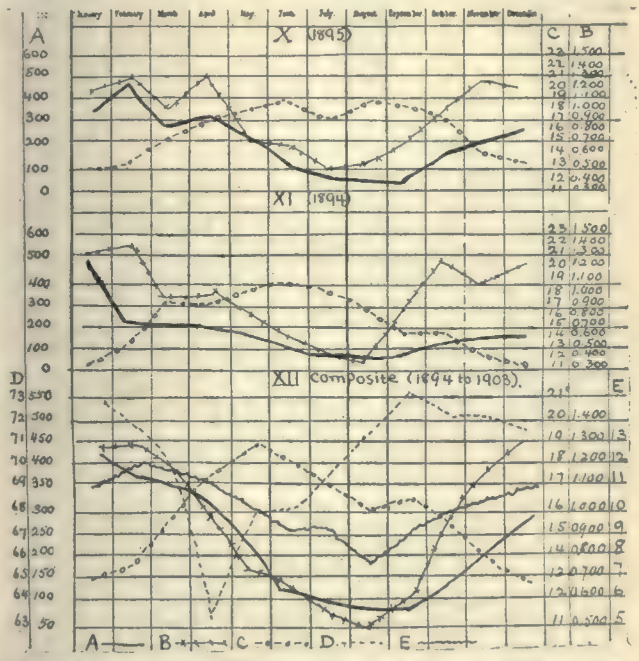
It may be questioned whether the increased prevalence of pneumonia which occurs annually does not commence and advance quite irrespective of any direct effect of the meteorologic elements. Is pneumonia less or more essentially a disease of winter and spring than smallpox? May we not have assumed a potent, predisposing effect of the weather influences in this disease to exist for the reason that the air passages are the seat of the principal lesions, or rather because formerly pneumonia was regarded as being a local disease of the lungs? J. W. Moore [28] has shown that variola and typhus are essentially diseases of winter and spring.

In response to a letter of inquiry, Dr. W. M. Welch, of Philadelphia, stated it as his belief that smallpox is more often epidemic in winter because the infectious principle multiplies more rapidly in houses from which the free circulation of air is excluded. In summer, when the windows and doors of dwellings are opened, the poison is attenuated or diluted constantly, and hence its striking distance is lessened. He continues: "I do not feel that the spread of smallpox is influenced by climate *per se*. If houses had neither doors nor windows, I do not believe the disease would be more prevalent in the winter than in the summer."

May not the higher incidence of pneumonia in winter and spring be due not so much to the direct effect of the low temperatures, augmented barometric pressure and velocity of the winds, as to the closer confinement of the populace indoors, in the stagnant air of living-rooms from which the sunlight is excluded, and which tends to lower vitality and decrease resistance on the one hand and to favor rapid multiplication and increased virulence of the specific poisons on the other?

Moreover, pneumonia, like other acute infections that prevail epidemically, shows a wave-like character, on comparing different years for the same locality. Exclusive of epidemic outbreaks, there is an evident tendency to a preponderating incidence in overcrowded districts, and among the impoverished classes. Thus the average mortality rate for four years in New York (vide Table XII), taking the eight wards which are most densely populated, from the tabular list is 18%.

"The fourth, sixth, seventh, tenth, eleventh, thirteenth, fourteenth, and seventeenth wards of New York City were embraced in this estimation. In contrast with the figures just given, eight wards, representing the most sparsely settled portions of the city of New York (*e. g.*, first, fifth, eighth, ninth, fifteenth, sixteenth, eighteenth, and nineteenth) gave for the same period of four years an average mortality of 14.3%. It was observed in the compilation of these mortality statistics that an elimination of the epidemic periods would make the differences in percentage dependent on the population somewhat greater." [29]



A, deathrate per month. B, barometric range per month. C, monthly temperature range. D, relative mean humidity per month. E, mean average hourly velocity of winds per month.

Here stress should be placed upon the direct transmissibility of pneumonia. Beverly Robinson [30] insists that lobar pneumonia is contagious, and every clinician of wide experience can bear corroborative testimony to this view.

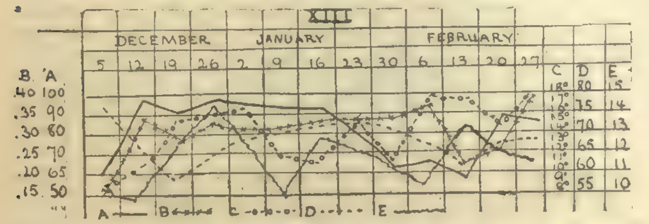
The epidemiologist has emphasized the disappearance of certain diseases as plague, leprosy, and to a lesser extent malaria and diphtheria, as the result of the advances of civilization and the march of scientific discovery. Conversely, pneumonia, the cosmopolitan disease which can, therefore, scarcely depend in an especial manner upon climatic conditions, would appear to find all the physical conditions necessary to its well-being in the more highly civilized communities and more especially during seasons of low temperature. It is generally supposed that the pneumococcus is air borne, and it is known to grow on all artificial culture media at temperatures ranging from 24° C. to 42° C.

It is scarcely conceivable, in view of the foregoing fact, that the climatic conditions prevailing during the cold season should constitute a special requirement of the organism in question. It must be confessed, however, that we are sadly in need of knowledge bearing upon the extracorporeal phases of the pneumococcus and other infecting microbes and their transmitting agencies.

Table XII.

Ward.	Area in acres.	Population U. S. census of 1900.	Population per acre.	Percentage of deaths from pneumonia.			
				1899	1900	1901	1902
First	154	9,516	62	11.2	11.8	10.9	12.1
Second	81	1,488	18	2.9	9.1	11.5	7.1
Third	95	1,797	19	10.8	9.6	12.9	10.5
Fourth	83	19.554	222	20.4	22.8	18.0	20.1
Fifth	168	8,298	49	12.1	15.3	15.5	12.6
Sixth	86	20,004	266	18.8	18.0	15.8	20.4
Seventh	198	89,237	451	16.9	17.5	16.9	17.1
Eighth	183	29,059	159	15.4	16.9	15.0	19.0
Ninth	322	59,650	185	13.1	15.3	13.4	12.9
Tenth	110	71,879	638	18.1	15.8	15.5	16.9
Eleventh	196	99,144	443	18.2	18.4	17.4	18.0
Twelfth	5,504	476,602	86	12.8	15.2	12.7	14.4
Thirteenth	107	64,117	550	21.6	23.7	18.3	21.3
Fourteenth	96	34,035	332	18.2	20.7	22.4	20.1
Fifteenth	198	24,066	122	14.1	21.4	14.0	18.6
Sixteenth	349	52,808	123	12.1	13.2	11.1	12.3
Seventeenth	331	130,796	395	13.8	17.3	13.7	17.2
Eighteenth	450	61,325	163	11.2	13.2	10.8	12.2
Nineteenth	1,481	257,448	174	12.0	16.7	14.4	11.4
Twentieth	444	89,798	202	13.7	13.0	12.3	11.9
Twenty-first	411	60,211	147	12.9	16.4	12.9	13.6
Twenty-second	1,529	189,261	124	13.7	14.5	12.0	12.8
Av. percentage				13.9	16.0	13.8	14.4

We have no evidence that the external climatic conditions which are believed to be of etiologic importance in this disease exercise an effect upon the bacteriologic factors, influencing the occurrence of infection. While any direct influence of climate upon the infecting microbe cannot be allowed to exist, it is reasonable to suppose that the condition of the house air in winter often favors the multiplication of *Micrococcus lanceolatus* and thus brings about an increase in the incidence of pneumonia. But the personal element cannot be wholly ignored, since "the body itself varies at different seasons" (Lazarus-Barlow). For example, it has been found that the antagonism of certain drugs (atropin, aconitin) shows marked differences as the result of animal experimentation at different seasons of the year. Unfortunately, however, but little help is rendered by laboratory experiments in explanation of the seasonal prevalence of the disease.



A, deathrate per week. B, barometer range per week. C, weekly temperature range. D, relative mean humidity per week. E, mean average hourly velocity of winds per week.

In a previous article[31] may be found a table which comprises all necropsied cases of lobar pneumonia at the Philadelphia Hospital for a period of six years, from January 1, 1896, to March 1, 1903. It was found that "out of a total of 275 cases, 250, or about 90.9%, showed cardiovascular lesions, principally chronic endocarditis and general atheroma of the vessels. A small number of the cases, 14, or 5%, showed acute plastic pericarditis, and 11, or 4%, chronic pericarditis. Renal lesions were recognized in 90.5% of the totality of cases. Chronic interstitial nephritis was noted in 145, or 52.7%; chronic parenchymatous nephritis in 50, or 18%, and acute nephritis in 38, or 13.8%. Among the remaining 25 cases was one of renal calculus, another of renal tuberculosis, and in many of the remainder subacute nephritis was noted. These figures afford strong presumptive evidence that renal and cardiovascular degeneration rank as potent predisposing conditions, and clear and convincing proof that they bear a close and vital relation to the high mortality rate of lobar pneumonia."

In this connection, the frequency of arteriosclerosis at autopsies in death from all causes is to be noted for the sake of comparison; out of a list of 1,600 cases at Charing Cross Hospital, it occurred in 380, or about 25%. In 142 autopsies recently made by H. B. Anderson,[32] in Toronto, including patients at all ages, he found evidences of arteriosclerosis in 83, or about 58.5%.

Beside the atmospheric conditions and the indoor influences that presumably favor the pneumonic prevalence, other causative factors are also at work, and these cannot be disregarded. As elsewhere shown and pointed out above, bodily receptivity to both lobar and lobular pneumonia is greatly increased by the occurrence of epidemic influenza.[33] H. S. Anders[34] and others have shown that the incidence of epidemic attacks of influenza has almost invariably occurred during the months recording normally the highest barometric pressures—December, January and February. It is a matter of common observation, however, that the multiplication of cases of influenza during the propagation of epidemics of this disease are principally the result of contagion. I have a fixed belief that as pneumonia so influenza is propagated by the stagnant, vitiated air of closed dwellings during the cold season.

The foregoing numerical results and facts warrant the following inferences:

1. That the seasons exert a marked effect upon the prevalence of lobar pneumonia, the maximal mortality being observed during the winter and spring months.
2. That insular climates probably manifest the greatest rise in pneumonia mortality in winter, while that of continental climates coincides mainly with spring.
3. That the mortality of the epidemic form of the disease is, to a less extent, influenced by the seasons and may occur in the fourth and even third quarter of the year.
4. That an apparently close relationship exists between periods of low temperature and the deathrate from pneumonia.
5. That the mortality rises and falls with the barometric pressure, the maximal level being reached during periods of highest pressure and vice versa; that the barometric pressure, however, is governed by the temperature, being inversely as the latter, is to be recollected.
6. That the average velocity of the winds and the deathrate from this disease would appear to stand to one another in the relation of cause and effect (a provisional explanation of this fact being found in the controlling influence exerted by the winds upon temperature and barometric pressure).
7. That the coincidence of existing low temperatures, high barometric pressure, the direction and velocity of the winds and maximum mortality from pneumonia, is so uniformly constant as to merit serious consideration, and suggest a close and direct relation between their combined influence and the progress of mortality from pneumonia.
8. That the mean relative humidity of the atmosphere shows equally decided variability during the periods of abeyance in the prevalence and fatality of the disease with that of the cold or annual pneumonic season.
9. That the major influence exerted by the seasons, however, is probably not direct (*e. g.* by a lowering of the bodily resistance due to low temperature, high barometric pressure, direction and velocity of the winds,

etc.) but indirect, namely, by bringing about that effective element in the causation, concentration and increased virulence of the specific poison in consequence of closed doors and windows and lack of free ventilation.

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LATENT MALARIA, AS SEEN IN THE MOUNTAINS.*

BY

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Though the subject of malaria is of far less importance to us in this healthy mountain climate, where, except in cases of importation it is unknown, than to those living in many other less fortunate parts of the country, still among the great number of people who annually come to this neighborhood to escape the heat and unhealthiness of the summer of the low countries, there are enough with either active or latent malaria to make it a subject worthy of the closest study, and it is imperative that we should be able, on the one hand, to recognize the condition when present, and on the other, to exclude it when absent, though suspected.

To do this, it is necessary to keep our diagnostic eyes constantly open, and the state of our diagnostic mind continually both receptive and critical. We must "utterly abhor" that loose and unscientific method (which is so frequently but a thinly veiled confession of our ignorance) into which it is so easy to fall, of calling irregular fevers of whose nature we are uncertain, such indefinite and nondescript names as gastroenteric infection, gastric fever, typhomalarial fever, etc., and must specially avoid calling them typhoid, unless we have carefully excluded everything else, though it may be on the safe side and good practice to treat them as such, until we are very sure they are something else.

For the diagnosis of malaria we have three methods—the symptomatic, the microscopic and the therapeutic—and their application, as a rule, should be made in the order mentioned, though the last should, as a rule, be employed merely for diagnostic purposes only as a last resort, and as such may be extremely valuable in those doubtful cases in which we have suspected malaria, and yet after careful examination, having failed to find the parasite in the blood, we do not feel quite satisfied that we have not a malarial condition to deal with.

I do not wish to underestimate the value of the therapeutic test, for occasionally we can make use of it under circumstances in which it would be very inconvenient to make a microscopic examination of the blood; and though, of course, far less reliable than the absolute certainty of diagnosis, which is the result of the actual demonstration of the disease-producing organisms in the blood, still the therapeutic test is a very reliable one, and if a temperature disappears under the use of quinin and reappears when withdrawn, we may feel fairly sure that we have a malarial condition to deal with; for, though quinin is commonly considered an antipyretic both by the laity and the profession, practically we find that in any ordinary doses it has little power over fevers of nonmalarial origin. On the other hand, it is equally true, as Osler says, that "an intermittent fever which resists quinin is not malarial."

The microscopic method of diagnosis, that is, the examination of the blood for the malarial organism, should never be omitted; for mere justice to ourselves and to our patients, certainly in all doubtful cases, demands that it should be carried out, and even in cases in which there seems to be no doubt as to the diagnosis it is not right that we should fail to look for the most pathognomonic of all pathognomonic symptoms. Even were it for our own satisfaction alone, the trouble is well repaid, for I know of no diagnostic method in any disease at once so simple and so certain and capable of giving greater satisfaction than the examination of the blood for the malarial plasmodium and there is certainly none which, when positive, gives us a feeling of greater and more justifiable confidence, because that confidence is founded on an absolute knowledge of what we have to deal with; we have literally seen the living, disease-producing organisms at work.

It is unnecessary to discuss in a paper like this the different methods of blood-examination; suffice it to say that the examination of the fresh blood, having the patient and the microscope at the same place, is the simplest and most satisfactory, but if one cannot take the microscope to the blood it is very easy to take the blood to the microscope; either dried on cover-slips, or, if handled carefully, the fresh preparations can be carried some distance and satisfactorily examined a half hour to an hour after the blood is drawn.

There is a prevalent idea that coming up to the mountains from the low and more or less malarial parts of the country will "bring out malaria," as it is expressed, in people who have had no symptoms of the disease for years or who may even never have had any manifestations of it at any time. This idea we should be inclined to class as a superstition, did we not unfortunately have it demonstrated to us in actual experience that it does occasionally occur. Why this should be the case it is hard to understand, but that it does occur we all know. It is hard to imagine any theory to explain what on the face of it seems so improbable. We should naturally think that the improvement in health and strength, which a change of climate of the kind in question produces, would increase the bodily resistance and thus make it easier for the body tissues to resist or overcome the invaders who have so long been lying in ambush, as it were, or rather kept at bay, only waiting a chance to make good their foothold. In the long run this is undoubtedly true and people are unquestionably in the right when they come up to the mountains to get rid of malaria, for here there is no possibility of reinfection, but possibly the sudden change of climate has a temporarily debilitating effect, one of the manifestations of which may be the pronounced somnolence which is so often present for the first week or so in those coming from the low country to the mountains. Stengel,[1] in speaking of the subject of the development of malaria on going from a lower to a higher altitude, says: "The active symptoms of malaria often appear in persons who may visit a cooler climate or a higher altitude after having been exposed to malaria in low-lying regions. The exact mechanism whereby this is brought about remains somewhat uncertain; certainly, however, the explanation is not to be found in any supposed infection occurring in the higher and cooler climate, but rather that the conditions of the system are changed and a previously dormant disease becomes active. * * * Dr. Thayer * * * refers to the matter in pretty much the same way. * * * He also suggests that in some cases the infection responsible for the outbreak in the nonmalarious district probably occurred just before the individual leaves a malarious district. While this may be true in several instances, I believe that from my own observation the change of climate so alters conditions as to make a latent an active infection." It is possible and even probable that most people in malarial countries are from time to time inoculated with the malarial organism and that the resistive body powers are either able to destroy it or else keep it in abeyance, as it were, and prevent to a certain extent its multiplication; in other words, a certain degree of immunity is established. But, like the germs of pneumonia or tuberculosis, to which many of us are so constantly exposed and even carry about with us much of the time, the malarial plasmodiums patiently wait for some relaxation in the vigilance of the body's protecting army, the result of some temporary debility consequent upon some other illness or exposure or even a sudden change of climate to which the body has not been able or had time to adjust itself perfectly, and then they set to work with all their characteristic energy.

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* Read before the County Medical Society, Asheville, N. C., June 6, 1904.

What has been spoken of as postoperative malaria may be explained in this way: The depression subsequent to the anesthetization and the operation so lowering the bodily resistance that the development of the parasites is not inhibited, as was the case previous to the postoperative depression, and as a result an acute attack of malaria is brought about, "producing symptoms which, were it not for the microscopic examination of the blood and the result of antimalarial treatment, would be extremely disturbing to the operator." Moore,[2] of Galveston, Tex., has recently reported two such cases.

In a recent editorial in *American Medicine*,[3] it is stated that "immunity from malaria has often been alleged of natives of malarial countries, but the most recent observations show that such immunity is only partial, not being sufficient to kill the invading organism though able to resist their poisons. Malays as well as negroes, though harboring the germs, seem to be unimpaired thereby until the host loses resistance from some other cause such as another infection, exposure, fatigue or starvation."

That the malarial parasite can remain in the body for a long time without producing any symptoms is a well-known fact, but exactly how long we do not know. Schilling[4] reported the case of a man who had a typical attack of tertian malaria eight and a half months after any possibility of infection and two and a half years after his last attack.

In Case I reported below, there had been no opportunity of infection for at least eight months and at no time in her life had the woman had any symptoms of malaria. Three months after the first attack with no possibility of reinfection, she had another of a similar character though she had been persistently treated for weeks with quinin and arsenic.

Craig[5] has reported seven cases of latent malarial infection, three of the tertian, and four of the estivoautumnal variety, in which at autopsy, the patients all having died from other causes, the spleen in each case was found characteristically enlarged and in its blood were found the malarial parasites in different stages of development in different cases, showing that "they do undergo their entire human life cycle within the spleen, and that a malarial infection may exist in the human being, the parasites undergoing their normal evolution without producing any symptoms and without an examination of the blood proving positive." Most of his seven cases reported were under his observation for several weeks at the Presidio of San Francisco; "repeated blood-examinations were made; they were carefully studied clinically, and in none of them was malarial infection suspected. How long this latency could exist," he continues, "is, of course, a question, but that it can exist for a considerable period of time is conclusively proved by many instances occurring here of prolonged latent infection."

Of the three cases now to be reported, two, I and II, were the tertian form; the other, III, the estivoautumnal variety, with a pronounced tertian tendency, *i. e.*, with exacerbations every other day, which is not uncommon with this form of malaria.

Case I is of special interest, being an example of the great length of time that the malarial plasmodiums can remain in the system without producing any symptoms, and is more remarkable when we consider the fact that, though the woman had not been out of the mountains since leaving the malarious district, where she must have been infected at least eight months before, she still continued to carry about with her the malarial infection. Yet, it is a well-recognized fact that the surest way of getting permanently rid of malaria is to get away from the malarious district to some malaria-free and cooler climate, such, for instance, as we have here in the mountains of western North Carolina, and yet, in spite of the ideal conditions in her favor, she still failed to throw off the infection.

In Case II the extraordinarily prompt appearance of symptoms on coming to the mountains can possibly be explained most reasonably by supposing a recent infection, and that its appearance at the particular time was a mere coincidence. On the other hand, it may have been the result of the temporarily lowered resistance consequent upon the fatigue of traveling and the sudden change of climate.

CASE I.—Mrs. C. W., aged 27, always in good health, though never very robust. In September, 1900, she came to the mountains in the neighborhood of Asheville from lower Alabama, a malarial district, where she had been living for two years, though she had never had any symptoms of malaria. She had been in good health since coming here. For the last two weeks in April, 1901, she was not feeling very well, though she had no special symptoms. On May 2 she was seized with a severe chill followed by headache and high fever. Next day she felt better and was up and about. The following day (May 4), about 2 p.m., she had another chill, followed by fever and sweating. The day after this she was feeling pretty well again. On May 6, at 12.30 p.m., she had another severe chill with subsequent headache and fever. At 4 p.m., when I was called in for the first time, temperature was 103.7°, pulse 120. Physical examination was negative, except that the spleen was found enlarged and firm and could easily be felt below the ribs. At 5.30 I examined the blood carefully; nonmotile pigment granules were present, some intracellular and others extracellular; no hyaline bodies found; at 5.30 p.m. temperature was 101°.

May 7, 4.30 p.m. Patient still complains of headache and has chilly sensations, and says she feels weak; I again examined her fresh blood, and after three-quarters of an hour's careful search, one characteristic intracellular body full of actively motile pigment granules was found. Quinin was ordered, but on account of some mistake in carrying out instructions, the amount ordered was not given, and at 11.30 a.m., May 8, she had another severe chill, and when I saw her at 1 p.m. her temperature was 105.4°. After that her system was brought under the influence of quinin, and she had no more active symptoms. She was kept on quinin and arsenic for many weeks; her convalescence was, however, slow, but she eventually regained her former strength and remained well till August 7, (three months after her last active malarial manifestations), when she felt chilly and unwell, and two days later, on August 9, she had a typical malarial paroxysm. No examination of the blood was made this time, though there was no doubt as to the malarial origin of the trouble. She was put on quinin at once, which was kept up for a long time, and she has had no malarial manifestations since that time.

CASE II.—Miss K., a nurse, aged 35, came up to the mountains with a patient from Florida August 4, 1903. She had spent much of her life in Florida, but never had shown any signs of malaria. The day she reached the mountains, while on the train she felt unwell, becoming chilly and later feverish, but by the time she reached her destination she was feeling better, and being occupied with her patient, said nothing about her own condition. On August 12, two days later, she felt very unwell, chilly, with violent headache, and on taking her temperature it was found to be 104.6°. The next day she was much better, her temperature being nearly normal and remaining so until mid-day of the day following, August 14, when it rose to 105.4°. Microscopic examination of the blood showed the presence of the plasmodium of malaria of the tertian variety. She was then put on antiperiodic treatment, to which she responded most satisfactorily, having no further trouble.

CASE III.—John C., aged 40, last September, while in Georgia, had what was undoubtedly an attack of malaria, associated with violent headache, nausea, vomiting, etc., from which, however, he soon recovered. On October 13 he was taken ill with the same symptoms and went to a hospital in Atlanta, where he remained four days, improving greatly during that time. On the fifth day he started for the mountains. While on the train he had a temperature of 103°. The day after his arrival he felt pretty well. The next day he had fever with violent headache and nausea, and this condition continued till I saw him two days later, when I was called in for the first time. The next day he was better, and the following day much worse again. Microscopic examination of the blood showed numerous malarial crescents, but none of the tertian form was found. Vigorous antiperiodic treatment was instituted, which put an end to the trouble at once.

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ON THE SIGNIFICANCE OF A HEART MURMUR.[1]

BY

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Few words in medical nomenclature so poorly express the thing they stand for as does the word murmur, which we apply to all of those blowing, rasping, buzzing, rushing, musical sounds arising from a disordered blood current within the heart. But none better, unless we take the French souffle, has been suggested, so we must continue to speak of heart murmurs. So many of us consider the presence or absence of a murmur, the one, and frequently, the sole element of importance in an examination of the heart; and so few of us realize how relatively unimportant is the mere presence of a murmur without other accompanying signs of cardiac disease. I believe I am safe in saying that the majority of practitioners content themselves with simply listening for a few seconds over the region of the heart, and upon those findings base their diagnosis, and frequently their prognosis. And yet, so much information, important to the patient both from a diagnostic and from a prognostic standpoint, can be acquired by a careful consideration of all things bearing upon the case. It is my purpose to discuss something of the true meaning of a murmur heard over the heart, and of the many factors influencing the prognosis.

We all recognize two classes of murmurs, those due to organic disease, and those occurring in a heart structurally normal. Murmurs of the latter class have been given many names, each an attempt at an explanation of the cause. Perhaps accidental is the best term to use, since it commits us to no one theory. Persons suffering from anemia are most frequently the subjects of accidental murmurs; yet I have seen cases of advanced pernicious anemia in which no murmur was present, and on the other hand, I have occasionally heard an accidental murmur over the heart of a man who gave every indication of perfect health. Particularly nervous individuals form another class in which this abnormality is frequently present. It can be stated as a general proposition that accidental murmurs are, with few exceptions, heard when the organism is in some way below par.

In this interesting class of murmurs we do not get the history of rheumatism or other infectious disease with anything like the frequency with which such history appears in organic disease of the heart. As regards time of occurrence they are systolic. The very rare instances in which they are observed during diastole can practically be disregarded. The pulmonic interspace has well been called the area of romance, since it is here that accidental murmurs are best and most frequently heard. And their fleeting character makes this term especially appropriate. Yet it is true that accidental murmurs are occasionally heard best in other valve areas and transmitted in all directions. The murmur is usually seen to vary greatly at different times, and in different positions of the body, absent at one moment, present the next, absent with the patient in one position and reappearing on change of position. Almost every hospital resident has been embarrassed by the evanescence of these murmurs when he notes the presence of a murmur on the history and is unable later to demonstrate it to the visiting physician. Exercise, respiration, and position of the body have a much more marked effect than in organic disease. Frequently the murmurs are loudest or heard only in the dorsal decubitus. The majority, those of anemia and the cardiomuscular kind, are heard best at the end of expiration and are lost or become very faint at the height of inspiration; on the other hand, murmurs of the cardiorespiratory class are heard best at the end of inspiration.

Accidental murmurs are usually soft and blowing in quality and high in pitch, yet seldom if ever musical. Finally and most important, we do not here get any of the concomitant signs of heart disease; there is no accentuation of the pulmonic second sound; the position of the apex is normal; the boundaries of the heart are not enlarged, and there are no indications of stasis in the pulmonic or systemic circulation. In fact, the murmur seems purely accidental, no adequate cause to explain it and no train of symptoms dependent upon it.

The theories (I had best say hypotheses) as to the cause and mode of formation of accidental murmurs are many and diverse. Their very diversity is an indication of how far in the dark we are groping. Yet it is probable that they are produced in several different ways, and that more than one of our theories are correct. Babcock quotes Naunyn's belief that accidental murmurs occurring in depraved blood states are in reality due to mitral leakage, and instead of being transmitted as usual, toward the apex, are propagated into the left auricular appendix, the tip of which overlies the pulmonary artery. Quincke believes that they are caused by pressure of the pulmonary artery against the chest wall. Again, they are attributed to the sudden discharge of blood of abnormal composition into the dilated artery; to pressure upon the pulmonary artery by the dilated left auricle; to transmission into the displaced conus arteriosus the murmur of a tricuspid insufficiency; and to dilation of the conus arteriosus. Potain's theory of the cardiorespiratory origin, wherein each systole forces air out of an overlapping lung margin, is no doubt in many cases correct. The very rare diastolic accidental murmur is probably transmitted from the veins of the neck, being a diastolic accentuation of the venous hum.

A. O. J. Kelly very happily remarks that the presence of a cardiac murmur alone is in itself no more diagnostic of cardiac valvular disease than is the presence of albumin in the urine, without other sign of disease pathognomonic of nephritis. We all know that we do frequently find albumin in the urine of patients who are not the subjects of nephritis, and similarly we occasionally detect the presence of a murmur in patients who at autopsy present no sign of valvular disease.

I have spoken of accidental murmurs at this length to emphasize the importance of their recognition as such, and I am inclined to believe that they are more common than is generally supposed. As for their prognostic significance, it is relatively good. A murmur recognized as accidental, need not give any anxiety, and in the majority of cases, when the patient is anemic and the general health below par, it disappears with the condition which it accompanies.

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[1] Read before the Jefferson County Medical Society, June 27, 1904.

It may not be irrelevant to cite the action of one of our large life insurance companies which are similar, as most of us know, to a nervous horse in the way in which they shy away from anything about which they do not feel perfectly secure. I reported upon the examination of a certain applicant that a blowing systolic murmur was heard in the second interspace to the left of the sternum, that there was no accentuation of the second pulmonic sound or other sign of circulatory disturbance, that the position of the apex and the boundaries of the heart were normal, that there was no abnormality of the pulse, and that the applicant appeared a trifle nervous. There was no history of rheumatism or other illness. Belief was expressed that the murmur was accidental and the applicant received a standard policy of the amount applied for.

To form an opinion as to the significance, and with it the prognosis, of a murmur known to be organic is no easy matter. So many things are to be considered, and it is only after a most thorough physical examination that we are justified in drawing a conclusion as to the nature of the lesion and as to the prognosis.

History must come in for due consideration. A history of one or more attacks of rheumatism furnishes presumptive evidence that we are dealing with an organic lesion, while repeated attacks of this disease increase the gravity of the prognosis by rendering the patient liable to frequent attacks of endocarditis, each attack endangering his life not only by jeopardizing accommodation, but also by rendering the lesion more progressive.

As for the murmur itself, its place in the cardiac cycle and its point of maximum intensity are things to which we give most attention. Let me utter a word of warning here, however, against depending for our diagnosis too much upon the time of occurrence of the murmur. We know how very infrequent stenosis of the aortic orifice is, yet aortic insufficiency, itself not an infrequent lesion, without any obstruction of the orifice whatever, presents in the majority of cases a systolic murmur in addition to its diastolic murmur of regurgitation. And even occasionally, especially in cases in which the insufficiency is greatest, this lesion presents no diastolic murmur at all, the murmur of systole appearing alone. This systolic murmur of aortic insufficiency has been ascribed to irregular movements of the walls of the aorta, caused by the sudden discharge into it of an abnormally large quantity of blood, or to the meeting of the oncoming stream with the regurgitant one. So it behooves us to look carefully for other corroborative signs in making our differential diagnosis. It may be stated that a murmur which accompanies the normal heart-sound is of less gravity than one which replaces it. Late or postsystolic murmurs indicate a relatively mild lesion, while the murmurs which occur late in diastole present a prognosis of more gravity. Regarding the intensity of the murmur, the loudest murmurs are frequently of least significance. A weak, tottering heart cannot give the blood impetus sufficient to cause a loud murmur, if it causes any at all. Often we see an adventitious heart-sound fade away and become inaudible as the patient grows progressively weaker, and, on the other hand, a murmur will sometimes manifest itself only after the heart is strengthened by rest and appropriate treatment. Occasionally we find murmurs which are present only when the heart is overacting, such cases usually indicating a very slight lesion.

Broadbent's statement of the relative gravity of the different lesions is generally accepted. Of lesions occurring in the left side of the heart, aortic insufficiency heads the list for gravity of prognosis. It is from this lesion that the great majority of sudden deaths occur—indeed, it is almost from this lesion alone that those cases of sudden and unexpected death come, for in the other lesions we always get some sign of failing compensation before the end. When, however, we do see signs of weakness in a heart laboring under the disadvantage of aortic insufficiency, disaster and death may be expected at any moment, and we cannot be too careful in regulating the life of our patient. A distinction should be made in this disease, especially between the insufficiency following rheumatic endocarditis and that accompanying arteriosclerosis. The former presents a more favorable prognosis, while the latter tells us that the lesion will surely grow progressively worse.

Mitral stenosis is considered the lesion next in gravity, and this because of its far-reaching effects upon the rest of the heart and upon the other organs, and also because of the rapidity with which these changes come in this disease. The stasis in the pulmonary circulation, the changes in the right heart, and then the stasis in the systemic circulation, all appear relatively early and in rapid succession; and, too, the lessened supply of blood to the left ventricle in mitral stenosis is soon felt by the entire organism, and especially by the walls of the heart itself.

Next comes aortic stenosis. And most benign of all are the cases of mitral insufficiency. So long as the heart can, in mitral regurgitation, hypertrophy sufficiently to meet the demands upon it, the general circulation gets its normal quantity of blood, and, what is still more important, the coronary arteries are well filled with normal blood, so that the sufferer from this lesion may feel no inconvenience at all.

Of the lesions of the right heart little need be said, as they are most often secondary to those of the left side. A relative tricuspid insufficiency dependent upon disease of the left side of the heart is grave, because it indicates imperfect compensation.

We must not forget that these distinctions are merely relative, and that it is, after all, the extent of the lesion which is of greatest prognostic significance. A mitral insufficiency of considerable extent and poorly compensated is of graver significance than a mild, well-compensated aortic insufficiency of rheumatic origin. And again, let me say, that in judging of the extent of a lesion we must not be guided by the intensity of the murmur, but by the secondary effects caused by the defect.

Of paramount importance to us in estimating the diagnostic and prognostic significance of a murmur, is the extent of cardiac hypertrophy and the part of the heart giving rise to it. The position of the apex tells us much. In a heart beating forcibly and well, with a small degree of hypertrophy, we can believe that the lesion is a small one. On the other hand, as Tyson reminds us, the compensation which is preserved by great hypertrophy and much displacement of the apex, is tottering.

I need only mention the value of the pulse in prognosis as well as in diagnosis. A weak intermittent pulse is a signal of danger, and a sclerotic arterial wall tells us that the process will be a progressive one. Pericardial adhesions should not be overlooked, for they can seriously limit the movement of the heart and by interfering with compensatory hypertrophy increase the gravity of the lesion. Cardiopaths are frequently the subjects of pulmonary and bronchial disorders. Such attacks not only indicate some degree of stasis in the pulmonary venous system, but they in themselves make the prognosis more serious by throwing greater strain upon the heart and thus jeopardizing compensation. The frequent cases of combined nephritis and cardiac valvular disease present a very unfavorable prognosis since each reacts upon the other, the venous stasis adding to the nephritis and the latter superimposing uremic poisoning upon an organism already greatly handicapped. Occasionally it is in some disorder of the digestive organs that we discern the first signals of impending danger.

As regards the complication of pregnancy it is quite a serious matter, but is not now considered so perilous, I believe, as it was by the older writers. Much depends upon the proper care and treatment of the patient during the latter months of pregnancy and especially during labor. Mitral defects are considered of more danger to the pregnant woman than are diseases of the aortic orifice. Instrumental delivery should take place when during labor there are indications of overstrain of the left ventricle. Tuszkai, of Marienbad, states in a recent communication that approaching danger to the pregnant woman can be foretold by carefully observing the ratio of the pulse-rate in the various body positions from time to time and noting the wide fluctuations in this ratio as compensation is endangered. All agree that mechanical interference is justifiable only when danger is imminent.

Cardiac valvular disease is more serious in children and old people than in young adults; in children, perhaps because we cannot regulate their lives so well as in adults and cannot prevent frequent overstrain of the easily exhausted heart muscle. And too, there is the possibility of recurring attacks of endocarditis in the rheumatism and other diseases to which children are liable. In old people the frequency with which arteriosclerosis is present makes the prognosis a graver one.

The greater hardships to which men are liable, their more active life, and the dangers of alcohol, probably make their cases more serious than those in women; yet women are subject to the dangers of pregnancy and labor; so that after all the question of sex resolves itself into one of habits.

Habits, mode of life, occupation and temperament are important factors in determining the prognosis. If the patient is a man of leisure with no vicious habits and of a phlegmatic temperament his chances, other things being equal, are vastly superior to those of a laborer forced to do hard work and perhaps a heavy drinker, or, as Osler puts it, a votary of Bacchus and Vulcan or perhaps of Mars and Venus.

THORACIC EMPYEMA.[1]

BY

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Literally, empyema signifies pus in any preexisting cavity. Custom, however, has restricted the term to pyothorax, or pus in the pleural cavity. Purulent collections in this cavity, while nearly always preceded by a serous effusion or serofibrinous exudate, are invariably due to some form of suppurative inflammation of the pleura, resulting from the presence of pyogenic microorganisms which have gained admission to the pleura either from within the alveoli of the lungs or from without, through a trauma in the thoracic walls. Empyema may be due to a contusion or wound, pneumonia, tuberculosis, influenza, pyogenic infection of a serous effusion, caries of a rib, specific fevers, peritonitis, subphrenic abscess, or gangrene of the lungs.

As a bacteriologic factor, *Bacillus pneumoniæ* (Friedländer), and the pneumococcus of Fränkel are most frequent in children. The pyogenic properties of these bacteria have recently been shown, particularly upon the pleural surface. Localization of pyogenic microbes occurs as a primary or secondary infection in the pleural cavity.

The tubercle bacillus is often a causative factor in empyema, especially in the adult. The tubercle bacilli prepare the soil for pyogenic microbes, giving a *locus minoris resistentiæ* and furnishing a nutrient medium for their rapid multiplication. The presence of tubercle bacilli in the pus of a mixed infection cannot always be demonstrated by the microscope, Ehrlich to the contrary, notwithstanding. Inoculation of animals with such pus often results in tuberculosis, in cases in which the microscopic examination had been negative. When tubercle bacilli localize on the pleura, serous effusion results, which later is transformed into true pus by pyogenic bacteria which have gained entrance from within the lung, or perhaps from without by repeated aspirations. Aspiration of a hydrothorax, oft repeated, frequently results in empyema, especially in the adult. In most of such cases, the subsequent history and termination will show that tuberculous pleuritis was the primary cause of the effusion.

When saprophytic bacilli gain admission to an empyema, either from within, through a bronchial fistula or the lung parenchyma, or from without through an opening in the chest wall, the products of coagulation necrosis resulting from a previous suppurating pleuritis, serve as a nutrient medium for them, resulting in thin, fetid, putrid pus—a putrescent empyema. This condition may be present without any direct connection of the pleural cavity with the atmosphere, and sometimes follows thoracotomy, when strict antiseptic precautions are ignored. The presence of a large quantity of fluid, serum or pus, in the pleural cavity is usually announced by wellknown clinical and physical symptoms. Chill, fever, pain, sweats, anorexia, dyspnea, hacking cough, and emaciation are the most prominent clinical symptoms of empyema.

Dulness and flatness on percussion; absence of normal vesicular murmur, as well as voice sounds, over the area occupied by the fluid; displacement of adjacent organs by intrathoracic pressure; bulging of the intercostal spaces, and edema of subcutaneous tissues, together with dilation of the superficial veins, are the cardinal physical signs of pyothorax. In right-sided empyema the liver is displaced downward and the heart further to the left, while in left-sided empyema the apex of the heart can often be felt to the right of the sternum. Flatness on percussion, with a morning temperature of 100.1°, and in the evening 101° to 103° for many days would strongly point to pus in the thoracic cavity. Positive diagnosis can be made by an exploratory puncture with the needle of a hypodermic syringe. This puncture should be made at the point of prospective operation, usually at the seventh intercostal space. A large needle should be used.

I desire to call your attention to a physical sign in empyema that most authors or textbooks fail to mention, viz., accentuated respiratory and voice sounds amounting to bronchial respiration and pectoriloquy and egophony, heard over certain portions of the chest, usually the apex anteriorly and posteriorly, and sometimes over the middle lobe posteriorly. These intensified sounds are explained by the greater density of the lung, resulting from the atelectasis from intrapleural pressure, together with the adhesions of the lung to the thoracic wall at the points of exaggerated sounds. This condition of lung densification and adhesion to the chest wall favors the transmission or perfect conduction of sound to the ear, thus being a perfect sound-board. So this peculiar condition is an exception to the rule that fluids in the pleural cavity annul or obliterate respiratory and voice sounds.

The prognosis of empyema depends on the age of the patient, cause of the disease, and the duration of the malady. Acute, simple uncomplicated cases are usually very favorable if the patients are operated upon early.

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[1] Read before the Mobile County Medical Society, July 9, 1904

The prognosis in young children is more favorable than in adults. Old or longstanding cases are not so favorable, because the intrapleural pressure has caused atelectasis of the lung, loss of lung tonus or elasticity and firm adhesions of the lung to the chest wall, thus prohibiting reexpansion of the lung, and thereby resulting in indefinite chronicity and possibly death.

Empyema may point externally (empyema necessitatis) and evacuate itself spontaneously, resulting in cure, or it may break into the lung through a bronchial fistula, which exceptionally results in recovery, but more often prolongs the case, and frequently retards recovery after surgical procedure. The prognosis in cases in which no rupture occurs or in which no operation is done is always unfavorable, as the chances for complete absorption and desiccation or inspissation of the pus are inconsiderable.

The treatment of empyema consists of free incisions and adequate tubular drains. Aspiration of empyema, as a rule, results in utter failure, and should never be attempted. Intercostal incisions into the pleural cavity without rib resection, do not give satisfactory drainage, as the tubes will be pressed upon by the rib during expiration, and the lumen of the tubes will be diminished or entirely closed, hence resection of one or more ribs should always be done. The point of resection varies with different operators, most, however, prefer the axillary line, the sixth rib on the right side, and the seventh rib on the left side. Some operators prefer the eighth or ninth rib, and choose to place their drainage-tubes posterior to the axillary line. There are two objections to this method: 1. The tubes would be materially interfered with by the upward movements of the diaphragm. 2. The patient could not lie on his back—the most comfortable position to him. The incision for rib resection should be 4 in. long, and the piece of rib resected should be 1 in. to 1½ in. The soft tissues and periosteum can be separated from the rib by knife and periosteotome, and section made with bone forceps (rib shears) or Gigli saw; the former is always preferred (I prefer Tieman's forceps). The periosteal gutter made by the removal of the piece of rib can be sewed up with catgut and the tube put in, either above or below the sewed up periosteum (VanArsdale), or an incision made through the periosteal gutter and a double drainage-tube inserted. This incision in the pleural cavity must be large enough to place two drainage-tubes the size of the little finger.

Just as soon as the pleural cavity is opened, pus flows out and air rushes in, producing an acute operative pneumothorax, which will persist for some time. An inflamed pleura does not react to a foreign body as does a healthy pleura, hence the effect of the air entering the pleural cavity is very slight. The outflow of pus from the pleural cavity should be regulated by the finger, as too rapid evacuation would cause the heart to become overdistended and result in syncope and sometimes death. When pneumothorax is present, the lung will not expand, because the atmospheric pressure is greater in the pleural cavity than in the lung alveoli, the lung tonus being lost. If double pneumothorax is present, the patient will usually succumb from CO_2 narcosis. Digital search should be made in the pleural cavity for membranes and shreds at the time of operation. Primary irrigation of the pleural cavity should never be done unless saprophytic (putrid) infection is present, and not then, if there is a bronchial fistula. If there is no bronchial fistula and the pus is fetid, irrigation with salicylic, boric or saline solutions should be practised daily until fetor has disappeared. The double tubes at first are held in situ by a single suture, and later, a safety-pin is passed through the tubes to prevent their escape into the pleural cavity. The aftertreatment consists in changing the dressings, removing the tube, if necessary, and no irrigation, unless accidental putridity has occurred.

Lung calisthenics should be encouraged, such as blowing of horns, inflating of rubber bags, and deep breathing several times daily. Various kinds of drainage-tubes have been suggested and recommended, but so far none has been shown to be very practicable. The ideal tube is one that will admit of the free outflow of pus and not allow the entrance of air into the pleural cavity, thus preventing the intrapleural pressure equalizing or overcoming the intrapulmonary air pressure and lung tonus. A valvular tube with the valve opening outward, fitted air-tight into the thorax, would meet the indication. As long as the opening in the chest wall is as large as the lumen of the bronchus of the affected lung, atmospheric pressure on both sides of the pleura pulmonalis will be equal, and there will be no lung expansion. Whenever the orifice of the operative wound becomes smaller than the bronchus, then expansion of the atelectatic lung will begin, in virtue of the innate tonus of the lung and greater intrapulmonary air pressure. The pleural cavity will heal by granulation tissue in acute cases within three or four weeks. The drainage-tubes may be removed when there is but little pus discharging, gauze wicks being substituted ordinarily at the expiration of two weeks. If drainage-tubes are allowed to remain in too long, permanent pleural fistula will result from complete epithelialization of the tract from the skin to the pleural surface, thereby necessitating a plastic operation to close the opening. If the pleural cavity fails to close after six or eight weeks subsequent to radical operation, a more extensive operative procedure must be undertaken. Estländer's multiple rib-resection or the more radical thoracoplasty of Schede may be performed, either of which is intended to make the thoracic wall more pliable, thus favoring its collapse toward the unclosed pleural cavity, hastening its obliteration and cure.

CASE I.—Male, white, aged 7. April 9, 1904, the patient had a chill, followed by a temperature of 104.5° F., with delirium, which lasted four days, at the end of which time, and for ten subsequent days, the patient screamed with pain, which was always referred to the abdomen, particularly to the epigastrium and right hypochondrium.

Physical examination for the first five days was negative, except for a distended abdomen. On the sixth day a very slight cough was noticed, whereupon exploration of the chest revealed an apical pneumonia on the right side. This seemed to extend to other portions of the lung, until the whole lung was apparently involved. Finally, on the twelfth day marked flatness was observed over the whole right lung, respiratory and voice sounds being, for the greater part of the lung, entirely absent.

In the meantime, fever persisted; cough was not troublesome; there was no expectoration at any time; emaciation was very marked; pectoriloquy, egophony, and bronchial breathing were very marked at the apex posteriorly. May 2, 1904, just 23 days after the onset, the exploratory hypodermic needle showed pus in the pleural cavity. The patient was operated upon under cocain anesthesia (2% solution) and one inch section of the sixth rib was made, two quarts of pus removed, and a large tube put in. As there was no saprophytic infection, irrigation was not done. The patient made an uninterrupted recovery in three weeks. The pus in this case contained numerous pneumococci and staphylococci. The chest now on the affected side is somewhat flatter than the other side, but is expanding more and more daily.

CASE II.—A colored female, aged 4, had been under the treatment of two other physicians during the previous two months for typhoid fever and colds. I first saw her April 20, 1904. At this time temperature was 101.2° in the mornings and 103.4° in the evenings. There was a slight cough with some dyspnea, marked emaciation, weak pulse, and profuse sweats.

Physical examination revealed fluid in the right side, with bronchial breathing and pectoriloquy on the posterior aspect of the apex of the lung. Exploratory needle puncture showed a greenish pus, full of pneumococci but no saprophytes. May 2, 1904, under chloroform, rib resection was made; a quart of pus was evacuated; tube put in; lung calisthenics practised. The patient made an uneventful recovery in four weeks.

CASE III.—A little baby, 10 months old, male, white, had been under homeopathic treatment for four weeks for croup and bronchitis, when it came under my observation, June 15, 1904.

Physical examination at once indicated a right-sided pleurisy with effusion, which, upon needle aspiration, proved to be pus. The little patient was emaciated, pale, and dyspneic; pulse was weak and the child was cyanotic at times; there was suppressed cough, sweats, and a temperature of 102°. Operation under chloroform was immediately done and a section of the sixth rib removed; over a pint of thick pus was evacuated, and a double tube put in. Pus contained abundance of pneumococci, but was not putrid. The patient is now improving very rapidly, gaining flesh and strength daily. The tube was removed on the sixth day and replaced by iodoform gauze, but the gauze served only to occlude the aperture and did not drain as was expected, therefore the tube was replaced. This last case is the youngest patient on record of a successful thoracotomy for empyema.

All these patients were pneumonic, having the microbes of pneumonitis present, as well as some staphylococci.

The right side alone was affected in all three patients. The patients having been very young and having been operated upon at an early date, made the prognosis favorable.

An observation of some diagnostic importance was made in all of these cases, which I failed to mention when giving the symptoms; this was the *apparent symmetry of both sides of the chest in the presence of such an enormous effusion on one side.* This is explained by the fact that while the effusion expanded and increased in size the affected pleural cavity beyond its normal dimensions, the compensatory breathing caused an increased expansion of the healthy lung, thus making both sides seemingly equal in size, whereas, both sides were larger than normal. The upper zone of the abdomen was also much increased in size, due to the downward pressure of the intrapleural effusion on the diaphragm; this enlargement always disappeared after operation.

HYPERTROPHY OF THE LINGUAL TONSIL.[1]

BY

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The base of the tongue differs greatly from the anterior portion of the organ. The two parts are developed from different embryonic centers, and, while they are in the closest possible connection, they differ anatomically, histologically, and physiologically, and are not to be considered together from a pathologic standpoint. The lingual tonsils consist of masses of glandular tissue, forming a part of the circle of similar structure, extending from the vault of the pharynx to the base of the epiglottis, including the pharyngeal, tubal, and faucial tonsils. They consist of a number of follicles embedded in the submucous tissue between the circumvallate papillas and epiglottis and are unlike the faucial tonsils in that they are disseminated in groups over a larger area. In the normal state they are not readily discernible in making examinations of the throat, but when hypertrophied are easily recognized by the employment of a suitable light and a laryngoscopic mirror. In the strict sense of the term, they are not glands, as they have no duct or outlet, but belong to the great and intricate lymphatic system. Little reference was made to them by the older anatomists and until recently they have been considered as mere embryonic bodies and in no way similar in structure to the other tonsils. They are comparatively unknown to many and their clinical importance is looked upon frequently by those unfamiliar with them as a mere fad of the specialists. They are the seat of not only important diseases peculiar to themselves, but also of most of the diseases of the other tonsils, and merit the same important consideration. Hypertrophy is the most frequent pathologic condition, and along with it frequently is a large number of varicose veins—"lingual varix." They often exist where the amount of hypertrophy is not great. Normally there exists between the dorsum of the tongue and the epiglottis a free interval—the glossoepiglottic space—but when the lingual tonsils are enlarged, it is more or less filled and the tip of the epiglottis may be seen impinging against or buried in the glandular hypertrophy. When the tongue is protruding, as it usually is in making the examination, the epiglottis may not be in contact with the hypertrophied tissue, but if the laryngoscope be introduced when the tongue is retained in the mouth, the tip of the epiglottis may be seen in direct apposition. This point is important to bear in mind in making a diagnosis, especially in nervous women, as a slight amount of irritation in this region frequently is the starting point of various reflex phenomena. I have never been able to satisfy myself that the disease is more frequent in females than males, as is stated by most observers. Given a number of throats to inspect with no knowledge of the symptoms, I believe they are discovered as often in men as in women. It is a disease usually of middle life, although old age and youth are not exempt. The youngest patient I have had with hypertrophy was 4, and the oldest 76. The etiology of the hypertrophy is identical with that of hypertrophy of other glandular structures about the upper breathing tract, such as struma, uric acid diathesis, hereditary or acquired syphilis, indigestion, etc. The symptoms frequently are out of all proportion to the magnitude of the hypertrophy, and usually are confined to the regions involved, although this is not invariably the case. They may result from direct irritation or be of reflex origin. The most prominent ones which manifest themselves are cough, pharyngeal tenesmus, or constant clearing of the throat, a sensation of a foreign body in the laryngopharynx, vocal changes, respiratory distress and hemorrhage. Gastric disturbances are not infrequent, and improved digestion usually follows excision of the glands. The disordered digestion results from the act of swallowing mucus and saliva. Cough is the most prominent symptom I have met in these cases, and of its extrapulmonary causes, the lingual tonsils are by far the most frequent etiologic factors. The glossoepiglottic space should always be examined in cases of persistent cough, for if it is not, serious errors in diagnosis will frequently result. The cough is usually hard, rasping, ineffectual, mostly unattended by expectoration, and can frequently be allayed temporarily by the local application of cocain, or when the varix is prominent, by the application of adrenalin chlorid. Many patients with severe cough are cured by directing the treatment to the lingual tonsil, when all other treatment has proved of no avail. A case of especial interest is the following:

Mrs. S., aged 60, had had a violent cough for 20 years. The paroxysms would at times be so severe and prolonged that the patient would faint away from exhaustion. She had tried all sorts of treatment, including climatic changes. The discovery of a large mass of glandular tissue at the base of the tongue in direct apposition with the epiglottis—almost burying it—and its prompt removal, resulted in a perfect cure after many years of the greatest agony.

When the cough is accompanied by other symptoms, such as hemorrhage from the rupture of the varicose veins, gastric disturbance, etc., it gives the impression that the patient is suffering from tuberculosis. Next to the coughing the socalled pharyngeal tenesmus, which so many patients complain of, is the sensation of a foreign body in the throat. The symptom is particularly noticeable in neurasthenics, in whom a slight degree of enlargement will excite constant efforts to swallow, with no relief; there is a feeling as if there was a lump in the throat. Globus hystericus frequently has its real origin in the enlargement of a few follicles, and may be readily relieved by appropriate measures. This symptom is most marked when the enlargement is in the median line. Fatigue in singing and speaking is a symptom for which vocalists and public speakers frequently seek the advice of specialists, and the seat of origin of their trouble is quite often a hypertrophied lingual tonsil. It has a disastrous effect when the hypertrophy is great. The other structures of the throat may appear normal, and when the enlargement is not marked, the only symptom may be a slight pain without hoarseness on the excessive use of the voice. In some cases the voice may be lost entirely. At other times it may be moderately good, and poor at others. They will tell us that it breaks frequently in their efforts to sing, that they sing out of tune, and that the timbre of the voice is impaired. The most serious impairment in vocalization is observed in sopranos, in whom, in order to reach the highest notes successfully, the epiglottis must become erect, and anything which interferes with its free movement will have a deleterious effect. Several singers whom I had treated have told me that they were able to reach several notes higher in the scale and that there was much less tendency to fatigue, to say nothing of the improvement in the quality of the voice. I believe that 20% is a moderate estimate of the number of public speakers and singers who are subject to this morbid condition, and to each one it is a question of paramount importance. The gravity of the condition cannot be overestimated. I have observed many interesting cases of respiratory distress resembling asthmatic attacks, spasm of the glottis in adults, functional aphonia, supraclavicular and infraclavicular pains, etc., disappear by directing treatment to the lingual tonsil alone. As to the treatment, the hypertrophy must be overcome. This may be accomplished by different methods, according to the fancy of the operator. The cold wire snare is of value in some cases in which the enlargement can be engaged in the loop of the instrument.

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[1] Read before the Society of Ophthalmologists and Otologists, Washington, D. C., April 15, 1903.

Chemic cauterizing agents, such as chromic acid, pure carbolic acid, trichloracetic acid, etc., have been used, but with them I have had little experience. Originally I employed the galvanocautery, and it undoubtedly is a valuable method of treatment, but great care must be exercised in using it. Only limited areas should be cauterized at one sitting, as considerable reaction sometimes follows its use. In one case of marked hypertrophy, I was called upon to treat an out-of-town patient, whose time was limited; I cauterized quite severely both lobes at one sitting, and as a result there was marked reaction—edema of the glottis and general edema about the base of the tongue following, to such a degree as to interfere for two or three days with eating and drinking. Attempts to take liquids of all kinds resulted in regurgitation through the nose. In my hands the cutting operation has proved the most satisfactory method of removing the hypertrophy when there is no lingual varix. I have done this operation more than 100 times and have had no bad results, excepting two cases of troublesome hemorrhage resulting from neglect to destroy the varicose veins by the use of the cautery previous to the use of the tonsillotome. The amount of blood lost was not serious in any sense, but continued for some time and alarmed the patients. Miles' tonsillotome I believe to be the best instrument for this operation. Under the influence of a 10% solution of cocain it is not painful. After an operation, when swallowing is very painful, insufflation of orthoform is valuable for its anæsthetic effect, which sometimes lasts from 24 to 30 hours. Cracked ice is soothing, and the diet should be liquid or semisolid for several days. This operation should never be performed on tuberculous patients, as the wound may become infected and healing not take place. I have had one case of this kind, in which the symptoms produced by the operation were much more serious than the existence of the tonsil itself. Healing never took place and a painful ulcer was the result till the patient's death from pulmonary tuberculosis.

Milk Dispensaries Needed.—It is remarked by *The London Chronicle* that most of the children taken to the hospitals there need milk rather than medicine, and that "milk dispensaries" would be a useful branch of hospital service. Semistarvation, complicated in many cases by alcohol and tobacco, is at the bottom of most of the physical ills of the poorer classes of the English people, 30% of whom, an authority has said, "never know what it is to have a full stomach."

THE ANTIBLENNORRHAGIC DRUGS IN GONORRHEAL URETHRITIS: THE QUESTION OF THEIR VALUE.*

BY

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The term "antiblennorrhagic," which in its literal sense has a very broad application, is restricted by usage to that group of the volatile oils which administered internally are supposed to exercise a curative influence in gonorrheal urethritis. While the list is a fairly long one, present practice confines itself almost exclusively to the administration of the oleoresins of copaiba and cubebs and sandalwood oil in this disorder. Copaiba was long considered the most efficient member of this group of drugs. It is the one which has been most employed and therefore the one which has been most subjected to criticism. Sandalwood oil is possibly the most popular of the antiblennorrhagic drugs today.

The reason for this can be found in its less disagreeable effect on the digestive organs as compared with copaiba, and especially in the elaborate advertising it has received both in the lay and medical press from the manufacturers of a French preparation prepared by Midy's process from freshly-felled Mysore sandalwood.

A number of reputable drug concerns have now on the market and advertise extensively to the medical profession special formulas in which are combined cubebs, copaiba and sandalwood oil—methylene-blue being usually added so that, as one manufacturer candidly puts it, the patient "may see that the medicine reaches the spot." To those with whom age is synonymous with venerability, it may seem like sacrilege to suggest even a suspicion as to the efficiency of these drugs in the condition for which they have so long been employed. But the practice of today has along so many lines broken away from the shackles of a stagnant past that agnosticism in reference to the medical faith of our fathers has become a virtue rather than a vice.

The use of these drugs in gonorrhea is unintentionally a concession by the regular practitioner to the doctrine of "similias," for in large doses they are capable of giving rise in a healthy individual to the vesical tenesmus and burning, painful, frequent urinations which are classic symptoms of the severer type of urethral infection.

It is granted that these drugs are eliminated largely by the kidneys, and tend to delay putrefactive changes in the urine. According to Cushny, the therapeutic agent is the volatile oil, the resin having little or no antiseptic action. That even in dangerously large doses they render the urine antiseptic enough to destroy pus cocci, is very questionable indeed.

The discovery of the gonococcus by Neisser, in 1879, pointed out the importance of local treatment in specific urethritis. Since that time internal medication has held a secondary position in this affection.

But in medicine, as elsewhere, there is a rooted dislike for iconoclasm. And so plausible are the arguments of enthusiastic doctors and more enthusiastic manufacturers, and (we might add) so many drugs and methods have proved disappointing in the local treatment of gonorrhea, that nauseous doses of copaiba, cubebs, and sandalwood oil are prescribed almost as frequently by the practitioner of today as they were by the doctors of 50 years ago. A single drug firm reports a sale of one of their special formulas during the past year exceeding $100,000. It is unusual to pick up a book treating of urethral disorders in which the administration of these drugs is not advocated. A cloud of medical witnesses testifies to their therapeutic efficiency.

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*Read before the Louisiana State Medical Society, 10-12, 1904.

Courage—or perhaps it is rashness—is required to question the mass of clinical evidence which has accumulated during the past 500 years. Nevertheless, there are men of large experience and of unquestioned ability who have not hesitated to deny the therapeutic virtues of the socalled antiblennorrhagic group of drugs. Milton, who was a recognized authority on gonorrhea, said as far back as 1876: "Copaiba is one of the most nauseous drugs ever found out. It is quite time that men banish it from the therapeutics of gonorrhea." He likens cubebs to copaiba and says of sandalwood oil that his faith in its virtues did not improve on acquaintance.

Fessenden N. Otis[1] said: "I have long been satisfied that the treatment (of gonorrhea) by socalled specific internal remedies is always more or less pernicious in its effects on the digestive functions. I have seen several cases of congestion of the kidneys brought on by the use of balsam copaiba in doses ordinarily prescribed."

Stockwell,[2] while leaning toward cubebs and sandalwood oil in certain conditions in gonorrhea, says of copaiba: "It is much overrated and its real merits are nowise compensatory for the nausea and vomiting and disagreeable sequels that follow in its track."

The entire subject is succinctly covered by Wm. K. Otis[3] in a recent publication. He says: "The employment of internal remedies in the treatment of gonorrheal urethritis with any idea of affecting the course of the disease is worse than useless. Among such remedies may be mentioned cubebs, copaiba, sandalwood oil, turpentine oil, etc., drugs which have been handed down by an effete empiricism and the administration of which may be followed by anorexia, vomiting, diarrhea, cutaneous erythemas and chronic gastritis."

Any virtue the "antiblennorrhagic" drugs may possess must manifest itself through elimination in the urine. In large doses they may produce congestion of the kidneys and even complete suppression. It is only reasonable to suppose that smaller quantities long continued have a deleterious effect on these vital organs and when renal disease already exists may precipitate a grave condition of affairs. The literature on the subject details a large number of cases in which this actually occurred.

The average man hardly consumes five minutes out of every 24 hours in urination. Ten minutes would be a liberal allowance. Does it not then seem irrational practice to keep a patient's system constantly saturated with nauseous, disagreeable, even dangerous drugs in order to secure local action on a few inches of a diseased mucous membrane for so brief a period?

The affirmative answer to this question is emphasized when we consider the questionable nature of the drugs employed for this purpose, and moreover, how readily accessible the affected region is to local measures.

The advocates of internal "specific medication" in gonorrhea can point to innumerable cures in which this was the only method of treatment.

They confuse *post hoc* with *propter hoc.*

The average practitioner has not an adequate appreciation of the essential self-limited nature of acute uncomplicated gonorrhea. And in chronic urethral disease we should not forget the sage observation of Thiry: "Everything earthly has an end—even a gleet."

As has just been remarked, iconoclasm in therapeutics is not a position of honor. But after considerable experience with these drugs, both in my own practice and in the practice of others, it is my opinion that no member of the socalled antiblennorrhagic group of drugs has the slightest therapeutic virtue in acute or chronic urethral disease, and that their administration in sufficient dosage to influence the urine may give rise to grave constitutional and local disturbance.

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[3] Reference Handbook of the Medical Sciences.

SPECIAL ARTICLES

WHO IS YOUR PHYSICIAN?

BY

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There are some of the disasters of a man's life which he anticipates and for which he makes provision. There are some emergencies which he meets with a calm exterior, knowing that his affairs have been adjusted for just such an occasion. A man occupying a fourth story room in a large city hotel becomes panic-striken at a cry of "fire" in the night unless he awakes knowing that he had the forethought to select for his lodging a room which opened directly out to the fire-escape. If he has done this he simply gathers his valuables together and descends the ladder with unshaken nerves. It is often true, and in more cases than we ordinarily appreciate, that "God helps them that help themselves." The history of the ages gives us many instances of the fact that people mistake as visitations from Providence diseases which they themselves might have avoided. The pious Mohammedans of the Orient make their pilgrimages to the sacred city of Mecca, bathe in the same pools, and drink the same water; side by side they kiss the black stone in the birth city of Mohammed, and take advantage, as it seems to us, of every opportunity to convey from one to the other, the dread disease which claims them every year by thousands—Asiatic cholera. Blinded by the belief that disease and death are matters of divine predestination, they accept whatever may come to them, and prostrated before their god, cry "blessed be Allah," attempting neither to evade nor to avoid the scourge. From the Anglo-Saxon race they are slowly learning that by boiling their water and cooking their food, they can be saved from cholera by thousands.

The "black death" of the middle ages in Europe swept the country, bringing suffering and death to human beings almost without number. In London alone during 1665 there died of the plague, 50,000 in five weeks, yet holy men of that time used all their efforts to prevent physicians or others from combating the spread of the disease, believing it to be a visitation from God against which human efforts would be not only futile but a sacrilege. For years this plague has knocked importunately at the entrance to the United States, but our physicians, refusing to believe that it is our duty to accept plague, disease, and death without an effort to prevent them, using science as a key, have locked the gates of our great country against this disease, preserving the lives of many of our people.

For years the people of Cuba have labored under the burden of an annual death loss of hundreds of people through the ravages of yellow fever, accepting its visitations as a part of life in that climate and country. From the time, however, that General Leonard Wood was put at the head of the Cuban military government, the hygienic and sanitary methods immediately instituted, at first modified and then caused this deadly scourge to disappear. The city of Havana is now free from the disease and it will be a matter of only a few years until yellow fever in Cuba is spoken of simply as a matter of history. The same story can be told of smallpox. In Europe a few hundred years ago smallpox was so common that there was a saying, "From love and smallpox none escape." With the discovery by the immortal Jenner of the effect of vaccination, smallpox is now becoming an extinct disease. Where vaccination prevails, smallpox dies, and yet against the introduction of vaccination many objections have been raised. Influential members of the clergy have held that to produce in human beings any artificial condition, such as vaccination, to avoid smallpox was a direct intervention on the part of human beings to thwart the will of God. When the use of anesthesia was first proposed, official church bodies went so far as to proclaim that to use chloroform to relieve the pains attendant upon childbirth was in direct contravention with the divine will which promulgated the statement, "In sorrow shalt thou bring forth children."

It is well to ask the question as to what influence has brought these things about, overcoming all objections and opposition. To whom are we indebted for the fact that smallpox, plague, yellow fever and malaria have lost their terrors for the people of the United States, the people of England, of Germany and France? Why is the Anglo-Saxon race foremost of any in the world? Great things cannot be accomplished without national health or without mental and physical strength. Turn to the annals of the history of medicine and let the pages answer the question. Find out what has been done by physicians. For illustration, let us listen to the story of but one of the men who has contributed to the prevention of disease in our country and to the preservation of the health of our people.

The influence of such a physician of the highest type upon his fellowmen cannot better be described than by quoting from the tribute paid to Dr. Benjamin Rush at the time of his death, before the South Carolina Medical Society. Dr. David Ramsay, addressing the society, said:

> To do honor to the memory of Dr. Rush, who did honor not only to our profession, but to his country and to human nature, is in unison with the finest feelings of the heart. Our society has not only abundant, but peculiar reason to mourn over the death of this illustrious physician. He was the preceptor of 60 of its members, more than one-half of all who have ever associated with us since our institution in 1789. We do not weep alone. While we drop the tributary tear, we have with us the sympathy of our fellow citizens over all the United States; for the name of Dr. Rush gave a splendor to the American character, and greatly added to its reputation throughout the republic of letters. His works are read coextensively with the language in which they are written, and are daily quoted as standard medical authority by the learned of different nations. Crowned heads have done him homage, but his fame has a more solid foundation in the hearts and affections of several hundreds of his pupils and many thousands of his countrymen, who admire his talents and virtues, and are grateful for the good he has done. Numerous societies on both sides of the Atlantic have done him and themselves reciprocal honor by enrolling his name in the list of their members. He has been one of the most prominent pillars on which his country's claim to be ranked among learned nations has preeminently rested, ever since Dr. Franklin was no more. Few or none of his contemporary fellow-laborers in the field of medicine can prefer superior or even equal claims as reformers and improvers of the theory and practice of medicine. His life was a blessing not only to our country, but to the great family of mankind. Let us review it, so that from his bright example we, our children, and our children's children may be stimulated to go and do likewise. We will then extract good from evil and derive a benefit from a great and irreparable national calamity.

On the other hand, listen to the description by Daniel Defoe, of the irregular practitioners who flourished at the time the plague was devastating London in 1665.

> The common people were now led by their fright to extremes of folly; and as I have said before, that they ran to conjurors and witches, and all sorts of deceivers, to know what should become of them; who fed their fears, and kept them always alarmed and awake, on purpose to delude them, and pick their pockets; so they were as mad upon their running after quacks and mountebanks and every practising old woman, for medicines and remedies, storing themselves with such multitudes of pills, potions, and preservatives, as they were called, that they not only spent their money, but even poisoned themselves beforehand, for fear of the poison of the infection, and prepared their bodies for the plague, instead of preserving them against it. On the other hand, it is incredible, and scarce to be imagined, how the posts of houses and corners of streets were plastered over with doctor's bills and papers of ignorant fellows quacking and tampering in physic, and inviting the people to come to them for remedies, which was generally set off with such flourishes as these, viz.: INFALLIBLE preventive pills against the PLAGUE; NEVER FAILING preservatives against the infection; SOVEREIGN cordials against the corruption of the air; EXACT regulations for the conduct of the body in case of an infection; antipestilential pills; INCOMPARABLE drink against the ONLY TRUE plague water; THE ROYAL ANTIDOTE against all kinds of infection; and such a number more that I cannot reckon up, and if I could, would fill a book of themselves to set them down. Others set up bills to summon people to their lodgings for directions and advice in the case of infection. These had specious titles also, such as these:
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> An eminent high Dutch physician, newly come over from Holland, where he resided during all the time of the great plague, last year, in Amsterdam, and cured multitudes of people that actually had the plague upon them.
>
> An Italian gentlewoman, just arrived from Naples, having a choice secret to prevent infection, which she found out by her great experience, and did wonderful cures with it in the late plague there, wherein there died 20,000 in one day.
>
> An ancient gentlewoman, having practised with great success in the late plague in this city, Anno. 1636, gives her advice only to the female sex. To be spoke with, etc.
>
> An experienced physician, who has long studied the doctrine of antidotes, against all sorts of poison and infection has, after 40 years' practice, arrived at such skill as may, with God's blessing, direct persons how to prevent their being touched by any contagious distemper whatsoever. He directs the poor gratis.
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> I take notice of these by way of specimen. I could give you two or three dozen of the like, and yet have abundance left behind. It is sufficient from these to apprise any one of the humor of those times, and how a set of thieves and pickpockets not only robbed and cheated the poor people of their money, but poisoned their bodies with odious and fatal preparations, some with mercury, and some with other things as bad, perfectly remote from the thing pretended to; and rather hurtful than serviceable to the body in case an infection followed.
>
> I cannot omit a subtlety of one of those quack operators, with which he gulled the poor people to crowd about him, but did nothing for them without money. He had, it seems, added to his bills, which he gave about the streets, this advertisement, in capital letters, viz.: HE GIVES ADVICE TO THE POOR FOR NOTHING. Abundance of poor people came to him accordingly, to whom he made a great many fine speeches, examined them of the state of their health, and of the constitution of their bodies, and told them many good things for them to do, which were of no great moment; but the issue and conclusion of all was that he had a preparation which, if they took such a quantity of every morning, he would pawn his life they should never have the plague—no, though they lived in the house with people that were infected. This made the people all resolve to have it; but then the price of that was so much, I think it was a half-a-crown; "but, Sir," says one poor woman, "I am a poor almswoman, and am kept by the parish, and your bills say you give the poor your help for nothing." "Ay, good woman," says the doctor, "so I do, as I published there; I give my advice to the poor for nothing, but not my physic." "Alas, sir," says she, "that is a snare laid for the poor, then, for you give them your advice for nothing, that is to say, you advise them gratis to buy your physic for their money; so does every shopkeeper with his wares." Here the woman began to give him ill words, and stood at his door all that day, telling her tale to all the people that came, till the doctor, finding she turned away his customers, was obliged to call her upstairs again, and give her his box of physic for nothing, which, perhaps, too, was good for nothing when she had it.
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> But to return to the people, whose confusions fitted them to be imposed upon by all sorts of pretenders and by every mountebank. There is no doubt but these quacking sort of fellows raised great gains out of the miserable people; for we daily found the crowds that ran after them were infinitely greater, and their doors were more thronged than those of Dr. Brooks, Dr. Upton, Dr. Hodges, or Dr. Berwick, or any, though the most famous men of the time; and I was told that some of them got five pounds a day by their physic.
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> But there was still another madness beyond all this, which may serve to give an idea of the distracted humor of the poor people at that time; and this was their following a worse sort of deceivers than any of these; for these petty thieves only deluded them to pick their pockets and get their money, in which their wickedness, whatever it was, lay chiefly on the side of the deceiver's deceiving, not upon the deceived; but in this part I am going to mention, it lay chiefly in the people deceived, or equally in both; and this was in wearing charms, philters, exorcisms, amulets, and I know not what preparations, to fortify the body with them against the plague; as if the plague was not the hand of God, but a kind of a possession of an evil spirit; and that it was to be kept off with crossings, signs of the zodiac, papers tied up with so many knots and certain words or figures written on them, as particularly the word Abracadabra, formed in triangle or pyramid.
>
> I might spend a great deal of time in my exclamations against the follies, and indeed the wickedness of those things, in a time of such danger, in a matter of such consequence as this, of a national infection. But my memorandums of these things relate rather to take notice only of the fact, and mention only that it was so; how the poor people found the insufficiency of those things, and how many of them were afterward carried away in the dead carts and thrown into the common graves of every parish with these hellish charms and trumpery hanging about their necks remains to be spoken of as we go along. All this was the effect of the hurry the people were in, after the first notion of the plague being at hand was among them, and which may be said to be from about Michælmas, 1664, but more particularly after the two men died in St. Giles's, in the beginning of December; and again, after another alarm in February, for when the plague evidently spread itself, they soon began to see the folly of trusting to those unperforming creatures, who had gulled them of their money, and then their fears worked another way, namely, to amazement and stupidity, not knowing what course to take or what to do, either to help or relieve themselves, but they ran about from one neighbor's house to another, and even in the streets from one door to another with repeated cries of "Lord have mercy on us, what shall we do?"

Do you detect in this any resemblance to the methods of irregular practice at the present time? If not, pick up any daily paper and look over the socalled medical advertisements. Though these quacks live 300 years apart, they are brothers; their methods are the same. Some one has said that the development of medical knowledge means nothing to a man who is sick, unless his physician is a man of such intelligence and of such study that he has shared in the general progress of the profession. Your physician should be a man of education, not merely a medical education or the holder of a diploma which indicates medical education, but a man of thorough training, beginning with those sciences tributary to medicine which alone can lay the foundation for a thorough knowledge of the human body, its functions and its derangements. How often is it the case that a family entering a town or making the choice of a physician for the first time, sends for the doctor who happens to belong to the church or the lodge or the social set with which this particular family has become identified. This without any investigation of the man who is entrusted with so great a responsibility. If death comes they bow like the ignorant Mohammedans and say "nothing more could have been done, it is the will of God." But this may not have been true. Suppose the physician called was an irregular practitioner, a man ignorant or inexperienced, a man inattentive or unscrupulous, important facts with reference to the disease, or the patient may have been overlooked or neglected. If so, all that could have been done has not been done, and not only the doctor, but the careless parent stands guilty before the bar of justice.

Your physician should be of the highest moral type, a man familiar not only with the code of professional ethics, but of social ethics as well. More than 1,000 years ago, Rhazes, an Arabian physician, gave this advice to his patients with reference to the selection of a physician: "Study carefully the antecedents of the man to whose care you propose to confide all you have most dear in the world, that is, your life and the lives of your wife and children. If the man is dissipated, is given to frivolous pleasures, cultivates with too much zeal the arts foreign to his profession, still more so if he be addicted to wine and debauchery, refrain from committing into such hands lives so precious." This gives you a conclusion which may guide you in the selection of your physician. Two thousand years ago Hippocrates, the Father of Medicine, administered to all his students an oath, which if strictly followed, would still keep all physicians in the narrow path of virtue.

> I swear by Apollo the physician, by Æsculapius and by Hygeia, by Panacea and by all the gods and goddesses, that I will fulfil religiously according to the best of my ability, power, and judgment, the solemn vow I now make: I will honor as my father the master who taught me the art of medicine; his children I will consider as my brothers, and teach them my profession without fee or reward. I will admit to my lectures and discourses my own sons, my master's sons, and those pupils who have taken the medical oath; but no one else. I will prescribe such medicines as may be best suited to the cases of my patients according to the best of my judgment; and no temptation shall ever induce me to administer poison. I will religiously maintain the purity of my character and the honor of my art. I will not perform the operation of lithotomy but leave it to those to whose calling it belongs. Into whatever house I enter I will enter it with the sole view of relieving the sick and conduct myself with propriety toward the women of the family. If during my attendance I hear of anything that should not be revealed, I will keep it a profound secret. If I observe this oath may I have success in this life and may I obtain esteem after it; if I break it, may the contrary be my lot.

The selection of a physician should be confined to the ranks of the socalled "regular" practitioners; this immediately raises the question, "why?" Before we answer, another question arises, namely, what are the qualifications that you demand of the man whom you desire to care for your family or yourself when you are sick? Do you desire to have for your physician a man who understands thoroughly the human body in health as well as in disease and who, by patient study and long observation has become familiar with those measures which are of greatest assistance to the natural forces in restoring diseased organs to health? Do you desire to have as your physician a man who is honest according to all the ordinary standards of honesty or one who stands openly convicted before the community of dishonest methods of any kind? Would you think it better to have for your physician a man who stands well not only with the community at large but with other physicians who are better qualified than yourself to judge of a doctor's professional ability and of his other qualifications for the practice of medicine? Or, on the other hand, would you be satisfied with a man proved to be dishonest; or, even though he cannot furnish evidence of a proper study or proper understanding of the human body and its disaffections? Of course there are a number of factors aside from mere technical ability which always enter into the employment of any professional man whatever. Personality, tact, conscientiousness in the performance of duty, integrity; all these things should influence you in the choice of a physician. The first question, however, is *who is the best judge* as to whether a man possesses the qualifications to cope successfully with disease in human beings.

I have the following solution to offer for this problem. Most people, if asked regarding their choice of a physician will say, "Oh, we always have Dr. So-and-So because he has such a very pleasant way of getting along with sick folks," or, "We always have Dr. This-and-That because we understand he was very successful in treating a certain patient." This without reference to his ability as it is known by the medical profession or of his honesty or integrity or any of the real qualifications that enter into the making of a physician in the true sense of the word. If you enter a strange town and ask concerning a physician, about your first requirements in selecting one should always be that he does not limit himself to any particular branch of treatment. Limitation of this sort does not mean specialization as so many are inclined to believe. There should be no restrictions as to method placed upon the man who is to care for the sick, but if he desires to confine himself to any one branch of treatment, he must do so only with the thorough knowledge of his limitations and without professing to treat all forms of disease. If he is in general practice every limitation he places upon his methods, either of diagnosis or treatment, adds just so much to handicap his usefulness to those whom he proposes to serve. People must recognize the fact, once and for all, that while there are socalled "schools of medicine," every one of these schools is characterized by some limitation upon its methods of diagnosis or its methods of treatment. Whenever this limitation exists, just so far is the man who is governed by such a creed hindered in the proper diagnosis or treatment of the sick. These schools fortunately represent but a small percentage of all physicians. The majority of physicians, and they who have contributed practically all of progress to the science of medicine, they who are doing practically all of the world's work today in the field of medicine, are *physicians of sufficient education and training, no matter where acquired, who refuse to be bound by the restrictions of any medical sect or creed.* They are the strictly regular physicians. Regular physicians make it their business to study all the influences that have ever been brought to bear upon disease. If physicians have sometimes made mistakes, and they certainly have, it has usually been the result of an attempt to follow a single method to an extreme. It is unquestioned that bloodletting, for instance, was carried beyond its real field of usefulness by the practitioners of 100 years or so ago. Other methods of treatment have been abused in the same way. Irregular practitioners of various kinds who have advocated either the maximum or the minimum dose have done so while they were blind to the fact that in endeavoring to tickle the popular palate they have adopted methods so extreme as to be useless for practical purposes. The same is true of massage treatment, of the water cure for disease, of the socalled mind cure, and others. There is a tendency on the part of these medical faddists to make this same mistake; to carry special lines of treatment to such an extreme that many cases which would be benefited by a special study and the application of other methods, are either neglected or the patients actually harmed by the mistaken enthusiasm of these irregulars for their special mode of treatment. It has always been and will always be, that the socalled irregular physicians are those who stand by the extremes advocated by enthusiasts, whether in or out of the medical profession. Of course, the medical profession has extremists in its own ranks, but that is no more an argument against the regular profession than it would be to say that no one should drink water anywhere because some forms of water are injurious and harmful for drinking purposes. On the other hand, it is just as important to distinguish between physicians proper and individuals who make every effort to appear like physicians, as it is to distinguish between water and other liquids which may resemble it. It may be just as injurious to employ a quack who has "doctor" on his sign as to drink a glass of liquid which is 50% sulfuric acid but which gives no outward evidence of being so. There are some solutions of poisons which cannot be detected except by an expert chemist, yet of which a single taste would be sufficient to produce death. It is just so with men who profess to practise medicine. There are many irregular practitioners with the outward appearance of regular physicians, but they can nearly always be detected by a man versed in medical affairs and medical knowledge.

If you are about to employ a physician or a man to consult with your own physician, the best way to find out about his qualifications is to go to a disinterested physician whom you believe to be an honest man, a man who is square, and a man whom you know to have had a good education, and say: "Doctor, I am about to call a physician into my family, and there are certain reasons why I cannot employ you. Will you kindly give me the names of two or three of the best physicians in this community, or if you know absolutely which is the best, give me his name?" When the doctor gives you these names, then ask him what features there are that commend each one; why one is better than the other, or why any of these is better than the other physicians in the community. There is no honest physician in this broad country who will not give you an honest opinion on this question if you will pay him his ordinary office consultation fee or, for that matter, without the office consultation fee; and you will have a selection of physicians to guide you, which cannot by any ordinary possibility be an erroneous one. Whatever may be said with regard to the principal differences which exist among physicians, not one physician in a thousand can be persuaded deliberately to tell a falsehood about the qualifications or the ability of his professional neighbor. When you have a reliable physician's judgment about another physician in the same community, you have a judgment which is far superior to any that can be obtained from any man not thoroughly versed in medical knowledge.

New Laboratory for State Board of Health in Illinois.—The State Board of Health, as announced in the *State Register*, is to have a laboratory of the board. This laboratory is being excellently equipped with all of the scientific apparatus for bacteriologic and chemic examinations necessary in the sanitary work of the board, and will aid materially in the efficacy of the board in the investigation of water-supplies and in the prevention of communicable diseases. The laboratory is needed on account of the vigorous campaign instituted by the board against tuberculosis, and which is now being conducted by the board in every county in the State. In times past a great many of the laboratory investigations of the board have been necessarily referred to Chicago laboratories, but these will now be undertaken in the board's own laboratory in Springfield.

Laveran's "Prophylaxie of Paludisme."—The Public Health and Marine-Hospital Service states that the recent work of Laveran, "Prophylaxie du Paludisme," is an interesting indorsement of the protective measures against malaria that have been adopted by modern hygienists. He accepts the practical preventive recommendations, which are the outgrowth of his announcement in 1880 and his subsequent communications of the causative factor in malarial diseases. Laveran's formal indorsement of the technic of the modern antimalaria campaign attracts particular interest in Italy, where the original announcement of the eminent French army surgeon received its principal corroboration through the work of Marchiafava, Celli, and Golgi, and where, in recent years, the government has expended large sums of money in efforts to redeem wide areas of land, such as the Roman Campagna, and many places in southern Italy, Sicily, and Sardinia—a once prosperous and healthful country, but now desolate from malaria. Laveran's new book indorses in particular the protection of man against the bites of mosquitos, the prophylactic administration of quinin to exposed persons, the cleaning up of bad lands, and the betterment of individual hygiene.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

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1. Ergot in General Practice. Alfred T. Livingston.
2. Xanthoma. John B. Shoemaker.
3. Uncinariasis in the South, with Special Reference to Mode of Infection. Claude A. Smith.
4. Linear Nevi: A Few Clinical and Pathologic Considerations in Reference to Nevi in Particular, and to Dermatology in General. M. L. Heidingsfeld.
5. The United States Public Health and Marine-Hospital Service. Part II—The Service as it is Today. Organization of the Bureau. (Continued.)
6. Travel Notes. V. Italy and the Great Anitmalarial Campaign. (Continued.) Lewellys F. Barker.
7. Travel Notes. VI. Father Damien, the Leper Hero. Nicholas Senn.

1.—See *American Medicine*, Vol. VIII, No. 4, p. 139.

2.—See *American Medicine*, Vol. VII, No. 7, p. 929.

3.—See *American Medicine*, Vol. VII, No. 25, p. 973.

4.—See *American Medicine*, Vol. VII, No. 24, p. 929.

Boston Medical and Surgical Journal.

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1. The Present Status of Hydrotherapy and Other Forms of Physical Therapeutics. Joseph H. Pratt.
2. The Practical Application of Hydrotherapeutic Measures. Charles S. Millet.
3 Sacral Spina Bifida, with Reference to the Skin Representation of Sacral Nerve Roots. E. W. Taylor.
4. Operations on the Stomach, with Report of Case. (Continued.) John C. Munro.

1.—Physical Therapeutics.—J. H. Pratt refers the development of this branch of treatment to increased knowledge of physiologic and pathologic processes. In Germany the new movement embraces all forms of disease. Its various subdivisions owe their introduction to many men in different countries. In Germany the leaders in internal medicine are the leaders in physiologic therapeutics. Three leading university hospitals are equipped for water treatment; one has rooms devoted to inhalation therapy, and a department of mechanotherapy fitted up with Zander's apparatus. Elaborate apparatus is not essential to success in hydrotherapy. The importance of water treatment is indicated by the place given it in the latest standard works on internal medicine. Thirteen universities give special courses on the subject. The best development of the douche treatment is that known as the French method, and is the most efficient of all water treatments in chronic disease. America's contributions to physical therapeutics are Baruch's douche apparatus and Kellogg's electric light bath, but this branch of medicine has attained a much higher development in Europe than here. [H.M.]

2.—Hydrotherapeutic Measures.—C. S. Millet states that in any given case the use of water is experimental, and must not be given up, although marked improvement does not at once appear. He reports a case of scarlet fever with a temperature of 106° for three days, notwithstanding cold applications, this being reduced rapidly to 100° by a hot wet sheet, which brought out the rash. The bloodvessels of the skin were in a state of tonic contraction from the irritation of the poison, so cold had no effect on them. If the pulse is tense and full, and the skin hot, the cold bath will produce better results, though the patient cries out against it. The method selected must depend on the reaction obtained. Any severe infectious disease is poorly treated if water and friction are not freely employed. If the blood is not in the cutaneous vessels, heat should be first applied. Sometimes it is impossible to produce rest and sleep without first stimulating the nerves as in melancholia or acute mania. The patient should be set in hot water while a pailful of cold is quickly thrown over his shoulders. The result from a hot wet pack in kidney involvement is not so much due to vicarious action as it is to the withdrawal of blood from the internal organs. The water poultice is beneficial in all acute pulmonary affections. In the chronic forms, in organic heart diseases, chlorosis, and secondary anemias, the hot-air cabinet or sun bath should be followed by a warm shower and then cold water through a hose. Ice over the precordia has an effect like digitalis. In collapse or shock it is as important to apply ice to the heart as heat to the extremities. Ice over the epigastrium will relieve the thirst following abdominal operations. [H.M.]

3.—Sacral Spina Bifida.—E. W. Taylor reports the case. The patient was a man of 33, who suffered from sacral spina bifida, and this was the cause of several troubles, prominent among which were urinary and fecal incontinence, the occurrence of trophic ulcers, deformity of the feet, and various sensory disturbances in the lower limbs. These are all considered referable to the defective development of the sacrum, resulting in spina bifida, producing symptoms referable to the sacral cord through involvement of its nerve roots of predominant sensory character. The points of significance are: The existence of areas of anesthesia from lesion of sacral nerve roots, which in general coincides with Head's description of their skin representation; the retention of sexual capacity in spite of extensive destruction of the sacral nerve roots; the absence of marked disturbance of gait in spite of plantar anesthesia; the practical possibility of physical cleanliness with both vesical and rectal incontinence. [A.B.C.]

Medical Record.

August 27, 1904. [Vol. 66, No. 9.]

1. The Subtle Power of Radium. ROBERT ABBE.
2. Concerning Shock: With a Contribution to Its Pathology. FRANK P. VALE.
3. The Climate of Tidewater Virginia. W. A. PLECKER.
4. Pyloric Stenosis in Infants. J. G. WILLIAM GREEFF.
5. The Modern View as to the Etiology and Treatment of Eczema. ZAMA FELDSTEIN.
6. A Method for Preventing the Pain following Clamp-and-Cautery Operations for Hemorrhoids. HOWARD LILIENTHAL.

1.—The Subtle Power of Radium.—Abbe early secured from the Curies of Paris, 15 cg. (2¼ gr.) of radium of the strength of 300,000, and after 15 months gives some results of his experience, largely in an experimental therapeutic line in application to 40 cases of different types of disease, illustrating mostly its action on superficial morbid growths. Abbe as yet does not draw definite conclusions but the general influence of radium is directed toward causing retrograde changes. This is illustrated by its causing the ordinary warts (verruca vulgaris) to disappear. He has cured ulcerating lupus, superficial epithelioma, and it has caused a large cancerous mass to be reduced to a fourth its former size. He says it stands proved, that in radium we have to deal with a very subtle force, unlike that of Finsen light or röntgen rays, though strongly resembling them in effect; and efficient in some cases in which these fail. The Becquerel rays given off by radium may be rated as much stronger than Finsen light, as they are weaker than röntgen rays. [A.B.C.]

2.—Shock.—Vale reviews fully the literature on the subject and gives the results of experiments performed by himself. Concerning the symptoms, he says in part: Shock results from an overwhelming impression on the nervous system, either physical or mental, arresting more or less completely the functions of every cell in the body. There results an outpouring of lymph into the tissues in excess of normal and consequent inspissation of the blood—as shown by an increase in its specific gravity—which is one important factor, added to an impaired vasomotor tone, in the production of a greatly reduced blood-pressure. That the enfeebled action of the heart is largely secondary to the lowered blood-pressure is shown by the experiments of Goltz, Cobbett, and Roy. The wan, pinched features are due to the empty peripheral vessels and feeble circulation. The lessened secretions, partial and often complete anuria, are due to the lowered blood-pressure. The feeble circulation and lessened activity of all the organs and general arrest of metabolic processes explain the fall in body temperature. [A.B.C.]

4.—Pyloric Stenosis in Infants.—Greeff reviews the literature, and says pyloric stenosis in early infancy is a rare disease. It is true there are now a number of cases of socalled congenital pyloric stenosis on record, but among the 50 or 60 odd cases reported, there are perhaps only 30 which were seen in infants. Since this condition has been known, it has been called congenital, but in looking over the cases reported, and judging from his own case, he has come to the conclusion that we have to deal with an acquired condition, not a congenital one. He reports a case in detail, which might by some be classed as pyloric stenosis, but which he believes was not, even after autopsy. In the patients suffering from symptoms of pyloric stenosis, Greeff does not believe in resort to operation. The patient should be treated as in severe cases of hyperacidity in adults. Stop all food by the mouth for a few days; wash out the stomach, give antifermentation medicines, alkalies, and when feeding is begun, do so by the teaspoonful. [A.B.C.]

5.—Etiology and Treatment of Eczema.—Z. Feldstein divides dermatologists into those who claim that eczema is a parasitic disease and those who hold that it is purely constitutional. The removal of the constitutional ailment is not generally followed by a cure. Relapses show, either that the parasiticide has not been sufficiently penetrating, or that constitutional disturbance has set up a hyperemia of the skin with the result that the parasites and their toxins become the exciting factor in the lesion. In surface healing applications in "wet" eczema the toxin accumulates under the skin and is likely to break out again. Under stimulation the yellow discharge becomes first gummy and then watery and noncontagious. The writer has recently used a mixture of Juniperas oxycedrus, stavesacre, Pinus silvestris, and Eugenia caryophyllata prepared without any animal fat. This is so deeply penetrating that itching is stopped on the first application. It is necessary to begin with weak applications in order to avoid what has been incorrectly called an "artificial eczema." The latter being nonparasitic can be cured by nonstimulating remedies. [H.M.]

6.—Prevention of Pain after Clamp and Cautery.—Lilienthal says it is well known that for several days after the usual clamp-and-cautery operation, pain and edema contribute greatly to the distress of the patient. For the last three years he has adopted a method which reduces these disagreeable symptoms to a minimum. Immediately after the clamping and burning have been completed, six or seven radiating incisions through the skin, well into the subcutaneous tissue, are made with scissors. There is rather smart bleeding, which, however, is easily checked by a little pressure and a dry dressing. In six hours a wet dressing may be applied. There is a free flow of serum from these incisions for the next day or two. Edema, with its danger of infection, is absent, and the patient feels perfectly comfortable. [A.B.C.]

New York Medical Journal.

August 20, 1904. [Vol. LXXX, No. 8.]

1. The Management of Genital Sores. E. WOOD RUGGLES.
2. The Best Method of Operating to Effect a Radical Cure of Senile Hypertrophy of the Prostate Gland: Based on the Study of 150 Radical Operations. (Concluded.) ORVILLE HORWITZ.
3. The Finsen Light Treatment. ROLLIN H. STEVENS.
4. The Etiology and Treatment of Arteriosclerosis. O. T. OSBORNE.
5. Talma's Operation for Cirrhosis of the Liver. L. B. MCBRAYER.
6. Renal Insufficiency. ANTONIO M. CRISPIN.
7. Surgery under Difficulties in East Africa. SAMUEL GURNEY.

1.—Genital Sores.—E. W. Ruggles says the only safe course to pursue in the management of genital sores is to regard them all with suspicion, to exercise the greatest reserve in forming an opinion and in expressing it to the patient; in fact, to hold them all as guilty (in respect to syphilitic infection) until they are proved innocent. It is almost equally important to refrain from instituting general specific treatment until the diagnosis of syphilis is confirmed by the secondary symptoms. If he believes a sore to be soft chancre, unless it is at the meatus, he cauterizes it very thoroughly with carbolic acid and tries thus to destroy all the germs at once. After this, any one of several antiseptic drying powders is applicable. Iodoform is unquestionably the best. Europhen or bismuth formic iodid may be substituted. In the treatment of herpes, cleanliness and dryness are the most important factors. Frequent washing with mild antiseptics and the application of a powder composed of one part of salicylic acid to 100 of starch on a thin layer of cotton, placed under the prepuce so as to separate the two mucous surfaces, will cure most cases quickly. It matters little in the treatment of hard chancres whether specific local treatment is used or not. An ointment of calomel and cold cream or lanolin is agreeable, because it does not adhere to the sore. [C.A.O.]

2.—Senile Hypertrophy of the Prostate.—Orville Horwitz discusses at some length the best method of operating to effect a radical cure of senile hypertrophy of the prostate gland. The article is based on the study of 150 radical operations. From a review of the results obtained in the 150 cases recounted, he offers the following deductions: 1. A routine method is not applicable to the treatment of prostatic hypertrophy; every case is a law unto itself, and the treatment will depend on the various conditions presented in each individual case. 2. The dangers attendant on the daily catheterism are greater than those of a radical operation performed at the onset of the symptoms caused by the obstruction. 3. The proper time to perform a radical operation is reached as soon as it becomes necessary for a patient to resort to daily catheterism. 4. The gratifying results obtained by a number of the operations in many cases demonstrate that the Bottini operation is one of great surgical value. It is applicable in a large percentage of cases; which if properly selected has proved to be the safest and best method of relieving an obstruction caused by prostatic hypertrophy. In those cases in which a stone in the bladder is associated with a prostatic enlargement, litholapaxy may be performed in conjunction with a galvanocautery prostatotomy. 5. In skilful hands, properly performed, the Bottini operation can no longer be classed as "unsurgical"; "a blind operation attended by profuse hemorrhage and severe complications"; "attended by a large mortality"; "the results being only temporary." 6. A complete prostatectomy is justifiable if performed early, before the individual is broken down in health and secondary complications have supervened. In early operation the results are most satisfactory, recovery rapid, the mortality varying between 5% and 7%. 7. In complete prostatectomy in feeble elderly patients with long-standing obstruction and secondary complication, the prognosis is grave and the mortality ranges between 15% and 18%. If the bladder in these cases happens to be hopelessly disabled, the results obtained by the operation are negative. Cases of this description are only suitable for suprapubic drainage. 8. In 90% of all cases the gland can be readily removed by means of a median perineal incision. The perineal operation recommended by Bryson is considered the operation of choice. 9. Complete suprapubic prostatectomy is shown to be more dangerous than the perineal operation for obvious reasons. A suprapubic prostatectomy is safer if combined with perineal drainage. 10. Partial suprapubic prostatectomy is indicated in such cases as where a valve-like lobe exists, which interferes with urination, or where there is a partial hypertrophy of one of the lobes. A complete suprapubic and perineal prostatectomy combined is wisest where there is an enormous hypertrophy of the three lobes, especially if the condition is associated with tumor formation projecting well back into the bladder, giving rise to a stenosis of the prostratic urethra. 11. A perineal prostatectomy is best suited for those cases where the enlargement of the lateral lobes has a tendency to progress toward the rectum, to obstruct the urethra, or to project backward into the bladder. 12. A prostatectomy is always attended with more danger than the Bottini operation, and the convalescence is more prolonged. In suitable cases the latter operation is therefore the one of choice. [C.A.O.]

3.—Finsen Light Treatment.—R. H. Stevens believes that in superficial skin diseases which are suitable for the Finsen treatment there is no more effective and speedily curative agent known to the medical profession, and he says that it is surprising that it has not been more generally introduced into this country. The writer protests against the common practice of denominating as Finsen lamps any kind of a phototherapeutic lamp, the construction of which may involve only few or none of the principles enunciated by Finsen. Experiments show the necessity for the long exposures. The deeper the diseased cells the weaker is the action of the light, and those cells which we find in the deeper parts of the lesions are more resistant to the light than the superficial cells; hence, they must have a longer exposure. The weaker light sources, the light of which is composed largely of the rays of shorter wave length, would not affect these deeper-lying and more resistant cells at all. [C.A.O.]

4.—Arteriosclerosis.—O. T. Osborne suggests that as the suprarenal glands furnish par excellence the vasoconstrictor stuff for the organism, they may be responsible for this condition in later life either from increased function on the part of these glands or decreased function on the part of glands furnishing vasodilator stuff. The treatment must aim to diminish the high blood-pressure. This can be accomplished well by thyroid extract in small doses if we believe there is evidence of diminished thyroid secretion, and any small dosage of iodid or iodids will stimulate the thyroid gland to greater activity, hence the long known value of this drug in arteriosclerosis. If possible, all severe muscular activity and all nervous strain, and anything that tends to increase peripheral tension, should be prevented. The value of rest, especially mental, must not be forgotten. [C.A.O.]

5.—Talma's Operation.—L. B. McBrayer reviews the subject, and reports a case operated upon for cirrhosis of the liver. The case is that a mulatto of 57. He had been tapped repeatedly and several quarts of fluid removed from the abdomen. An incision was made in the right semilunaris. The bloodvessels were found very much enlarged, especially veins, and greatly increased in number. The peritoneum was very much thickened, and was firmly adherent to the subjacent tissues; the vessels in the peritoneum were much enlarged. The liver was very much atrophied, and presented a typical hobnailed appearance. On account of adhesions between the liver and parietes, no attempt was made to irritate its surface or to stitch it to the abdominal wall. The omentum was brought up and stitched to the parietal peritoneum for about five inches, at right angles to the incision. Three sutures of chromicized catgut were used, one on either side of the incision, and two and a half inches from it. Another was used through each wall of the incision. The patient recovered, and although paracentesis was necessary at intervals, the ascites has not required it now for over three months. [C.A.O.]

Medical News.

August 27, 1904. [Vol. 85, No. 9.]

1. Delirium from Nervous Shock. PEARCE BAILEY.
2. A New Portable Sphygmomanometer; also a Blood-pressure Chart. THEODORE C. JANEWAY.
3. Osteoplastic Amputations. ALEXIS V. MOSCHCOWITZ.
4. Need of More Accurate Knowledge in the Diagnosis and Treatment of Chronic Suppurative Otitis Media. JAMES F. MCCAW.
5. Intestinal Obstruction following Appendicitis Operations: Report of 86 Cases. CLARENCE A. MCWILLIAMS.
6. Aseptic Catheterization of the Urinary Passages. M. KROTOSZYNER and W. P. WILLARD.
7. Valuable Suggestions from the Inspection of Urine. IRA S. WILE.
8. Quantitative Albumin Determinations. KARL M. VOGEL.

1.—Delirium from Nervous Shock.—P. Bailey includes under the term delirium, psychomotor unrest, insomnia, clouding of consciousness, incoherence of speech, to which may, or may not be added hallucinations, illusions, and unsystematized delusions. Similar in symptoms to toxic cases are those which follow physical exhaustion. The prognosis is not universally favorable. When there is predisposition to insanity, the mental defects are often permanent, and in great physical exhaustion they often end fatally. Important as emotional factors are in causation, it is a different matter to prove them unique factors. They may induce heart failure or apoplexy, but it is because vascular disease preexists. The neuroses are the only diseases in which they are important causes. Chorea, paralysis agitans, and exophthalmic goiter have been the unique results of fright. It causes epilepsy probably only in the predisposed. Hysteria and neurasthenia are the neuroses in which the emotions figure most prominently in etiology. The traumatic neuroses may arise from causes chiefly material or chiefly psychic. The opportunities of error in assigning causes are great. In studying the literature of this subject, the writer has been surprised at the few cases in which insanity can be regarded as the result of shock, the test being absence of predisposition and other causes, and a nervous shock of great intensity. In his paper he reports a number of cases in which these conditions are fairly well fulfilled. [H.M.]

2.—A Portable Sphygmomanometer: A Blood-pressure Chart.—T. C. Janeway finds the main defect of most instruments which use Riva-Rocci's method of circular compression, is too small a width of compressing surface. Von Recklinghausen has demonstrated that no armlet less than 12 cm. wide can give accurate readings in arms above the average size. No portable apparatus uses rigid tubing or a wide enough caliber of manometer tubing to allow satisfactory transmission of the pulse wave and the estimation of diastolic pressure. The writer has solved the problem of combining portability with accuracy by not attempting to pack all the parts of the apparatus in one case. The armlet and inflating bag not being breakable can be carried in an ordinary instrument bag. All the parts weigh only 2½ pounds and the manometer case measures 10½ inches in length. He describes the technic in detail and presents a cut of the chart which he has devised for his records, the important features of which are legibility at a distance, a single column of figures for blood-pressure and pulse-rate and availability for observation at short intervals. [H.M.]

3.—Osteoplastic Amputations.—Moschcowitz bases his good opinion of this method upon the following operations which he has performed: One amputation of the thigh; one Ssabanajew amputation at the knee; three amputations of the leg; one amputation at the ankle-joint; one Pirogoff amputation; and one amputation of the thumb. These cases are reported in detail, and skiagrams are shown. The author believes the bone and periosteum are the most important structures to be considered in amputations. Periosteum alone, however, brought over the end of bone in an amputation, never produces bone. He quotes Bier, who says that in no case must the bone expose on its distal extremity a wounded surface; and in order to obtain this result, it is necessary to cover or seal the wounded surface with bone covered by its periosteum, or if this be impossible, it is preferable to exarticulate. The underlying principle is to form, either from the bone amputated or from a neighboring bone, a thin osteoperiosteal flap, which obtains its mobility from a hinge of periosteum; this osteoperiosteal flap is brought into correct apposition with the sawed surface of the amputated bone, and its periosteum is sutured to the opposed periosteum and to other convenient structures. If the work is done under aseptic conditions, primary union usually results. [A.B.C.]

4.—Chronic Suppurative Otitis Media.—McCaw believes that the gravity of suppurative otitis media is poorly appreciated by the general practitioner. Instead of the child "outgrowing" the disease, the number of cases in which the disease outgrows the patient will never be known; many die from intracranial complications, in which the chronic suppurative middle-ear disease is never recognized as a causal factor. His deductions are: 1. Chronic otorrhea is not given the importance that its gravity demands. 2. In all cases the treatment should be based upon the pathologic condition present. 3. In addition to proper attention to the nose and nasopharynx and all minor surgical procedures, appropriate treatment to the middle-ear will yield good results in a large percentage of cases. 4. When caries is limited to the ossicular chain and there are no contraindications, ossiculectomy should be the operation of selection. 5. Cases presenting symptoms of extension beyond the tympanic cavity should be subjected to the radical operation. [A.B.C.]

6.—Aseptic Catheterization of the Urinary Passages.—Krotoszyner's conclusions are: (*a*) Soft rubber catheters are rendered sterile by being boiled five minutes, preferably in sodium chlorid solution. As a matter of precaution the catheter should be washed with soap spirits and running water after use. (*b*) Hard rubber and silk and cotton woven catheters should be boiled five minutes in a saturated solution of ammonium sulfate. Each instrument should be wrapped separately in gauze or a towel, or if several catheters are to be sterilized, in such a manner that their surfaces shall not come in contact with the sides of the vessel or other catheters. (*c*) Uretercatheters can be folded and wrapped in a towel so that their surfaces are kept apart, and boiled for five minutes in a saturated solution of ammonium sulfate. (*d*) Cystoscopes should be sterilized by first washing them in soap-spirits and water, then vigorously rubbing them for two minutes with two different pieces of gauze or cotton, wet with soap spirits, and then with alcohol for one minute. (*e*) Instruments can be kept aseptic if they are snugly wrapped in a piece of gauze or towel wet with soap spirits. [A.B.C.]

7.—Suggestions from Inspection of Urine.—Wile makes a number of suggestions—too many for brief abstract. Important ones are the red, sandy, gritty crystals of uric acid are commonly present in uricacidemia and are readily told at a glance. The general appearance of the urine often tells an approximate specific gravity. As a general rule, the darker the color, the higher the specific gravity, for amounts of urine under 1,500 cc. The reaction may be judged to a degree from the color, clearness and odor. Smoky urine is acid. Bloody urine of a pinkish hue is alkaline. Marked turbidity with viscidity is indicative of alkalinity, as is the ammoniacal odor of decomposition. Mere inspection does not do away with the necessity of careful chemic and microscopic analysis. It simply serves to direct the attention of the busy practitioner to prominent features which require further investigation. [A.B.C.]

CLINICAL MEDICINE

David Riesman A. O. J. Kelly

EDITORIAL COMMENT

The Toxins of the Bacillus of Tuberculosis.—The study of the tuberculous toxins dates back to the researches of Koch on tuberculin, in 1890. and who was the first to show that the specific bacillus does not act on the organisms by its biologic evolution, but by its toxins. In the first place, the inoculation of dead bacilli produces true abscesses, which in no way differ from those resulting from the living bacillus other than they do not produce a generalization of the affection. Second, if cultures evaporated to a tenth of their original volume are filtered, the liquid obtained, which is tuberculin, causes a rise in temperature with prostration, in subjects into whom it is injected. The merit of having succeeded in making a differentiation of the toxins of tuberculosis is certainly due to Auclair, who showed that the bacillus of tuberculosis secreted two kinds of toxin, the one diffusible, the other nondiffusible. By distilling cultures, he found that the liquid thus obtained is toxic, irritating and necrosing, but it is more especially the study of the nondiffusible toxins that he followed out, on account of their very great importance. Hammerschlag has demonstrated that 27% of the bodies of the bacilli was composed of substances of a waxy nature. In treating these with various dissolvents, especially with ether and chloroform, Auclair obtained toxins which have absolutely distinct properties. The ether product (etherine) when injected subcutaneously or in the lung gave rise to caseous abscesses, while the chloroform product (chloroformine) set up lesions having a fibrous tendency. Delile[1] was able to reproduce the same order of lesions in the meninges. By lumbar injections of chloroformine or etherine he produced spinal meningitis with paraplegia, as in Pott's disease, with a tendency to caseification in the case of etherine, and sclerosis in that of chloroformine. This differentiation of the tuberculous toxins into caseifying and sclerosing, is of capital importance. It explains the possible double orientation of tuberculous lesions toward sclerosis or caseification. It also shows that sclerosis is not only a function of the resistance of the soil, but that it may be the direct result of the action of a tuberculous toxin. Lastly, it proves that the bacillus of tuberculosis alone can give rise to all the lesions found in pulmonary tuberculosis, even caseification, without it being necessary, in order to explain this latter process, to consider a microbic association necessary.

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[1] Arch. de Méd. Exper., 1902.

REVIEW OF LITERATURE

Heart Lesions.—John Hill Abram[1] states, in regard to treatment, that these cases comprise (1) those in which compensation is practically equal to the lesion; (2) those in which compensation is only equal to the lesion when the patient is at rest; and (3) those in which compensation is unequal to the lesion. With those falling in the first class he believes that the patient should be informed of his condition in order that he may intelligently follow medical instruction which will prevent an augmentation of his trouble. Exercise in moderation, general dietetic and hygienic measures should occupy a prominent place in the regulated life of the individual. The treatment he has found most efficacious in hemoptysis is a free saline purge with a dose of opium. If the patient is a female the question arises as to her marriage. While in mitral regurgitation patients often pass through pregnancy without trouble, in cases of stenosis sometimes grave symptoms arise and enable attacks of tachycardia or acute edema of the lungs. In the second class of cases we find precordial pain; palpitation and dyspnea are manifest on exercise and in a more advanced degree some passive congestion of the liver and kidneys. In aortic cases throbbing of the muscles of the neck, headache and giddiness may be troublesome. Absolute rest in bed for a week or more, with elimination of fluid and regulation of diet, with moderate purgation, is the very best treatment. Tincture of digitalis and tonics are indicated. The tension of the pulse and the state of the arteries are valuable guides with reference to treatment. In the third class of cases the bowels are to be kept open, and sleeplessness and mental depression must be combated. Violent mania may arise, especially in aortic regurgitation. The modern hypnotics, trional, sulfonal, or paraldehyd are frequently sufficient, but sometimes opium is the only drug that will answer. [A.B.C.]

The Action of Tuberculin Introduced by Means of Respiration.—Erich Kapralik and Hermann V. Schrötter[2] claimed that the Koch reaction can be brought about by inhalation of tuberculin, the symptoms agreeing with those observed after injection. In only one case were there any unfavorable results, though relatively large doses were employed, while in many cases therapeuticly the action of the tuberculin was favorable. In cases of active tuberculosis the reaction was obtained after the use of 30 mg. In inactive or latent tuberculosis 250 mg. was required. In active tuberculosis the amount necessary to bring about a reaction is 20 times larger than by injection, while in latent cases it required 250 times the dose. These deductions refer to the results obtained by Bulling's "Thermovariator." The value of the inhalation method is commensurate with that of the injection method. The inhalation method is a means by which an early diagnosis of tuberculosis of the lungs can be made, and is useful in those cases in which there is merely weakness, wasting and indefinite symptoms. By this means the predisposed may be discovered, and when a susceptibility to small doses is found it may be taken as a sign that the lungs are already diseased. The combined use of the inhalation and injection methods may be considered a precise method of diagnosis in cases of general or local infection. For example, in cases in which the bronchial glands being involved, a reaction is obtained by injection but not by inhalations of tuberculin, and in which later there is a reaction by the latter method, an extension to the lungs may be inferred. The inhalation method may be employed in controlling the therapeutic results. These experiments have suggested to the authors the possible advantage of administering diphtheria antitoxin by inhalation in combination with injections, and the use of radioactive substances by inhalation as suggested by Tappiner. The authors studied in all, 28 cases in which tuberculin was administered in both ways. [J.H.W.R.]

Glycerin and Lymph in Vaccination.—E. Levy[3] employed glycerinized calf lymph only 24 hours old in a number of cases, and observed in most of them decided phlegmonous infections, and in some few of them abscesses around the point of vaccination and under the axilla. Permitting the lymph to lie eight days no more unpleasant complications were observed. Bacteriologically, many staphylococci were found, but these bacteria were absolutely harmless when injected into animals. The glycerin evidently destroyed their virulence. Whether virulent organisms were introduced at the time of production, through carelessness, or whether very fresh vaccine contains noxious properties or both, it follows that the glycerin causes destruction of either, and that no virus should be used until at least four weeks old. But glycerin is not a preserving agent of vaccine; rather it weakens it slowly, but surely. The higher the temperature the quicker it is made inert. He employed a 12 and 5-week old virus on himself without result, then a 5-day old virus with good result, and had the same experience with many others. He therefore advises older cultures for first vaccinations, or in such individuals who have not been vaccinated in a long time; recent lymph however for revaccinations of a few years. [E.L.]

Buccal Affections.—Tartaric gingivitis is a frequent occurrence, and yet as often overlooked on the part of the physician. M. Carmona[1], in a series of papers takes up this affection and recommends cleansing with mechanical appliances and antiseptic and antacid washes. The author mentions a specific gingivitis of pregnancy. Strangely enough, he affirms his belief that this latter is of septic origin, and does not state what relation the septic condition may bear to the process of conception, except in lowered vitality. [T.H.E.]

Sodium Citrate Added to Cow's Milk in Infant Feeding.—F. J. Poynton[2] believes with Wright, that much of the milk dyspepsia of infants fed upon cow's milk is a result of the indigestibility of the rennet curd of such milk, for it is rennet curd that is formed when milk is taken on an empty stomach. To combat the action of the rennet, Wright has suggested the use of sodium citrate, and experience has shown that his formula, which consists of a grain of sodium citrate to the ounce of milk, is a good one. Its advantages are: (1) It renders the curd of cow's milk more easily digestible; (2) it is cheap; (3) it is convenient to handle, easy to control, and progressive in principle; (4) it allows the milk to be given in a more concentrated form and thus avoids, to some extent, the danger of underfeeding; (5) there is no danger of scurvy. Its indications are: (1) As a routine for weaning a healthy infant on to cow's milk; and (2) for curing milk dyspepsia. Its disadvantage is a tendency to constipation, which, however, is easily controlled. Its limitations are: (1) The rare cases of intolerance of cow's milk; (2) relief of gastroenteritis from impure milk; (3) in organic disease, such as congenital hypertrophic stenosis. [A.B.C.]

Relation between Appetite and Gastric Juice.—A. Meissl[3] deduces from his observations that there are two varieties of gastric juice—an aggressive and a defensive variety—a condition analogous to the salivary secretion. The aggressive variety, furnishing Pawlow's appetite juice, is the result of a reflex act, the center of which is found in the sensory portion of the cerebral cortex. The centripetal portion of the arc passes from that portion of the cerebral cortex, giving rise to sensations for appetite, and goes to the sensory cortex; the centrifugal part is formed by the tracts leading from there to the vagus nuclei and the secretory gastric fibers of both vagi. The quantity of the aggressive gastric juice depends in amount on the appetite; it increases and decreases with it. The defensive variety is the product of a reflex act, the center of which is located in the sympathetic ganglions of the abdomen, and the peripheral fibers of which are furnished by the sympathetic nervous system. This act is not aroused by the sensation of appetite and partaking of food, but through an unconscious irritation produced by the chemic composition of the food on the gastric mucosa. The amount of defensive fluid is greater the easier the appetite sensations are produced, and when the patient lacks appetite it is smaller. The lack of this fluid, however, does not depend only upon lack of appetite, but also upon intense activity of the cerebral cortex just before and during meals for other things; reading just before and during meals is injurious to digestion, while complete ease, good company, etc., are beneficial. This fact is of special importance during illness, and everything should be done to remove conditions interfering with the appetite, such as pain, despondency, hopelessness, etc. If this cannot be done, we must increase the local chemic agents in the food to increase the amount of the defensive secretion—good soups, alcohol, etc. Examination of the gastric juice after a test-meal permits a study of the defensive gastric juice, especially, and but little of the aggressive juice will be found. Lavage is usually performed in sick individuals, who have but little aggressive juice at the best; also test-meals, even in healthy individuals, are not likely to produce much aggressive juice; and as the substances (spices, alcohol, etc.), which always aid in the production of the defensive fluid, are absent from it, there will be less of it than normally. This also explains the contradictions between daily experience and the experimental study: These substances are usually known to exert a favorable influence on digestion and nutrition, while if individuals using them are given a test-meal, diminished amounts of HCl, etc., will often be found. [E.L.]

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[1] The Lancet, August 6, 1904.
[2] Wiener klin. Woch., No. 22, 1904, p. 617.
[3] Münchener medicinische Wochenschrift, 1904, li, 307, No. 7.

[1] Crónica Médica Mexicana, July 1, 1904.
[2] The Lancet, August 13, 1904.
[3] Wiener klinische Rundschau, 1904, xviii, 241, 260, Nos. 14 and 15.

The Bacteriology of Measles.—W. K. Menshikoff[1] lays claim to the discovery of a microorganism which is a constant find in measles. This germ has been found in all cases examined for it. The secretions of the nose, throat, and conjunctiva, the pus from complicating otitis, and the blood of the patients all contained the new germ, which is a short diplostreptococcus. By means of cultures, etc., it was shown that this coccus, while resembling the pneumococcus very closely possesses characteristic features of its own. The author does not assert that his coccus is the specific germ of measles, but he thinks it is responsible for the purulent complications of the disease. Its role is therefore similar to that played by the streptococcus in scarlatina. [L.J.]

Stegomyia Fasciata.—Ortega[2] is quoted as giving the following: The disease known as yellow fever is transmitted by *Stegomyia calopus* or *fasciata*, and the germ, if that it be, does not complete its developmental cycle save in a vertebrate host. The germ, cast forth in the vomit as a spore, remains quiescent until imbibed by the mosquito and reestablished in a vertebrate host, where it continues its life cycle. It is not improbable that this cycle is ended in the organic excretions and detritus, there to disintegrate with the risk of infecting not only the mosquito, but man directly. The female stegomyia may deposit her eggs not alone in the water, yet this may be necessary for their proper development. While the foregoing is uncertain, petroleum used in the water not only destroys the mosquito, but the specific germ as well. The writer emphasizes the need to know just what metamorphosis this germ may undergo. [T.H.E.]

Alimentary Levulosuria in Hepatic Diseases.—H. Strauss made the assertion in 1901, that in levulose we possess an agent, by means of which we can distinguish a healthy liver from one diseased. Of 29 individuals afflicted with hepatic disease, 26 (29%) had alimentary levulosuria, of 58 normal individuals only 6 (10%). This statement has been tested repeatedly since and each time with the same results until Landsberg's work was published, who, in addition to large numbers of positive reactions in diseased individuals found alimentary levulosuria in four out of seven healthy men and therefore denied the value of the test. B. Chajes[3] reports his observations on 21 individuals known to be free from liver affections. He gave his patients 100 gm. of levulose in 500 gm. of water on an empty stomach and four hours later tested the urine by Trommer's, fermentation, and other methods; in but one of them a positive reaction was noted. The aggregate of such individuals examined thus far is now 99, and of these 15 reacted positively, the aggregate of individuals with hepatic disease is 95, and of these 84 (88.5%) reacted positively. Of 11 patients with syphilitic icterus all reacted positively. Chajes concludes, therefore, that the diagnostic value of alimentary levulosuria to determine hepatic insufficiency has not suffered through the examinations of Landsberg. [E.L.]

Production of Sugar from Albumin.—H. Luethje[1] publishes a number of experiments which he performed on dogs for the purpose of proving the derivation of sugar from albumin, a fact claimed by Pflüger never to have been proved. The dogs had been deprived of their pancreas. According to Luethje the experiments prove for a certainty that sugar can and is formed from albumin. Experiment I: A dog of 12,000 gm. was permitted to hunger for 26 days; during this time he excreted 200.9 gm. of sugar; according to Pflüger a natural quantity of glycogen of 11 gm. per kilogram is excreted or 131 gm. in this instance; this leaves a difference of 69 gm. to be accounted for, and where could it have come from except the albumin. II. A second dog excreted in 25 days 1,281.3 gm. sugar; during this time he was fed 16,500 gm. of horse meat, which at the most contains 3% glycogen or 495 gm. sugar; once he was given 20 gm. lecithin, which is equivalent to 10 gm. sugar. The dog had no glycogen left in his body as prior to this he had been starved for 13 days and excreted only 3.24 gm. sugar daily. How is the difference of sugar to be explained? Three other similar experiments are related at considerable detail, but from all arises the indisputable fact that sugar is manufactured from albuminous substances. [B.K.]

A New Principle in Determining the Extent of the Stomach Tympany.—Alfred Neumann[2] suggests a new method of outlining the stomach which has some advantages over the distention by the usual methods. After a test-breakfast a bulb is placed on the end of the stomach-tube and a small amount of air introduced into the stomach. When the bulb is slowly compressed and released, amphoric sounds can be heard which do not extend beyond the limit of the stomach. Beyond this limit these sounds are either inaudible or are lacking the amphoric character. Care should be taken to have the tube free from fluid or mucus. Among the advantages that this method presents is that it may be done immediately after a test-meal. Furthermore it avoids the necessity of distending the stomach, a dangerous procedure when ulceration is present. [J.H.W.R.]

Purpuric Manifestations and Tuberculosis.—A. A. Kissel[3] discusses the connection which has been noticed by many authors between tuberculosis and the purpuric group of diseases (simple purpura, rheumatic peliosis, Werthof's disease). In view of the very obscure etiology of purpura we can only say that evidently tuberculosis leaves the system in a condition favorable to the development of the hemorrhagic diathesis. There are no fixed lines separating purpura simplex from the rheumatic and the hemorrhagic varieties. The course of purpura is unlike that of infectious diseases. In Russia the hemorrhagic diathesis is frequently seen. At present this affection seems to be caused by some general disorder of nutrition, rather than by an infectious agent. [L.J.]

The Occurrence of Free Amino Acids (Leucin, Tyrosin, Lysin) in the Blood of Acute Yellow Atrophy.—The presence of free amino acids in the blood of acute hepatic diseases has long been suspected, but no accurate observations have thus far been reported. C. Neuberg and P. F. Richter[4] examined the blood of a patient with acute yellow atrophy developing after acquisition of syphilis. The urine contained only small quantities of leucin and tyrosin with a relatively normal but absolutely diminished amount of urea; 355 cc. of blood was obtained, and from the serum exposed to cold, crystals of tyrosin were obtained. The serum was then deprived of its albumin and the concentrated serum tested to note the absence of peptone. From this serum exposed to cold many crystals of leucin and few of tyrosin were precipitated. They were separated from each other by alcohol; picrate of lysin was also obtained. The sum total of these was 0.787 gm. of tyrosin, 1.102 gm. leucin, and 0.24 gm. lysin; 2.129 gm. of amino acids, or probably 30 gm., in the patient's total quantity of blood. Certain tests, proving the absence of proteolysis in the blood, proved conclusively that these acids were not formed through the action of a proteolytic ferment after the removal of the blood from the body; degeneration of albumin from the blood was also excluded. The disturbance of urea formation and the destruction of the liver could not be considered the causal factors either, as the quantity of these acids found was equal to total absorption of the liver. The authors come to the conclusion that it must have been due to a breaking down of the muscular structures or to a pathologic disturbance of the function of the intestinal mucosa in permitting the crystalline albuminous products of the intestinal tract to pass through. The small amounts of these amino acids in the urine showed an inability of the kidneys to secrete properly. [E.L.]

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[1] Russki Vratch, June 26, 1904.
[2] Crónica Médica Mexicana, July 1, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 696, No. 19.

[1] Deutsches Archiv für klinische Medicin, 1904, lxxix, 498.
[2] Wiener klin. Woch., 1904, No. 24, p. 678.
[3] Russki Vratch, June 26, 1904.
[4] Deutsche medicinische Wochenschrift, 1904, xxx, 499, No. 14.

Complications of Amebic and Specific Dysentery.—C. F. Craig[1] reports the autopsy findings in 120 persons dying of dysentery at the General Hospital, Presidio of San Francisco. The frequency of grave complications in this disease has not been sufficiently impressed. Of the 120 cases, 60 were amebic and 60 chronic specific in type; by the latter, Craig means the chronic form of the acute dysentery, due to the bacillus of Shiga. Regarding the nervous system, there usually was an increase of cerebrospinal fluid and always intense congestion of the vessels of the cerebrum. The most common complications in the lungs were emphysema and bronchopneumonia. Edema of the pericardium occurred in 30 cases and acute pericarditis in 6; brown atrophy and partial fragmentation of the heart muscle was found, especially in the chronic specific form. Some form of nephritis was present in 101 of the cases, 53 amebic and 48 specific. Chronic interstitial nephritis occurred in 20, all young men, in whom that condition would not be expected. Fatty degeneration of the liver was found in 42 patients, liver abscess in 24, two of the latter being in the chronic specific type. This proportion of liver abscesses to cases of amebic dysentery is much smaller than the figures of most observers; this may be explained by the supposition that most are operated upon or result fatally while in the Philippines. Chronic enteritis was present in 70 patients, chronic gastritis in 60; intestinal perforation occurred in 4 patients, 3 amebic and 1 specific. Nephritis, liver abscess, chronic enteritis, and gastritis, are the most serious complications and occur so frequently that treatment should be directed especially toward them. [A.G.E.]

Alimentary Glycosuria and Myxedema.—Wilhelm Knöpfelmacher[2] reported two cases of congenital myxedema in which he made some experiments with a view of determining the limit of assimilation of glucose, and whether this limit is lowered when thyroid extract is administered. He concluded that (1) in congenital myxedema of children the limit of assimilation of glucose is unusually high; (2) the administration of thyroid gland in extract or pastille form causes a distinct lowering of this limit. When the dosage is small there is some wasting but no slowing of the pulse. His experiments seem to prove that thyroid intoxication has an influence upon the assimilation of sugar, but in what manner is yet undetermined. [J.H.W.R.]

The Early Lesions of Arteriosclerosis.—W. M. L. Coplin[3] considers this subject with special reference to alterations in the elastica. Extended observation shows that in practically all instances the elastic tissue of the arterioles, and to a less degree of the larger trunks, show a more or less marked deviation from the normal. Fragmentation, swelling, separation, and curling of the fragmented ends constitute the most common early alteration. Later, in the newly-formed fibrous tissue, new elastic fibrils may be recognized. In the more advanced lesion the dissociation and fragmentation of the elastica with advanced atrophy of the muscle layer are most striking. These, with many intermediate stages appear to be manifestations of a lesion primary in the elastica and characterized by imperfectly evolved efforts at repair. Assuming the hypothesis that the initial change in arteriosclerosis is in the elastica, the question arises as to what induces it. Overstrain is probably one cause. Coplin also suggests the possibility of the formation in the body of a substance lytic for elastica; this would give what might be termed elastomalacia, a place of primary importance in the evolution of arteriosclerosis. [A.G.E.]

The Socalled "Typhoid Diagnostic" (Typhus Diagnostikum—Merck).—S. V. E. Radzilowski[1] made four tests each in 16 cases of typhoid, employing the Widal reaction microscopically in 1 to 50 dilution, and macroscopically in 1 to 50 with bouillon and the modified "typhoid diagnostic" after Ficker in 1 to 50 and 1 to 100 dilutions. The results were uniform, a positive reaction following the use of the "typhoid diagnostic" in 6 to 11 hours. Radzilowski used this method in different stages of the disease, and with the dried blood diluted with water or a solution of sodium chlorid. The serum of patients not suffering from typhoid fever did not agglutinate the "typhoid diagnostic" in 1 to 50 dilution. Mixture with the red blood-corpuscles resulted in no influence on the reaction. He concluded that the "typhus diagnosticum" answers the same purpose as a virulent culture of typhoid bacilli, gives accurate results, is simpler, takes less time, and give the same results. This test is a great addition to diagnostic measures, and is of especial value to physicians who have not a bacteriologic laboratory at their command. [J.H.W.R.]

Transmissibility of Cancer.—J. Dagonet[2] cites an instance of what he believes to be transmission of epithelioma from man to a lower animal. The tumor was a squamous epithelioma of the penis, of rapid growth. A part of the tumor was macerated in salt solution, and 2 cc. (30 m.) of the solution, proved sterile by inoculation on culture media, was injected into the peritoneum of a white rat. The rat remained well for many months, then gradually lost flesh, and finally died, 15 months after the inoculation. Autopsy showed in the omentum many hard, grayish masses, and in the spleen many foci of newgrowth. Microscopic examination revealed the same histologic picture as that of the original human tumor. Dagonet does not regard this as a mere transplantation of cancer, but as an evidence of the contagious property of these tumors. A second case will be reported later. [A.G.E.]

Vaccination against Cholera.—Haffkine's method of protective vaccination against cholera is the one usually employed in the Orient; it consists of the injection of living cholera vibrios into the man to be protected; Kolle states, basing his remarks upon experimental work, that living and dead bacilli possess the same immunizing power, and recommends dead cholera cultures therefore for purposes of immunization. N. Murata[3] is the first physician to employ this method practically in a large number of patients. He injected one oese of cholera vibrios; an equivalent of 0.0002 gm. of bacterial substance in 1 cc. of sodium chlorid solution. Of every 10,000 vaccinated individuals, six contracted the disease; of 10,000 nonvaccinated individuals, 13. Of the former, 42% died; of the latter, 75%. As the disease in the vaccinated cases was always lighter, a distinct prophylactic value of the vaccination is shown. He later doubled the immunizing dose with the result of noting no cases at all among the vaccinated number. Immunization is absolutely without danger. An agar culture, 24 hours old, is mixed with normal salt solution; heated to 60° for 30 minutes, mixed with 0.5% carbolic solution, and 1 cc. of this injected. There is a transient (24 hours) elevation of temperature to 101° or 102°; sometimes local tenderness, headache, and malaise were noted. [E.L.]

Lymphatic Leukemia.—C. Sternberg[4] reports in detail seven cases of his own, and reviews the previously reported cases. Three of his cases were characterized by an enormous increase in the small lymphocytes, and at autopsy were found to be subject to hypertrophy and hyperplasia of the spleen and lymphatic glands, and a lymphatic transformation of the bone marrow. The other four cases exhibited an increase in the large lymphocytes. Case IV showed at autopsy a lymphosarcoma of the mediastinal glands, while the spleen, bone marrow and liver were infiltrated with the same character of cells, which made up the tumor. In Case V the same atypical proliferation was seen throughout the lymphatic system. Case VI was one of chloroma, and Case VII showed atypical proliferation of the bone marrow. The cases collected from the literature are likewise divided into two classes. The first group, characterized by predominance of the small lymphocytes, may be regarded as a true lymphatic leukemia. The significance of the socalled large lymphocytes in the second group is difficult to determine. It is probable, however, that they are quite distinct from the small lymphocytes. The group of cases, of which they are characteristic, is probably closely allied to the lymphosarcomas. [B.K.]

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[1] American Journal of the Medical Sciences, July, 1904.
[2] Wiener klin. Woch., 1904, No. 9, p. 244.
[3] Medicine, August, 1904.

[1] Wiener klin. Wochen., No. 10, 1904, p. 276.
[2] Archives de Med. Exper. et d'Anat. Pathologique, May, 1904.
[3] Centralblatt für Bacteriologie, 1904, xxxv, No. 5.
[4] Zeit. für Heilkunde, Bd. xxv, Heft 4, p. 170, and Heft 7, p. 201.

Abdominal Infection by Micrococcus Tetragenus.—Rudolf Müller[1] reported a case of diffuse suppurative peritonitis following gastroenterostomy for a pyloric cancer. The bacteriologic examination of the exudates in the stomach revealed the presence of *Micrococcus tetragenus*, *Diplococcus pneumoniæ*, and a bacillus of the coli group. The source of infection in this case was said to be the tonsils. In a second case he found in the pus from a perityphlitic abscess also *Micrococcus tetragenus*. He reviews the literature extensively. [J.H.W.R.]

Analysis of 167 Sarcomas.—Tsaia,[2] in a series of papers reports the nature and treatment of these; 95 were in males; 72 in females. It is compared with the report of D'Anna concerning epithelioma, who states that in 295 cases, 195 occurred in females and 100 in males. The sarcomas occurred in infants, and up to 72 years. From 35 to 50 the maximum was reached. Osteosarcoma represented 56 cases. Lymphosarcoma, and organic lesion of kidney and eye gave a mortality of 100%. Recovery in disease of the mandible (5 cases) reached 100%. Many other interesting statistics are included. [T.H.E.]

Ficker's Diagnosticum.—After finding Ficker's diagnosticum to give negative results with the blood-serum of healthy individuals, of patients suffering from diseases other than typhoid fever and in two cases suspected of being typhoid fever, which negative findings were confirmed later by clinical investigation, and with immune serums of cholera and dysentery, and to give positive results in two cases of typhoid fever and recovery from typhoid fever, (1 to 8,000 and 1 to 100 respectively), and with immune serums of typhoid fever, Gamann[3] pronounces it an excellent means for the diagnosis of typhoid fever, but especially excellent for small institutions, hospitals, ships, etc., as the method is easily carried out, and no bacteriologic laboratory, oven or even microscope is necessary. The results were the same as when living organisms were employed, and on account of the bacteria being dead, the difference in the growth of the typhoid culture did not have to be considered. [E.L.]

GENERAL SURGERY

Martin B. Tinker
A. B. Craig C. A. Orr

EDITORIAL COMMENT

The Vermiform Appendix and the Ascaris Lumbricoides.—In August of last year, Dr. Cautas published the observations made in the course of an anatomic investigation, in which he had found a specimen of the "round worm" parasite (*Ascaris lumbricoides*) in the vermiform appendix, which it quite filled, but without producing any apparent lesion of the lining mucous membrane. This report was afterward commented on by Dr. LeRoy des Barres,[4] one of the professors of the School of Medicine of Hanoï, who informs his readers of the enormous prevalence of helminthiasis—and, more especially, of lumbricosis—in Indo-China. Of more than 1,000 bodies, which he had been called upon in the course of his professional duties to examine after death, he had seen in more than half of the total number, lumbrici emerge from the mouth or the nostrils. Accordingly, the coincident fact is a remarkable as well as interesting one—that appendicitis is excessively rare. This somewhat unexpected item of clinical knowledge had already been indicated for the Chinese Empire by Dr. Matignon; Professor LeRoy des Barres has never observed it among the Annamites, although gastrointestinal troubles are very common there indeed, and manifest their presence by the most various and "bizarre" groups of symptoms. Among the nearly 200 postmortem specimens examined by him last year up to the date of writing, there were but two which presented lesions dependent on chronic appendicitis (adhesion, serous neoformations). He had never met with an appendix which had been the seat of destructive disease of any kind, or that had even become obliterated; but he had, on the other hand, often found one of abnormal length. And he here places on record 10 instances in which a lumbricus was fixed in the cecal appendix, in six of these the head of the parasite was engaged, and in the remaining four the caudal extremity. In no one of the 10 cases was there any peritoneal "reaction" due to the presence of the worm in the lumen of the enclosed tube; externally, the appendix merely seemed more rigid and more regularly cylindric than usual, while to the touch it yielded a sensation of fulness which could not be mistaken after it had once been felt. In 7 of the 10 cases the worm was still alive. In 9 of the 10 specimens the intestinal mucous membrane presented a perfectly healthy appearance to the naked eye; in the tenth, the patient had succumbed to cholera, and presented the characteristic lesions. On account of the fact that these worms always try to escape from the intestine after death, on account of the fall of temperature, Dr. LeRoy des Barres thinks it possible that some of these cases may have been instances of postmortem penetration; but the presence of the parasite is not, however, to be regarded as even a remotely probable cause of appendicitis, as the latter is so rare in Indo-China, while the lumbrici are diffused broadcast.

REVIEW OF LITERATURE

The Permanent Change in the Skin after Exposure to the Röntgen Rays.—L. Freund and M. Oppenheim[1] have concluded that (1) the existence of telangiectasis has a causal relation to the action of the röntgen ray; (2) their development and other skin changes of a therapeutic nature depend not only upon degenerative processes produced by the röntgen ray, but also essentially upon the circulatory disturbances induced; (3) the development of the telangiectasis depends not only upon the action of the röntgen rays, but also upon the intensity and quality of them. Rays which affect chiefly the upper layers of the skin are particularly of etiologic significance; (4) in general, those rays should be used that affect the deeper parts, excepting in those cases in which the process is entirely localized and superficial, such as psoriasis, ulcus rodens, superficial epithelioma, etc.; (5) telangiectasis is the result of widening of preexisting capillaries of the upper capillary layers; (6) inflammatory processes of the skin, in which the superficial bloodvessels are dilated, predispose to the development of permanent skin changes, and require special care in relation to the dosage; (7) the torpid character of the röntgen ray dermatitis is conditional upon the chronic congestion at the site of the exposure. [J.H.W.R.]

"Interrupted Circulation" as a Therapeutic Agent.—William Ewart[2] refers to the old method used by Ambrose Paré and revived and popularized by August Bier, of forming a continuous passive hyperemia at a localized point by slight compression of the veins above, the idea being that the passive hyperemia at this localized point, as for instance about a joint, would combat certain forms of disease. Ewart, following out the idea previously suggested by Cushing, improves upon the old method by producing sufficient pressure to cut off the arterial circulation for a brief time, and then suddenly relaxes it, allowing the blood to go with force into the temporarily ischemic area. It is believed that this has a beneficial effect upon the diseased tissues. He reports having treated a patient suffering with acute relapsing rheumatic fever by this method. Recovery had been fairly complete, except the wrists remained permanently affected and enlarged. The treatment by "interrupted circulation" was applied to the wrist, which was most enlarged, and the improvement was marked. Another patient had suffered from gonorrheal rheumatism, and his wrists likewise remained enlarged and stiff. The right wrist was the one most affected, and it was treated by the "interrupted circulation" method, with marked benefit. The subacute affection in the right knee was likewise treated with benefit. The method of applying the treatment is as follows: A padded armlet of lint and cotton of sufficient thickness to protect the nerves having been secured around the upper arm or thigh, a loop of india rubber tubing is passed behind the limb over the pad, and the two ends of the loop are strongly put on the stretch in one hand, the other hand grasps the tubes up to the front of the limb, thus tightening the loop into a strong ligature or tourniquet, the limb having been previously drained of its blood by being elevated; constriction is quickly relaxed, and the blood passes rapidly throughout the member. The maneuver is repeated for five or six times daily. [A.B.C.]

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[1] Wiener klin. Woch., 1904. No. 29. p. 815.
[2] Il Policlinico, Rome, No. 24, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 804, No. 22.
[4] Gazette des Hôpitaux, October 27, 1903.

[1] Wiener klin. Woch., No. 12, 1904.
[2] The Lancet, August 13, 1904.

Acute Suppurative Mastoiditis complicating Influenza.—P. S. Donnellan[1] reports three cases of this complication of influenza. All the patients were females, two adults and one child of 3. In the adults, the mastoid was involved before suppurative otitis media occurred, emphasizing the fact that suppurative mastoid disease may occur without marked visible evidence of middle-ear affection. In the child the tip of the mastoid first gave way, and the pus burrowed deeply in the cellular tissue of the neck. Recovery followed prompt operation in each case. Dr. Donnellan states that suppurative mastoiditis was a marked complication of influenza during the past winter, being very rapid and out of all proportion to the severity of the original attack; in some instances the mildest catarrhal symptoms, even in robust adults, were followed by acute suppurative mastoid disease. [A.G.E.]

Tendon Transplantation for the Treatment of Choreic Form of Infantile Cerebral Paralysis.—Wittek[2] reports a case in which the disease set in suddenly with convulsions and unconsciousness. Three weeks later the condition confined itself to the lower extremities in the form of spastic paraplegia associated with athetosis and chorea without disturbances of the bladder or rectum. He concluded that he had to deal with an encephalitis of both hemispheres. First he did a tenotomy of the ileopsoas. The biceps by means of an oblique incision was separated from the tibia on the one side, the semimembranosus and semitendinosus were separated on the other; these muscles were free from the surrounding tissue as far as the middle of the thigh. By median incision the upper portion of the patella was made accessible and the skin was undermined on each side backward and upward. Then by means of a strong piece of silk attached to the end of each muscle they were pulled from their respective sides through the undermined path out of the incision in the median line at the upper portion of the patella to which they were attached. A plaster cast was then applied, including the knee, hip and pelvis. The cast was allowed to remain for about nine weeks; about six weeks after the operation the patient was able to bend and straighten his leg upon being commanded to do so. [J.F.]

Mode of Absorption of Catgut.—Sir William Macewen[3] states that 24 hours after catgut has been placed in the tissues it is surrounded by leukocytes which closely invest the gut, sooner or later gradually erode its surface and penetrate into its interior. The strands of gut gradually undergo erosion and appear rough and pitted; many of the leukocytes in the vicinity become swollen and take on the color of the catgut; fresh leukocytes appear and gradually take the place of the swollen ones, which later appear to have digested and absorbed portions of the gut. The principal invasion and erosion of the catgut is from the periphery which results in a thinning of the thread and gradually leads to its disappearance. The absorption of the catgut is due to the action of the living cells, and therefore is dependent on their presence and on the facilities which are afforded them for acting on the catgut undisturbed while absorption of the gut is taking place. Infiltration of embryonic connective-tissue cells begins to appear, which forms the nucleus of new fibrous tissue which replaces the foreign body. [A.B.C.]

Antistreptococcus Serum in Appendicitis.—M. S. Maslowski[1] employed this serum in two cases of appendicitis with marked success. Both cases had resisted all other medicinal agents, the inflammation having progressed to suppuration, until the serum was used, when rapid improvement took place. In the first case 20 cc. was injected twice, on successive days. The second patient received one injection of 20 cc., and another 20 cc. of serum per rectum. The serum, as is known, possesses not only antitoxic and antimicrobic virtues, but also stimulates the system and enables it to resist the invading microbes and their poisons. [L.J.]

Congenital Atresia of the Small Intestine.—J. L. Archambault[2] reports an unusual deformity in an infant. Symptoms of intestinal obstruction were present from birth; operation gave no relief; death occurred at the age of 60 hours. Postmortem showed entire atresia of the small intestine 40 cm. (18 in.) below the pylorus; from the presence of two bands at this point it appears that double strangulation had occurred during embryonic life, and caused complete severance of the alimentary canal. Above this point the intestine was very markedly dilated, while below, it was in a rudimentary state, the small intestine being no more than 2.8 cm. (1 in.) in circumference, and the colon considerably smaller. Both parts contained a very small lumen that was filled with soft, grayish-yellow, cheesy material. The artificial anus had been made in the dilated jejunum a short distance above the blind pouch in which it terminated. Archambault finds no similar case on record, the one most resembling it being that of Mercadé, in which, though the stricture was comparatively high up, the lumen was not entirely obliterated. Regarding the cause of these lesions, Archambault reviews the various theories, and states that interference with some part of the vascular system of the fetus and consequent atrophy of the parts supplied, is gaining ground. This does not appear to cover the condition in his case, which he believes was due largely to mechanical obstruction that caused double strangulation and complete severance of the intestine. [A.G.E.]

Treatment of Congenital Equino Varus.—E. L. Evans[3] says there are two schools: 1. Those who treat congenital equino varus during early infancy by various methods. 2. Those who wait till childhood is well advanced and then correct by various major operative procedures. Evans advocates early treatment, and his method and results are given in detail. During 1903 he treated 53 cases. Two were treated solely by manipulation; 40 were of the nature of relapsed cases or incomplete corrections, or were primary cases neglected in infancy. These were treated by tenotomy, fasciotomy, syndesmotomy, osteectomy, etc., as occasion demanded. The remaining 11 were presented in early infancy and were treated as outpatients. They represented varying severities of the socalled second degree; in no case could the inversion, adduction, and plantar flexion be temporarily corrected by manipulation. Treatment consisted in two stages: (1) Correction of the varus; and (2) correction of the equinus. The tendons of the tibialis anticus and posticus and the flexor longus digitorum were divided above the ankle, and by manipulation, forcible correction of the varus was obtained, using a padded malleable iron splint to retain the corrected position during periods of manipulation. The time required to correct the varus was on the average about 30 days. Then the equinus was corrected by dividing the tendo-achillis with immediate rectification and subsequent manipulation. Full correction was attained in 9 of the 11 feet. Complete "cure" is in no case attained until bodily growth ceases, occasional manipulation being necessary. [A.B.C.]

Transpleural Surgery of the Spleen.—F. Dominguez y Roldan[4] presents this subject, considering the indications, procedures, and technic. It is safe and possible to transplant the spleen to the pleural sac, the loss of pulmonary expansion being of no moment. In diagnosing disease of the organ in question, accurate blood tests are regularly made by Mikulicz of Breslau, and are found invaluable; the writer refers to E. Martinez's work in this line, and adds his testimony to the advantage of hemodiagnostic procedures in the routine care of patients. The interference may be splenectomy or splenopexy. The former is indicated, *viâ transpleurale*, in many cases, because of the convenience and safety. Hepatic intervention in similar methods is well known and practised. The diaphragm is incised and the splenic pedicle ligated. The transpleural route, first announced by Israel, 1885, has gained favor of late. The costal section affords security, and the union of the parts is apt to be satisfactory. Experience in pleural effusion will aid in perfecting the technic of this operation. The procedure depends on the presence or absence of splenic suppuration in connection with the splenic lesion, whatever it may be. The necessity of drainage, or of fixation of the spleen in its new quarters, is to be settled by ordinary surgical exigencies. [T.H.E.]

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[1] Medicine, August, 1904.
[2] Mitteil. a. d. Grenzgebieten d. Med. u. Chirg., 1904, Bd. xii, Heft 4.
[3] The Lancet, August 6, 1904, p. 354.

[1] Russki Vratch, July 17, 1904.
[2] Albany Medical Annals, July, 1904.
[3] The Lancet, July 9, 1904.
[4] Rev. de Med. y Cir. de la Habana, May 25, 1904.

Serum Therapy in the Treatment of Anthrax.—Ivo Bandi[1] of Bologna discusses, at some length, a serum treatment of anthrax and reports two cases in detail. The first was a man of 30, a cattle dealer. He first noticed a small pimple in the middle third of the flexor surface of the right forearm. In the evening of the same day he was feverish, and became rapidly worse. A physician was called and four days after the original onset Bandi was called in consultation. He believed the patient to be suffering from anthrax, which was later amply demonstrated by blood cultures. He was very ill, with a high temperature. He was given 150 cc. of the antianthrax serum into the middle vein of the left arm; the evening of the same day 50 cc. was again given and the day following the patient was somewhat improved; the temperature had fallen and the urine, which was before scanty, had much increased; 40 cc. of antianthrax serum was again given and on the day following this, his temperature was normal. The patient continued to improve and eventually recovered. The second patient was a man of 27, a butcher, who first noticed a malignant pustule in the middle third of the flexor surface of the right forearm. His temperature quickly rose to 103° and the patient was very ill, with scanty urine. The pustule was cauterized with actual cautery and 80 cc. of antianthrax serum given intravenously, and 30 cc. given subcutaneously. Blood cultures showed unmistakably that the disease was anthrax. The temperature fell to normal, the kidneys acted freely, no further injections were given, and recovery was complete. [A.B.C.]

Operative Treatment of Carcinoma of the Larynx.—Hans Koschier[2] related the histories of 14 cases of cancer of the larynx on which he operated. Usually it is preferable to do a radical operation, but when the age of the patient and the general condition are such as to render narcosis and prolonged aftertreatment of important moment, and the size of the tumor already embarrasses the respiration, the endolaryngeal operation is preferable. It is well known that the growth of cancer in old people is much slower than in the young. In order to determine the extent of the disease, the larynx can first be opened and studied as to whether the laryngeal fissure with the soft parts, or the cartilages should be removed. The thyroid cartilage does not become diseased first near the middle line, but about 1 cm. (.4 in.) to one side, corresponding to the favorite position of primary cancer of the vocal cords. When the spot becomes softened the indication is for hemisection of the larynx, and depending on the extent of the lesion, only a lamella of the thyroid cartilage, and the arythyroid cartilage of the corresponding side, or the half of the cricoid cartilage, or a portion of it only should be removed. In advanced cases in which the whole larynx is diseased, total extirpation with or without removal of the cricoid cartilage is indicated. When one vocal cord is involved in its anterior part, eventually the anterior part of the opposite side becomes diseased, and therefore a removal of a piece of the lamella of the thyroid cartilage on the opposite side is indicated. In 6 of his cases he operated in 2 sittings, tracheotomy being performed 5 to 6 days previous to the late operation. The prognosis of cancer of the vocal cords is better than in cancer of the epiglottis. In 3 cases that had survived the operation 3 years, there was no return in 2. One patient died of bronchopneumonia, resulting from a hemorrhage from a thyroid vein. [J.H.W.R.]

Prevalence of Cancer and Its Increase.—W. Roger Williams[1] states that the Imperial Cancer Research Commission has come to the conclusion that there is no real increase in cancer. With this statement he takes issue and says, in the year 1840, 2,786 persons died from malignant disease in England and Wales, the proportion being 1 in 5,646 of the total population; 1 in 129 of the total mortality, or 177 per 1,000,000 living. In 1901 the deaths due to this cause numbered 27,487, being 1 in 1,186 of the total population, 1 in 20 of the total mortality, or 842 per 1,000,000 living. He adduces statistics to show that the more correct returns and statistics relative to mortality and morbidity cannot possibly account for this great increase. Whatever the etiologic factors of cancer may be, it is thus evident that they are in constant action. He further states that, though there has been a great increase of malignant disease in both sexes during the last half century, and though at the present time more women are affected than men, yet the malady has increased much more rapidly among the latter (206%) than among the former (108%); the natural greater prevalence of malignant disease among women is entirely due to the frequency with which the mammas and uterus are affected; the corresponding organs in men being rarely attacked by malignant disease. It is probable that the undue instances of increasing cancer mortality among men may be ascribed to the fact that of late, as the result of urbanization, the conditions of life among men have come to resemble more closely those for women than heretofore. [A.B.C.]

Gonococcosis.—The various sequels of infection of the gonococcus, says Romero,[2] are constantly before the physician. Both in the male and female patient distant and serious results may be attributed to it, although superficial clinical attention may overlook them. Potassium permanganate is excellent treatment in initial attacks. Methyl salicylate, also, may be relied upon. But one danger is that of neglect to carry treatment to its end, a danger which is one of the commonest and which cannot be sufficiently emphasized. [T.H.E.]

Cerebral Invasion of Pathogenic and Pyogenic Organisms.—Sir William Macewen[3] states that prior to the advent of cerebrospinal surgery, abscess of the brain was regarded solely as of pyemic nature, growing by metastases, and, owing to the aberrant manner in which pus formed, its localization was regarded as impossible, except in the few instances in which the abscess induced focal symptoms. More recently it has been discovered that all brain abscesses arising from the foci within the cranium are, if not in direct contact with such foci, at least in contact with the infected path which lay between the primary focus and the abscess. In the great majority of instances in which pus is formed from the primary foci on the exterior of the skull, the brain abscess is situated in direct continuity with the infected structures. Anatomic features or the result of prior pathologic process usually determine the particular direction in which the pyogenic organism proceeded from the primary focus to the brain. The situation of the brain abscess from middle-ear disease is determined by the anatomic condition of the parts and the direction of the prior pathologic encroachment. It will be found either within the temporosphenoidal lobe with the infected tissue around the sigmoid sinus, or in the cerebrum in touch with the infected path from the tegmen antri or tympani. Abscess of the brain seldom or never occurs by pyogenic organisms traveling by way of the internal auditory meatus. [A.B.C.]

Pendulous Sarcoma of the Stomach, and Remarks upon Connective-tissue Tumors of That Organ.—Alessandri[4] states that although sarcoma of the stomach is rare, many tumors of this organ without being subjected to microscopic examination are pronounced carcinoma when they in all probability are malignant growths of connective-tissue type. About one month before he saw the case reported the patient observed that her abdomen was increasing in size. When he examined her the left side of the abdomen just below the arch of the ribs appeared to bulge more than the right side. The mass extended from the costal margins to the linea alba and as low as the anterior superior spine of the ilium. It was movable in all directions, was the size of a child's head, firm and elastic, and its surface was lobulated. By distending the stomach the tumor was displaced downward and to the left. With the probable diagnosis of a splenic tumor he opened the abdomen and found the growth arising from the posterior wall of the greater curvature of the stomach by means of a pedicle about 2.5 cm. (1 in.) in diameter. The mass was removed and the abdomen closed. Microscopic examination revealed a spindle-cell sarcoma. Pure lipomas and fibromas are rarely found in the stomach; the most common connective-tissue tumors are myoma and fibromyoma. These tumors are very prone to become sarcomas. The tumors arising from the muscularis mucosæ and the submucosa usually grow toward the lumen of the stomach; few arising from the circular muscle layer develop in this direction. [J.F.]

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[1] The Lancet, August 6, 1904.
[2] Wiener klin. Woch., 1904, Nos. 18 and 19.

[1] The Lancet, August 13, 1904.
[2] Crónica Médica Mexicana, July 1, 1904.
[3] The Lancet, August 6, 1904.
[4] Mitt. a. d. Grenzgebiet. d. Med. u. Chirg., 1903, Bd. xii, Heft 4.

Penetrating Ventral Wound.—Perforation of both curvatures of stomach with operation and recovery are the points of interest reported by E. Fortún.[1] The high mortality in such wounds, and the curious uncertainty as to recovery, unite to make this case of interest. The patient was a negro of 25, who was injured in the region of the gastrocolic omentum. Some fever was manifested the third day, but it soon disappeared, and the patient was discharged after three weeks. [T.H.E.]

The Choice of Suitable Material for Ligatures and Sutures.—Sir William Macewen[2] states that asepticity is by some considered the sole requirement in a ligature otherwise suitable for suturing purposes. A further requirement which it must have is that it will remain in the tissue for a time sufficient to effect its purpose, and which will then be capable of rapid elimination. The interesting point in the paper relates to five cases which he reports, in which gold wire was used by other surgeons for suture purposes, the patients coming later under the observation of Macewen. Three of the patients came for relief of recurrent hernia, and two for hernia which had become strangulated. Of the three former, the wire in two was found to be loose in the tissue and free from the aponeurosis which it had been introduced to maintain in contact, while the third was imbedded in a granulation mass lying close to the surface, and it was evidently in process of extrusion, being freed from the structures in which it was originally noticed. In the two cases of strangulation the loop of wire which had been originally introduced through the aponeurosis was found free and hanging loose, and the bowel had passed through this loop and had become entangled and instricted as in a tight ring. In one, perforation had already occurred at the point of constriction. Sir William states that not only do soft tissues yield to pressure from insoluble foreign bodies, but bones, tendons, etc., do also. Steel pins placed in bones to secure apposition become loose in from 14 days to 21 days; metal wire will not hold bone fragments in apposition indefinitely. In the case of divided muscles, tendons, or aponeuroses, a suture should maintain them in contact for three weeks, and even the new granulation tissue will yield until six weeks or more have elapsed. Catgut, properly prepared, is apparently regarded as the best suture and ligature material. [A.B.C.]

Operation during Illumination by Röntgen Rays.—The case is reported by Galebsky.[3] During röntgen ray examination a child's esophagus was relieved of a foreign body and no esophagotomy required. [T.H.E.]

Transverse Ectopia of the Testes.—Albert A. Byer[4] reports the case. He found at operation for radical cure of hernia both testicles and cords intimately connected with the hernial sac on the left side; both cords passed through the left inguinal canal; the testicles were of unequal size; the smaller occupied the upper part of the sac and its cord had a distinct mesorchium; it passed up into the left inguinal canal, through the internal ring across the space of Retzius to the right inguinal region, whence it descended to the pelvis. The larger testicle lay at the bottom of the sac; its cord passed up into the left inguinal canal and descended in the left side of the bladder to the pelvis. The right internal ring was exposed, palpated, and found closed; the scrotum showed no evidence of division into two compartments; both testicles appeared normal, and there being no reason for transferring the right testicle into the right inguinal canal or to the right side of the scrotum, both cords and testicles were treated as one and radical cure for hernia was done in the usual way. [A.B.C.]

Hydronephrosis Due to Valve of Vesical Mucosa.—A. Goldschmidt[1] reports as a curiosity in medicine a case of bilateral hydronephrosis, caused by a fold of the vesical mucosa acting as a valve and closing off both ureteral openings. [E.L.]

Enucleation of the Enlarged Prostate.—In a previous paper Freyer[2] reported three suprapubic operations for enucleation of the prostate; his total number of cases is now 110, and he adheres to his original belief that the suprapubic route is the better. Once the bladder is opened through the suprapubic wound, the forefinger of the right hand is introduced, and by scraping the mucous membrane over the enlarged organ its true capsule is reached. The forefinger of the left hand is placed within the rectum, its purpose being to elevate and steady the prostate, while it is now enucleated by the finger within the bladder. This latter process is easily and quickly done. Freyer describes at some length the anatomy of the prostate. It really consists of two glands, which in some of the lower animals, and in the human fetus up to the fourth month, remain separate. Each gland is covered by a true capsule. The two glands approach each other, and finally blend, enclosing the urethra. That part of the true capsule on each disappears from the apposed surfaces, while the rest remains as the true capsule of the now fused single body. A sheath outside the capsule is formed from the rectovesical fascia. In enucleation the capsule is removed, while the sheath remains. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Proportion of Sex to the Number of Births.—Schultz,[3] from the Prussian statistics between the years 1891 and 1897, computes the following table of males to 1,000 females:

For total births	1060.241
" all legitimate births	1060.118
" " illegitimate births	1061.695
" " living births	1053.201
" " legitimate living births	1053.244
" " illegitimate " "	1053.697
" " still-born	1284.793
" " legitimate still-born	1292.871
" " illegitimate " "	1244.652

According to Schultz's opinion, the difference in the proportion of sex of the legitimate to the illegitimate does not rest so much upon a difference in production, but more upon a difference in the number of still-births. [J.F.]

The Prevention of Fever in the Puerperal State.—Bokelmann,[4] in denouncing Zweifel's method of treating patients after labor in order to avoid puerperal fever, says if the clots are to be removed at all it would be necessary not only to remove them just after the child was born, but to cleanse the vagina at regular intervals for some time during convalescence, because the blood clots are sure to form, since there is a constant flow of blood. To cleanse the genital tract after labor when the patient was quiet and was getting the much needed rest, would not only be annoying to her, but would separate tears that were beginning to heal and would afford opportunities for infection. The strict asepsis of all objects which are to come in contact with the genital canal at the time of labor and the absolute rest of the birth canal of the delivered woman, Bokelmann says, are the two essential factors which prevent puerperal fever. [J.F.]

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[1] Revista de Med. y Cir. de la Habana, July 10, 1904.
[2] The Lancet, August 6, 1904, p. 352.
[3] Crónica Médica Mexicana, July 1, 1904.
[4] Annals of Surgery, August, 1904.

[1] Münchener medicinische Wochenschrift, 1904, li, 921, No. 21.
[2] The Lancet, July 23, 1904.
[3] Centralblatt f. Gynäkol., 1904, No. 22.
[4] Centralblatt f. Gynäkol., 1904, No. 26.

The Prevention of Puerperal Infection in Private Practice.—John W. Byers[1] states that a woman who delivers herself spontaneously and has never been examined internally rarely has any sign of puerperal infection. As Leopold has shown, in a series of 248 cases so confined, 98% had no fever during the puerperium; five only had febrile symptoms, and these were slight. The uterus and vagina in a pregnant woman who has not been examined internally has no pathogenic organisms, though they are present on the inner surface of the labia and margin of the hymen in at least 60% of pregnant women, and internal examination will necessarily carry these germs where they may do immense harm. Nurses and students should be taught clearly the dangers of internal examination and the value and absolute safety of replacing this method by abdominal palpation. It should be recognized that in at least 75% of the cases, labor is a natural process not to be interfered with, and, as stated by Edgar, the whole process of labor properly considered is a conservative process, the tendency of which is to prevent sepsis, and it should be our aim not to thwart this process, or to supplant it by methods of our own, but to follow and aid, interfering only when for some reason the resources of nature prove inefficient. The immediate repair of any laceration of the pelvic floor following delivery is a most important point in the prevention of puerperal sepsis. [A.B.C.]

Two Cases of Vaginal Restitution by Transplantation of the Rectum and Anus.—Sneguireff,[2] by removing the coccyx, dissecting the rectum from the surrounding structure as far as the bladder, drew down that part of the gut and cut it off; the upper segment was inserted at the point previously occupied by the coccyx between the levator ani; upper end of the lower segment of the rectum was closed by a continuous suture; the lower segment was then opened anteriorly as far as the blind vaginal sac. The mucous membrane of the sac was sewed to the mucous membrane of the lower segment of the rectum along the incision made anteriorly. Both patients left the hospital able to defecate at will. The function of coition could be performed in a normal manner. [J.F.]

Prevention of Fever in the Puerperium.—Mueller[3] believes the retention of small particles of blood clots and pieces of placental tissue are important factors in the production of the fever following childbirth. He is strongly of the opinion that these small particles should be removed by means of douches. Mueller employs an instrument with which he can cause a slight friction, enabling him to get rid of the clots and placental tissue. He holds that infection introduced from without is rare. [J.F.]

Pathologic Histology of Chronic Oophoritis.—Printo[4] is inclined to group this condition into cortical and diffuse; the inflammation in the former arises as a result of contiguous conditions, while in the latter the pathologic agent is brought to the seat of trouble, either by means of the lymph or blood stream. In the cortical form he finds the tunica albuginea thickened, the stroma of the cortex evinces a cellular infiltration, especially about the vessels, in cases of long duration the stroma in few places only shows spindle cells, the greater portion is poor in cellular elements. Only here and there can unchanged follicles be found. In most of the follicles the cells evince chromolysis, atrophy and degeneration of the nuclei and of the protoplasm. In the diffuse form the follicles are diminished in number, and present cystic degeneration. As etiologic factors, Printo says the infectious processes are most important, especially gonorrhea and puerperal infection. Then disturbances of the menses, chlorosis and tumors of the pelvic organs, are also influential. [J.F.]

Vulva Edema and Perineal Tears.—Sittner[5] reports a case in which extensive swelling of the feet and legs appeared six weeks before parturition. The patient suffered with gnawing pains and swelling of the vulva. The latter condition increased to such an extent that the labia majoria appeared as large tumors, reaching as low as the middle of the thigh. By scarification he succeeded in reducing the edema considerably. The daily excretion of urine equaled three-fourths liter only; with Esbach's albuminometer the sediment reached to the U mark. The urine contained epithelial cells and hyaline casts. After the patient was placed upon a milk diet, and after she was given warm baths and kept in warm blankets, the condition of the urine varied, but Sittner did not think it necessary to induce labor. Spontaneous labor took place without injury to the vulva and perineum. Soon after the child was born the edema cleared up, and the condition of the kidneys improved, although the urine still contained some albumin when the patient left the hospital. [J.F.]

Psychosis of Gestation: Abortion; Recovery.—Treub[1] refers to a case of a woman who had borne three normal children. Early in the fourth period of gestation, after reading Victor Hugo's "Notre Dame of Paris," she insisted that the forthcoming offspring would be a monster. She attempted suicide, would not eat and could not sleep for the monster continued to cry throughout the night as though it were suffocating. After consultation abortion was decided upon. Soon after this procedure the patient returned to her normal state of mind. The fetus was normal in form. [J.F.]

Hebotomy Instead of Symphysiotomy.—Th. H. Van de Velde[2] is quoted as advising this procedure. The main advantage is the good union afterward easily obtained; room is obtained as readily by the new operation and the dangers of the old are minimized. [T.H.E.]

The Retention of a Fetus Whose Death Occurred When it Was at Full Term.—Goldenstein[3] reports a case of a woman who could not determine the beginning of her pregnancy. She says she was able to distinguish the movements of the child up until three months ago, at which time she experienced a few pains that soon passed off. Since the pain she has never noticed any of the child's movements. There has never been any flow; she is well and able to do her work. When Goldenstein saw the patient he induced labor and found a macerated child, 51 cm. (20.4 in.) long. [J.F.]

A Method to Prevent Pads Remaining in the Abdomen after Laparotomy.—Rossel[4] says the method he describes has been used by his chief, Dr. Bircher, for 11 years without the loss of a pad. Each pad has sewed to one of its corners a linen cord 15 cm. to 20 cm. (6 in. to 8 in.) long to the free end of which is attached a weight from 2.5 gm. to 3 gm. (38.75 gr. to 46.5 gr.). When the pads are in place the weights hang on each side of the abdomen. [J.F.]

An Instrument to Facilitate Puncture through the Vagina.—Flatau[5] names it "Führungsknopf;" it consists of a bulb which is so fissured and bored that a cannula can be passed through its center and that several different sizes of cannulas can be used. The bulb slips over the point of the cannula so that it is well protected and can be inserted into the vagina without injuring the mucous membrane, and when the instrument reaches the point that is to be punctured the force exerted from without upon the cannula causes its point to escape from the protecting bulb and to enter the desired area while the bulb remains against the mucous membrane of the vagina. [J.F.]

Prophylaxis of Postoperative Cystitis in Women.—Rosenstein[6] finds that by the use of his double catheter infection of the bladder occurred only once in the 34 cases operated. Many of these cases were catheterized 21 times before the patients voided urine voluntarily. The objection made to the large diameter of the instrument is met by the forthcoming model No. 2, which is not greater in diameter than the ordinary glass catheter. The double catheter he described in the *Centralblatt f. Gynäkol.*, 1902, No. 22.

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[1] The Lancet, August 13, 1904.
[2] Centralblatt f. Gynäkol., 1904, No. 24.
[3] Centralblatt f. Gynäkol., 1904, No. 26.
[4] Centralblatt f. Gynäkol., 1904, No. 23.
[5] Centralblatt f. Gynäkol., 1904, No. 22.

[1] Centralblatt f. Gynäkol., 1904, No. 23.
[2] Crónica Médica Mexicana, July 1, 1904.
[3] Centralblatt f. Gynäkol., 1904, No. 26.
[4] Centralblatt f. Gynäkol., 1904, No. 25.
[5] Centralblatt f. Gynäkol., 1904, No. 27.
[6] Centralblatt f. Gynäkol., 1904, No. 28.

Bilateral Ovariotomy in the Beginning of Pregnancy.—Essen-Möller[1] reports a case in which ovariotomy was performed because of cystic degeneration. At the time of the operation the uterus was found enlarged. The patient made a good recovery. Upon examination of the right ovary a corpus luteum graviditatis was found and the patient was informed that she was pregnant; 269 days after the operation the child was born. [J.F.]

TREATMENT

Solomon Solis Cohen
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REVIEW OF LITERATURE

Curative Effect of Large Doses of Olive Oil in Diseases of the Gastrointestinal Tract.—P. Cohnheim[2] publishes his experience concerning the curative action of large doses of olive-oil in ulcers and stenoses of the pylorus and their sequels. He has employed it consistently for four years, and believes himself justified in giving the following summary: 1. Persons with gastrectasia, not due to organic disease, but rather to spasm of the pylorus secondary to an ulcer or fissure at the gastric outlet, are cured, or at least markedly improved, by large doses of oil, from 100 gm. to 150 gm. (3 oz. to 5 oz.) daily. 2. Persons with organic pyloric stenosis with secondary gastrectasia remain free from symptoms by a careful method of living, if large amounts of oil are used methodically; the oil acts mechanically by diminishing the contact resistence. 3. Relative stenoses of the pylorus and duodenum, which are characterized clinically by continuous hypersecretion and pylorospasm for several hours after each meal, are considerably improved, or entirely cured, by oil. 4. The pylorospasm of carcinomatous stenoses is markedly diminished by oil. 5. Ulcers of the pylorus, with or without hyperchlorhydria, associated with spasmodic pain some hours after eating, are cured by oil or almond milk in a short time when no complications (perigastritis) exist. 6. The oil should be taken in appropriate doses three times daily from a half to an hour before eating; it may be taken through a stomach-tube. A wineglassful before breakfast, two tablespoonfuls before dinner and supper are usually sufficient; almond milk may be given in lighter cases. 7. The oil relieves the spasm, lubricates the opposing surfaces, and improves nutrition, as even in the tightest strictures it reaches the small intestine and is aborbed. 8. In pyloric spasm it acts as a narcotic; it has no unpleasant after-effects, and produces neither belching nor diarrhea; if disliked, the emulsion of almond milk may replace it. 9. As it does not improve hysteric spasms, it serves to differentiate organic from nervous constrictions. 10. It relieves the painful symptoms of "gastric emptiness" noted in hyperchlorhydria and atrophic gastritis. 11. The oil cure should be used before every operation for pyloric stenosis with grave secondary gastrectasia; it often improves the patients so much that the operation need not be performed. 12. It prevents in certain cases gastrectasia and after cure it certainly protects against relapses. [E.L.]

Specific Therapy and Vaccination of Tuberculosis.—Maragliano[3] has succeeded in immunizing animals to tuberculosis by two methods, active and passive. The active method is by injecting attenuated tubercle bacilli, but as it is very hard to get the attenuation at the exact point, he prefers the injection of either dead bacteria or an emulsion of them. The emulsion is made by pressing and macerating the bacteria and then passing the extract through a Chamberland filter. The toxin derived in this way can be administered by mouth as well as by subcutaneous injection. Passive immunization is brought about by injecting into animals serum of previously immunized animals. Three grams of tubercle antitoxin was administered daily for 100 days to guineapigs who then received an intravenous injection of virulent tubercle; some lived 60 days others 90 days, while the control animals became emaciated at once and died within 25 days. [J.F.]

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[1] Centralblatt f. Gynäkol., 1904, No. 28.
[2] Zeitschrift für klinische Medicin, 1904, lii, 110.
[3] Berliner klin. Wochenschrift, 1904, Nos. 23 and 24.

Action of Digitalin on the Heart Muscle.—K. Brandenburg[1] has employed newer methods of investigation concerning the action of digitalin on the heart. A constant result of the subcutaneous injection of digitalin in the frog is a slowing of the heart's action, with an increase in the force of each contraction. This effect is the result of a combined influence of the drug on the pneumogastric nerve and the heart muscle. Concerning its action on the latter, Brandenburg's experiments show that moderate doses of digitalin lessen the response of the muscle to electric excitation. This effect is entirely independent of any nervous influence on the heart, and is produced by doses corresponding to the therapeutic dose in man. The excitability of the heart is slowly diminished, reaching its lowest point in 12 to 20 hours, and then gradually returns to normal. There is no change in the latent period of stimulation. At the same time the contractility of the heart muscle is increased. These phenomena are ascribed to an increase in the anabolic changes within the muscle, since it has been shown that, in the cardiac cycle of a normal heart, the period of least excitability corresponds to the period of greatest anabolism. [B.K.]

The Therapy of Nephritis.—Kövesi and Roth-Schulz[2] assert that albumin need not be prohibited in nephritis, if the output of nitrogen equals the quantity of proteids ingested, but so soon as this equilibrium is disturbed its administration must cease. The character of the diet, therefore, depends upon the ability of the kidneys to eliminate nitrogen. They do not believe it necessary to estimate this equilibrium in all cases, but only in the severer ones, and especially in the chronic parenchymatous form. [J.F.]

The Action of Drugs on the Intestinal Canal.—Prof. A. A. Kuliabko[3] publishes a preliminary report of his experiments with drugs and poisons in relation to their action on the excised intestine of animals. The excised portions of the gut were placed in Locke's fluid and the drug was added to the latter, thus affording a simple way of detecting the effect. It was found that apocynum cannabinum markedly raised the tone of the intestinal muscles, producing lively contractions. On the other hand, atropin produced a state of muscular relaxation and weakness. Veratrin acts like apocynum, though not so strongly. Apomorphin weakens the muscular tone and finally seems to paralyze the intestine. Highly interesting results were obtained with adrenalin. Contrary to all expectation, adrenalin not only failed to increase the muscular tone, but even caused complete relaxation and cessation of contractions. The effect was instantaneous, even in high dilutions. This observation ought to have a practical value, in view of the growing popularity of adrenalin. [L.J.]

Poisoning with Extract of Filix Mas.—M. Hackl[4] reports the case of an alcoholic, who took 12 gm. (3 dr.) of filix mas for tapeworm; shortly after he became unconscious, remaining so for 15 minutes. When Hackl saw him, he was markedly shocked, and covered with cold sweat; his eyes were wide open, pupils dilated, but reacted feebly to light; pulse small, slow, 60; respirations shallow and labored. He did not answer questions; he had vomiting and diarrhea. Stimulants were ordered, and the patient improved gradually. He developed tremor of the arms and legs, tonic and clonic convulsions, hematuria and hemoglobinuria; recovery was protracted. The chronic gastroenteritis of the alcoholic patient evidently increased the action of the otherwise ordinary dose of the drug. [E.L.]

The Use of Thiosinamin in Diseases of the Alimentary Canal.—Baumstark[5] failed to see any benefit result from the use of this substance in three cases of carcinoma of the pylorus and two cases of carcinoma of the esophagus. In a case of perigastric tumor with secondary stenotic changes in the stomach thiosinamin produced no therapeutic effect. The favorable results seen in some of his cases after the administration of this agent may be partially or entirely due to the careful diet. [J.F.]

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[1] Zeit. für klin. Med., Bd. liii, p. 255.
[2] Berliner klin. Wochenschrift, 1904, Nos. 24, 25 and 26.
[3] Russki Vratch, June 19, 1904.
[4] Münchener medicinische Wochenschrift, 1904, li, No. 8, 346.
[5] Berliner klin. Wochenschrift, 1904, Bd. xli, No. 24.

American Medicine

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The Social as Well as the Medical Aspect of Tuberculosis.—In the great general movement for the prevention of tuberculosis, it has become clear that success is entirely dependent upon securing the help of the general public, of legislators, and of the benevolent of all classes and faiths. The medical principles and recommendations are pretty well defined, their practical application and effectualization, however, impossible, except by all the machinery of social and legal agencies possible to be enlisted. County and city "almshouses" must be revolutionized, or at least supplemented by tuberculosis infirmaries and sanatoriums for the poor; laws, and their carrying out are needed as regards tuberculotic patients in the public schools; in the trades, Homes, poor-houses, and many public institutions; as regards the disinfection of houses, and especially in the country, where deaths from tuberculosis have taken place; Boards of Health must be strengthened, paid, paid more, paid still more, and held accountable for failures to do their duties, etc. There are a hundred such ways in which the public must be taught, and be interested in the work, and all of them demand the cooperation of the public itself. The profession of medicine will aid in every way to bring about its own undoing as a money-making occupation, but it is asking too much if the people expect it to do so because of their indifference to their own self-interest and self-preservation. Another powerful reason for public help is to avoid the danger we have frequently alluded to, that the crusade will be exploited for the gain of the commission men and those who farm out the care and cure of the victims of the disease to private sanatoriums and hotels masquerading as medical and professional institutions.

Day Nurseries.—The first day nursery in the United States was opened in New York 50 years ago, and for 25 years this and the Philadelphia institution were the only ones at work in our country. Today 11,000 children are cared for daily in the nurseries throughout the country, and these nurseries number about 250, located in over 100 cities. Greater New York leads with 57; Chicago, 14; Philadelphia, 12; Boston, 10; Cleveland and St. Louis, 5 each. The development has been not merely numerical, as present methods include those of reaching the mothers and developing the children morally and mentally; the meager plans of the pioneer nurseries aimed to care for children during the working hours of the day, in regard to their physical welfare and safety only. The more highly developed nurseries have genuine neighborhood service features not unlike those of the settlements. With this evolution of the day nursery has come also a refinement of the methods of actual care, a closer study of dietaries and of the problems of the physical and moral training of the children. Their influence in the community is not only direct, but there is a noteworthy encouragement of hygienic living among children and parents, and a strengthening of preventive medicine. Ten thousand children were admitted to the day nursery of the Columbian Exposition during six months, and the furthering of sanitary instruction and ideals was doubtless of as great benefit as all others combined.

The Moseley Commission on American Educational Ideals.—The commission sent from England to investigate our educational institutions, may help our English cousins by its reports to a better understanding and appreciation of some features of our school and university system; but whatever may be its effect on the other side, the visit of these eminent educators, their fair-minded study and frank criticism of the good as well as the useless and inefficient in our institutions, has recently attracted general attention to the importance of educational matters and stimulated discussion here at home that must be productive of much good. In conclusion of the commission's report, Henry E. Armstrong[1] says: "It is quite clear that the right spirit is at work in the United States, but the lack of the critical faculty and of depth of purpose combined with an excessive development of the utilitarian spirit, are serious drawbacks at present and militate against progress in education. Until higher ideals prevail and sober calculation takes the place of a somewhat emotional and superficial consideration of its problems, it will be difficult to introduce reforms." Much of this severe criticism is well-deserved, some perhaps not justified. We believe that institutions are generally judged by the quality and quantity of their fruits and it seems hardly fair to say that a country which in a century has produced at least half a dozen universities that will compare favorably with Oxford and Cambridge in England is lacking in depth of purpose, or with such leaders as Presidents Charles W. Eliot, Daniel Gilman, Andrew D. White, and David Starr Jordan, that there is a disproportionate lack of the critical faculty. The mention of excessive development of utilitarian spirit seems somewhat contradictory to a statement made elsewhere in the report that, "It is remarkable that a people supposed to be practical, like the Americans, should be prepared to devote so long a period to study. I am almost led to doubt whether in matters of education our American cousins may justly be regarded as a practical people." However, this may be, there can be little question that while in certain institutions in our country high ideals and the right spirit prevail, there is a decided lack of uniformity of standards which may have led to this seeming contradiction and which we regard as one of our gravest faults, specially as concerns medical education and State requirements for practice. In some of our best institutions the teaching of practically all branches is scientific and thorough, possibly as good as can be found in any educational institutions the world over. But unfortunately there are still far too many of another kind of colleges where the utilitarian spirit truly does prevail; where the main object of the student is to obtain a degree that will give him the means of gaining a livelihood and with as little effort and expense as possible; where the teachers are actuated by the desire of adding to their income from college fees and consultation practice. We hope that Mr. Armstrong, while in this country, did not see much of these institutions, which have really no excuse for existence. The report is deserving of the thoughtful consideration of all who are interested in education and all physicians should be interested in these questions as public-spirited men, and because the general intelligence of the public not only effects good citizenship and an appreciation of the aims which the medical profession as a body are trying to accomplish, but because the common education determines the quality of the men who are to be our coworkers in the profession. The highly educated class does not reproduce itself. Mr. Armstrong quotes one of President Eliot's recent reports in which he has given the number of surviving children of members of six classes graduated from Harvard, from 25 to 30 years after graduation. The report shows that 28% of the members of these classes are unmarried; and those who are married have on the average only two surviving children; so that the married pairs just reproduce themselves on the average. The young physician, lawyer, engineer or architect is now fortunate if married at 28 or 29; whereas he should have married at 25 or 26. To make early marriages possible is one of the strong inducements for bringing to an end the school course at 17 or 18, the college course at 20 or 21, and the professional training at 24 or 25. This ideal of a thoroughly liberal education with early graduation is even now being realized in the cases of many young men who have been specially fortunate in their early education. We appreciate its importance the more when the desirability of hospital training and postgraduate study is recalled. Less than 15 years ago a two-year course for the M.D. was all that was required in most medical colleges. Is it not possible that the progress of the next 15 years will give us the uniform requirement of the college degree preliminary to professional study with graduation still early enough not to postpone marriage unduly?

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[1] Science, August 5, 1904.

The Grammar Schools and Later Academic and Professional Study.—We have frequently called attention in these columns to the desirability of enabling young men to enter the medical profession at an earlier age than is now usual with a graduate of our very best institutions, and to the different methods which are being tried to accomplish this end. Mr. Armstrong very rightly says: "A course of study prolonged to an age bordering on 30 rather than 20 implies a most serious limitation on the period during which the individual exercises independence; it casts an improper burden on parents, and it postpones the age of marriage unduly." The combination of the arts and medical courses, conferring both degrees after six years of study, as is now done at Michigan; the two-year arts course advocated by President Butler, of Columbia, and the three-year arts course of President Eliot, of Harvard; the seven-year combined arts or science and medical course, as is given at Harvard, Cornell, and a number of other colleges; the granting of credit for the first year of professional study toward the arts degree by institutions not having a medical course, such as Wabash College, and the granting of credit by medical colleges to graduates from academic courses, are all efforts directed toward the shortening of the years of study without entirely sacrificing the students' broader liberal education. But we believe that the greatest need, as President Eliot has suggested, is for improvement of the secondary schools, with elimination of many unimportant studies, and better methods of teaching, so that the child may be ready to leave the grammar school at a much earlier age and with a much better foundation than is at present the case. This would relieve us from the necessity of still further cutting short the training of the student in college. To quote Armstrong again: "The entire system of education, both here (in England) and in America, seems to require reconstruction from bottom to top; it would be well, if I may say so, if we could *scrap* the whole wretched academic show and start afresh, in order that it may be greatly improved in quality and shortened in duration. If a proper foundation were laid during early years a vast amount of time would be saved later on."

Chicago's Milk Supply.—Under its efficient management during the past few years, the Chicago Health Department has made for itself a most enviable reputation in safeguarding the people of that city. The weekly bulletins of the department are widely quoted as being in many respects models of their kind. Recent investigations, however, indicate that the efficiency of the milk bureau is below the standard of the department in general. This opinion is based on a report by the Health and Sanitation Committee of the Civic Federation, setting forth the results of independent analyses of the milk supply of the city from April to June of the present year. Elaborate tables contain data regarding 291 samples from a majority of the wards in the municipality. The average of the samples was 12.41% total solids and 3.37% butter fat, the legal standards being 12% and 3%, respectively. These satisfactory averages are marred by the fact that 26.8% of the samples was below the standard for butter fat and 30.9% below that for total solids, this indicating a wide variation in the quality of the milks furnished. Furthermore, these figures show about four times as much of the market milk of the city below legal grade as was indicated by health department reports for the same period. Nearly 5% of the entire number of samples and 15% of the restaurant milk contained formalin. The average number of bacteria during the first nine days of June was nearly 19,000,000 per cubic centimeter. The Board of Health stated: "The average milk contains a far greater number of bacteria than is usually found in wholesome milk," but gave no figures; its laboratory makes bacteriologic analyses only upon special application. The committee is unanimous in the opinion that bacterial tests should be regularly made, and also that complete data upon which all the department's conclusions are based should be kept in accessible records. As a whole, the committee finds in the condition of the Chicago milk supply but little cause for satisfaction. The report serves to emphasize again the need of unceasing vigilance on the part of those having in charge the milk supply of our cities.

Prohibition and Quackery.—*American Medicine* has long and sincerely worked for the cause of temperance, and for every possible way of lessening the evils of alcoholism. Despite this, we still receive occasional letters in bitter criticism of our supposed "secret league with the saloon," for our supposed hypocrisy in pretending to be against the liquor traffic while refusing to march behind Mrs. Nation with a hatchet. One stands in awe of the condition of mind of such critics, who are at the instant, often the most maniacal and uncontrolled enemies of practical and scientific medicine. Here, for instance, is a magazine called *The Christian Century*, devoted to "Church Extension, Prohibition, and Sociology." The front page is fully occupied by a portrait of Dr. Swallow, the prohibition candidate for president. In looking over its perfervid reading pages one is struck by the plain evidences of a newspaper trick so dirty and mean that only the most shameless are longer guilty of the fraud, and only the stupidest of readers capable of being gulled by it—the reading notice disguised as editorial matter. Antisaloonism and W. C. T. U.ism and an effervescent evangelicism, are unblushingly personated. Squarely in the center of the reading matter is a double page reading notice of the wildest rant, with photographs, testimonials, etc., of "He who Hestitates is Lost," etc., the baldest quack advertising imaginable. Blatant testimonials are published from Reverends, Reverend D.D.'s., Honorables, and from hysteric "Christian" women, and the facsimile letters of the president himself of this *Christian Century* publishing company, who glories in the fact that he wrote the editorial concerning this miraculous "healer without the knife or drugs," and who "saved his little Ethel," etc. "Elijah's conversion" and "God's care," surround "Swamp Root" in all its glory, and in the same type, followed by the flaming advertisements of quack advertisers and specialists, all vouched for by the editor. Alternating with reports of revivals and antisaloonism, are appeals of criminal abortionists, mentioning "socalled female complaints," "approaching danger," "tumors," "all diseases peculiar to young ladies," "save humiliation," etc. This is an excellent method of alienating the help not only of physicians, but of anybody who has either love for temperance, or for common decency and morality. Will the W. C. T. U. publicly disown these scamps? The United States Postal Authorities should get after such reverend editors who vouch for advertisers and pocket their division of the spoils.

A Homeopathic Discovery.—A trustworthy subscriber says that some years ago he corresponded with a number of prominent homeopathic physicians in order to satisfy himself concerning the general value to medical science of discoveries and investigations made by the homeopathic branch of the medical profession. The outcome of this correspondence seemed to show the utter sterility of homeopathy. He failed to find one single important addition to our knowledge apart from those made by Hahnemann himself, but he is interested to find that our homeopathic brethren have at last discovered one very important matter concerning which they are ready to file a claim. In the August number of *The Hahnemannian Monthly*, 1904, Vol. xxxix, No. 8, page 610, we find this note:

> *The Discovery of Radium.*—It is an interesting fact that the talented savant, Dr. Curie, who so recently has revealed to the scientific world the wonders of radium, is the son of a well-known homeopathic physician. The elder Dr. Curie is still living near Paris. His father, the grandparent of the discoverer of radium, was also a physician. So it seems as if homeopathy, or at least one homeopathic physician has done something toward advancing the cause of science, even if indirectly.

The members of our profession should give credit to whom credit is due. But what of Dr. Curie's mother? Was she a homeopathist? If not, that might modify, or explain the intellectual inheritance. And what about Dr. Curie's wife? Is she a homeopathist, or was her father one? We had supposed that to her even more than to Dr. Curie is due the discovery of radium. If so, homeopathy should be credited with less than an eighth at most for radium. One should be exact in these matters!

Medical "Charms" and Prescriptions of Tibet.—As might be anticipated from the primitive forms of thought and living which exist in the land of Tibet at the present day, talismans, amulets, and charms figure largely in their schemes of medicine and therapeutics—both preventive and curative. The majority of such spells are used to compel the favors of fortune "to bring the wearer "good luck." But there are special ones devoted to the prevention and to the cure of the recognized diseases and accidents. A large majority consists of formulas written by the Lamas, in corrupt and often unintelligible Sanskrit, extracted from the pages of the Māhāyāna and Tāntrik scriptures. An item of the common kinship of humanity is furnished by the fact that the swallowing of the paper on which the sacred and therapeutic words have been written is a very ordinary method of curing disease—just as it was in Europe in the middle ages. The prescriptive "spells," which the Lamas use in this way to eradicate the effects and the germs of disease are called "the edible letters (za-yig). One is figured by Dr. Waddell in his interesting work on "The Buddhism of Tibet." A still more metaphysic way of using such remedies is by getting the patient to swallow the washings from the surface of a mirror in which the writing is reflected. The dilution in this mode of therapeusis may, we venture to think, be safely held to surpass any of those devised by Hahnemann or his disciples. Still an analogous process—even if less subtle—has been reported from Gambia. "The treatment relied upon for cure, and much practised in the country is to call in a man who is supposed to be a 'doctor,' who, after looking at the patient, sits down at his bedside and writes in Arabic characters on a wooden slate a long rigmarole, generally consisting of extracts from the 'Koran.' The slate is then washed, and the dirty infusion is drunk by the patient."[1] The effects of a Tibetan "evil eye" manifest themselves in hallucinations and dementia known by to the natives as byad-'grol. And the regulation treatment is as follows: "Write with Chinese ink on a piece of wood the particular letters and smear the writing over with myrobalams and saffron as varnish, and every 29 days reflect this inscribed wood in a mirror, and during reflection wash the face of the mirror with beer, and collect a cupful of such beer and drink it in nine sips." The prescription for the preparation of a charm which preserves the wearer against cholera must be of great importance in an oriental country. It is as follows: With the dung of a black horse and black sulfur and musk water, with the monogram (prescribed). Insert this in the print of "The Assembly of the Hearts of the Lāmas" (the "General Charm Print," with a vacant circular space in the center for inscription); fold up in a piece of snake-skin and wear.

Tibetan Insanity and Exorcism.—A goodly proportion of the cases of temporary mental aberration which occur in the land of Tibet is credited to the ghostly influence of departed relatives. A ghost is always of a malicious disposition, and the *manes* of the defunct citizens of the "land of Bod" are prone to make their existence (and their influence) obvious to their survivors, especially their successors. There are, as might be anticipated, substantial grounds for the display of spiritual malevolence in some of these visitations, as the property of the departed may be subjected to misappropriation or maldistribution. But the return to the scene of its terrestrial labors may be dictated merely by curiosity, or it may be inspired by pure malevolence. In every case the presence is noxious. It is probably first made manifest in dreams, and the unhappy subject of the attentions of the roving spirit becomes delirious or temporarily insane. The treatment is a radical and somewhat materialistic one—that ghost must be burned! For the fulfilment of this important function the presence of not less than eight Lāmas is necessary, and a burnt offering is made. Outside the haunted house a platform of stone and mud is constructed, and a magic circle is formed thereon, within which is inscribed a triangle. On the outline of the triangle small sticks are then arranged, one over another, so as to form a hollow three-sided pyramid. Around this are then piled fragments of over 100 varieties of material—foodstuffs of every available kind, stones, twigs, leaves, bits of dress, poisons, money, etc. Oil is then poured over the heterogeneous mass and set on fire. While the burning proceeds, additional fragments of all the materials used, and which have been reserved for this purpose, are added from time to time to the flames. The last item to be consigned to their consuming power is a piece of paper, on which is written the name of the deceased relative, whose ghostly visitations have proved so unacceptable to the survivors. When this paper has become changed into smoke and ash, the ghost has received its eternal quietus, and can never give trouble again. The delirious patient requires no further medical treatment, beyond, perhaps, an occasional item of theologic instruction from the Lāmas. But let not us, in our distant home of western civilization and progress, indulge in captious or supercilious criticism of the spiritual pathology, or the exorcistic practice of the inhabitants of the "roof of the world." We can't honestly afford it! We have our own miraculous therapeutic stones, and our prosperous eddyistic machinery, and all the theory and practice of our transspiritual Christian science luxuriantly blossoming and bearing fruit a thousand-fold, in the midst of our most favored, and (presumably) most enlightened localities.

Medical Buddhas.—The god of medicine has been in receipt of full recognition and respect in the now specially interesting countries of Tibet and Japan. The metaphysic Bodhisat "the medicine-king" (Bhaisajyarājā), figures prominently in several of the northern scriptures of the Orient as the dispenser of spiritual medicine. He is probably the prototype of the Buddhist Æsculapius, "the supreme physician" (*s*Man-bla-bde-gs'egs *b*rgya*d*). The images are worshiped almost as fetishes, and save by sympathetic touch. The foremost of the series, the beryl or Bedūriya Buddha, receives in Japan the title of "the lord Binzuru," under which he is extremely popular. The Japanese derive the name from Bharadhvāja, one of the sixteen Arhats. Dr. L. Augustine Waddell, the eminent authority on Lamaism and Buddhism, regards the epithet as an evident corruption of the Indian "Bedūriya." These Æsculapic Buddhas are much worshiped in Tibet—in form of ritualistic pictures, seldom by images as in Japan. In this latter country the images are usually placed outside the central shrine, being of essentially non-Buddhist character; also, perhaps, to help to facilitate their consultation by the people. The supplicant, after the performance of the requisite preliminary flexions and petitions, rubs his finger over the particular locality of the surface of the image which corresponds to the area of his own physical affliction; and then transfers the touch so hallowed, to the affected part of his own person. As this touching and rubbing performance is pretty frequent during the waking hours of Japanese existence, the features of the medicine-deity are said to undergo obvious modification in the course of passing years. The medical Buddhas are figured in Schlagintweit's Atlas. The first is: San*s*-*r*gya*s* *s*man-gyi *b*la Bedūrya'i 'Od-kyi *r*gyal-po, or "king of beryl-light, the supreme physician Buddha." Like all the other members of this series, he is of the distinctive Buddha form—including the garb, and sedent attitude. The surface is indigo-colored; his right hand is in mch'og-sbyin pose, and in his palm he holds the golden Arura fruit (myrobalans). His left hand is in *m*ñam-*bz*'ag pose, and holds a begging-bowl of *Dai-dur-ya* (beryl-stone).

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[1] Colonial Lupon's Report for 1890.

BOOK REVIEWS

The New International Encyclopedia, Volume XVII.—Dodd, Mead & Co.

This number, including subjects from Typewriters to Zyrians, closes the series. Among the medical and related subjects treated are:

Typhoid Fever
Typhus
Tyrotoxicon
Ulcer
Umbilical Cord
Umbilical Hernia
Uremia
Urea
Uric Acid
Urine
Urticaria
Uterus, diseases of
Vaccination
Valerian
Veins
Venesection
Veratrin
Vermiform Appendix
Vertigo
Virus
Vision
Visual Sensation
Vital Statistics
Vitiligo
Vitriol
Vivisection
Vomiting
Wart
Water Purification
Waxy Degeneration
Weaning
Wen
Whey
Whisky
Whoopingcough
Wines, dietetic and medicinal values
Wry-neck
Xanthin
Röntgen Rays
Yaws
Yellow Fever
Zinc
Zymotic Disease.

Among those omitted are:

Uva Ursi
Vagina, diseases of
Viability
Xanthoma
Xeroderma
Xeroform.

The medical uses of viburnum and wild cherry are not alluded to, and the voice in morbid conditions is not discussed. About 30 physicians receive special mention, but the familiar names of Unna, Valsalva, Velpeau, Vierordt, Wernicke, Widal, Winternitz and others fail to appear. Comparing the records of those who have distinguished themselves in other lines of activity, one must feel that the editors in this very satisfactory epitome of general information have aimed at an impartial assignment of space to each calling, yet it is regretable that more names are not included. The medical articles throughout the series exhibit a clearness, a judgment in the selection of salient points, and an intelligent progressiveness which make the reviewers' task a pleasant one, the blemishes being largely inherent in the space limitations. Especially to be commended in a work compiled for the general public, are the articles in this last volume on Vaccination and Venesection. One hopes they will attract the eyes of many "antis."

Transactions of the American Röntgen Ray Society.

This is a volume of some 250 pages, which contains the names of all officers and members in the society; the constitution and by-laws, the minutes of the fourth annual meeting held at Philadelphia, December 9 and 10, 1903, together with the papers read and the discussions thereon at the meeting mentioned. The papers form a valuable contribution to the subject of röntgen ray therapy and diagnosis.

The Commoner Diseases of the Eye: How to Detect and How to Treat Them.—By CASEY A. WOOD, C.M., M.D., D.C.L., and THOMAS A. WOODRUFF, M.D., C.M., L.R.C.P., London. Chicago: G. P. Engelhard & Co., 1904.

In this very practical handbook, ophthalmology is very concisely and satisfactorily discussed from the standpoint of the student and general practitioner of medicine. As explained in the title, the substance of the work is given over to the "Commoner Diseases of the Eye" and their treatment. In addition, there are creditable chapters on "How to Preserve the Eyesight," "Ophthalmology in General Medicine and Surgery," "The Ocular Complications of Certain Systemic Diseases," "Headache, etc., from Eyestrain," and "Remedies in Ophthalmic Practice." The text is abundantly illustrated.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Radiotherapy, Phototherapy, and High-frequency Currents. The Medical and Surgical Applications of Radiology in Diagnosis and Treatment.—By CHARLES WARREN ALLEN, M.D., Professor of Dermatology in the New York Post-Graduate Medical School. Octavo 618 pages, 131 engravings, and 27 plates. Cloth, $4.50, net. Lea Brothers & Co., Publishers, Philadelphia and New York.

Genitourinary and Venereal Diseases and Syphilis. A Practical Treatise for Students and Practitioners.—By ROBERT W. TAYLOR, A.M., M.D., Clinical Professor of Genitourinary Diseases in the College of Physicians and Surgeons, New York New (third) edition. Revised and enlarged. Octavo, 757 pages, with 163 illustrations and 39 plates in colors and monochrome. Cloth, $5.00; leather, $6.00; half morocco, $6.50, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1904.

Mental Diseases. Clinical Lectures on Mental Diseases.—By THOMAS S. CLOUSTON, M.D., Lecturer on Mental Diseases in the University of Edinburgh. New (sixth) edition. Thoroughly revised. Crown 8vo, 738 pages, with 29 full-page plates. Cloth, $1.50, net. Lea Brothers & Co., Publishers, Philadelphia and New York. 1904.

A Handbook of Surgery. For Students and Practitioners.—By FREDERIC R. GRIFFITH, M.D., Surgeon to the Bellevue Dispensary, New York City; Assistant Surgeon at the New York Polyclinic School and Hospital. 12 mo volume of 579 pages, containing 417 illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Flexible leather, $2 00, net.

The Principles of Hygiene. A Practical Manual for Students, Physicians, and Health Officers.—By D. H. BERGEY, A.M., M.D., Assistant Professor of Bacteriology, University of Pennsylvania. Second edition. Thoroughly revised. Handsome octavo volume of 536 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $3.00, net.

A Textbook of Diseases of Women.—By CHARLES B. PENROSE, M.D., Ph.D., formerly Professor of Gynecology in the University of Pennsylvania Fifth edition, thoroughly revised. Octavo volume of 539 pages, with 221 fine original illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $3.75, net.

A Textbook of Materia Medica: Including Laboratory Exercises in the Histologic and Chemic Examinations of Drugs. For Pharmaceutic and Medical Schools, and for Home Study.—By ROBERT A. HATCHER, Ph.G., M.D., Instructor in Pharmacology in Cornell University Medical School of New York City; and TORALD SOLLMANN, M.D., Assistant Professor in Pharmacology and Materia Medica in the Medical Department of the Western Reserve University of Cleveland. 12mo volume of about 400 pages, illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Flexible leather, $2.00, net.

Pathological Technique. A Practical Manual for Workers in Pathologic Histology and Bacteriology, including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods.—By F. B. MALLORY, M.D., Associate Professor of Pathology, and J. H. WRIGHT, M.D., Instructor in Pathology, Harvard University Medical School. Third edition, revised and enlarged. Octavo, 469 pages, with 140 illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $3.00, net.

Lea's Series of Medical Epitomes: Magee and Johnson's Epitome of Surgery. A Manual for Students and Practitioners.—By M. D'ARCY MAGEE, A.M., M.D., Demonstrator of Surgery and Lecturer on Minor Surgery; and WALLACE JOHNSON, Ph.D., M.D., Demonstrator of Pathology and Bacteriology in Georgetown University Medical School, Washington, D. C. In one 12mo volume of 295 pages, with 129 engravings. Cloth, $1.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1904.

Year-book of the United States Department of Agriculture. 1903.—Government Printing Office, Washington, D. C., 1904.

Transactions of the Southern Surgical and Gynecological Association. Volume XVI. Sixteenth Session, held at Atlanta, Ga., December 15, 16, and 17, 1903.—Edited by W. D. HAGGARD, M.D. Published by the Association, 1904.

Manual of Medical Ophthalmoscopy.—By SIR WILLIAM R. GOWERS, M.D., F.R.C.P., F.R.S., Hon. Fellow of the Royal College of Physicians of Ireland; Consulting Physician to University College Hospital; Physician to the National Hospital for the Paralyzed and Epileptic, etc. Fourth edition. Edited by the author and MARCUS GUNN, M.B., F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital; Ophthalmic Surgeon to the National Hospital for the Paralyzed and Epileptic. P. Blakiston's Son & Co., Philadelphia. Price. $4.00, net.

AMERICAN NEWS AND NOTES

GENERAL.

Bequests to Charity.—Philadelphia: By the will of the late Jacob Brantsteller, $5,000 is left to various charitable institutions, mostly of Philadelphia.

Miscellaneous.—Elected Pathologist: Dr. Harry T. Marshall, a graduate of the Johns Hopkins University, has been elected pathologist of the Baltimore Medical College to fill the vacancy made by the resignation of Dr. T. R. W. Wilson, who will devote his time to private practice.

Yellow Fever and Panama.—An official connected with the health department in Panama is quoted as follows: "Yellow fever and its carriers are now receiving attention, and we have the disease so well in hand that within two years it will be practically unknown. We have ordered all people to kill the mosquitos found in the houses, and a band of mosquito killers that we have organized looks after the work on the outside. All through the zone, swamps are to be found in which are the mosquitos that cause the fever. We have learned by scientific investigation that it is the larvas that are infected, and the only way to prevent yellow fever is to fill in the ponds and swamps. The mosquitos there are bad, but they do not compare in numbers with those in New Jersey. We have also learned by investigation that a yellow fever bearing mosquito never moves more than 100 yards. Knowing this, we think that it would be foolish to try to fill in all of the swamps at this time. When the canal is finally completed, I think we will have one of the most healthy places in the world."

Filthy Bank Notes.—The *New York Sun* says: A valued correspondent calls attention to the filthy condition of the bank notes and greenbacks kept in circulation in the country towns, with the inevitable effect of "spreading all manner of contagious diseases broadcast over the land." Every one now and then, even in the cities, receives a note which is foul beyond description. It is "filthy lucre" in a most real sense. But in the rural districts the evil is more marked, owing to the apparent indisposition of the country banks to exchange their dirty paper money frequently for fresh, clean, crisp new notes. The Government offers new notes in exchange for old ones, if the handlers of soiled notes will but send them for exchange. It is not only "nicer" to pay out clean notes, but it is to some extent a duty of the banks in city and country to do so. As our correspondent says, disease is spread abroad by notes which circulate after having been too long in the hands of the public. Every touch of the hand leaves a microscopic part of its substance upon the note, and it is always possible, or probable, that the filthy note, which has passed through a hundred hands, bears on its surface dangerous germs of disease. In the interest of the public health, the practice of exchanging old notes for new should be more generally cultivated.

Glass Screen as a Protection from Röntgen Rays.—It is stated that a woman operator of San Francisco is said to be the first radiographer to use a glass screen in röntgen ray practice. She says a double plate glass screen is the most serviceable device for preventing injury to the operator and that it can be applied equally to radiotherapy and radiography. After some experimenting she ordered the construction after her own plans of a vertical plate glass screen, two feet in width and reaching to a height of five and one-half feet from the floor. During the last four months the screen has been in constant use in her laboratory. While operating she keeps it between her body and the tube whenever it is possible, her exposed hand being protected by the usual rubber glove. She has found that the heavy plate glass screen possesses all of the advantages of lead plates in preventing the passage of the rays, with the important addition of permitting an unobstructed view of the subject and of the röntgen ray tube in order to judge of the intensity of the rays. Glass is opaque to the röntgen rays in greater or less degree according to its thickness. Lead, aluminium, iron and copper resist the rays to a great extent. Even the clothing has a slight protective effect.

NEW YORK.

Medical Society of the State of New York.—The President, Dr. H. D. Wey, has appointed the following business committee, in whose care will be the preparation of the program of the next annual meeting of this society, to be held January 31, February 1 and 2: Dr. Henry Flood, of Elmira; Dr. A. Edward Davis, of New York; and Dr. Leo H. Neuman, of Albany. Communications relating to the program should be addressed to them.

Rockefeller Institute.—Plans for the new Rockefeller institute for medical research, the largest institution of its kind in the world, have been filed with the department of public buildings in New York City, and work on the excavations has begun. The three main buildings, consisting of power house, a central laboratory, and an animal house, are now under construction. About this nucleus several additions and separate structures will be erected.

PHILADELPHIA, PENNSYLVANIA, ETC.

August the Month of Suicides.—The reports on file in the Coroner's office show that during this month, which is called "suicide month" by the Coroner's deputies, 22 people in this city have committed suicide. The reports of the police give 44 cases of attempts at self-destruction.

Texas Fever Reported in Pennsylvania.—From Lancaster it is reported that the disease which has caused the death of a number of cattle sent to the local stockyards from the West and purchased by farmers has been pronounced Texas fever. The outbreak has been reported to the national authorities.

Morbidity and Mortality in Philadelphia.—For the week ended September 3, deaths in the city numbered 371, a decrease of 51 compared with the previous week, but an increase of 17 compared with the corresponding period last year. Typhoid fever claimed 10, and there were more than 100 new cases reported during the week.

State Sanitary Camp.—Major Simmons, who is in charge of the State Sanitary Camp at Mont Alto (Pa.) Park, in the Blue Ridge Mountains, states that 50% of the patients afflicted with tuberculosis treated at the camp have been cured. The camp was opened in June, 1903. Since then 65 patients have been treated. There are now 30 patients in the camp, most of whom will remain during the winter, living in the open air most of the time, surrounded by pine trees. Thirty patients were sent home pronounced entirely cured. Five were sent home much improved. The State furnishes free cottages. The furniture, which is very simple, is furnished by the patients, who also board themselves. The only medicine taken is fresh air and plenty of exercise in the open. The patients stay in the cottages just as little as possible.

SOUTHERN STATES.

U. S. Hospital for Use in Panama.—The U. S. Government will build and maintain a hospital in New Orleans for the care of Panama canal patients.

Morbidity and Mortality in Baltimore.—The report of the Health Department for last week shows a total of 184 deaths, as compared with 147 the corresponding week of last year, 207 in 1902 and 177 in 1901. The deathrate per 1,000 of population was: White, 16.50; colored, 20.43; whole, 17.11. Tuberculosis caused 27 deaths, and typhoid fever 6.

WESTERN STATES.

Increase among School Children in Chicago.—Returns from the biennial school census show that in the last two years the minor inhabitants of Chicago have increased in number nearly 9%, and that the greatest growth has been in the crowded foreign settlements. The canvass, which was the most elaborate ever made by the educational officials, shows that in Chicago there are 680,692 persons under 21 years of age, as against 627,262 in 1902.

Deathrate of Chicago.—The Bulletin of the Chicago Health Department states the average August deathrate of the last decade was 16.84 per 1,000 of population, and the lowest during that period was 14.53 in 1901. For the 20 elapsed days of the current month the rate has been 12.67, and for the week ended August 20, the 437 deaths reported represent an annual rate of only 11.62. These figures show a reduction of 20% from the previous lowest and of 31% from the previous August average.

Lessened Typhoid in Chicago.—The Bulletin of the Chicago Health Department, states that one of the most gratifying features, next to the continued low mortality among infants and children, is the infrequency of typhoid fever. This disease always shows a seasonal increase, beginning in July and culminating in October. The increase has averaged for thirty years more than 63% in August over the rate of the first 6 months of the year, which would make the typhoid deaths for this month about 47. During the 27 elapsed days there have been but 26 deaths from typhoid fever reported and the total for the month is not likely to be more than 31 or 32. In August, 1903 there were 51 deaths from typhoid.

Milk Supply in Chicago.—The Bulletin of the Chicago Health Department states that up to the present time the Department has refused to receive, and returned the milk to over 100 shippers because the cows were fed on "wet malt." They have been notified that they must either discontinue feeding "wet malt" or their milk will be returned or destroyed if shipped to Chicago. Of these 100 shippers, 30 have given affidavits to the effect that they have stopped feeding "wet malt," and will not do so again. A great many dealers have also been fined for not returning their milk cans to the shipper clean and dry. It is a wellknown fact that a small amount of sour milk will readily sour a large can of fresh milk. This sour milk produces digestive troubles in children, such as vomiting, flatulence and diarrhea. Other diseases, such as tuberculosis, which is very prevalent among cows, may be conveyed by milk. The daily inspectors are paying especial attention to this fact.

FOREIGN NEWS AND NOTES

GENERAL.

The Married and Single State in Great Britain.—An exchange states that the married state seems to grow less popular. The marriage rate shows a progressive decline. The Hampshire *Chronicle* finds consolation for this in the fact that widowers and widows are decidedly more constant to the memory of the departed. In the period 1876, 80 out of every 1,000 marriages 136 were those of inconstant widowers and 98 those of widows, but 1902 the proportion of widowers was as low as 91 and of widows but 68. A widower of a given age is much more likely to marry, however, than a bachelor of the same age. Mr. Weller complained of the marrying proclivities of widows, alleging that more widows than single women got married. The statistics do not sustain his view, but they show that after a certain age widows have a better chance than spinsters. The birth rate in 1902 was but 28.5 per 1,000 of population, the lowest on record.

Comparison of the Intellectual Powers of the Sexes.—A suggestive paper was read at the recent meeting of the British Medical Association by Dr. J. De Korosy, Director of Municipal Statistics at Budapest, on the relative intellectual power of the two sexes. His conclusions were drawn from observations during the past 27 years in the schools of that city, where a special report of each student's progress had been sent to his office. The elementary schools, according to Dr. De Korosy, furnished the most trustworthy data: "The results were all in favor of the feminine sex, but related only to children." With regard to later life, the doctor thought that, "as not only in science, but in poetry and (with the exception of the stage) in the arts also, the great work of human progress had been accomplished by men, there was a turning point at which the intellectual activity of women seemed to be arrested." The London *Daily News* submitted these conclusions to an official at Clark College (for preparation for civil service examinations), who said that there did not appear to be any intellectual difference between the sexes, so far as 20 years' experience in the institution showed, but as a rule, the girls were more industrious. The ages of pupils in Clark College varied from 14 to 20 years.

OBITUARIES.

William H. Crawford, at his home in New York City, in the fifty-fifth year of his age. He was actively interested in scientific work, and was a member of the American Museum of Natural History and the New York Botanical Garden.

John Carscallen, ex-M.P.P. for West Elgin, and one of the oldest practising physicians in Ontario, at his residence in Montreal, August Dr. Carscallen was born at Ballyshannon, County Donegal, Ireland, and was 64 years old.

Charles E. Cockey, at his home in Queenstown, Md., July 31, aged 62; a graduate of the University of Maryland, Baltimore, in 1866; secretary to the Board of Health of Queen Anne county.

Charles B. Weida, from an overdose of morphin, a victim of the drug habit, at Braddock, Pa., August 30, aged 43; a graduate of the Jefferson Medical College, class of 1887.

John J. Covert, at his home in Lawrenceville, Pa., July 12, aged 81; a graduate of the University of Michigan, Ann Arbor, and surgeon of volunteers during the Civil war.

James Herbert Hogue, at his home in Altoona, Pa., of paralysis, August 30, aged 44; a graduate of the College of Physicians and Surgeons, Baltimore, class of 1885.

Robert L. Hadley, at his home in Edgefield, Tenn., July 10, aged 65; a graduate of the medical department of the University of Tennessee, Nashville, in 1878.

Emil H. Shellack, at his home near Galena, Kan., August 9, from septicemia, aged 60; a graduate of the St. Louis College of Physicians and Surgeons in 1886.

George A. Carlin, at his home in W. Salem, Ohio, July 28, from diabetes, aged 59; a graduate of the University of Wooster, Ohio, Cleveland, in 1872.

Arthur Napoleon Brown, at his home in McDonoughville, La., July 30, aged 34; a graduate of the Memphis (Tenn.) Hospital Medical College in 1893.

Orville Follett, at his home in Normal, Ill., August 12, aged 88; a graduate of the Medical School of Maine, at Bowdoin College, Brunswick, in 1841.

Charles Martin Schaffer, at his home in Pittsburg, July 25, aged 27; a graduate of the Western Pennsylvania Medical College, Pittsburg, in 1900.

Thomas B. LaRue, at his home in Smithgrove, Ky., July 19, aged 83; a graduate of the University of Nashville, medical department, in 1852.

David C. Spalding, at his home in Lyons, Mich., July 14, aged 70; a graduate of the University of Michigan, medical department, in 1858.

John H. DePuy, at his home in Wabash, Ind., July 20, aged 83; a graduate of Willoughby (Ohio) University, medical department, in 1846.

Chas. H. McCann, at the American Hospital, City of Mexico, July 8, aged 40; a graduate of Cooper Medical College, San Francisco.

George P. Johnson, at his home in Mexico, N. Y., July 17, aged 59; a graduate of Albany (N. Y.) Medical College in 1867.

Jonathan S. Whiteley, of Corry, Pa., was drowned, July 27, while fishing in Findlay Lake, N. Y., aged 48.

Peter Sutton, at his home in Adrian, Mich., from senile gangrene, August 1, aged 78.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 2, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
District of Columbia:	Washington	Aug. 20-27	1	
Illinois:	Chicago	Aug. 20-27	6	
Louisiana:	New Orleans	Aug. 20-27	12	
Massachusetts:	North Adams	Aug. 20-27	10	
Missouri:	St. Louis	Aug. 20-27	3	
Ohio:	Cincinnati	Aug. 19-26	1	
	SMALLPOX—INSULAR.			
Philippine Islands:	Manila	July 9-16	1	1
	SMALLPOX—FOREIGN.			
Brazil:	Rio de Janeiro	July 17-24	196	100
France:	Paris	Aug. 6-13	7	1
Great Britain:	Dublin	Aug. 11-18	3	
	Glasgow	Aug. 12-19	6	
	Liverpool	Aug. 6-13	1	
	London	Aug. 6-13		1
	Nottingham	July 31-Aug. 6	2	
India:	Bombay	July 25-Aug. [illegible]		8
Italy:	Palermo	Aug. 6-13	8	3
Japan:	Nagasaki	July 21-31	1	
Mexico:	City of Mexico	Aug. 7-14		1
Russia:	Moscow	July 31-Aug. 6	18	6
	Odessa	Aug. 6-13	2	1
	St. Petersburg	July 31-Aug. 6	12	4
Turkey:	Alexandretta	July 31-Aug. 6		6
	YELLOW FEVER.			
Brazil:	Rio de Janeiro	July 17-24	3	1
Ecuador:	Guayaquil	July 13-20		2
Mexico:	Merida	Aug. 14-20	2	
	Tehuantepec	Aug. 14-20	1	
	CHOLERA.			
China:	Hongkong	July 16-23	2	2
India:	Bombay	July 25-Aug. 2		23
	Calcutta	July 16-30		15
Persia:	Teheran	July 16-23		600 daily
Turkey:	Bagdad and v'c'ty	July 7		320
	Muttra	July 12	Present	
	Oman	July 12	Present	
	PLAGUE—INSULAR.			
Hawaii:	Honolulu	Aug. 22-23		2
			One death on S. S. Coptic	
	PLAGUE—FOREIGN.			
Brazil:	Bahia	June 16-Aug. 5	30	11
	Rio de Janeiro	July 7-24	1	1
China:	Amoy	June 25-July 16		45 Estimated
	Hongkong	July 16-23	25	25
Egypt:		July 23-30	17	8
India:	Bombay	July 25-Aug. 2		55
	Calcutta	July 16-30		12
Japan:	Formosa	July 16-30		55
Peru:	Lima	July 9-16	7	2

Changes in the Medical Corps of the U. S. Army for the week ended August 27, 1904:

SMART, Colonel CHARLES, assistant surgeon-general, is relieved from duty in this division, and will proceed by first available transport to San Francisco, reporting upon arrival for further instructions.

APPEL, Major DANIEL M., surgeon, is granted leave for one month, with permission to visit the United States, on account of exceptional circumstances.

GIBSON Major ROBERT J., surgeon, is relieved from duty at Fort William McKinley, Rizal, and will report to the chief surgeon of the division for duty as assistant, vice Major Charles Richard, surgeon, relieved on account of sickness. Major Richard is granted leave for two months, with permission to visit Japan.

METCALFE, First Lieutenant RAYMOND F., assistant surgeon, is relieved from duty on the transport Ingalls and will report to the transport quartermaster, transport Wright, now at Shanghai, China, for temporary duty as transport surgeon.

DEVEREUX, First Lieutenant J. R., Fort Meade, is granted leave for 10 days.

BROWN, First Lieutenant ORVILLE G., assistant surgeon, having reported at these headquarters, will proceed to Cottabato, Mindanao, for duty.

NEWGARDEN, Captain GEORGE J., assistant surgeon, will report to the commanding general, department of Luzon, for duty.

A board of medical officers is appointed for the examination of officers and civilian employes applying for sick leave. Detail: Majors John M. Bannister, Alfred E. Bradley, Captain Louis T. Hess.

COMEGYS, Lieutenant-Colonel EDWARD T., deputy surgeon-general, will report to the commanding general, department of Luzon, for duty as chief surgeon.

APPEL, Major DANIEL M., surgeon, will, upon the departure of Lieutenant-Colonel Kilbourne, report to the commanding general, department of the Visayas, for duty as chief surgeon.

JOHNSON, Major RICHARD W., surgeon, now on duty at St. Louis, Mo., is detailed to represent the medical department of the Army at the meeting of the American Röntgen Ray Society, to be held in that city, September 9 to 13.

RENO, First Lieutenant WILLIAM W., assistant surgeon, now on duty at St. Louis, Mo., is detailed to represent the medical department of the Army at the meeting of the American Electrotherapeutic Association, to be held in that city, September 13 to 16.

BARTLETT, First Lieutenant COSAM J., assistant surgeon, having reported his arrival at San Francisco, Cal., will proceed to Hot Springs, Ark., and report at the Army and Navy General Hospital for duty.

WOODS, O. W., contract surgeon, is granted leave of absence for two months.

WARE, W. H., contract dental surgeon, is granted leave for two months.

Orders relieving Major Thomas U. Raymond, surgeon, from further duty at the Louisiana Purchase Exposition, St. Louis, Mo., and assigning him to duty at Fort Assinniboine, are revoked.

So much of orders as relate to First Lieutenant Charles E. Marrow, assistant surgeon, are revoked.

BAKER, First Lieutenant FRANK C., assistant surgeon, now at Fort Sheridan, is designated for duty at the Army maneuvers to be held at Manassas, Va.

WHITCOMB, First Lieutenant C. C., assistant surgeon, is granted leave for one month and 14 days, from about September 25.

NOBLE, First Lieutenant ROBERT E., assistant surgeon, is granted leave for 14 days, to take effect September 1.

During the absence of Major John L. Philips, acting chief surgeon, at the maneuvers at Manassas, Va., Captain Champe C. McCulloch, Jr., assistant surgeon, will take charge of the office of chief surgeon.

HEPBURN, JAMES H., contract surgeon, upon relief from duty at Fort Douglas, to proceed to his home, Oroville, Cal., and report by letter to the surgeon-general of the Army for annulment of contract.

GREENBERG, HARRY, contract surgeon, is granted leave for one month.

For the week ended September 3, 1904:

CLAYTON, Captain JERE B., assistant surgeon, will proceed to Camp Skagway, Alaska.

BANNISTER, Major John M., surgeon, is granted leave for two months, with permission to visit Japan.

SMART, First Lieutenant ROBERT, assistant surgeon, will proceed to San Francisco, Cal., as medical attendant upon Colonel Charles Smart, assistant surgeon-general. Upon completion of this duty Lieutenant Smart will report to the commanding general for return transportation to Manila, and will report to the chief surgeon of the division for duty.

A board of medical officers is appointed to meet at the call of the chief surgeon of the division for the examination of officers and civilian employes applying for sick leave, or recommended for transfer to the United States for treatment. Detail: Major Robert J. Gibson, surgeon; Major Alfred E. Bradley, surgeon; Captain Louis T. Hess, assistant surgeon.

WOODALL, First Lieutenant WILLIAM P., assistant surgeon, is granted leave for two months, with permission to visit China and Japan, to take effect when his services can be spared.

Orders directing First Lieutenant James Bourke, assistant surgeon, to accompany the Fourteenth and Twenty-first battalions, F. A., to Winthrop Harbor, are revoked.

SNARR, Sergeant First Class SAMUEL S., now at the Army General Hospital, Presidio, will be sent to Whipple Barracks, reporting to the commanding officer for duty.

GRIFFITH, LEWIS T., contract surgeon, now at Troy, N. Y., will proceed to Manassas, Va., and report to Major-General Corbin for duty during the Army maneuvers. Upon the expiration of such duty Contract Surgeon Griffith will proceed to his home for annulment of contract.

RAYMOND, Major THOMAS U., is granted leave for 20 days.

EDWARDS, First Lieutenant JAMES F., assistant surgeon, is relieved from the further operation of so much of orders as relate to him.

MCANDREW, First Lieutenant PATRICK H., assistant surgeon, is detailed as a member of the examining board at Jefferson Barracks.

Changes in the Medical Corps of the U. S. Navy for week ended September 3, 1904.

PAGE, J. E., passed assistant surgeon, detached from the Montgomery and ordered to the Puritan, then home, and granted leave for one month—August 26.

NELSON, H. T., Jr., acting assistant surgeon, ordered to duty at the Naval Hospital, Washington, D. C.—August 27.

SNYDER, J. J., passed assistant surgeon, detached from the Maine and ordered to the Kearsarge—August 31.

BRECK, F. W., pharmacist, appointed a pharmacist from May 20, 1904—August 31.

FLINT, J., assistant surgeon, detached from the Naval Hospital, Boston, Mass., and ordered home, and resignation as an assistant surgeon in the Navy accepted, to take effect September 6, 1904—Aug. 31

MCLEAN, N. T., assistant surgeon, detached from the Naval Recruiting Station, Buffalo, N. Y., and ordered to the Naval Hospital, New York, N. Y.—August 31.

Changes in the Public Health and Marine-Hospital Service for the thirteen days ended August 31, 1904:

WILLIAMS, L. L., assistant surgeon-general, leave of absence granted by department letter of August 15, 1904, for fifteen days from August 18, on account of sickness, amended to read "leave of absence"—August 25, 1904.

PETTUS, W. J., assistant surgeon-general, granted leave of absence for twenty days from September 12, 1904—August 29, 1904.

GREENE, JOSEPH B., passed assistant surgeon, to report to Surgeon P. M. Carrington, Fort Stanton, N. M., for duty and assignment to quarters—August 27, 1904.

COFER, L. E., passed assistant surgeon, directed to proceed to Hilo, T. H., for special temporary duty—August 24, 1904.

CLARK, TALIAFERRO, passed assistant surgeon, bureau letter of August 5, granting leave of absence for one month from September 15, 1904, amended to read "one month from August 23, 1904"—August 29, 1904.

MCMULLEN, JOHN, passed assistant surgeon, granted extension of leave of absence for fifteen days from September 5, 1904—August 25, 1904.

VON EZDORF, R. H., passed assistant surgeon, relieved from duty in the Hygienic Laboratory, Washington, D. C., and directed to proceed to St. Louis, Mo., and assume charge of service exhibit at the Louisiana Purchase Exposition—August 29, 1904.

ANDERSON, J. F., passed assistant surgeon, directed to proceed to Philadelphia, Marietta, Conewago and Swiftwater, Pa., for the purpose of inspecting certain manufacturing vaccine virus and diphtheria antitoxin establishments—August 30, 1904.

RICHARDSON, T. F., passed assistant surgeon, directed to proceed to Brownsville, Tex., for special temporary duty—August 26, 1904

ROBERTS, NORMAN, assistant surgeon, upon return of Passed Assistant Surgeon B. W. Brown, relieved from temporary duty at Evansville, Ind., and directed to proceed to Fort Stanton, N. M., and report to medical officer in command for duty and assignment to quarters—August 26, 1904.

COOK, B. J., acting assistant surgeon, department letter of August 6, 1904, granting leave of absence for ten days from August 3, 1904, amended so that said leave shall be for seven days only—August 24, 1904.

HUNTER, S. B., acting assistant surgeon, granted leave of absence for seven days from August 29, 1904—August 3, 1904.

MARR, HARRINGTON, acting assistant surgeon, granted leave of absence for fourteen days from August 22, 1904—August 24, 1904.

O'REILLY, W. J., acting assistant surgeon, granted leave of absence for four days from August 23, 1904—August 29, 1904.

OWEN, H., acting assistant surgeon, granted leave of absence for twenty-one days from August 16, 1904—August 20, 1904.

RODMAN, J. C., acting assistant surgeon, granted extension of leave of absence on account of sickness, for seven days from August 8, 1904—August 20, 1904.

SPOHN, A. E., acting assistant surgeon, granted leave of absence for thirty days from August 20, 1904—August 24, 1904.

WALKLEY, W. S., acting assistant surgeon, granted leave of absence for one day—August 27, 1904.

GIBSON, R. H., pharmacist, granted leave of absence for thirty days from September 7, 1904—August 23, 1904.

MILLER, CHARLES, pharmacist, granted leave of absence for three days—August 29, 1904.

RICHARDSON, S. W., pharmacist, upon arrival of Passed Assistant Surgeon R. H. von Ezdorf at St. Louis, Mo., relieved from further charge of the service exhibit at the Louisiana Purchase Exposition and directed to report to Passed Assistant Surgeon von Ezdorf for duty in connection with service exhibit—August 30, 1904.

HERTY, F. J., pharmacist, relieved from duty at Boston, Mass., and directed to proceed to Washington, D. C., for duty in the Hygienic Laboratory—August 26, 1904.

SOUTHARD, F. A., pharmacist, bureau order of August 17, 1904, amended so as to relieve him from duty in the Hygienic Laboratory upon arrival of Pharmacist F. J. Herty—August 26, 1904

NEVES, GEORGE, pharmacist, relieved from duty at Chicago, Ill., and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty and assignment to quarters—August 27, 1904.

THOMAS, A. M., pharmacist, directed to proceed to Fort Stanton, N. M., and report to medical officer in command for duty and assignment to quarters—August 26, 1904.

KEEN, W. H., pharmacist, directed to proceed to Boston, Mass., and report to the medical officer in command for duty and assignment to quarters—August 26, 1904.

Board Convened.

Board convened to meet at Boston, Mass., for the physical examination of First Lieutenant P. H. Brereton, Revenue Cutter Service. Detail for the Board: Assistant Surgeon W. C. Rucker, chairman; Acting Assistant Surgeon F. H. Cleaves, recorder.

Appointments.

Samuel D. W. Light, appointed acting assistant surgeon for duty at Key West Quarantine Station—August 13, 1904.

Arthur M. Thomas, appointed pharmacist of the third class—August 24, 1904.

Walter H. Keen, appointed pharmacist of the third class—August 24, 1904.

Resignation.

Pharmacist George O. Ferdinand, resigned August 15, 1904.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SHOULD THE PROFESSION ENCOURAGE THE STATE REGULATION OF NURSES?

BY

F. SCHILL, Jr., M.D.,
of Johnstown, Pa.

Before answering this question it may be well to look at the subject from several points of view. Hence, I will divide the subject into three divisions: 1. What it will do for the nurses. 2. What it will do for the public. 3. What it will do for the profession.

1. *What it Will Do for the Nurses.*—It will afford nurses that mutual help which only comes from association with one another at meetings, and from reading journals devoted to their calling. Getting acquainted with the best nurses in their profession, as well as with their work, will beget a desire to emulate their example. This can only result in good. Those that forge ahead will unconsciously establish a standard, and beget a competition that will be helpful to those below, if there is the right stuff in them, or else compel their elimination from the field. Registration, by compelling examinations, will establish a certain standard; and we know from experience that the tendency is constantly to raise the standard. There will be established preliminary examinations to determine their fitness for the study of nursing, which will exclude many who are good enough nurses *per se*, but deficient in general knowledge. This is in keeping with the spirit of the times in other professions, that none but the best shall practise establishing a desirable aristocracy of intellect. Furthermore, State regulation will establish certain other examinations, independent of those of the training school, to determine their fitness to practise nursing, after they have studied it. There will thus gradually come about a condition in which the title R. N., or T. N. will stand for a certain definite standard. At present there is no desire to prevent any person from nursing, but the public should know exactly what these outsiders represent. Raising the standard of requirements will weed out the unfit, and prevent overcrowding, with its attendant deterioration of wages and unscrupulousness in service and conduct.

2. *What it Will Do for the Public.*—The public is seldom able to judge of the merits of a nurse until after a trial, and often not then. This trial may be fatal, and then only applied to the nurse in question, for it may be fleeced by the very next nurse it gets. And should this costly experience be too often encountered, it will occasion a contempt for all nursing, which is neither good for the public nor the physician and nurse. Miss Constance V. Curtis tells of a woman who posed as a nurse and undertook the management of a case of enteric fever. She gave no baths, ice, milk, or water. The patient was very ill. He had a severe bed-sore. She allowed no visitors to see him, and thus hear his story of neglect. She told visitors that the doctor forbade it. If he complained to his physician, she told the doctor that the patient was delirious. Had she been a registered nurse she would not have been so ignorant, or at least there would have been a remedy at law for her imposition. To the public, registration and licensing will come to mean a certain standard, as the word "sterling" does for silver.

Registration will ensure the keeping of records, showing whether a nurse is what she claims to be, as to graduation data, as to fitness, and whether they are living up to the standards from year to year. It will also bring about more uniformity. This information will be at the disposal of the public all the time.

3. *What it Will Do for the Profession.*—We, as physicians, realize that certain avocations having to do with the life and death of an individual, or even his daily welfare, should have certain restrictions imposed upon them by the State. This we find in physicians, pharmacists, and attorneys. For the physician, registration of the nurse means the elimination of illegal competition by those who have put neither time nor money into an education to qualify themselves for their responsible position in life. It insures the physician a supply of fairly uniform nurses, upon whom he can rely to carry out his instructions. It means that he will not have to answer for poor results caused by the mismanagement on the part of incompetent nurses. He will know that his patient is getting the best nursing available, and if *this* quality is poor, he has an organized body to which he can appeal for betterment. The New York law, for instance, insists that schools registered with the Regents must maintain proper standards.

The leading physicians of the four States now having registration, viz., Virginia, North Carolina, New York and New Jersey, have been warm workers in its behalf. This is as it should be. While the professions of nursing and medicine have their distinct spheres, yet they are intimately connected; and since nursing is looked upon more and more as a necessity, it behooves the physician to champion any cause looking to the betterment of the nursing body.

In dividing the subject into three sections, I realize that arguments appearing in each section might be employed with advantage in another section perhaps. But the division is purely arbitrary, and the three are so nearly related that the good of one is the good of all.

TWO UNUSUAL CASES: THE PASSAGE OF A WHEEL OF A CAR ACROSS A HAND, AND A STAB WOUND OF THE HEART. RECOVERY IN EACH CASE.[1]

BY

GRAY G. HOLLADAY, M.D.,
of Portsmouth, Va.

In reporting these cases I am aware that I run the risk of having it said that one is a case of mistaken diagnosis, the other, a mistake as to the cause of the injury. However, I am prompted to report them—not that I have anything new in the way of treatment to offer, nor from a desire to credit myself for the management of them, but because I think they may be of some interest.

Case I.—Passage of one wheel of a flat-car over the right hand. On November 20, 1903, while walking alongside of a track on which a train was backing, in the S. A. L. Yards of this place, the yard master stepped in an open air-box and fell. In falling he threw out his right hand, which fell upon the rail, and this he tightly grasped. While in this position, he tells me, the train continued to back, and one wheel of a flat-car passed entirely across the back of his right hand.

I was called to him about a half hour later, and found him suffering from shock, quite nervous, and with a terribly swollen right hand. The skin on his hand, with the exception of two small places on two of his knuckles and one on his thumb, was unbroken. On the palmar surface of his hand the imprint of the head of a rail was distinctly seen. The swelling was at this time too great to say with any degree of certainty whether or not any of the bones were broken, although I thought I could make out crepitus. In explanation of his fingers not having been "sheared" off by the flange of the wheel, he gave as the reason that the train having just rounded a curve, the flange was, of course, on the opposite side. (I might mention there is from ¾ in. to ⅝ in. play between the wheels and the rails.) He also insisted that his hand had been mashed as "flat as a pancake," but that he could notice it swelling all the time he was waiting for me.

After examining his hand I determined to attempt to save it, although I hardly expected to do so. I gave it a most thorough scrubbing with mercuric chlorid, and after wrapping it up in mercuric chlorid gauze, ordered hot applications to be made throughout the night. That night and the better part of the next day his temperature continued subnormal. The next day the swelling of his hand and forearm had increased, and there was ecchymosis half way to the elbow. This ecchymosis gradually increased until his entire arm was "black and blue," the ecchymosis even extending over to his pectoral muscles. The hand, meantime, kept about the color of a tan shoe.

Gradually the swelling subsided, and it then became easy to detect fractures of the metacarpal bones. For some time now the fingers were all practically useless, but under massage, etc., they improved somewhat and began to gain some strength, until after about six weeks he had what seemed to be fair use of his hand. Early in February I examined it under the röntgen ray and found good union of the different bones, and all were in good position, except that there was an increased amount of space between two of them, and I also found that there was a dislocated thumb. I operated for this dislocation, and while the patient was anesthetized, endeavored to break up all adhesions and "limber" up his fingers by main force. In both endeavors I was successful, and when I last saw him he had a hand which was almost perfectly good. Although it was his right hand, it did not inconvenience him enough to interfere with the performance of his usual duties as yard master. He gradually got so that he could put the end of his thumb against his ring finger, and I have no doubt can now put it against his little finger.

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[1] Read before the Association of S. A. L. Railway Surgeons at Atlanta, Ga., June 1, 1904.

When I first saw this patient, my impulse was to amputate and it was also the desire of the patient that I should do so; for from the nature of the injury and the amount of force the hand had had exerted on it, I had every reason to believe that "pressure necrosis" would supervene. By amputating at once, his forearm above the wrist-joint could be saved; if I waited, even if asepsis was maintained, there was no saying where I might have to amputate. So fully convinced was the patient that it would have to be amputated, that for several days he wanted it done. After the third day, I hardly think anyone could have persuaded him to consent to an amputation.

CASE II.—On September 25, 1903, I was called at about 7.30 p.m., to see a man (F. B.) who, I was told, had been stabbed in the breast with a knife, and the blade had broken off in his breast bone. I obtained the following history: A short time before the stabbing he had had some difficulty with a fellow-laborer, but at that time they had been separated. Later, as he was bending over in the act of lifting a cross-tie, the knife was plunged into his breast from below and from right to left. He fell immediately, and was seized with a vomiting spell. He was so weak that it was thought he would die at once, and his friends did not dare to carry him home, although his house was not a great distance from the S. A. L. Yards, where the stabbing occurred. However, later, he rallied somewhat, and was then carried home, where I found him. The man was a young negro, aged 19. He was rather thin and short, but fairly muscular. His pulse was very irregular, weak, and intermittent, at times running as high as 120 beats per minute, at others as low as 78, or thereabouts. His countenance was drawn and haggard, his face bathed in a cold, clammy sweat, his respirations about normal. His voice was very weak and low; in fact, his whole condition was seemingly desperate, and it was with difficulty that he could talk at all. Upon examining his chest, I found a very small, clean cut wound over the sternum, on a line with the nipples and to the left of the median line. Upon a closer examination, I found at the bottom of the wound a piece of metal firmly imbedded in the sternum, and just within its outer (left) border, slightly below the surface of the bone. This, after much difficulty and the expenditure of some strength, I extracted, and found it was a portion of the blade of an ordinary pocket knife, between 1¼ and 1½ inches in length. It had entered the bone from right to left.

As soon as this was removed there was such a free hemorrhage that I was afraid the man would die at once. While there was no "spurt," the blood welled right up through the wound with each heart-beat (the pulse could be counted by watching this blood). The character of the heart-beats improved at once; that is, the heart beat more steadily and with less irritability.

To stop this hemorrhage I tried packing the wound, but this seemed to act as a drain, so that I took a stitch and applied over a piece of gauze a very firm adhesive strap. In a few minutes I had just under the skin (and above the sternum) a collection of blood possibly three-quarters of an inch in height and of the diameter of a saucer. After a little, as this did not seem to be increasing, I left, first giving a hypodermic of morphin and the most explicit directions as to keeping the man absolutely quiet, cautioning his friends against allowing him to move for any purpose and also about his diet. (In behalf of his friends, I may say that although they were ignorant negroes they did look out for this man unusually well and they were careful to carry out every instruction.)

The next day the man's condition was somewhat better, his pulse was stronger and far less irritable, but he was still very weak in every way, and his condition seemed precarious. On percussing his chest I found the area of cardiac dulness very much greater than normal. He complained very greatly of a severe cutting pain in his chest, saying that "to take a long breath nearly killed him." For several days he continued in about the same condition, except that the area of cardiac dulness increased and he gradually developed both a pericarditis and a pleuritis, with their usual signs and symptoms.

He gradually improved and when I saw him on the morning of October 3, I thought him much better, as all of his bad symptoms had improved. On that afternoon I was sent for in a great hurry, the messenger telling me that the patient was dying. On arriving I found him in collapse, apparently from hemorrhage. The area of cardiac dulness, which had decreased to nearly normal, was again increased and continued to increase, his pulse was very weak and rapid but regular. He rallied somewhat, but for some time was in a desperate condition. The next day he was better and continued to improve. On November 20 he was able to be up.

In looking over the literature on wounds of the heart with recovery (without surgical intervention), I found the statement that in 401 cases there were 50 recoveries and that 33 were subsequently verified by autopsy. A few of these I would like to mention briefly, as several of them bear more or less resemblance to mine:

Heyl reports a case in which a soldier was stabbed with a pocket knife over the fifth rib and three inches to the left of the median line. The man lived three days and at the autopsy the pericardium was found distended, the heart muscle wounded and a plastic pericarditis and pleuritis present. Kravkoff reports a Cossack stabbed in the heart who after being kept four weeks in the hospital and then discharged as well, was, after rejoining his regiment, ordered to lift some heavy object, and on attempting to do so fell dead. Wm. Thomson reports a case of a lunatic who pushed a pin up to its head in the fifth left intercostal space, with fatal results. Messeri reports the case of a man, aged 30, who lived 21 days after a knife wound of the right ventricle close to the interventricular sulcus, and also a wound of the septum near its anterior margin. Cox found a 32-caliber rifle bullet in the muscular wall of the left ventricle of a bear which had been caught in a trap. The ball was encysted and old pericardial adhesions were present.

And thus these cases might be multiplied indefinitely, for there are many reported in which, during life, heart injury was either not suspected or could not be proved, but in which, after death, undoubted evidences were found. In several cases bullets and other objects have been discovered in the heart walls and in one instance, at least, a bullet free in the cavity of the heart, in many other cases cicatrices and partly healed wounds. In some of the fatal cases in which death came very suddenly some time after the receipt of the injury, a wound which had partly healed and then from some sudden strain given way has been found to be the cause of death.

FOREIGN BODY IN THE HEART.

BY

W. M. JORDAN, M.D.,

of Birmingham, Ala.

Surgeon to St. Vincent's and the Hillman Hospitals.

The comparatively rare occurrence of cases of heart injury which come to operation leads me to believe that the following report may be of some interest:

On March 13, 1904, a young negro woman was admitted to St. Vincent's Hospital, this city, suffering intensely from dyspnea and pain over the precordial area. She gave a history of having received a blow on the front of the chest the previous day, and stated that the symptoms immediately followed. Her temperature was normal, pulse 132, respirations 60 and very shallow. On examination I found a small projecting point in the lower part of the third left intercostal space, about a half inch from the sternum, which pulsated synchronously with the heart. This point was exquisitely tender to the touch, and the patient stated that it "cut her breath off." It gave to the finger the sensation of a hard substance immediately beneath the skin, but since there was no visible external wound or puncture, I did not guess its real nature. It was evidently causing trouble, however, and I determined to operate at once. An incision was made through the skin, and after dissecting partly through the muscle the broken end of a black steel pin came into view. It was immediately grasped with forceps and removed, and proved to be what is known as a "shawl pin," one and a half inches long, with the glass head broken off. The patient remembered having had such a pin in her bosom at the time of the accident. The head was no doubt broken off by the blow, and the bare end forced through the puncture, or drawn through by the contraction of the heart muscle.

When the length of the pin is considered, and the fact that its direction was perpendicular to the surface, there can be no doubt that it penetrated the heart. This conclusion is also borne out by the symptoms and the subsequent postmortem findings, and by the tugging sensation which was noticed when the pin was grasped previous to its removal. Under the circumstances, however, I preferred not to open the pericardium, but simply to close the skin and wait developments. This was accordingly done, and the patient put back to bed with considerable improvement in symptoms, the pulse dropping to 86, and respirations to 40 within a few hours. The day after operation, however, she developed symptoms of pericarditis, which persisted for several days, but gradually subsided under treatment, so that on the ninth day after operation her condition was practically normal. On the twelfth day after operation she was transferred to her home, and I heard no more of her until I was told of her death on April 5, after an illness of four days, on the twenty-fourth day after operation.

At the postmortem, which was held two days after death, the pericardium was found filled with a considerable amount of bloody serum, and its entire surface was covered with fibrin. There was also a limited pneumonic process at the base of each lung. The cause of death was evidently a relapse of the pericardial inflammation, which first appeared the day after operation.

TYPHOID SPINE.

BY

LOUIS C. DUNCAN, M.D.,

of Manila, P. I.

First Lieutenant and Assistant Surgeon, U. S. Army.

In view of the comparatively few cases of this somewhat remarkable affection recorded, the following case may prove of interest and value:

The patient was a young man of 30, of good vitality, and had had no previous illness of any consequence. He had been in normal health until the night of August 30, when he complained of a headache and suffered a severe chill lasting more than half an hour. The next two days he continued working, though feeling indisposed. On the morning of September 2 he sought medical advice. His temperature was then 103° and by evening reached 104°, yet he had dressed in the morning and prepared to go about as usual. The symptoms indicated typhoid, so he was sent home and to bed. By evening he was delirious, and despite cold baths and ice to the head freely, he remained in a low delirium and was unconscious for seven weeks; so grave was the mental condition that meningitis was feared, but I am now convinced that it was but an unusually marked cerebral typhoid symptom. On regaining consciousness in the last week of October, the interval was, and has remained, a blank to him. During the fourth week intestinal hemorrhage appeared, and the patient being very low, death was feared from hemorrhage if not from perforation, but he survived. Unfortunately, the nurse allowed bedsores to appear and they seem to have had a bearing on the subsequent spinal affection. They were the size of a half dollar, over the sacrum, one on either side of the median line; they appeared at the time of the hemorrhages and were, of course, very slow to heal.

By November 1, the patient was convalescent; he was conscious, and the temperature rose no higher than 100° or 100.5° each day. Although he was able to take liquid food, he was very weak, barely having strength to turn in bed, and not to rise to a sitting posture unaided. Being anxious to get out as soon as possible, after some days he was allowed to be propped up in bed. By the middle of November he was able to sit propped up in bed for half an hour at a time, but could not increase the time after that, and finally admitted that sitting up hurt his back, and I found that he was in the habit of bracing his arms at his sides in such a way as to support his body and relieve his back of the weight. At this time there was little if any pain while lying quietly in bed. I do not know that these attempts to sit up increased the severity of the affection, but I believe they did. Knowing little then of the nature of typhoid spine, I allowed him to persist in them until he himself saw that they were doing injury, and left them off. By the second week of December his appetite was good and he had gained greatly in weight, but his back was decidedly weaker and now began to cause pain. His heart remained extremely weak for a long time and some attempts to sit up at this time caused such pain as to produce syncope. Now there was not only pain on moving, but also when quiet, and especially at night. The pain increased and by January 1 he was never entirely free from it, though at times it was easier. It seemed to center in the lumbosacral articulation, in the spine itself, and from there to radiate into both hips. He was unable to lie on his back, and for the most part on either side, his only comfortable position being on his face.

The pain seemed to moderate during the day, but would increase at nightfall, and he would lie awake the greater part of the night, groaning, and vainly turning in search of a comfortable position. The least movement of the back caused exquisite pain; while rolling him over to change the bed linen it was necessary to exercise the greatest care that one part of the body moved no faster than the other. During this time the temperature ranged from normal to 100° and the pulse was never less than 90. He had given up trying to sit up or rise to the sitting posture on any occasion. During the latter part of December I did not see him, not until in January, when I found in the bedsore on the left side a hard central mass of necrosed tissue. Thinking this might involve a nerve (and being considerably in the dark) I removed it and gradually the pain in the left hip subsided; but that in the spine and right hip increased. It became so severe and so constant that a sort of hysteria was produced and the patient, though of some fortitude, would at times give way and cry like a child. A waterbed and extension rather aggravated it; there were periods of several days when he would lie on his face, thus obtaining some slight relief. On attempting to turn him he would cry out with pain.

His appetite continued good and he steadily improved in strength and flesh. There was no impairment of either sensory or motor function in the extremities at any time. During February the pain seemed to be leaving the spine and centering more in the right hip, and it began to take on more of the nature of a sciatic neuralgia. The pain was at all times of a rather neuralgic character. Finally, about March 1, the patient was able to locate the central point, the focus of the pain, and it was at a point a half inch below the cicatrix of the bedsore on that side. With hope, but with little faith, the scar of the bedsore was cut down on and there was found a small sinus leading downward, clean and aseptic. It was curetted and left open. The effect on the pain was almost magical; the succeeding night the patient slept for the first time in two months. He began to improve and in a week was able to lift himself and sit on the side of the bed, a thing he had not done for more than six months. He began to sit up in a chair and then to go about on crutches. I had a stiff canvas jacket with hickory stays made for him, which enabled him to leave his bed entirely. By May 1 he put aside the crutches and went about with only a cane; the corset he wore until October, more than a year from the beginning of his sickness. During the summer his back was very weak and the least shock, as of stepping into a depression unexpectedly, gave him exquisite pain. His height was a half inch less than before his illness, and there was a deviation of the spine to the left amounting to more than an inch. When the patient stood erect the right heel was nearly an inch from the floor. This lateral deviation has since disappeared, the shortening remains. The back (five years afterward) is about as strong as it ever was. The patient, having applied for a pension, was examined a year after the beginning of the spinal condition, and the examining board found complete disability; by the next April he had so improved that a board found no disability. He has since been examined closely by a number of careful physicians and found to be up to the average physical standard.

This affection began about three weeks after the beginning of convalescence; it then kept the patient on his back for four months; it necessitated the wearing of a corset for six months longer. It incapacitated him from work for a year and it was two years before he regained his ordinary vigor. The treatment was unimportant. No plaster cast was used, nothing except the corset, and that after convalescence. Various drugs were tried, also electricity and cupping, but with no apparent benefit. The little operation, I think, removed a bulbous nerve end.

I should like to know what, if any, was the connection between the bedsores and the typhoid spine?

TWO INTERESTING CASES.

BY

EDWARD J. BERNSTEIN, M.D.,

of Baltimore, Md.

The following interesting case, which came under my care recently, seems of sufficient importance, as a hint to the treatment of like conditions in the hands of others, to warrant its publication:

C. D. B. was sent to me by his family physician, Dr. Bubert, complaining of pain in the head and eyes for a long time. He has recently had an attack of simple conjunctivitis which promptly yielded to mild treatment. He has double vision of which he was not aware, when he holds his head in a certain way—later ascertained to be when he holds his head straight. Head is usually held tilted with occiput toward left shoulder and face up and to right. Vision, right eye 6/36 (?), left eye 6/36 (?). He has never worn glasses, though he has always had some difficulty in seeing clearly, but thought this was natural.

On holding the head straight the two eyes seem directed in parallel lines, but on asking him to fix an object held at 10 cm. the right eye diverges. Under the screen test this eye also shows a latent divergence of 45°, the left remaining in the median line; it is found on closer investigation that there is an inability to move this (left) eye toward the internal caruncle more than three-quarters its normal range, while it does not move more than 3 mm. in the direction of the external rectus, the movements downward are also somewhat restricted.

His history gave absolutely no clue to the origin of the trouble, neither lues, diphtheria, or any like causative agent could be made out. In the diplopia there was a decided tilting of the image of the left eye (paretic one). It stood below that of the right eye, with its upper end tilted away from the nose, *i. e.*, toward the right and its lower end toward the left. On turning the head toward the right, the eyes fixing a distant object, the exotropia gradually diminished, but the vertical increased, the images standing then directly over one another. When the head was turned to the left, the images gradually rose till they came up on a level, but they still remained as far apart, horizontally. This interesting condition was but slightly affected by the two tenotomies done later on.

A red glass before his left eye develops an exotropia of 40°, and a left hypertropia of 18°, measured over his correcting lenses, which were as follows: Right — 2.75 D . = — 1.50 cyl. ax. 165, giving 6/7 vision. Left, + 1.75 = — 4.5 cyl. ax. 170 = 6/15. The fundi oculi show right, a small temporal crescent, otherwise normal. In the left he has a relatively large staphyloma to the nasal side of the disc. He can not stand the glasses as they bring out the diplopia too prominently. It is noticed also under the glasses that the left eye stands fully 1½ mm. higher than the right eye.

The question of the proper mode of procedure in this case was naturally a most difficult one to me. It seemed that the vertical deviation was most annoying and should be first corrected and offered the least difficulty. Accordingly I did a tenotomy of the left superior rectus, which made but little impression on the diplopia and then immediately did a tenotomy on the inferior rectus of the right eye. To my surprise and delight I found that the exotropia was reduced 12° and vertical deviation to about 10°.

However, ten days after it was found that with a 11° prism placed at an angle of 45° over right and 10° prism base in left, we could get fusion of the images. A few days later a prism of 10° base up (90°) right and 7° base in left, fused the images. This condition remained for some three weeks, meanwhile he was forced to wear a ground glass over the left eye to avoid annoyance of double vision.

It was now pretty clear that nearly all the trouble lay in the inferior rectus of the left eye. Accordingly it was determined that I should do an advancement of that muscle. This was done at the hospital and under cocain. When finished I roughly tested him, and found that I had obliterated all the lateral deviation, but that I had overcorrected the vertical somewhat, just how much I could not tell, as there were no means at hand to determine it, but it did not seem excessive. As the patient expressed it, the two images stood directly over one another and not more than four inches apart—the object looked at being fully 25 feet away. Four days later, the two eyes being bandaged meanwhile, I removed the two lateral stitches, and the next day, finding that the objects were still above one another in homonomous diplopia, I took out the median stitch and loosened its attachment, which brought the images more nearly on a level, a 3° prism *base up left eye*, corrected it completely. I deemed it prudent to let this alone, trusting that in the process of healing this would disappear, otherwise this slight trouble could easily be overcome by wearing a small prism. In the course of two weeks I ordered the full correction with a prism of 1½ base up on the left eye, and with this he has comfort and fusion, although, of course, the paretic condition of the left eye is not corrected by these operations, still as he has no trouble either with his distant or near vision, I think it wisest to let well enough alone.

At the present time the patient holds his head perfectly erect, all the pseudo wry-neck has disappeared. It is only by holding his head straight that he has comfort.

The noteworthy factor in this case was the *obliteration of so large a degree of lateral manifest diplopia* by correction of the vertical muscle deformity, and especially in the face of paretic lateral recti of the left eye. I think now that I should have obtained even a better result had I done the advancement operation first and alone, but I was loath to do an advancement operation, as it has always been my *bête noir*. I am thankful to say that, owing to the kindness of Dr. John C. Weeks, of New York, who fully explained to me the technic of his operation and use of his forceps, that this operation no longer possesses the terrors it formerly did. I take great pleasure in thus publicly acknowledging my indebtedness to him.

I wonder if the following case is an answer to those who hold that they have never seen cases of cure of strabismus (alternating convergence) with retention of good binocular vision as a result of early adjustment of glasses when the hypermetropia is low. The case is but one of a number I have had under my care. I have had the patient under my care for fully 12 years, and as I saw him within the past fortnight, it seemed interesting.

T. A., aged 17, came to have his glasses adjusted, as he was troubled with headaches. On looking up his history I find that he first came to me in 1893, at the age of 5, with an alternating convergent strabismus of about 25°. The left eye seemed most inclined to turn in. As he could not read, his vision could not be graded accurately, but judging from some small objects, it seemed that he had about 20/60 each eye. With the skiascope he had 25 D. H. each eye. He was given + 1.5 and his parents were instructed in the use of the stereoscopic pictures for him, he was regularly put through this course for one year.

When 7, he was brought to me, and then he could read. Vision was then 6/6 right, and 6/7 (?) left; very little squint under the glasses, but appeared at once on removal of them; his glasses were increased to +2. D., and the old exercises were again begun. In 1901 he came with no squint under the glasses, but about 10° to 15° when they were removed. His vision then was with +2 D = 6/6 right, and 6/7 left.

Three years later, June 27, 1904, he has full 6/6 in each eye, with +2.5 D., and even without any glasses he has perfect parallelism for distant vision, and screen test shows no effort to external restitution.

PROGNOSTICATORS.

BY

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To the Editor of American Medicine:—The measure of a man's greatness is focused in the passing of time. The following hitherto unpublished vivid portrayal of the proper presentation of a case of cancer to a patient and his friends, and the future conduct of such a case by the physician, was given by William Pepper, and should not be lost:

> If abdominal symptoms are complained of, don't treat for dyspepsia, but find out by thorough examinations, repeated if necessary, time and again, until you find out the source; and further, don't jump to hasty conclusions, examine from all sides. Never make a diagnosis of intestinal cancer at a single examination, reserve your opinion (let the patient go, after becoming familiar with his abdomen), treat him generally, diet, etc. Clean out his bowels and study carefully before deciding. I've long ago learned to keep my tongue between my teeth, and if ever you need to, it's when you are thinking about cancer. Say you hope it is not cancer—and even when you are satisfied don't tell a man he's got so long to live. Think what you will say, and how you will say it. If roughly told, nervous shock may kill him—it stabs to the heart. Say there is a lump there, sure enough. Don't know what it is. Let's watch it, and wait and study the thing. The mistakes don't count for having suspicions, but it is culpable to make assertions you cannot prove, and you cannot prove vital processes without watching the life history of the patient. Therefore, watch!

I am led to present my verbatim report of a portion of Dr. Pepper's lecture, taken from a notebook of student days, because the conduct of three cases by physicians and surgeons has impressed me. The direful results to the patient and his family in two instances, and to the reputation of the physician in the third, are of objective interest. The first case was one of cancer in a male. The diagnosis of sarcoma was made and operation performed. Upon its recurrence, the patient returned to the hospital and was given special treatment over a period of months. The growth being unaffected by the treatment, the man's death sentence was recited to him. As a consequence the patient made two attempts to commit suicide. The result, after four months, is a dead man, a wife who has become a nervous wreck from spending her energies in preventing the carrying out of a set design in the victim of a too exact science.

The second case recounts the history of a young German tradesman who upon the eve of his marriage stated to me that he "thought he might have lung trouble, and would I sound him." Finding nothing definite, I told him to get all the outdoor exercise and sun he could (his occupation requiring close confinement), and that he need have nothing to fear. The man left in a cheerful frame of mind. Later I learned that he visited another physician who diagnosed his case as "weak lungs which might turn to tuberculosis." The patient, overcome by morbid dread, ended his life by shooting.

The third case was that of a young society woman, lately married, whose husband was informed, after a consultation of the family physician with a specialist, the latter a man whose reputation as a pathologist is second to none, that the patient "had a hole in her lungs you could put your fist into," and that "she wouldn't live two months." After waiting at home among sorrowing friends and relatives until the expiration of the time limit for her dying, this patient started to travel, and is still living after two active winters of social rounds, while the specialist has been continuously laughed to scorn by his erstwhile patient, her family, and a wide circle of friends.

ORIGINAL ARTICLES

THE NATURE OF THE INDICATIONS FOR OPERATION FOR FIBROID TUMORS OF THE UTERUS.*

BY

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It is my desire to present one aspect of the general subject of fibroid tumors of the uterus. This is the nature of the indication for their removal. In 1901, I read a paper before the British Gynecological Society upon "The Complications and Degenerations of Fibroid Tumors of the Uterus as Bearing upon the Treatment of these Growths."[1] When I began the preparation of this paper, I felt convinced that the classic teachings concerning the subject were very faulty, but I did not realize myself until my own material had been tabulated and analyzed how far these teachings are from representing the truth concerning these tumors.

Following my paper, Cullingworth,[2] Frederick,[3] and Scharlieb,[4] have reported consecutive series of cases from their own practice, and Hunner[5] and McDonald[6] have reported two additional series of consecutive cases in which the patients were operated upon for fibroid tumors. My original paper has been followed by two others[7,8] reporting additional cases. In this way, at the present time, there are available, 983 cases of fibroid tumors from which an analysis may be made as to the nature of the degeneration and complications of these growths. In addition, we have a group of 205 cases (making 1,188 in all) reported by Martin,[9] in 1888, in which he analyzes the degenerations in the tumors, but ignores the complications met in his series of cases.

The following table represents the facts which are now available for our consideration:

TABLE OF THE DEGENERATIONS AND COMPLICATIONS IN A SERIES OF 1,188 CASES OF FIBROID TUMORS OPERATED UPON BY MARTIN, NOBLE, CULLINGWORTH, FREDERICK, SCHARLIEB, AND IN A SERIES REPORTED BY HUNNER AND BY MCDONALD.

		Percent
Carcinoma of the corpus uteri	29	2.4
Epithelioma of the cervix uteri	12	1
Epitheliomatous infiltration of fibroid tumor arising from adenocarcinoma of the corpus uteri by metaplasia	1	
Sarcoma	22	1.8
Chorioepithelioma	2	.16
Myxomatous degeneration	44	3.7
Cystic degeneration of tumor	40	3.3
Edema of tumor	11	.92
Calcareous infiltration of tumor	26	2.1
† Necrosis of Tumor	67	5.6
Twisted pedicle, pedunculated tumor	3	.25
Intraligamentous development of fibroid	34	2.9
Subvesical development of fibroid	2	.16
Hyaline degeneration of tumor	69	5.8
Hyaline degeneration and calcareous infiltration	8	.67
Adenomyoma	8	.67
Hemorrhagic degeneration of tumor	10	.84
Fatty degeneration of tumor	7	.59
Procidentia uteri	5	.42
Retroversio uteri	4	.33
Pregnancy	1	
Ectopic pregnancy	3	.25
Ectopic pregnancy, salpingitis, hydrosalpinx	1	
Dermoid cyst, bilateral; umbilical hernia	1	
Dermoid cyst; suppurating, sinus through abdominal wall	1	
Dermoid cyst with twisted pedicle	1	
Dermoid cyst	2	.16
Ovarian cyst	47	3.9
Ovarian cyst with twisted pedicle	2	.16
Ovarian cyst, suppurating	1	
Ovarian cyst, bilateral	2	.16
Ovarian cyst, unilateral	22	1.8
Cystic degeneration of ovaries	78	8.4
Calcification of ovary	1	
Ovarian fibroma	3	.25
Ovarian carcinoma	2	.16
Papillary carcinoma of both ovaries	1	
Hematoma of ovary	1	
Parovarian cyst	7	.59
Broad ligament cyst	2	.16
Abscess of ovary	1	
Abscess of ovary, single	5	.42
Abscess of ovary, double	2	.16
Tuboovarian abscess	2	.16
Pyosalpinx	11	.92
Pyosalpinx, bilateral	11	.92
Pyosalpinx, unilateral	9	.75
Pyosalpinx with tuboovarian abscess	2	.16
Abscess of broad ligament	1	
Hematosalpinx	2	.16
Hydrosalpinx	25	2.1
Hydrosalpinx, bilateral	15	1.2
Hydrosalpinx, unilateral	18	1.5
Hydrosalpinx and tuboovarian abscess	1	
Salpingitis	46	3.9
Salpingitis, bilateral	2	.16
Salpingitis, unilateral	10	.84
Salpingitis and hydrosalpinx	3	.25
Salpingitis and tuboovarian abscess	3	.25
Fibroma of fallopian tube	1	
Papilloma of appendages	1	
Appendicitis	14	1.1
Ventral hernia	1	
Umbilical hernia	3	.25
Carcinoma of umbilicus	1	
Tuberculous peritonitis	1	
Universal adhesions	4	.33
Adhesions to viscera	6	.5
Adhesions to tumor	5	.42
Varicose veins of pelvis	4	.33
Thrombosis of veins of lower extremities	2	.16
Total	795	

Especial attention is called to the relative frequency of adenocarcinoma of the body of the uterus as compared with epithelioma of the cervix. In women not the subjects of fibroid tumor epithelioma of the cervix is about four times as frequent as adenocarcinoma of the corpus, therefore, for the 29 cases of carcinoma of the corpus uteri there should have been about 116 cases of epithelioma of the cervix, whereas there were but 12. So marked a divergence from the usual ratio is a striking fact, and makes the deduction a rational one that fibroid tumors exert such an influence upon the nutrition of the uterus as to predispose to the development of cancer of the corpus.

The foregoing series of complications and degenerations is presented as showing what was found in 1,188 women operated upon for fibroid tumors. Naturally it is not claimed that many of the complications were caused by the presence of the fibroid tumors, but merely that they existed as complications.

It seems to me clear that a careful consideration of the facts presented in this table should convince anyone with an open mind that the classic teachings concerning fibroid tumors are erroneous. I need scarcely remind you that this teaching is that fibroid tumors of the uterus are benign growths, which usually produce but few symptoms, and which, after the menopause, undergo retrogressive changes, becoming smaller or disappearing; that the chief danger of fibroid tumors consists in the fact that at times they cause hemorrhages from the uterus, and that rarely they cause trouble because of their size or because of pressure upon adjacent viscera.

How far this teaching comes from representing the facts contained in the foregoing table! An analysis of the 1,188 cases contained in the foregoing table shows that because of the degenerations in the tumors about 16% of the women would have died without operation. About 18% would have died from the complications present. In addition to this, it is well known that a certain percentage would have died from intercurrent diseases brought about by the chronic anemia present in many of the cases, and by injurious pressure from the tumors upon the alimentary canal and urinary organs. In other words, that at least a third of the women having fibroid tumors, as shown by the foregoing table, would have died had they not been submitted to operation.

I need not remind the profession that the classic teaching concerning the disappearances of fibroid tumors after the menopause is largely erroneous. It is well known that many fibroid tumors grow more rapidly after the menopause than before it, and the analysis of the cases contained in these tables shows that fibroid tumors after the menopause are, at least as liable to degenerations and complications as before it.

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* Read before the American Gynecological Society, May 26, 1904.

† Both Cullingworth and Scharlieb rejected cases of fibroid polyps removed per vaginam, on the ground that no one disputes that these tumors should be removed. Had they been included, the percentage of cases of necrosis would have been greater.

It is a classic statement, that many women having fibroid tumors of the uterus live, and die from other causes, and remain in ignorance of the presence of the tumor. This is a statement which is not based upon evidence, and until such evidence shall be produced, it is my opinion that it represents the truth in a very small minority of cases. Women having fibroid tumors, as a rule, are sick women, suffering either from the fibroid tumors themselves, or from various complications which are so common in the general group of women having fibroid tumors. The fact, that of 1,188 women suffering from fibroid tumors of the uterus, operated upon consecutively, 795 had the complicating conditions enumerated in the table, is ample proof of the falsity of this teaching.

From all the facts now before us concerning the life history, the degenerations, and the complications of fibroid tumors, the following conclusions appear to me to be inevitable:

About 16% of the women having fibroid tumors would die if not operated on, because of the degenerations and complications arising in the tumor or in the uterus; in other words, that women having fibroid tumors run a far greater risk of losing their lives by not having them operated on than by submitting themselves to operation. In addition, it has been shown that women having fibroid tumors, as they present themselves to the gynecologist, have, in addition to the tumor itself, many complications outside of the tumor and the uterus. Of the women having fibroid tumors who have come under my observation, about 18% would have died without operation, because of the complications outside of the tumor and the uterus.

This state of facts forms a secondary, but an additional reason for operating on women having fibroid tumors, taking them as a class. A certain percentage will die from intercurrent diseases due to chronic anemia or to pressure upon the abdominal viscera. Taking them as a whole, at least a third of the women having fibroid tumors who have come under my observation would have died had they not been operated upon. I hold that the scientific position in reference to the indication for fibroid tumors is that as these facts are incontrovertible—being based on careful clinical and pathologic investigations—the indication for operation should be based on these facts, and not on any particular symptom which may be present at the time the woman comes under observation. My position is distinctly in opposition to that which may be called the classic or traditional position, which is that the operation to remove a fibroid tumor should be done because of the symptoms the tumor is producing at the time the patient presents herself for treatment—whether this be hemorrhage, or pain, or pressure on the urinary organs or on the alimentary canal, or whether it is a state of mind arising in the woman because of her knowledge of the existence of the tumor. Nothing is more variable than symptoms, which can frequently, and indeed usually, be removed by appropriate treatment. Indeed the state of the case is even worse than this, as for most symptoms it is necessary to accept the patient's statement, because of the lack of other evidence. On the other hand, nothing is more definite than physical facts and pathologic findings. When the two positions are placed in opposition, it seems to me there can be no question as to which is the correct one and which should be accepted by the profession. To speak by analogy, a fibroid tumor should be removed for the same reason that an ovarian tumor should be removed; the indication varying in degree, but not in kind. Ovarian tumors are removed, irrespective of the symptoms they are producing, because of our knowledge of the life history of these growths, which is that if left to pursue their usual development, a fatal result will occur in almost all cases. Similarly, fibroid tumors should be removed, because if left to pursue their usual development, in at least a third of the cases a fatal result will occur.

It is a general rule in surgery that a tumor when present in the body should be removed. This rule is as applicable to fibroid tumors of the uterus as to other tumors. It is my opinion that this rule will hold good in the future, and the exceptions to the rule will be based upon the facts in particular cases—the small size of the tumor, its subserous development, and the existence in the particular woman of complicating diseases which would render operation especially hazardous.

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ON THE PATHOGENESIS OF CHRONIC GASTRIC ULCER.*

BY

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A satisfactory explanation of the chronic progressive gastric ulcer has not yet been attained, but the following ideas and experiments are to be found in the literature.

As early as 1855, Virchow expressed the opinion that the condition is essentially due to the disturbances in the circulation of the stomach—embolism, thrombosis, arteriosclerosis, aneurysm formation—indeed, any change which might result in the cutting off of the blood supply from a portion of the stomach could, he thought, bring about the death of that portion and its subsequent digestion. Most authors on the subject followed him in this view, and a number carried out experiments to prove its accuracy. Panum, for example, injected globules of wax into the femoral artery against the stream, and although he produced no gastric lesions, he held to the idea that they could be so produced. Pavy, Müller, Roth and Körte found, as has been abundantly shown by later workers, that ligature of the larger branches of the gastric vessels has no effect upon the mucosa. It is easy to see why this is so in the stomach of an animal exposed by opening the abdomen—the communications between the branches of the various arteries supplying the stomach wall are so abundant that the closure of one is instantly compensated for by the others. Indeed, if one fill the branches of one artery with some colored suspension by injecting it with a syringe, the color is almost instantly dissipated and the red blood returns when one relieves the pressure on the piston of the syringe. The minuter arteries, however, the ultimate branches of these trunks, are not so abundantly connected and Cohnheim, appreciating this, accomplished their occlusion by injecting a suspension of finely divided lead chromate into a branch of one of the larger arteries. This passed into the small branches and although the circulation might be restored through the larger trunks, the blood no longer came into intimate contact with the tissues and a hemorrhagic infarction was produced wherever the tissues were so injected. Ulceration of the mucosa, even deep enough to perforate the stomach wall, was thus produced. I have repeated this operation several times, using ultramarine blue, which is relatively finely granular, in place of lead chromate, and have frequently produced the most widespread and characteristic hemorrhagic infarctions of the stomach. When the injection mass is thrown into the vessels the stomach contracts violently over that area and this may explain the fact that in some cases the infarcted area was found to be invaginated into the remainder of the stomach and held there. If the dog lived long enough, quite deep erosions of the mucous surface of the swollen hemorrhagic and necrotic portion of the wall were produced—indeed, in two instances, after a partial disappearance of the hemorrhage, a circular ulcerated area extending through the mucosa and resembling the wellknown round ulcer of the stomach was found. In one or two instances the compensatory power of the circulation was adequate to preserve the mucosa from any gross change. Similarly necrotic areas, which later underwent deep ulceration, could be produced by inserting a circular row of sutures in the wall of the stomach, when, naturally, being entirely cut off from the blood supply, the enclosed tissue died and was digested.

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*Read before the American Gastroenterological Association, Atlantic City, June 6, 1904.

However, all of the eroded areas showed a tendency to heal. When the infarcted area was too large, the dog usually died, but the smaller areas were drawn together by the contraction of the stomach wall, and doubtless could have been completely healed in a short time.

Such vascular obstruction is, however, far from constantly found in connection with the gastric ulcers in human beings. Many of these occur in young people in whom there is no disease of the bloodvessels nor any source for emboli. It is true that gastric ulcer does frequently occur in individuals who have passed middle life, and sclerotic and thrombotic processes have been found, but so inconstantly as to form but a weak basis for the theory. Embolism of the gastric vessels has been shown to occur but rarely (Fenwick), and even if a plug were washed into a gastric vessel, it is plain from what has been said before that its presence would scarcely be felt by the tissues. The idea, therefore, that in the oblique funnel-shaped ulcer we have the gap left by the destruction of the area of tissue supplied with blood by the artery at its apex, is not supported by the strongest evidence. Ebstein has described as an embolic process the occurrence and experimental production of ulcers in trichiniasis in which parasites were thought to act as emboli.

The aneurysmal dilation of the artery exposed so frequently in the base of an ulcer is usually thought to be due to the erosion of its walls. That the aneurysm might be primary has hardly been suggested, and could probably not be supported by facts. Steiner, Merkel, Aufrecht, Hauser, and Openchowski emphasize the existence of arterial change in the wall of the stomach as the cause not only of the ulcer, but of its persistence. Hauser regards the ulcer as comparable to a torpid varicose ulcer of the leg in which the sluggishness of the circulation impedes healing. Openchowski laid particular stress on hyaline degenerations which he found to involve the arterial walls in the margins of gastric ulcers, while v. Recklinghausen described hyaline thrombi in such vessels. Others, however, have been unable to discern any such changes in their large series of cases, and they may be regarded at least as inconstant.

Müller produced ulcers by causing a chronic venous congestion by tying the portal vein, and it was Axel Key's idea that spasm of the muscles produced such a passive venous congestion and favored ulcer formation.

Other causes of ulceration may be brought forward. Talma produced hemorrhagic erosions by stimulating the vagi, which he explained as due to the infarction and digestion of portions of the stomach rendered extremely anemic by the violent muscular contraction thus set up. Recently, his pupil, Van Yzeren, has succeeded in producing typical deep gastric ulcers in a large percentage of a series of rabbits by merely cutting the vagus nerve supply of the stomach below the diaphragm. This he regards as the result of a spasmodic condition of the gastric muscle which so constricts the vessels as to render the mucosa anemic, even to such an extent as to allow of its erosion by the gastric juice. This, it will be remembered was also the view of Klebs, although he expressed no definite opinion as to the cause of the muscular spasm.

Talma and Van Yzeren think it probable that some such spasm of the muscles may occur as the forerunner of gastric ulcer, but the clinicians have not recognized any such condition in any great number of cases, nor do these authors say why it should occur. Van Yzeren explains his results as probably due to the uncontrolled action of a lower motor neuron after the section of the upper, regarding the ganglionic elements of the stomach wall as the lower neuron in question.

Somewhat different are the experiments of Schiff, Ebstein, Ewald, and Koch, who injured different portions of the central nervous system and found as a result hemorrhages in the stomach wall with consequent erosions. All of these later experiments are, however, far removed, as must be clear to any one, from the conditions ordinarily found in the patient who suffers from round ulcer of the stomach.

Many have attempted to explain the genesis of the ulcer, on the grounds that mechanical, chemic, or physical influences have destroyed the tissue. Thus, Ebstein, Leube, Hoffmann, Lebert, Duplay, and others have seen cases in which severe contusions or violent pressure on the stomach have been followed by ulceration of the mucosa. Most of these patients were observed clinically only, but Ritter has produced gastric ulcers experimentally by blows upon the stomach in animals, and Körte has done the same by pinching the stomach with clamps. All of these injuries healed rapidly, however, and are hardly comparable with the persistent round ulcer.

Still, Rasmussen holds that the chronic ulcers may be often traced to the pressure on the stomach caused by tight lacing, and Körte has described a case in which the ulcer was in that part of the stomach which was pressed against an angular gallstone in the gallbladder.

Leube and Decker have shown that burning the mucosa with hot food will produce ulcerations. Roth has produced them with bits of silver nitrate, which dissolved slowly and caused necrosis of the mucosa, but in every case healing followed at once.

This remarkable power of healing which characterizes the walls of the stomach offers the greatest difficulty in the explanation of the persistence of the round ulcer. It has been seen that a variety of causes may lead to the production of losses of tissue in the stomach wall; anything which will lead to the death of the tissue, traumatism, chemic irritation, particularly anything which will interfere with the blood supply, will furnish a material upon which the gastric juice may exert its digestive action, and an ulcer will quickly result. Almost immediately, however, the contraction of the muscles brings the edges of this erosion closer together and progress toward healing begins at once. Many efforts have been made to produce a more permanent ulceration, but none has been crowned with marked success. On the ground that round ulcers are frequently seen in anemic persons, especially chlorotic girls, Quincke and Daetwyler produced erosions in the mucosa of the stomach of dogs and then bled the animals as much as they could with safety. They noticed that the wounds in the stomach healed more slowly. Naturally this is so, as it would be with any other wounds. Silbermann produced erosions after the method of Cohnheim, after having first rendered his dogs hemoglobinemic by chemic means or by introducing laked blood. He found that he could thus produce deep perforating ulcers and thought it possible that in this way he was imitating the conditions seen in extensive skin burns, after which gastric ulcers are sometimes seen. (No satisfactory explanation of these ulcers has been given. Curling and Meier think that they are due to vicarious excretion by the stomach of noxious materials during the period of anuria. Thromboses of the vessels have been described, but are not constant.)

Attempts have been made, owing to the well-recognized frequency of hyperacidity in cases of gastric ulcer, to assign a great importance to this hyperacidity in maintaining the existence of the ulcer. Pavy, Samuelsohn, and particularly Matthes, have experimented with this factor, and Matthes has kept a dog, in whose stomach a defect has been produced in the mucosa for several weeks, irrigating the stomach daily with .56% hydrochloric acid. It was found that after that time the ulcer was not healed, and Matthes therefore regards the persistent hyperacidity as of importance in hindering the healing of ulcers and in bringing about their chronic course.

Certain authors have looked upon gastric ulcers as due to or at least maintained by bacterial infection. Böttcher expressed this view long ago, but his conclusions were discredited by Körte, who was unable to find any such organisms. Nauwerck recently has revived the idea, especially with regard to the hemorrhagic erosion of the stomach, which he thinks is progressive and may lead to the gastric ulcer. Further observations are necessary in this direction.

On the whole, then, it is seen that any focus of necrosis of tissue in the stomach may lead by the action of the gastric juice to the formation of an ulcer, and although we have not reached a very satisfactory explanation of why such an ulcer persists, writers are unanimous in speaking of it as a peptic ulcer. Even at the beginning this was clear, from the fact that such lesions are so closely limited to the stomach and its immediate vicinity.

This leads us to the closer scrutiny of the process of digestion of the tissue, and the old but ever new problem as to why the stomach does not digest itself. As to this the following may be set down as related more or less closely to the study of gastric ulcer.

Pavy thought that the stomach did not digest itself because the alkaline blood rushing through the tissue kept the gastric juice neutralized. This idea is, however, disproved by the fact that the intestine does not digest itself although bathed in a very much more active digestive ferment in an alkaline medium. Vaughan Harley thought the secretion of mucus protected the epithelium, Claude Bernard that the epithelium protected the stomach wall but was itself continually destroyed and reproduced. He cited his famous experiment of the introduction of living frog's leg into the stomach of a dog in refutation of John Hunter's old theory that living tissue could not be digested on account of the mystic living principle. Matthes criticises all this and shows that Bernard's view cannot be correct for the muscularis when exposed in the stomach wall by stripping off the mucosa is not digested. He kept frogs in digestive solutions and found that they remained uninjured and unchanged except for the cleaning of the dead epidermis, unless the acid in the digestive solution was strong enough to kill the superficial cells when digestion of that killed tissue took place. This he thinks explains the digestion of the frog's leg in the dog's stomach, and this he regards as the role of the hyperacid secretion so often found in cases of gastric ulcer. Matthes concludes that enzymes alone cannot attack living tissue but that if they are associated with acids strong enough to kill the tissue they then finish the process and dissolve the dead tissue.

Although hyperacidity might not be able to cause the death of the tissue it might be adequate to prevent the new formation of tissue and the healing of the ulcer.

Up to this we are still left with the idea of the living principle which preserves the cells from the attacks of the digestive fluid, but Weinland in a recent article brings forward a new conception which may change all this. He studied intestinal parasites by making an emulsion of their pulverized bodies and adding this to digestive fluids in which fibrin was placed. Digestion was markedly retarded. Study of the pulverized gastric mucosa treated in a similar way after the separation of the pepsin from it, gives similar results. From his experiments, Weinland shows that such intestinal parasites produce an antiferment which protects them from the digestive juices. This antiferment is intimately connected with the cells, and apparently remains so, being extracted only with difficulty. So, also in the gastric mucosa the antipepsin is a substance intimately associated with the cells, and extracted far less easily than the pepsin. In hyperacid media—up to 2%—its activity decreases or is destroyed. Similar antiferments can be demonstrated for other tissues, but less clearly.

Evidently this is similar to the life adaptations of organisms, that the cells should thus be adapted to produce a material to protect themselves. Weinland is inclined to apply the idea to the explanation of gastric ulcer—conceiving of the condition as the result of a loss of power to produce antipepsin, and the consequent destruction of the epithelium—or as due to the annulment of the antipepsin by the hyperacid gastric juice.

This idea is tempting, but may be criticised. Why should the failure to produce antipepsin be local—if it is due to a local circulatory disturbance can we not just as well explain the ulceration as due to actual infarction or death of the tissue? Besides as Matthes has shown, it is primarily the acid that the tissues have to fear in an acid digestive material—the mere exposure of living tissues to pepsin has no result. This is strengthened by the fact that postmortem tryptic digestion of the intestine is seldom if ever a striking phenomenon. Still we cannot be sure that were the tissues deprived of this antiferment they would not succumb to the ferment, and it may be that this may prove the true explanation of their immunity. Still it cannot be limited to the tissues of the lining of the stomach and intestine, for the exposed muscularis is not digested, nor was the spleen digested when introduced into the stomach with well-maintained blood supply. Can it be that *all* the tissues are thus provided with an antiferment, and that this is specific for the individual, or at least the species, against the digestive ferments of the same species? This might offer an explanation of the digestion of the frog's legs or the rabbit's ear when introduced into the dog's stomach, while the tissues of the dog itself, laid bare to these digestive juices, are unaffected. The idea is tempting, but requires further proof. The antiferment is supposed not to leave the cells, but in order to be effective, it must constantly be produced in a considerable quantity, for it is well known that immediately on the cessation of its life the cell succumbs to the digestive ferment.

The facts brought forth by Weinland, therefore, while extremely interesting and important, do not afford us at once an explanation of the mode of production of the gastric ulcer.

In recapitulation, it may be said that gastric ulcers may be produced by anything which causes necrosis of the mucosa of the stomach, and thus subjects it to the digestive action of the gastric juice. While certain cases may be explained in their origin by one or other of the causes given, there are others whose inception is obscure. The persistence of some of these ulcers offers the greatest difficulty of explanation, and none of the theories is satisfactory. Perhaps the majority of gastric ulcers do heal, however, and are recognizable later only by the scars they leave, so that possibly Talma is right in saying that all ulcers tend to heal, but that frequently they last a long time because new ulceration occurs in the same spot.

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RECENT EXPERIMENTAL WORK ON ANESTHESIA.*

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Theory of the Action of Volatile Liquid Anesthetics.—No important additions have been made to our knowledge of the underlying mechanism of the action of the indifferent narcotics—the inhalation anesthetics and the hydrocarbon hypnotics—since the extensive researches of H. Meyer and E. Overton.[1] It will be recalled that both investigators arrived independently at the same conclusion, namely, that anesthesia is caused by the solution of the lipoid (fatty) constituents of the cells by the absorbed anesthetic. All fat solvents are anesthetic if they enter the cell; the anesthetic power is proportional to the factor: Solubility in lipoid divided by solubility in water. This varies in a definite manner with changes in the chemic composition, so that the relation of constitution to action is explained on this purely physical basis. The same concentration of the anesthetic in the serum provokes precisely and quantitatively the same effect in all classes of organisms and cells (excepting plants and some of the invertebrates); but the absorption of the anesthetic from the air into the blood varies with the temperature, so that a different concentration of anesthetic vapor is required in cold-blooded and in warm-blooded animals. The concentration of ether in serum necessary for complete anesthesia is 1 to 400; of chloroform, 1 to 4,500 to 1 to 6,000.

The rapid recovery which occurs when the anesthetics are removed shows that the lipoids are not taken out of the cell, but merely dissolve within the cell. It also shows that the permeability of the cell wall cannot be greatly altered, a conclusion which is confirmed directly by experiments on plant cells. The mechanism by which the solution of lipoids causes anesthesia is therefore not yet understood.

The fact that a long-continued anesthesia leads to death—even when the concentration is kept perfectly constant—shows that there must be side actions which are not explained by Meyer and Overton's theory. It is possible that these may be avoided by the simultaneous use of several anesthetics. The anesthetic action itself is simply proportional to the sum of the actions of the anesthetics which are present in a mixture.

The action of the alkaloidal narcotics cannot be explained on this theory.

Histologic Changes Caused by Anesthetics.—The changes in the Nissl granules which were described by C. C. Stewart[2] as a consequence of acute alcohol narcosis, could not be reproduced by Haskins.[3] Wright,[4] however, finds a disappearance of Nissl corpuscles and shrinkage of the nerve cells after prolonged chloroform or ether anesthesia.

Of other histologic changes, Sollmann and Brown[5] have described an acute vacuolar degeneration of the liver cells in rabbits poisoned by urethane (doses above 0.6 gm. per kilo). This effect was not produced by chloral.

Dosage of Chloroform.—The British Special Chloroform Committee has been engaged particularly in studying the dosage of anesthetics with a view to increasing their safety. As a necessary preliminary, the methods of estimating chloroform in the air and in the blood had to be investigated. Harcourt[6] keeps the blood fluid by the addition of urea, adds dilute sulfuric acid, and expels the chloroform by a current of air at 70° C. The air is passed over incandescent platinum wire, which burns the chloroform to HCl, and this is estimated titrimetrically.

Inhaling Regulator.—To be able to regulate the concentration during anesthesia, Harcourt passed the air through a conical flask containing the chloroform. The same principle has been in use in laboratories,[7] but Harcourt modifies it so as to introduce a certain amount of rather inaccurate graduation. The apparatus is more convenient than most other forms of inhalers, and has proved satisfactory in clinical trials.

Concentration in the Inspired Air.—The committee concludes that 1% to 2% of chloroform in the air is sufficient for anesthesia, and that these proportions are quite safe; .5% does not produce unconsciousness; 5% is dangerous. (These are practically the conclusions of all the former investigators.[8])

Idiosyncrasy.—Waller, in his introduction, makes the following significant remark, which is well worth quoting: "As regards individual differences, there is no doubt that different subjects present varying degrees of susceptibility to chloroform, as notoriously occurs in the case of alcohol; but the committee considers that the vague expression, 'idiosyncrasy,' ought not to be accepted in explanation of a fatal accident if the method of administration involves considerable fluctuations of the quantity of chloroform absorbed per unit of time."

Effect of Chloroform on the Heart.—Some very important work has been done on this problem. McWilliam[9] showed that this drug has the same effect in the cat as in man. The heart is at first quickened, and then slowed. The acceleration is due to a depression of the vagus center, for it occurs after section of the accelerators, but not after section of the vagi. The subsequent slowing is partly due to a vagus stimulation, but mainly to direct depression of the cardiac muscle.

Sherrington and Sowton[10] investigated the action on the excised heart of the cat, perfused by Langendorff's method with a modified Ringer's fluid, to which various concentrations of chloroform were added. The fluid was injected into the cardiac end of the aorta, with a pressure of 120 mm. Hg. at a temperature of 35°. The contractions were recorded by levers.

With this method, which reduces the heart to the simplest experimental conditions, the following results were obtained:

Chloroform does not much impair the excitability of the vagus or accelerator nerves, even when the heart muscle is profoundly depressed.

The main effect is on the strength of the contractions, the rate being but little altered; the action is less on the auricles than on the ventricles. The effect reaches its maximum within a minute after beginning the perfusion, and does not increase if the drug is continued; there is consequently no cumulative action; on the contrary, the heart tends to recover somewhat. The absolute amount of chloroform which is passed through the heart is therefore quite immaterial; the action depending purely on the concentration. (This is precisely what has been observed in regard to all other tissues.)

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* Read at the June meeting of the American Therapeutic Society.

Very large doses stop the heart; death is preceded by fibrillation.

If the chloroform solution is replaced by unpoisoned Ringer's fluid, the heart recovers very promptly and completely, unless the concentration has exceeded a certain maximum.

The effect of different concentrations of chloroform in Ringer's fluid on the strength of the ventricular contractions was as follows:

Percentage of chloroform	Reduction of strength. (%)
0.010	22
0.015	26–49
0.020	28-50
0.030	15–95
0.050	39–100
0.075	87
0.15	79
0.3	stops, but recovers when chloroform is removed.
0.75–1.5	stops, recovery uncertain.

These concentrations have, however, a lesser effect when they are present in the blood (a certain amount of the chloroform probably being fixed by the corpuscles.)

Tunnicliffe and Rosenheim[11] have studied the same subject by the same method (using Locke's fluid for perfusion). They obtained the same results: 0.1% chloroform stopping the heart in diastole. The addition of small quantities of lecithin did not diminish the toxicity materially. Ether, alcohol, and acetone have very little effect even when perfused in a concentration of 0.2%.

O. Loeb[12] also found similar results with a similar method (employing diluted blood for the perfusion). Chloroform stopped the heart in a concentration of 0.084%; and greatly weakened it in 0.056%. Ether, on the other hand, had but a temporary effect in 0.13%; and 0.399% was required to stop the heart. Large doses of ether also dilate the coronary vessels. Alcohol was almost ineffective; even 2% had practically no action.

Effect on Vasomotor System.—Blauel[13] investigated this by Gaertner's tonomanometer, and found a radical difference between ether and chloroform. Ether has a tendency to raise the blood-pressure, while chloroform always causes a progressive lowering. This is often accompanied by sudden falls, which may occur even after the administration of chloroform has been stopped. This is, therefore an especially dangerous feature. No explanation for the phenomenon is given.

Schaefer and Scharlieb[14] find that dilute or concentrated chloroform solutions cause a constriction of the vessels in the frog, even when the central nervous system has been excluded. (It need scarcely be emphasized that this observation cannot be applied to mammals without further experimentation.)

Resuscitation of the Heart.—Since the stoppage of the heart is, doubtless, the most refractory phase of the accidents of anesthesia, the advances which have been made in this connection deserve notice. An active massage of the heart, together with artificial respiration, forms the basis of all the newer methods. Prus[15] claims to have revived a dog's heart as long as one hour after asphyxial death, by massage of the exposed heart, with saline injections. The treatment had to be continued as long as one and three-quarters hours in some cases. He also claims success in chloroform death. Bourcart[16] also claims revival of the dog's heart 15 minutes after death by diaphragmatic massage of the heart. The success, however, was quite inconstant. Crile[17] increases the efficiency of the massage (through intact thorax) by intravenous injections of saline solutions and suprarenal alkaloid. In the majority of these resuscitation experiments, success is certain only if treatment is begun very soon after apparent death; in fact, when the heart is still feebly beating. It is also very doubtful whether they are at all effective in severe chloroform poisoning, since Sherrington and Sowton (l. c.) could not revive the heart after an overdose of chloroform.

The demonstration of Locke[18] that the mammalian heart could be made to beat for many hours outside of the body, if the coronary vessels were perfused with a suitable solution, justified the hope that the "dead" heart could be made to beat again. This was confirmed by Kuliabko,[19] who succeeded in reviving a rabbit's heart which had been excised 44 hours. D'Halluin[20] has also revived a child's heart, which had been kept for 36 hours after being excised, without especial precautions. Rigor had set in.

In all these experiments, the heart was used after excision from the body. It seemed to me interesting, from a practical as well as a theoretic standpoint, to attempt similar experiments on intact animals. For this purpose[21] I clamped the aorta, and in some cases the vena cava, and injected a warm Locke's fluid under a pressure of oxygen into the cardiac end of the carotid artery, the other carotid being connected with the manometer. It was not difficult to keep up what should be a sufficient blood-pressure (100 mm. Hg.) by this method; but the heart did not resume its beat even when the perfusion was started as early as 15 minutes after death. The cause of this failure was found to be intracardiac clotting. If the same heart was opened, the clot removed, and the coronary vessels perfused by Langendorff's method, a good beat could be obtained. This would indicate that the clotting does not involve the coronary arteries.

A definite limit is therefore set to all attempts to revive the heart in situ, by the formation of clots in the cardiac cavities. This event occurs in dogs quite early after the stoppage of the heart; it was present in two out of three animals opened, 20 minutes after asphyxial stoppage of the heart. As the ordinary methods of resuscitation are successful in this early period after death, I considered it superfluous to continue my experiments. The results give rise to some doubts whether the heart had really stopped in the cases of late revival which have been reported. Kuliabko[22] quotes some cases in which the dog's heart beat 92½ hours after death; these postmortem pulsations are often so weak that they could readily escape notice unless the chest were opened.

In conclusion, it would seem that the resuscitation of the heart should be attempted persistently in every case of death by asphyxia or anesthetics; but that we should not be surprised at a failure if considerable time has elapsed, or if a large overdose of chloroform has been used.

Other Treatment of Accidents of Anesthesia.—H. D. Haskins[23] finds that fairly strong therapeutic doses of strychnin counteract the respiratory and motor depression produced by large doses of alcohol, without lessening its anesthetic qualities; should this be found to hold for other anesthetics, strychnin would be a useful preliminary adjunct to every anesthesia. I may remark, however, that the treatment of the accidents of anesthesia demands further experimental investigation.

The Gases of the Blood in Anesthesia.—Livon[24] has found that ethyl chlorid, like chloroform, lowers the CO_2 and increases the O of the blood. Ethyl bromid and nitrous oxid have the same effect. Croton chloral and chloralose produce the opposite result.

Late Effects of Anesthetics.—Munro[25] concludes that the belief that ether is more irritant to the kidneys than chloroform is not based upon sufficient evidence; and that the existence of albuminuria and casts is not in itself sufficient to condemn the use of ether. Hawk[26] finds that prolonged ether anesthesia (a half to four and a half hours) on dogs in nitrogen equilibrium, was followed by a slight diuresis, with a small increase of nitrogen excretion, and a considerably increased chlorid excretion and glycosuria. The blood shows an increased number of red corpuscles (agreeing with the observations of DaCosta and Kalteyer,[27] who refer it to a diminished amount of plasma); the leukocytes are also increased. Starved dogs showed the diuresis, but no glycosuria. The effect on the blood was the same.

Lowering of Resistance.—Snel [28] found that anesthesia lowers the bactericidal power of the tissues and body fluids very greatly; but this is quickly recovered when the anesthetic is stopped. Morphin does not have this effect. He believes that the lowered bactericidal power of the lungs is an important factor in the pneumonia following operations.

Operations in the Excitement Stage of Ether.—This method has again been recommended as less dangerous than the ordinary anesthesia. Ether is inhaled until counting becomes irregular. The advocates of this method insist, however, that special precautions are essential.[29]

Administration of Chloroform with Oxygen.—H. Wohlgemuth (1901) claims that this diminishes the danger of the anesthesia very materially. A special apparatus is required. Roth [30] shows that the oxygen does not decompose the chloroform.

Other Liquid Inhalation Anesthetics.—Ethyl chlorid and ethyl bromid have recently found some favor, especially for rapid operations (tonsillotomy, etc.). It is claimed that they produce less excitement and vomiting, with rapid recovery. Their safety is, however, questionable. The muscular relaxation is also incomplete.[31]

The ethyl chlorid is administered on gauze, with the exclusion of air; 2 gm. to 4 gm. produce anesthesia in 25 to 40 seconds, and lasting 4 to 5 minutes. This can be renewed.

The ethyl bromid is given in the same manner, in the dose of 6 drams for an adult. We are cautioned to use only fresh preparations, as it deteriorates when the bottles are opened. It is considered more dangerous than the chlorid. The latter may find a limited use as a preliminary to the administration of the other anesthetics. But this field has already been occupied by *nitrous oxid.* The endorsements of the latter method only continue to increase. Morris (1902) concludes that it reduces the required amount of ether to three-fourths.

Other narcotics are also endorsed for this purpose. Fodera and Bugatti [32] recommend hedonal, urethane, and sulfonal (in this order of preference) to lessen salivation and vomiting, and to render the anesthesia more lasting. Schneiderlin's method has also led to a revival of the use of morphin and atropin (or hyoscin) for this purpose. This can only be approved, for these alkaloids support the desired action of the inhalation anesthetics, but not their undesirable side action. Some of the latter are even counteracted.

Mixtures of Gaseous Anesthetics.—According to Kochmann,[33] a Vienna dentist, Weiger, first introduced mixed anesthetics into practice. The various mixtures have found considerable employment since then, under the theory that the dangerous effects of both anesthetics are thereby lessened; but the clinical results have not corresponded with the earlier expectations. It is true that certain side actions are diminished—such as the cardiac action of chloroform and the irritation of ether. Furthermore, Honigmann [34] claims that the anesthetic power is increased if chloroform and ether are mixed in a certain proportion with the air, by means of a complicated apparatus; and that therefore less anesthetic is required. For instance, if a given degree of anesthesia is produced by air with $m\%$ of chloroform or $n\%$ of ether; then the same effect can be secured by air containing a mixture of $m/10\%$ of chloroform and $n/17\%$ of ether. But granting the correctness of this statement, it does not necessarily follow that the necessary concentrations of the anesthetics in the blood are less. This would disagree with the statement of Overton, and, evidently, it is the concentration in the blood, rather than the concentration in the air, which constitutes the element of danger.

However this may be, it would be a considerable gain if we could produce by such mixtures an anesthetic which would be not quite as violent as chloroform, and not as slow as ether. This result may be actually attained, but the mixed anesthetic is perhaps even more dangerous than pure chloroform. This is due to the fact that the composition of the anesthetic vapor is not at all the same as that of the anesthetic itself. Ellis [35] showed, as early as 1886, that the more volatile anesthetic evaporates first from a mixture, and this has been confirmed by the careful experiments of Kochmann (l. c.). Accordingly, if a mixture of ether and chloroform is inhaled, the first effect will practically be that of ether, the later effect that of chloroform; and no means exist for knowing which anesthetic is being inhaled at a given point. This may be avoided by mixing the vapors in definite proportions, involving the use of apparatus too cumbersome to be practical. But even then, there is no guarantee that the proportion of the anesthetics in the blood corresponds to that in the vapor.

Schleich introduced a new idea into this subject of mixed anesthesia, namely, that the retention of the anesthetic in the body depends on its boiling point. He suggested the use of mixtures of chloroform, ether, and petroleum ether, with boiling points of 38° C. to 42° C. as the ideal anesthetics. I regret that I have no opportunity of consulting Schleich's original papers and know his work only through quotations. He seems to have formed his theory on purely a priori deductions, open to many fallacies, and contrary to accepted facts. The changes occurring during the evaporation of a mixed anesthetic, he seems to have overlooked entirely. W. Meyer,[36] at first an unqualified endorser of Schleich's mixture, acknowledges the latter fact. He adhered, however, to the basis of Schleich's theory, and with the aid of Weidig set about finding a mixture which does not alter on evaporation. He claims to have found this in anesthol, a mixture of chloroform, ether and ethyl chlorid. His published data do not seem to me to support his claim, for he himself writes that when anesthol is evaporated for five hours at 40° C., its specific gravity rises from 1.045 to 1.262—surely a very marked change in composition.

The clinical results with either Schleich's mixture or Meyer's anesthol are very unsatisfactory, and it is my opinion that little can be hoped for from such anesthetic mixtures.

Petroleum Ether.—Attention has been directed to this substance by its use in Schleich's mixture, to which it was added merely as a diluent of the chloroform. I had thought some years ago of using the same agent as a cheap anesthetic for animals, but my results showed that it possessed but a weak anesthetic power, and on the other hand, some dangers (convulsions and depression of the heart). The mechanism of the convulsant action is not known. My results agree closely with those of Elfstrand.[37]

Carbon Dioxid Asphyxia.—This is one of the earliest methods of producing anesthesia, and it is often an accessory factor in the administration of the ordinary anesthetics. Rothschild [38] made some experiments with carbonic acid gas and found it unsuitable, because of the great danger of a fatal asphyxia. He also saw it followed by toxic nephritis.

Scopolamin-Morphin Anesthesia.—Schneiderlin [39] published in 1900 a method of anesthesia, consisting in the hypodermic injection of a mixture of morphin and scopolamin (the hyoscyamin of the United States Pharmacopeia). He claimed to produce by this a complete insensibility to pain, with a minimum discomfort to the patient. The mixture was found more effective than either alkaloid alone, even in double the dose.

The method of administration is rather tedious: A trial dose, consisting of 20 mg. of morphin and 0.8 mg. to 1 mg. of scopolamin, is given on the day preceding the operation. The susceptibility of the patient being determined in this manner, the proper dose is administered an hour and a half before the operation, and if necessary another injection of 0.2 mg. to 0.4 mg. of scopolamin and 5 mg. to 10 mg. of morphin is made a quarter of an hour before the operation. An interval of one and a quarter to one and a half hours must elapse before the first dose and the operating; the anesthesia lasts from 3 or 4 to 14 hours.

Schneiderlin's method received quite extensive trials, especially by Korff,[40] who somewhat modifies the dose, making three injections, each containing 0.3 mg. of scopolamin and 8 mg. of morphin, the first two-and-a-half hours, the second one-and-a-half hours, and the third a half hour before operating.

While there can be no doubt that the method is effective in the majority of cases, some patients are not completely anesthetized. The clinical reports soon brought to light other inconveniences (postoperative vomiting) and in a number of cases grave symptoms of morphin poisoning.[41]

As has been pointed out in an editorial in the *Therapeutic Review*,[42] Schneiderlin's opinion that the two alkaloids counteract the dangerous effects of each other, is not based on any evidence. The known facts indicate rather that they are synergistic in their depressant effects. The statement that the anesthesia is much more complete than when either is used alone in larger doses, is also in need of confirmation.

All attempts to introduce an anesthetic acting in a fixed dose appear to me to be a step backward, since they lose the great advantage of the volatile and local anesthetics, viz.: The ability to adjust the anesthesia to the needs of the moment. The principle of Schneiderlin's anesthesia could be useful only in those cases (if they exist) in which inhalation or local anesthesia is inapplicable.

A better use has been made of this method by employing smaller doses as a preliminary to ether anesthesia. Kochmann[43] recommends 0.5 mg. of scopolamin with 10 mg. of morphin; Robertson[44] gives 0.6 mg. of scopolamin a half hour before the ether.

Local Anesthetics: Subarachnoid Injection of Cocain.—Nothing need be said about this method, since it has been practically abandoned by its author[45] as too dangerous. Eden[46] discovered the interesting fact, that anesthesia is also produced by the spinal injection of a considerable quantity of normal saline solution or of water. Distilled water is often sufficient for infiltration anesthesia.[47]

Cocain-Adrenalin Anesthesia.—The addition of suprarenal extract to cocain increases the anesthetic action, the vasoconstriction lessening the removal of the cocain, and being itself somewhat anesthetic. The method is advocated especially by Braun;[48] he adds the adrenalin in the proportion of 1 to 100,000 to 1 to 10,000.

Synthetic Cocain Substitutes.—The supply of these seems to have somewhat abated. *Anesthesin* (p. amino benzoic ester) is recommended by Chevalier[49] as a substitute for orthoform, being stronger and less irritant, but more toxic (methemoglobin formation, etc.). It has also been used (as the hydrochlorid, 0.25%) for infiltration.

Yohimbin.—This, the alkaloid of yohimbehe bark, has been recently investigated by Poltavtzec[50] and by Loewy and Müller,[51] but has not found a place in clinical practice. On local application it acts like cocain, producing temporary anesthesia of the cornea, taste, sensory nerve endings, nerve trunks, etc., but no anemia. Its systemic effects consist, in man and dogs, with small doses (0.1 mg. to 0.7 mg. per kilo) in reddening of face, quickening of pulse, redness and erection of penis, and sometimes ejection of semen. There are no bad secondary effects. Doses above 6.5 mg. per kilo are fatal by paralysis of the central nervous system, the respiration stopping before the heart.

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THE EARLY RECOGNITION AND TREATMENT OF INTESTINAL OBSTRUCTION.[1]

BY

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The symptoms of value in intestinal obstruction, as in many other grave intraabdominal conditions, are the early ones; and their value is none the less great because their discovery is difficult. We should recognize that in every case the anamnesis demands closest scrutiny. Frequently we are able by such analysis to obtain valuable data which will secure an immediate and correct diagnosis. There may have been a previous peritonitis from a septic focus in the tubes, the appendix, or gallbladder; or from the leakage of a perforating gastric or duodenal ulcer, resulting in the formation of constricting bands or adhesions.

Gibson found in 1,000 cases in which operation was done for acute intestinal obstruction, that "bands" were the cause of obstruction in 186. Treves reports that in 1,000 deaths due to intestinal obstruction, 250 were caused by strangulation, either by bands or through apertures. He found that in 68% of these cases there was a history of previous attacks of peritonitis.

The hernial orifices should be closely examined and an effort made to discover if either the external or internal orifices contain intestine. In not a few cases we are tempted to ask with Weir, "not what the cause is, nor where the obstruction is, but is there an obstruction?" We know, also, that it is not the typical cases which puzzle us, but those lying on the borderland between the typically true and the purely pseudotype, in which the symptoms of a transient paresis may lead us astray.

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[1] Read before the Los Angeles County Medical Society, February 19, 1904.

For convenience and more systematic analysis, we may regard the cardinal symptoms of the various forms of intestinal obstruction as obstipation, pain, vomiting, meteorism and collapse.

Obstipation is not to be classed as an absolutely constant symptom, since in cases of intestinal paresis some movement of fecal matter may be induced by enemas; and in intussusception there is commonly some flatus and fecal matter passed, with the characteristic blood-stained mucus. Nevertheless, obstipation is one of the first and significant symptoms, and all efforts to overcome it in true obstruction only tend to exhaust the patient and aggravate his condition. It is well to remember, if the obstruction is high up in the alimentary canal, some flatus and fecal matter may pass by enemas before intestinal paresis below the constriction is complete. This fact is often overlooked, and precious time lost in futile efforts to open the canal.

Pain is an early and constant symptom. If the peristalsis is violent, the pain will be correspondingly severe, provided, of course, the obstruction is complete. When the obstruction has followed a chronic course and the canal is not absolutely closed, the pain may not become severe and constant until the intestine is completely occluded. Nothnagel, Fitz, Boas and Treves have warned against always locating the pain at the site of the obstruction, since they all report cases in which the pain was distinctly on the side opposite where the obstruction proved to be. Hemmeter has also noted this occurrence. Yet Douglas very clearly, we think, reasons that "in the very early hours of obstruction the paroxysms of pain, which are largely due to peristalsis, are usually reflected to the solar plexus and hence referred to the umbilical region. But as the case progresses, when the engaged coil becomes distended with gases and fluid and the peritoneum becomes involved, the pain then centralizes about the affected area."

Vomiting is an early and constant symptom in all acute obstructions. In the chronic or slowly occluding forms, vomiting may be delayed until the obstruction is more or less complete. Again in intussusception, when the obstruction is not complete, it may be entirely absent. Much has been said concerning the character of the vomited material. Usually it begins with eructations of gas and mucus followed later by the contents of the stomach mixed with bile, and later pure bile, with a brownish and finally fecal vomit at the last. Osler has said "the sequence of gastric, bilious and finally stercoraceous vomiting is perhaps the most important diagnostic feature of acute obstruction." Roser has said that the higher the obstruction is situated in the alimentary canal the more violent the vomiting. Douglas has alluded to the common error of expecting fecal vomiting at an early period in intestinal obstruction. On the contrary, it is commonly a late occurrence and a brief precursor of collapse. Greig Smith long ago pointed out that it was "utterly wrong to make fecal vomiting a plea for operating, or its absence a plea for not doing so." Many of these patients are brought to us practically moribund, because delay is made until the fecal vomit excites alarm. Many such patients are clearly subjects for operative relief, by the presence of every other significant symptom, days before fecal vomit should occur. There is scarcely a surgeon of experience who is not repeatedly called upon to deal with the melancholy victims of this error. In postoperative cases some difficulty will often arise in differentiating the vomiting of pseudoileus from that of true occlusion. The distinction can rarely be made upon the single symptom of vomiting, and will be considered in relation to other determining factors whose combined presence or absence is diagnostic.

Meteorism, which results from the decomposition of the stagnated intestinal contents, is present in that portion of the intestine above the obstruction. If the obstruction is chronic, its location may be made out by the elevation of the sharply distended loop pressing against the abdominal wall. In the more acute cases, the meteorism may be more general and diffuse. In volvulus it is distinctly in the left lower quadrant, when, as is usual, there is torsion of the mesentery of the sigmoid. In this case there is present the "flank meteorism" of Nothnagel, a sign to be ranked of great value. Meteorism may be so diffuse and general late in obstruction as closely to simulate perforation; or so extreme, even when moderately localized, as to embarrass seriously the respiratory and heart action.

Collapse may be an early symptom in the severely acute obstructions. In any case it may fairly simulate shock, though not properly so extreme as to class it in that category. The physiognomy of the patient suffering from acute intestinal obstruction is characteristic and significant of gravest nerve depression. There can be no doubt that there is a close relation between the severity of the depression and the acuteness and completeness of the obstruction. I have frequently observed the prompt recovery from shock when the patency of the canal was restored, and in cases in which the peritoneum had undergone practically no inflammatory change. The condition of the toxins present in the canal and their prompt absorption would, supposedly, have considerable influence in the production of collapse. We certainly know that in the gravest and progressively fatal types of collapse serious offense has been done to the peritoneum, and the extreme depression of the later stages of obstruction is undoubtedly due to gangrene or perforation.

There are forms of obstruction with atypical symptomatology, which cause the surgeon abundance of anxious thought. The anamnesis may be imperfect, or we may see the patient under conditions least favorable for a clear analysis. This may be 50 or 60 hours after a severe section, when obstinate constipation, postoperative pseudoparesis, vomiting, meteorism, and a certain amount of pain and depression may cast serious doubt in our minds as to the patency of the alimentary canal. All of these symptoms may not be present in a single case; but there may be sufficient of them to make the surgeon anxious to bring to bear some definite measure which shall determine the true condition.

With the view of reaching this class of cases, Harvey Cushing, in 1898, endeavored to establish the diagnostic importance of the leukocyte count as a positive sign of obstruction. His conclusion[1] was that a leukocytosis of 18,000 to 20,000 in patients presenting symptoms of obstruction, was pathognomonic and sufficient to form a rational basis for operative interference. Bloodgood about the same time confirmed the findings of Cushing, and in 1901 discussed the subject at some length in an article read before the American Surgical Association. Bloodgood has again very recently written in further support of the conclusions heretofore expressed, and affirms that "in the majority of instances the leukocyte count is from 15,000 to 20,000; higher counts 25,000 to 35,000 are usually associated with early gangrene or peritonitis."

It should be remembered that peritonitis and the presence of pus may give a leukocyte count similar to that of obstruction; but commonly their presence can be eliminated from the consideration, and when they may be found to exist as a cause of complication, the fact would in no wise interfere with any operative measure, but on the contrary, would rather favor it.

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[1] Johns Hopkins Hospital Reports.

Both Cushing and Bloodgood have shown that postoperative leukocytosis rarely exceeds 10,000 to 12,000, and practically never 14,000 to 15,000. If, therefore, we shall find that in the study of leukocytosis we may arrive at a definite conclusion in those doubtful cases in which sufficient symptoms of obstruction are present to excite grave suspicions, we shall have made a great gain toward early diagnosis. Yet we should not accept unreservedly the invariability of these conclusions when so limited a number of cases is offered in support of them. We must also remember that the subject of leukocytosis and the proper estimate which should be given it in doubtful surgical diagnosis, has been the focus of much debate, and still is a question in the minds of many able men.

Nevertheless there is nothing which should deter our energies in the hope of classifying the symptom-complex of intestinal obstruction, or of arriving at data which are definite and dependable in the absolutely doubtful cases. In this connection the diagnostic value of indicanuria should not be lost sight of in those cases free from peritonitis, and in which the obstruction is in the ileum. Nothnagel and others have shown that indican is always present in obstruction of the colon, unless the obstruction has been of such duration as to permit the accumulation to extend into the small intestine.

In addition to the symptoms of intestinal obstruction thus far discussed, there are many factors peculiar to special conditions which should be fully considered in the differential analysis of each case.

Obstruction may occur from gallstones or from tenia or from a swallowed foreign body. Ileus may result from constriction in duodenal, retroperitoneal or retrocecal hernia. The tumor in retroperitoneal hernia may be marked and usually shows as a large mass in the lower portion of the upper left quadrant.

Bloodgood has recently reported a case in which obstruction occurred from a slight kink in a loop of the ileum which had engaged only in the immediate orifice of the fossa of Treitz. Ileus from intussusception is usually associated with cylindric tumor, commonly near the ileocecal region; it is more common in childhood and youth, and frequently, though sometimes late in the obstruction, accompanied by a discharge of bloodstained mucus with some flatus. Volvulus, most frequently seen in the sigmoid, is found in older subjects and can usually be diagnosed, by the combined aid of the amount of rectal enemas received; exploration by the sigmoidoscope; "flank meteorism," and the very slight relief given to the pain and distention from vomiting.

Should the obstruction be high up in the jejunum or in the duodenum, gastric and duodenal distention would be characteristically marked and vomiting could be greatly relieved by gastric lavage. Constrictions of the lumen of the canal from malignant growths and ulcers, whether in the pylorus, duodenum, cecum, sigmoid or rectum, pursue a chronic course with usually a clear history of dark vomit or bloodstained mucopurulent discharges some time before actual occlusion occurs. There is likewise a chronic course to luetic and tuberculous ulceration so that a careful review of the history and analysis of the symptoms should result in a correct diagnosis.

To summarize, the symptoms which appear early and which are our principal dependence in diagnosis, are obstipation; vomiting persisting more than 50 hours; pain, more or less severe and constant; shock or collapse; meteorism, of localized character; normal or subnormal temperature; a rapid small pulse and a leukocytosis between 15,000 and 20,000, with a strong reaction of indicanuria if taken before the third day and the ileum is involved.

There is scarcely any need to differentiate from septic involvement of the appendix or gallbladder, though commonly the temperature is higher in peritonitis; and abdominal rigidity, usually present in peritonitis, is commonly absent in obstruction until peritonitis, gangrene, or perforation supervenes. Meteorism is more disseminated as a rule in peritonitis, more localized in the early stage of obstruction. Pain is not a differential symptom to be much depended upon, but is a diffuse or solar plexus pain in each at the beginning, becoming localized later.

There are certain considerations of prophylaxis connected with postoperative ileus which it is well to note:

We should remember that raw, uncovered surfaces left behind are productive of new adhesions, which may result in kinking of the intestine. It is a matter of common observance that the incomplete toilet and closure of the peritoneum which results from vaginal hysterectomy is a frequent source of adhesions and bands, which eventually result in obstructive symptoms. More cases of intestinal obstruction have been recorded as following vaginal hysterectomy than any other aseptic intraabdominal operation. Drains, whether of gauze or tubing, if left more than a few days within the abdominal cavity greatly favor intestinal adhesions and make eventual kinking and constriction liable.

Excessive handling or rough manipulation of the intestines in an effort to pack them out of the pelvic field with gauze pads, may, if the Trendelenburg position be inadequate, or the anesthesia incomplete, cause serious injury and sometimes torsion of the mesentery. Care should be taken in every laparotomy not only to place the loops back carefully and skilfully, but before closing the abdomen to bring them back into their normal position, with the omentum carefully spread out over them.

The operator should be observant to discover without great loss of time and while arranging the intestines, abnormalities which might cause obstruction, such as rents in the mesentery or omentum, Meckel's diverticulum, preternaturally long mesentery, as of the sigmoid or colon, bridges or bands from previous adhesions, and the parasigmoid, cecal and Treitz fossas. A rapid survey can thus be made, during a laparotomy for other conditions, which is an excellent routine and which has been the means on many occasions of saving the patient from future trouble.

The *treatment* of true intestinal obstruction is immediately and at all times surgical. It consists in relieving the kinked, constricted or incarcerated intestine by an operation releasing the obstruction and reestablishing the patency of the canal. In order that any operative measure shall prove effectual, it should be done promptly. Late operative interference due to late diagnosis or to procrastination is the principal cause of mortality.

A surgeon should be called in the very inception of the difficulty and valuable time should not be wasted with harmful and depressing catharsis. A preliminary gastric lavage will do much to quiet and rest the patient when vomiting is an early and depressing symptom. But the deceptive tranquility which it sometimes brings should not allay the fears of the attendant or induce him to believe his first diagnosis was wrong. Only a spontaneous, free evacuation of the bowels, so thorough as to leave no room for doubt and a consequent flattening of the abdominal surface with general subsidence of characteristic symptoms, should be reassuring and convincing.

If the patient is seen reasonably early before serious necrobiotic change occurs in the gut, simple release of the constricting band will often suffice. But if destructive changes have occurred, as one finds in delayed cases, it becomes a question of judgment whether immediate exsection of the gangrenous segment and anastomosis, or simple suture to the abdominal wall and enterotomy shall be done. If the patient is very weak and unable to stand prolonged anesthesia, then a primary enterotomy establishing an artificial exit for the gas and intestinal contents, will prove safer, and an anastomosis can be made as soon as the patient is sufficiently convalescent. It should be remembered that symptoms of starvation begin early when the ileum discharges through a high opening, and closure of the fistula or anastomosis must not be too long delayed.

Efforts to straighten out volvulus and intussusception by hydrostatic pressure must be made early and with great care. It is, perhaps, doubtful surgery, if it may even be dignified by that term, and many a life has been lost from rupture and peritonitis when the manipulations were violent or continued until the intestine was gangrenous. Every effort should be made to support the patient and prevent further shock by such measures as the administration of adrenalin, infusion of salt solution and a warm water bed-pad on the operating-table; and anesthesia should be obtained with ether, as briefly and lightly administered as possible.

Early diagnosis and early operation should be our doctrine in every instance, when briefly and skilfully applied therapeutic measures have failed to relieve the patient.

THE ROLE OF THE GENERAL PRACTITIONER IN THE PREVENTION OF PULMONARY TUBERCULOSIS.[1]

BY

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If the ravages of pulmonary tuberculosis are ever to be checked, it must be accomplished through the agency of the family physician. Specialists may study the disease and learn methods of prevention, they may bring forth new methods of diagnosis and cure, but without the cooperation of the general practitioner, their influence can only reach a very limited circle. Nearly every family in the land is visited some time during the year by its family physician, or in case of the very poor, by the district physician, while only very few come in touch with specialists; therefore, upon the shoulders of the family physician must rest the responsibility of preventing pulmonary tuberculosis and other communicable diseases. Not only does the burden of preventing pulmonary tuberculosis fall upon the general practitioner, but his role in the prevention is two-fold: He can use his knowledge and opportunities in both preventing the spread of the disease, and in detecting it in its early, curable stage, thus preventing it from reaching the advanced stage.

I need not present statistics to prove to you the importance of this problem, for the physicians of California are awakened to its enormity. I take pleasure, however, in emphasizing the fact that pulmonary tuberculosis is on the decline, and that if physicians would but do their duty toward their patients and the friends of their patients, and use their personal and united influence with the existing authorities, this great scourge could be conquered and its victims could be made as few as those of smallpox or leprosy. Such a statement is revolutionary, but it is not a utopian dream. It is a possibility, if only there could be a conscientious, intelligent cooperation on the part of all who have to face this problem. By the aid of indirect forces, such as the establishment of better hygienic conditions, the mortality from this disease has decreased among all civilized peoples. In New York City, 100 years ago, one person in every three or four died of pulmonary tuberculosis, while today in spite of the density of population, only one in seven succumbs to it. In 1881 the deathrate was 4.27 per 1,000 inhabitants; in 1902 it was but 2.29. The general deathrate has also fallen in the same time from 31.04 per 1,000 population to 19.49. In comparing these figures, we find that the general deathrate has decreased in this time 37%, while the rate for tuberculosis has decreased 47%. This would seem to be influenced by the fact that the cause of the disease is known, and that the health authorities have taken active measures during recent years to eradicate it. What is true in New York City is also true elsewhere. In England, Germany, and wherever measures have been taken, either direct or indirect for combating pulmonary tuberculosis, we find a marked lowering of the deathrate.

If this much can be accomplished without the aid of, and I might say in spite of the people, what might we hope to accomplish by united effort? The prevention of tuberculosis depends on: (1) Preventing the well from becoming infected; (2) proper management of the afflicted, so that they may be cured before they reach the advanced stage.

In order to discuss prophylaxis intelligently, we must understand etiology. There are three factors in the etiology of tuberculosis which deserve our attention: (1) The soil; (2) the bacillus; (3) influences which lower the normal protective powers of the cell.

Soil.—In our discussion of this question, contrary to custom, I will put soil first, because I believe it is of prime importance. We have been prone to think of the tubercle bacillus as being the cause of tuberculosis, and have thus neglected to emphasize one of the most important factors in the prevention of infection, viz.: That there will be no disease, even though the bacilli be present, unless the soil is suitable; that is, unless the body cells lose their natural resisting power. It is even questioned whether the pathogenic state is the natural state of the disease-producing germ. The pneumococcus is often found in great numbers in the air passages of healthy persons; the diphtheria bacillus in healthy throats, and the Eberth bacillus in the intestines of normal individuals. *Bacillus coli communis* lives naturally in the normal intestine, and produces no trouble; but let an inflammation ensue and it becomes a dangerous organism. As it is with these, so it is with the tubercle bacillus. Human beings are constantly coming in contact with tubercle bacilli. They are breathing them into their air passages and swallowing them with their food. Doubtless there are very few people who live to adult life that do not have tuberculous lesions somewhere within their bodies; yet only a small percentage of these ever develop tuberculosis to such a degree that the disease is recognizable on ordinary examination. This means that man is naturally antagonistic to disease. His cells are possessed of defensive powers which, under ordinary circumstances are capable of protecting him from invasion. Neither pneumococci, diphtheria bacilli, typhoid germs, colon bacilli, or tubercle bacilli are harmful under natural conditions. Nature's defenses are sufficient, unless weakened. Hence the condition of the individual cells of the organism, the soil, is of paramount importance.

Bacilli.—While we recognize the tubercle bacillus as the specific cause of tuberculosis, yet it is very questionable whether it is capable of producing infection in a healthy individual, unless it be from a very virulent culture or the inoculation be one of great numbers. Nevertheless, the fact that it is the specific cause of the disease makes its destruction an important factor in prevention.

Influences Which Lower the Normal Protective Power of the Cells.—If germs are not naturally pathogenic, or if they are naturally so but are unable to exercise their power as long as the body cells possess their natural resistance, then those things which depress cell activity or injure the cells of the organism must be taken into account. Whether or not either of these conditions is true, there can be no doubt but that measures which lower vitality count immeasurably in aiding infection.

Bearing in mind these three etiologic factors in the production of tuberculosis, we can formulate plans for its prevention. That portion of the population which is not suffering from pulmonary tuberculosis tries to throw all the burden of prevention upon the afflicted. This is wrong. It is unscientific. It is shifting a responsibility upon the sick which, to a great extent, rightly belongs to the well. If the spread of pulmonary tuberculosis is to be prevented, it is as much the duty of the well man to preserve the natural resisting power of his body cells (keep the soil unsuitable for infection), as it is for the afflicted to avoid scattering infectious material. This can be done by living a natural hygienic life. Sunshine, fresh air, good food, cleanliness, proper regard for the functions of the various bodily organs, and good habits will do much toward preserving the natural defensive powers of the body cells. This is an individual matter and should not be shifted. The common fear of the tuberculous entertained by those who are not afflicted, is analogous to the apprehension of a farmer who has no fences around his grain fields and spends his time in fear that his neighbors' cows will destroy his crops. Common-sense would say: "Build fences." And I would say to those who are suffering from phthisiophobia, "build fences; protect yourselves against infection, by keeping your body cells in a state of high resistance; then, if some unfortunate victim of tuberculosis chances to bring infectious material in contact with you, you will be secure." It is better for each one to do what he can to protect himself, rather than to throw the entire burden of prevention upon those who are afflicted. I would not counsel any carelessness upon the part of those who are ill, but I would make health doubly sure by having the soil unsuitable and the seed destroyed.

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[1] Read at the thirty-fourth annual meeting of the Medical Society of the State of California, Paso Robles, April 19-21, 1904.

Since all do not live hygienic lives it is well to teach the people those things which lower vitality, that they may avoid them. A careful inquiry into the history of tuberculous patients reveals a condition of mental or physical depression preceding or coincident with infection in a surprisingly large number of instances. These conditions lower the normal resistance of the cells and allow the bacilli to overcome the host. Such conditions are:

1. *Physical.*—(*a*) Overwork, especially under bad hygienic conditions; (*b*) overcrowding, in rooms badly ventilated and poorly lighted; (*c*) under-feeding; (*d*) excesses, especially alcoholic and venereal; (*e*) disease.

2. *Mental.*—(*a*) Worry over real or imaginary troubles; (*b*) depression from other causes.

Some of these conditions involve questions of an economic, some of a social, and some of a moral nature, while others are matters of individual peculiarity. Much could be accomplished in overcoming some of these by the enactment of wholesome laws. A maximum number of hours should be designated as a day's work, varying according to the ages of workers and the character of work done. Workshops, offices, and dwellings should have certain requirements as to floor space per occupant; a certain standard of ventilation; and they should be so constructed that a maximum of sunshine would enter the buildings. The poor should be discouraged from crowding together in the tenements of cities, and encouraged by low rents and cheap and rapid transportation to make their homes in the suburbs, where cottages can be constructed on lots sufficiently large to allow sunshine and fresh air to keep them pure and wholesome.

Education will do much to overcome some of these depressing elements, while others are purely within the jurisdiction of the physician as such. Those diseases, which are known to be often followed by tuberculosis, such as la grippe, typhoid fever, and measles, should be treated more carefully than they frequently are. A delayed recovery should be carefully inquired into and should put both physician and patient on their guard.

The next problem in the prevention of the spread of tuberculosis is the one which is usually considered, viz., the destruction of the bacilli. This is largely a matter of education and honor. Whether or not this shall be accomplished, depends almost entirely upon the medical profession. Physicians must educate the people to an understanding of the necessity of such a measure, and must also see that it is carried out. This requires upon the part of the members of the profession:

1. An accurate knowledge of the method of scattering infection.

2. An ability and a patient determination to detect the disease when suspected.

3. A frankness in dealing with tuberculous patients, so that they may be apprised of the nature of the disease, and not be soothed by such deceptive terms as "throat trouble," "bronchial trouble," "malaria," etc.

4. A consciousness of the enormity of the tuberculosis problem, and a determination to use their influence, not only with the patients to see that they be careful, but with the administrative authorities, to see that proper assistance is provided for those who will not be careful of their own accord. In order to prevent the bacilli which are cast off by a tuberculous patient from becoming dangerous to others, rules for careful disinfection of the sputum and other bacillus-bearing discharges must be observed. For this to be done, the patient must be told of the nature of his disease, and there must be some one to instruct him.

For the well-to-do, this can be and should be done by the family physician; but for the poor, and the great majority of tuberculous patients are poor, some other provision must be made. This naturally and rightly falls to the health officer. But how is he to do it, unless he knows where these patients are? So the next important step is notification. I believe that notification should at first be voluntary, and that the physicians should be educated and interested by occasional circulars from the health department. *Notification should not be for quarantine, but for instruction.* The patient should understand that the health authorities are his friends, and that they wish to instruct him how to care for his sputum that he may not reinfect himself or those about him. Health boards should provide physicians with blanks for reporting the cases, upon which they should signify whether the health authorities should visit the patient and instruct him, or whether they would attend to it themselves. In this way there would not be anything of a meddlesome nature in notification.

To carry out this work as it should be, several assistants would be required, whose duty it should be to visit the tuberculous and give them instructions in hygiene, disinfection and general measures of prevention. In no way could this be accomplished better than by a municipal tuberculosis dispensary. The number of tuberculous patients who report to the physicians is a very small proportion of the number ill; but if the municipality would establish a free dispensary where the poor could report for instruction and help, and have connected with it a corps of trained nurses who would instruct the afflicted and visit their homes and help to make them hygienic, it would rid the tenements of many sources of infection. Such a dispensary should also provide sputum cups and disinfectants; and it would be an act of mercy if such foods as milk and eggs could be given to those who were in need of them.

Such a dispensary would be visited by many who could be restored to a degree of health, sufficient to make them capable of self-support for years; and many who would fully regain health if they could but have an opportunity; and by many whose chances of life are few, but who would scatter infection if allowed to remain in their miserable quarters. For the former, there should be sanatoriums, where skilful treatment would restore them to their wage-earning power; for the latter, hospitals, where they could spend their last days under hygienic surroundings. The expense thrown upon the municipality and State for the care of those who become their wards through the effects of this disease, would doubtless go far toward maintaining such institutions.

Another manner in which the general medical man may render efficient service in the prevention of the spread of pulmonary tuberculosis, is by acquainting himself with the early signs of tuberculosis, so that he can make an early diagnosis. It is conservative to say that if the disease were diagnosed, as it can be, in its very incipiency, at least 75% could be restored to health by intelligent treatment. Think of what this means from the standpoint of prevention! Seventy-five percent of the sources of infection could be eliminated by early diagnosis and treatment.

It is a sad fact that patients do not present themselves for examination at this favorable time as often as they should, but let us be sure that we recognize the disease when they do come. Family physicians should always bear this disease in mind, and then if any member of the families to which they are called shows suspicious symptoms, it would be a kindness to examine him carefully.

In this short discussion of one of the most serious problems before the medical world, I have endeavored to point out the part to be played by the general medical man. From our discussion, it can readily be seen that if the disease is to be checked, it must be done largely through his efforts. From his superior knowledge of matters sanitary, and from his superior opportunity, owing to his close relationship with the family, he should and he must take the lead in this great work.

He must be a strong educational force. He should inculcate into the minds of his friends and families the correct ideas of the disease and of its prevention. He should insist upon the well remaining so and upon those ill of the disease taking precautions to prevent infecting others. He should teach the people the necessity of early diagnosis and be able to make it. He should form public opinion upon this great question and urge upon the administrative authorities those measures which are necessary to check the spread of the disease.

In the name of humanity, for which our noble profession was called into existence, let medical men take up this neglected cause. I am not an alarmist. I do not believe that this great State is in danger of becoming overrun with the tuberculous. I have too much faith in the common-sense of the medical profession and the people as a whole to entertain such an opinion. The cause of tuberculosis is known. The methods of prevention are understood, and wherever put into operation have proved effective. The deathrate from the disease is on the decline, and if we will but act as well as we know, many of us may live to see the great white plague shorn of its power.

THE PRINCIPLES OF THE PRESERVATION OF FOOD.[1]

BY

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The necessity of preserving foodstuffs is the same today as it has been in prehistoric times. Food ready for the meal is rarely available at a given time. Game, fruits, nuts, must not only be gathered; their supply varies with the season of the year. Most of our victuals require proper preparation to render them not only palatable, but even digestible; and evidently the aboriginal tribes have been under the same necessity under which we are laboring, to have at all times a proper supply of food on hand. With us the difficulties increased as our necessities multiplied. The great demand for "preserved" food in ancient times is illustrated by the many records of famine in history, when transportation was extremely slow, and when the populace was almost entirely dependent upon the products of its own husbandry.

At the present time, traffic tends to prevent such misery, at least so far as commerce is not exclusively controlled by selfish interests. A wise government will, in the interest of the community, take care of the proper supply of food for the population. But even under the most favorable circumstances, fresh food cannot be had at all times. Today it is not only the daily meal which must be procured, but to a great extent, also the provisions for ships, mining and other camps, the army, the hospitals, the places of detention, must be purveyed on a large scale. That the preparation and preservation of food on a large scale has developed into a specialty is not surprising. It is only to be regretted, that so far science has had only comparatively little to do with it. And, though the experience of so many centuries has achieved remarkable results, it is to be deplored that even now so little attention is paid to intelligent research. Whenever any scientific advice is offered, a prejudice must be overcome, frequently even on the part of intelligent people and physicians.

Raw food material consists almost exclusively of the various kinds of grain that will keep for any length of time without any special preparing. All that is necessary is protection against direct moisture. Some species (maize) hold a considerable amount of fat, which is apt to become rancid in time. It is the fat which renders nuts less suitable for storing as food. Fruits, like apples, oranges, bananas, are picked while green, which allows storage for a much longer time than if picked when ripe. In hot, dry climates meat is preserved by cutting it into long, thin strips and drying, while in extremely cold regions it is preserved in a frozen condition. How far the process of allowing albuminous food, meat and fish, to "ferment" serves to preserve it as a food, I do not know. It is stated that Chinamen bury such material, and then eat it after a certain lapse of time. However, this may be done only to let a specific flavor originate palatable to their own taste, just as we eat rotten milk in the form of cheese.

One of the most important foods is bread, which, as we get it from the baker's, has no very great merit in keeping qualities, but which in its original form is one of the best preserved foods ever invented. The primitive bread was not fermented, but simply the flour of some grain mixed with water and then exposed to great heat. Essentially we have the same thing today in the "matzoth" of the Jews and in the ordinary cracker, also in the "hard-tack" upon which the army and navy still rely. In this respect civilization has made little progress. Savages as a rule have not attempted to preserve flour as such, possibly because they have no suitable containers. Mexican Indians and those who have adopted their habits, still carry with them on journeys a supply of plain cornmeal, which for a meal they simply stir up with a little water.

Summing up, we may state that drying (the primitive baking is simply a method of drying) and freezing, are the first methods of preserving food. Both methods are still in vogue with us—the oven and the refrigerating plant.

There are three causes of deterioration of food: (1) The action of vegetable and animal organisms, mold, bacteria, insects; (2) a chemic change of the compounds by the action of the atmosphere; (3) fermentation (zymases). Fat becomes rancid, proteids also change their character. This latter cause of deterioration has been studied but very little—I refer to those soluble proteids, which after some time become insoluble without any known cause. An instance is the yolk of egg, which after about six months of preservation in a dried state, becomes insoluble and cannot be reconverted into an emulsion. Its solubility in digestive fluids remains, however, the same.

The task of preparing organic foodstuffs for preservation would consequently be, to destroy present and guard against intruding organisms, to destroy ferments, to exclude air (oxygen and moisture), and to prevent other influences of harmful nature, as for instance the action of light. Concerning ferments it must be remembered that there are two kinds affecting foodstuffs, a native one, like that in milk, which very materially aids in the digestion of the casein, and extraneous ferments which decompose *e. g.* sugar, and thereby diminish the food value.

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[1] Read before the St. Louis Chemical Society, June 6, 1904.

It is hardly necessary to call attention to the fact that preserved food must be digestible, have an appetizing flavor and appearance, be palatable, and not contain any harmful substances.

The exclusion of air is generally effected by submerging the product in some liquid which is indifferent to the character of the product. Often another substance is used to cover the whole with an air-tight body, like sweet oil or paraffin, or by sealing the container after any of the many wellknown methods. The extraction of air *in vacuo*, or the replacing of it by some indifferent gas (CO_2 or N or H) does not seem to be practised, clearly because diffusion of gases can not as yet be prevented. The exclusion of air is of greatest importance, as the atmosphere usually contains also other materials, which are harmful to the food—germs. This involves the most important problem of packing, and an untold number of methods are in use. The package must not only be secure, reliable, and cheap, but practical, so as not to make the opening of it too difficult.

Drying is done either by the natural air currents, as in drying meat in the sun, or by fanning (with machinery), or with evaporators, or by careful heating, hardly ever by the use of desiccating chemicals. The amount of heat allowable depends, of course, upon the nature of the product. It is a fact appreciated but very little, that albuminous substances, after they have been freed from moisture to a certain extent, will permit a much higher temperature, to expel the last trace of moisture without coagulating them, leaving them in a soluble condition. Pepsin, pancreatin, many other ferments, if not all, native albumins principally, which coagulate in solution or become inert as ferments after having been exposed to a temperature between 45° C. and 90° C., after having been dried at a temperature below their individual danger-point, containing then only a very small percent of moisture, will stand a heat of 130° C. without any change in their chemic, physical, or physiologic character. Clearly this fact is of greatest importance in methods of preservation, but practically is only rarely made use of.

A very difficult problem is the destruction of adverse ferments, without interfering with the native, normal ferments, which are independent of the known, foreign organisms. So very little is known about their individuality, that only tentative experimenting can, for the present, give hints as to their true nature. As mentioned before, there is a distinction to be made between the casein digesting ferments and those, if there are such, which cause the change of soluble albumins into insoluble modifications. The fight against deleterious organisms has occupied experimenters lately more than any other problems in this line. Mold and bacteria may be harmful, because they alter food so that it gives a disagreeable odor, a nauseating taste, and renders the product less digestible if not directly poisonous. These are the primary causes of a decomposition, which culminates in putrefaction. The chemic changes connected with such processes are known in a general way, though, scientifically speaking, we know next to nothing about them. It was an immense progress, when the source of the evil was pointed out—principally bacteria. But as always is the case with such new discoveries, there arose a general tendency which still prevails, to accuse anything and everything similar to the poisonous bacteria, of being harmful. A count of bacteria, so many millions per cubic millimeter, was to decide the wholesomeness of an article, no matter to what species the bacteria belonged. The later discovery, that some bacteria could change their character, being poisonous only under certain conditions, while absolutely harmless at other times, has rendered research so much more difficult. Untiring experimenting has resulted however, in a number of practical processes. We have learned that sterilization will destroy poisonous agencies, ordinarily connected with bacteria, and to sterilize a substance effectually is rather easy. The difficulty is that a perfectly safe sterilization will usually impart to the food a disagreeable flavor and render it less digestible, probably because it annihilates also the useful, native ferments.

Sterilization as a method is also known as antisepsis. The ideal is of course asepsis, the absence of septic agencies in all phases of the life of the product. This ideal should be held as by far the most important, but like all ideals it is hardly ever accomplished. It involves such great expenses that for ordinary purposes it would be out of the reach of the people at large.

The study of the problem led to the discovery of the socalled antiseptics, and incidentally to the closer study and knowledge of bacteria. Antiseptic bodies combine readily with the protoplasm of those wild (or cultured) microorganisms, which cause their death. Some of the antiseptics will naturally, also, combine with the proteids of the food, and if such combination is soluble in the digestive fluids, they are quite apt to be harmful to those who eat such food, as the free body may now attack the proteids of the organism, the blood, the nerve cells, etc. Antiseptics of such a character cannot be used for the preservation of food. Others, which are not harmful to such a degree, possess a flavor which is very repulsive.

Now comes the most important question: Are there any antiseptic chemicals which will preserve food effectually without being harmful to the eater? It is curious how opinions of "authorities" differ. At the Hygienic Congress in Paris a few years ago, it was the almost unanimous sentiment of the participants that the employment of any and all preservatives in food should be prohibited. Is the prohibition of preservatives logical?

There are a few very ancient methods of preserving food, against which nobody objects—salting, sugaring, and smoking. Salt and sugar are very hygroscopic substances. If present in an adequate quantity they "dry up" the bacteria by abstracting water out of them, perhaps, also, causing coagulation, and preventing their activity and procreation. Vegetables and meats are preserved in salt or pickle. Though a too liberal diet in salted meats or vegetables is known to be harmful, the process is nowhere forbidden. Sugar has an analogous effect. Fruits preserved with an excess of sugar are certainly not to be recommended as an exclusive diet; large amounts of sugar interfere with digestion. But who would think of forbidding sugar as a preservative? Anything at all taken in excess is a poison. Salt or sugar, one may object, are at the same time constituents of food. But how about creosote? Is not this a very violent poison, at least when in a concentrated form? Smoking meat, sausages, fish, introduces into the food large amounts of creosote, the presence of which is the only preserving agent. Whole nations, known for their robust health, live largely on smoked meats. Who has ever thought of prohibiting the use of smoked food? And who would deny that creosote is poisonous in the ordinary sense of the word?

There are antiseptics, chemicals, which are introduced into the food with the well-understood purpose to have an antiseptic effect, and which are not objected to by anybody. (Alcohol as an antiseptic, acting by its hygroscopic property, is not in this line; it interferes with the food value for general purposes.)

It is no secret, that a number of other chemicals have been employed for years, to preserve food for the market, specially for storage, to insure a supply when certain kinds of food are scarce, or when the climate interferes with the natural keeping qualities. Probably most natural foods contain substances which have a tendency to preserve them for a while.

Among the best known preservatives are: Salicylic acid (found naturally in appreciable amounts in some fruits), boric acid and borates, bisulfite of lime, fluorids (normal constituent of milk), sodium benzoate, formaldehyd (also discovered in green vegetables and roots), and a few others, which the chemists in charge of government laboratories will have to discover. Physicians as a rule will not be in a position to give the analyzer a hint as to their nature, because the antiseptics in question do not exhibit any decided symptoms in the human body.

Experimental investigations on a limited number of persons have a limited value. The "wholesale" experience proves undoubtedly more. And that seems to show, that a number of the preservatives in common use are practically harmless. Diseases caused by preservatives in food are of most rare occurrence, especially when compared with the frequency of diseases caused by the absence of preservatives, in spoiled food.

We have not yet considered a class of foods, which plays an important role, the artificial foods. One has succeeded in changing the physical or chemic character of foods into a condition which will render complicated methods of preservation unnecessary. A new food is manufactured. The problem is most interesting and important. Such artificial foods are manufactured from various food materials and are principally albumins and peptones. The food value of peptones is doubted by many investigators. Many of the socalled artificial albumins do not seem to be perfectly digestible. The ideal in this direction would, of course, be the proper preservation of native albumins.

I have experimented a great deal in this direction, and believe I have gained favorable results. It is well known that gelatin prepared by hot extraction of bone and cartilage is a digestible proteid, forming no mean part of our regular diet, for instance, in soup, boiled or roasted meat, etc. Dried gelatin, even if contained in open packages, is not subject to decomposition, but remains unchanged for any length of time. As a jelly, it soon becomes putrid. I have discovered that dry gelatin is hygroscopic in a different sense from most of the other hygroscopic bodies. Gelatin, if prepared in very thin films, will take up moisture from the atmosphere according to the dew-point. The slightest change in vapor tension is evidenced by the change of weight of the gelatin film, which, with increasing moisture of the air, becomes heavier, with decreasing moisture lighter in exact proportion, and this so rapidly that on days when rain and sunshine alternate, it is impossible to get a constant weight. The response of the film to changes in atmospheric moisture is prompter and faster than any other method of determining atmospheric vapor tension would show. I have made practical use of this by constructing a self-registering psychrometer and to preserve food, especially native albumins. My process demands that the material to be preserved should be in solution. For instance, the juice pressed out of raw meat with a hydraulic press, or a beef soup, containing all the necessary condiments, or strong tea, or coffee, or oxgall, is mixed with about 1% of primary gelatin (commercial gelatin cannot be used for the purpose, on account of its glue-like taste). After cooling, a jelly forms. This is cut into thin films and dried in a cold air current until it becomes brittle. The leaves are then converted into a fine powder. This powder will keep indefinitely. If not packed air tight, it will take up moisture, corresponding to the vapor tension of the surroundings, but not enough for decomposition to set in. It may eventually cake, but the cake is brittle. In dry air the moisture is given off again to the atmosphere, yet the substance enclosed in the gelatin remains protected from the moisture. Insects find the dry substance too hard for their uses. The powder is instantaneously soluble in lukewarm water. To insure the absence of septic or other organisms the dry powder is heated to about 100° C. before packing, or in the package. As stated before, the properties of these substances are not interfered with thereby. Whole milk cannot be preserved on this principle, as oxygen cannot be excluded. After a while the powdered milk turns sour and exhibits a taste and smell of cheese, mostly of the Limburg variety. Egg-gelatin powder has excellent keeping qualities for about 10 months, when its solubility becomes less, though it remains perfectly digestible.

Oxgall in powder form is quite an achievement, on account of its original hygroscopic nature, which causes it to become putrid in a short time. A very elegant preparation is that of tea and coffee. The tannin in the tea combines, however, with the gelatin, causing a slight turbidity of the solution.

Quantitative analyses, made by Prof. E. H. Keiser, of Washington University, have shown that my assertions as to the general and particular character of the preserved meat-juice are correct. An iron preparation made from the spleen of cattle after the same method (the spleen contains more organic iron than any other organ), and analyzed by Dr. H. Dettmer, showed it to be richer in iron than any similar preparation in the market, in soluble, digestible and assimilable form, free, like all the other products of this process, from any chemic preservatives.

I would say, in conclusion, that these preparations are not on the market, nor are they likely to be manufactured for the present.

SPECIAL ARTICLES

THE ADVERTISING SPECIALIST.[1]

BY

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In 1895, while riding on the top of a London 'bus, I entered into conversation with a fellow passenger who proved to be from Australia. He told me that he had come to London to have an operation on his eye for cataract. On examination, his physician had told him that the condition would not warrant immediate operation, and that he would likely have to wait six months. About this time he saw the advertisement of some one who claimed to cure cataract without operation, and he then placed himself under the care of this man, and told me he was much improved. I obtained the address of the advertiser, and made it my business to call and see him. He was not at home when I called, but I saw his wife, and told her that if her husband was actually clearing up cataractous lenses without operating, I was willing to pay a good price for the knowledge, and would promise not to practise in England. She told me to call again, which I did, to learn that the doctor refused to divulge his secret while he lived, but was going to have it published for the benefit of humanity at his death. I later inquired of one of London's most noted oculists if he had any idea of the method used, and he informed me that it was simply daily instillations of atropin to dilate the pupil, and thus deceive the patient into a belief of better vision, the instillations to be preceded by weekly payments until the patient became tired of coming for drops and simply discontinued, to return to a reputable oculist for treatment. This was my first experience with the advertising specialist. Noticing the number of eye and other specialties advertised in our periodical literature to cure at home, I thought that this would be a timely subject for consideration. I answered a number of these advertisements, with the result that I have gained a considerable amount of very surprising facts, if the literature mailed in response to my letters is to be believed. I will give here a brief review of the results of my investigations: I received from the Grand Rapids Wholesale Opticians, of Grand Rapids, Mich., their book with test types for distance vision, and also what they term the "ocularscope." This consists of a card with a sentence printed on it in very small letters, having a slit cut in it to slide on another card. The second card is marked with red and black letters to indicate at what distance the sentence can be read through a spheric lens inserted in the turned-up end of the second card. The black letters represent the amount of hypermetropia or presbyopia present, and the red letters the amount of myopia. The lens is an eight-diopter spheric. In the preface of the catalog they state:

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[1] Read before the Buffalo Ophthalmological Society, May 12, 1904.

> The days of consulting opticians and oculists have passed, and our original home method has been the careful and constant study of the optical profession for the past 25 years, and we are thoroughly convinced that it will meet with the approval of that class of people who are endeavoring to keep in pace with the advancement of more modern plans of doing business, viz., buying direct from the manufacturer, and thus saving the middle-man's profit, and we judge, from the steady growth of our business, that the public one by one are becoming convinced that buying through the mail is the most economic method.

I have been informed recently by one of our city opticians that this firm is doing an enormous business; his information being obtained from one of the manufacturing wholesale optical concerns supplying them with goods. It is unnecessary to dwell at length, before a body of oculists, upon how pernicious this method is. An examination of our case records will show us what a large proportion of cases require astigmatic correction which this method could not possibly reach. We find also, not infrequently, uncorrected astigmatism in presbyopics who have previously purchased glasses without a proper examination.

The next concern to be considered is one that seems to me even worse in its possibility of doing harm. Jacksonian Optical College, of Jackson, Mich., sent me its literature, a book entitled, "Optics Taught by Mail." This "College" requires a payment of $10.00 and at the completion of the course a diploma is furnished for an additional $2.50. The course consists of seven lessons, as follows:

I. The anatomy and physiology of the eye.
II. Light.
III. Lenses.
IV. Errors of refraction.
V. Astigmatism.
VI. Best method for testing.
VII. How to test the eyes.

The time required for the course is not fixed. I quote from the book as follows:

> There is no fixed time required for the course. Each student is graduated as soon as he satisfactorily completes the course. Hence the length of time consumed depends altogether on the individual, his readiness to learn, and the time he can command for daily study. Under favorable circumstances it has been completed in ten days. No attempt is made to detain a student longer than absolutely necessary. Proficiency is required. That is all.

A case is cited of a student, who was formerly in the barber business, who made over and above expenses, $8.75 the first day he started out as an optician. I think that no further comment is necessary in regard to this institution.

"In what distress we note the lass is,
Disfigured by her hideous glasses,"

is the effusion under the picture on the opening page of the "Ideal Sight Restorer," published by the Ideal Company of New York. This is followed by chapters on the "Language and Beauty of the Eye; the Eye; Some Amusing Curiosities of Vision; Errors of Refraction, Nearsight, Farsight, Oldsight, and Astigmatism; Heterophoria; Diseases of the Eye," and the advertisements and testimonials. The instrument consists of a double eye-cup connected with a rubber ball for extraction of air or pressure of it to the eyes, in other words, massage of the eyeballs, by means of which it is claimed the shape of the globe can be modified and circulation stimulated and marvels accomplished, and the cost is only ten dollars.

"The Eyelin Company" of Chicago also promises in its literature to enable its patrons to discard glasses and cure "all eye troubles, such as eye-pain, eye-strain, eye-headaches, neuralgia, blurring, winking, twitching or chorea, styes, red, purulent, inflamed or granular lids, nerve disease, spots, films, opacities, cataracts," etc., all for the trifling sum of one dollar invested in a box of their ointment, to be applied to the lids night and morning. The claim made by this company is that the shape of the eye has nothing to do with defective vision, but all depends on the clearness and elasticity of the lens, and that the Eyelin treatment is the only method known to correct defects of sight and accommodation, and to enable sufferers to discard glasses.

"The New York and London Electric Association" of Kansas City, Mo., offer a pocket battery which not only prevents blindness and restores sight, but they claim also to cure pretty nearly all diseases that human flesh is heir to by the wearing of their electric garments. The following I take complete from their publication:

> TO THE OCULISTS AND PHYSICIANS OF AMERICA.
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> Gentlemen:—During the last seven years hundreds of persons suffering from all forms of disease of the eye have applied to us, having been given over as absolutely incurable by such men as Dr. Knapp, Dr. Agnew, Dr. Pooley, Dr. Boynton, Dr. Franz, Dr. Mathewson, Dr. Strawbridge, Dr. Thomas, Dr. Bethune, Dr. Harrison, and a host of others; these gentlemen having given as their opinion that such persons applying to us were absolutely incurable. This refers to the case of glaucoma, cataract, myopia, and a variety of other diseases past all remedial agencies. Yet, in a few months, under the influence of "ACTINA" they have been restored to perfect sight. The evidence given in the testimony published herewith, taken from hundreds of such cases, is all that should be necessary to offer.
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> You will do well, therefore, to honestly investigate this marvelous discovery, and despite the etiquette of your colleges, dare do the right without bigotry and prejudice. We are prepared to go into your hospitals and test the instrument upon your incurables, and knowing, as you do, that the best remedies now used by the schools of medicine have ever emanated from persons outside the pale of your practice, we shall be happy to meet any gentlemen, at any time or place or at our consulting rooms, and demonstrate the facts as above stated.
>
> Respectfully yours,
> New York and London Electric Association,
> John R. Foran, *President*,
> Wm. H. Ehlers, *Vice President* and *Treasurer*,
> 929 Walnut St.,
> Kansas City, Mo.

One of my patients who has had a complete cataract in one eye for years, and who wears glasses, came a few days ago with the complaint that vision was reducing in her best eye. I found a commencing cataract there; she told me she had used "Actina" for a long time.

Dr. Oren O'Neal, 52 Dearborn St., Chicago, Ill., Dr. P. C. Madison, 80 Dearborn St., Chicago, Ill., and Dr. W. O. Coffee, of Des Moines, Iowa, each sent me an illustrated book on eye diseases, exploiting their methods of cure by what they termed their absorption or dissolvent treatment, which is mailed to patients to be used at home, and also their painless, bloodless method of straightening crossed eyes without operation. The treatment of eye diseases is by the use of drops, but for the correction of squint, the subject has to visit their offices where the change is accomplished in a few seconds with no possibility of failure, sight restored, and previously worn glasses discarded.

It has been my object in collecting this literature to show the difference in the claims made by the various advertisers for the relief of eye troubles. This is only one aspect of the claims to be seen in the daily press, the religious and magazine publications, for the cure of disease without examination of the patients, and as you may see in this particular instance the fitting of glasses, the discarding of glasses, and the cure of disease without operation by various methods. The claims cannot all be true, and in our experience we know that what is promised in the case of every advertiser is impossible of accomplishment, therefore I think we as a body of specialists should consider it our duty to take the initiative in the abatement of the evil. It seems to me that the people so advertising to accomplish the impossible, are using the public press and the mail service for fraudulent purposes, and they have been allowed to continue because no one individual has cared to make it his business to start a movement to stop it. I think that when these advertisers promise to cure such diseases as glaucoma, iritis, and ophthalmia, without operation, atropin or the use of some silver preparation, and when we know that very brief delay in the proper treatment of such diseases is likely to result in the loss of vision, that it is time to act, and if this subject-matter were brought to the attention of the State or national medical bodies, such legislative measures might be secured as to protect the public from being thus defrauded.

SEA VERSUS LAND BURIAL.

BY

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This paper will briefly discuss a method of much facility, economy, and sanitary importance in the disposal of the dead by seaside cities.

Recently I requested Dr. Robert Fletcher, of the *Index Medicus*, to ascertain if any articles had been contributed advocating sea burial, and as yet he has found none. This is not so singular when we consider that the teachings and practices of the church have been against sea burial. In other matters of science and art the church has not been suffered to give such direction, but in the mortuary she is wellnigh supreme. Quite regardless of the advances made along other lines, she perpetuates biblical, or socalled Christian or earth burial, and, with the exception of modern cremation, this ancient form holds its own among Anglo-Saxons. In this they have not progressed much beyond what is called instinct in certain of the lower animals, which make rude attempts to cover their dejecta or to hide with earth the carcass of their prey. Man goes to the trouble and expense of embalming, etc., but after all, corruption is consigned to the corrupting earth, while the sea is nature's embalming fluid, and can be as easily consecrated as the land. It is from the French that we derive the word interment, or earth burial. From Paris the corpse is borne 12 or 15 miles, when by a slightly longer trip it could be immerged in the English channel. It is said that the very poor in Havana rent graves, and when the rent is not paid the bodies are disinterred and thrown upon the surface to await another burial. In New Orleans water would seem to claim its own, yet the body is laid on the ground and covered with earth.

The teaching of the resurrection is not against sea burial, for in Revelations 20:13, we read: "And the sea gave up the dead which were in it; . . . and they were judged every man according to their works."

The objection that bodies buried in the sea become the prey of fishes is childish, for fish generally do not feed on dead substances, and the bodies would be carried out to sea, far from crabbing, and other food fish supplying grounds.

However, it matters little, and the argument of postmortem estheticism is rather in favor of the beautiful and lively creatures of the deep than in that of the bacteria of decomposition and protozoa of earthly origin.

Of course the watery grave cannot be marked by the tombstone, placed over the dead through affection or pride, but then we should consider that a tombstone simply administers to temporary identification and to temporary sentiment, and we know that millions of graves are unmarked.

The body is as nothing, and the Atlantic or the Indian ocean should be sufficiently definite for its place of rest. Another objection is that the sea might cast up the bodies or the bones. To overcome this the body should be weighted.

It might be claimed that the burial of bodies in the ocean would in time contaminate it to such a degree that it would become unhealthful. If everyone on the globe was buried in it at this moment it would not become appreciably contaminated. This would be prevented by its immensity; its great average depth, 12,000 feet; the perpetual motion of its tides and currents; and by its chemistry. One portion of it, the Pacific, has an area of 68,000,000 square miles.

The ease with which a body is buried in water is too obvious for mention, hence the necessary expenses attending it are light. No corporation owns any portion of the open sea, nor would be permitted such ownership. It may cost as much to buy a small section in Greenwood, New York, as it costs to buy a large building lot in the average American city. The only expense worthy of consideration would be that of transportation, and with a number of funeral crafts or barges engaged in the business, it would not amount to half the cost of the average coffin of today.

Under proper sanitary conditions, the same coffin or receptacle could be employed to take in turn many remains to the point where they would be let down into the sea. Or in case of contagious disease, the box and contents, heavily weighted, should be let down. Much of the expensive paraphernalia of the funeral director could be dispensed with. To inaugurate the method it only remains for some influential person to request that his body be buried in the deep.

This paper is not intended to urge sea burial as a substitute for modern cremation, but as an ancillary to cremation. Unfortunately for cremation, it is of very slow growth in popular favor, because it suggests biblical ideas of punishment, and it antagonizes the rites of Christian and Masonic burial. The prevention of such diseases as are caused by the bacteria and protozoa of earthly and of animal origin will be much advanced when such bacteria, etc., are buried with the body in the sea, or consumed with it in the furnace.

The telluric origin and conservation of the vegetable cells causing infectious diseases would by the coarsest analogy cause us to abandon earth burial. Such bacteria should be burned or kept wet in the sea. A wet spore is not wafted by the winds.

The disease-producing protozoa, which since the time Dr. W. H. Welch edited "Flint's Practice," are slowly coming to be considered, should certainly not be interred with the corpse.

I am aware that certain experimenters think no harm occurs from burying a body dead of any kind of disease in the ground, but the science of bacteriology is comparatively in its infancy, and the powers of the microscope are limited.

Sanitation of the Canal Zone.—News from Washington, D. C., states that Colonel George W. Gorgas, of the Medical Corps of the Army, Chief Sanitary Officer of the Panama Canal Commission, has returned from the Isthmus. He says the work of improving the sanitary condition of the canal zone is progressing rapidly and satisfactorily. He said: "Quarantine stations have been placed at both ends of the canal route to prevent the spread of yellow fever and the plague. Generally the plague comes from Chile and Peru, and we are using every means for the prevention of an outbreak. The methods are the same as those in vogue in Havana. We are having sewers built and are covering up all water as much as possible. Plumbing is being introduced in the houses, and we are educating the people to better their condition. A large force of men is employed killing mosquitos and gangs are filling in the swamps. An eight-day quarantine on vessels from plague-infected ports has been instituted. We have about 30,000 men on our pay roll, about nine-tenths of whom are from Jamaica. We find they do better work and stand the climate better than the natives."

Fly as a Carrier of Disease.—Special interest is taken in a paper by E. E. Austen in the *Journal of the Royal Army Medical Corps* for June, which is in the nature of a review of our present knowledge of the subject. Of insects, which directly or indirectly affect the welfare of man and the domestic animals, the vast majority belong to the order diptera. Apart from the vast army of bloodsucking forms (midges, mosquitos, buffalo gnats, horse flies, and tsetse flies), other forms in the larval state affect man, horses, and cattle, as subcutaneous or intestinal parasites. Other forms (of which the house fly is a notable instance) eat of and pollute man's food and drink. In an order so closely associated with man, it is not surprising that many species should carry microorganisms to him, either directly into his blood at the moment of puncture, or, in the case of the nonsanguineous forms, merely mechanically. The action of flies is of the latter character. In intestinal diseases due to microorganisms, for example, cholera (in which disease the evidence as to diffusion by flies is regarded by Nuttall as "absolutely convincing") and typhoid fever, the danger lies in the overwhelming attraction for these insects of fecal matter. The commission which investigated the typhoid epidemic in our camps in the Spanish war found the water-supply good and not accountable for the outbreak, which in the commission's opinion, was due to the agency of the flies, which swarmed in all the camps.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 3, 1904. [Vol. XLIII, No. 10.]

1. Further Studies of the Intracellular Bacterial Toxins. VICTOR C. VAUGHAN.
2. Primary Malignant Endotracheal Tumor: Preliminary Report. JUDSON DALAND and JOSEPH MCFARLAND.
3. Regenerative Changes in Cirrhosis of the Liver W. G. MACCALLUM.
4. Heart Disease as an Obstetric Complication. C. S. BACON.
5. Oral Infection and Sterilization. M. L. RHEIN.
6. The Surgery of the Biliary Tract: Especially the Indications for Operation and the Importance of Drainage. MAURICE H. RICHARDSON.
7. The United States Public Health and Marine-Hospital Service. Part II—The Service as it is Today. (Continued.)
8. Fourth of July Tetanus: The Effect of Publicity and Prophylaxis in Reducing the Mortality.
9. Travel Notes. VII. A Winter Semester. LEWELLYS F. BARKER.
10. A Case of Tetanus Treated Successfully with Antitetanic Serum. E. G. ODELL and C. C. SNYDER.

1.—See *American Medicine*, Vol. VII, No. 26, p. 1010.

2.—See *American Medicine*, Vol. VIII, No. 1, p. 10.

3.—See *American Medicine*, Vol. VII, No. 24, p. 927.

4.—See *American Medicine*, Vol. VII, No. 26, p. 969.

5.—Oral Infection and Sterilization.—M. L. Rhein reminds us that oral infection may be a symptom of constitutional disease or an exciting cause of other functional disturbances. The capillaries are the terminations of one of the longest of blood courses, and therefore the tissues are the first to show lack of normal nourishment in all diseases of the vital organs. When vitality is depreciated sufficiently, these tissues become a prey to infection. Then the discharges cause irritation of the digestive tract with absorption of toxins. The serious error of confounding pyorrhea alveolaris with simple abscess often occurs. The former is not confined to the middle-aged and elderly. Prevention of pyorrhea means the removal of every foreign substance from the teeth. It may be caused by badly fitted crowns, wedges, etc. To cure alveolar abscess every portion of the contents of the root canals should be aseptically removed with thorough sterilization and hermetic sealing. Every necrosed particle of root and bone must also be taken away. The idea that it is dangerous to extract a tooth before acute symptoms have subsided has arisen from the occurrence of a subsequent pyemia, but this has been due to lack of proper care of the wound. [H.M.]

6.—See *American Medicine*, Vol. VII, No. 26, p. 1006.

8.—Fourth of July Tetanus.—The writer gives a table of the 105 cases occurring this year, as against 415 last year with the name and chief factors in each. The mortality of last year was probably not greatly in excess of what it had been previously. That the remarkable improvement is not owing to infrequence of the bacillus is shown by the, if anything, more than usual prevalence of the disease from other wounds. The decrease has been due to fewer wounds received during the celebration and to better care of those inflicted. This has resulted from the campaign of education in the profession and among the laity, which has given birth to new ordinances, to a willingness to have the laws enforced, to a more careful supervision by parents, a more thorough treatment of wounds by cleansing under anesthesia and to the prophylactic administration of antitoxin. The reduction in deaths was in large cities rather than in the country as the city populace is more quickly reached by campaigns of this kind and the injured are more likely to receive surgical treatment. Again the blank cartridge has been the chief cause. Four cases were reported as recovered and two as recovering, showing the hopeless nature of Fourth of July tetanus when once it has developed, it being much more fatal than that from other wounds on account of the great amount of laceration, necrosis, and hemorrhage. The association should try to secure legislation prohibiting the manufacture of toy pistols, blank cartridges, giant crackers and similar instruments. The most hopeful curative treatment lies in injection of antitoxin into the spinal canal and large nerve trunks leading from the wounded part, preceded by withdrawal of as much as possible of the cerebrospinal fluid. Salt solution may be used as an adjuvant as also intraspinal injections of eucain and morphin. [H.M.]

10.—Tetanus Treated Successfully with Serum.—E. G. Odell and C. C. Snyder report a case in which the jaw would not admit a lead-pencil, and in which 20 cc. of antitetanic serum was given every 4 to 8 hours until 220 cc. had been used. Morphin $\frac{1}{4}$ gr., and atropin $\frac{1}{100}$ gr. were also given hypodermically. No improvement was noticed for 36 hours. At this time chloral, 15 gr., was given every four hours. When the jaws relaxed three-quarters of an inch, the chloral and serum were discontinued, and sodium bromid, 15 gr., was given every four hours. The patient was discharged cured 13 days after admission to the hospital, and one month after injury. [H.M.]

Boston Medical and Surgical Journal.

September 1, 1904. [Vol. CLI, No. 9.]

1. Clinical Topography of Lymph-nodes. F. J. COTTON.
2. Surgery on Old Men. WM. H. ARTHUR.
3 Mental Defectives. BERTHA C. DOWNING.
4. Operations on the Stomach, with Report of Cases. (Concluded.) JOHN C. MUNRO.

1.—Clinical Topography of Lymph-nodes.—Cotton's is an instructive article which discusses and gives the anatomic relation and drainage area of the important superficial lymph-nodes of the body. Those discussed are: Parotid group, mastoid, suboccipital, submental, and suprahyoid, lingual, internal maxillary, retropharyngeal, supraclavicular, superficial cervical, deep cervical, epitrochlear, axillary, subscapular, subclavian, inguinal, etc. Some 72 cases are reported, as illustrating infection and consequent enlargement of the various groups of lymph-nodes. Cotton believes a better acquaintance with these various groups and the areas they drain would set us right in regard to: (1) Many socalled "scrofulous" neck glands in children which first appear in the posterior deep and superficial glands. Some are tuberculous, but in nearly all cases they are due to septic infection, usually from pediculi; (2) buboes of unknown origin, nonvenereal, lying low in the groin, and generally due to a septic focus on the foot or leg; (3) true inguinal buboes associated with gonorrhea, but almost never due to it, but secondarily to some septic focus under the prepuce. The paper is valuable from an anatomic as well as clinical standpoint. [A.B.C.]

2.—Surgery on Old Men.—Arthur reports 23 instances in which major surgical operations have been performed on old men in the United States Soldiers' Home, Washington, D. C. The average age was 70.4 years. The youngest man was 62, and the oldest, 89. The latter underwent a double amputation for bilateral gangrene. Both legs were removed at the junction of the upper and middle thirds of the tibia, the patient recovering. In all cases chloroform was used until the patient had passed the stage of excitement, when ether was substituted for the remainder of the anesthetic period. The operations were as follows: Amputations, 5—(1 double); inguinal hernia, 8; hemorrhoids, 3; exploratory laparotomy, 2; ventral hernia, 1; suprapubic lithotomy, 1; trephining for depressed fracture, 1; varicose veins, 1; nephrectomy, 1. There was but one death (from amputation). Rubber gloves were worn by each person connected with the operation *per se*. Arthur's conclusions are that we need not hesitate to operate on old men when such is demanded; that they stand severe operations better than is commonly supposed; and that with an experienced and skilful anesthetist there is not the danger from this source that some surgeons entertain. Spinal anesthesia was attempted in one instance, but the symptoms produced were so alarming that it was not resorted to again. [A.B.C.]

3.—Mental Defectives.—B. C. Downing states that in the United States there are 100,000 of these defectives under 21 years of age, and less than 10% in any way looked after. There are 20 socalled schools, but in only one or two is the individual studied and developed according to his needs as by Bourneville in France. This is more the province of the teacher than the physician. Among the higher defectives are many of attractive appearance and real talent along certain lines. The chief factor in the generation of idiocy is tuberculosis, and idiocy of nontuberculous origin leads to tuberculosis. The influence of tuberculosis is more conspicuous than that of insanity, epilepsy, or any of the neuroses. Exanthemas cause a rather high percentage of feeblemindedness. These defectives are very susceptible to cold, the glands swell easily, eczema spreads rapidly among them, the exanthemas are more severe in their effects, epilepsy is frequent, deformities and paralyses are common. Hearing is abnormally acute. They do not see well, but training corrects this. The specialist finds a large field among them. The removal of adenoids, fitting of glasses, orthopedic measures, muscular and speech training may do much. It is said that idiocy in the newborn is exhibited by lack of closing the hand firmly about any object laid in it. Diagnosis in the higher grades is not always easily made, while the capacity for harm is greater. Society, whose duty it is to protect the general welfare, should provide suitable schools. The best institution is not that in which the per capita cost is the least. [H.M.]

4.—Operations on the Stomach, with Report of Cases.—Munro concludes this interesting and instructive article which was begun in the issue of August 11. It deals with the surgical treatment of chronic gastric ulcer, mechanical gastric stasis, and gastric cancer. In these, surgical operation offers the best prognosis and the least expense to the patient. No one method of procedure is suited to all affections of the same type, and experience has not fully determined the best method in the majority of cases. Surgery has only begun to solve the problem of gastric diseases. The pathology of stomach affections needs to be studied in the living instead of the dead. In acute and subacute gastric ulcers it is probable that medical treatment offers the greatest hope to the greatest number, but in chronic gastric ulcer, surgery offers the greatest hope. In perforation there of course can be no question as to the better treatment, and the possibility of perforation in both gastric and duodenal ulcer should be more constantly in the mind of the general practitioner when called to see cases of acute abdominal pain. Mention is made of a case in which Mixter did a gastroenterostomy with a McGraw ligature, following which he was well for six weeks, when his pain and vomiting returned. Munro explored the abdomen, expecting to find the artificial opening between stomach and intestine closed from contraction. Such proved not to be the case and nothing could be found to account for the condition. Of the 32 patients operated upon for malignant disease of the stomach not one came early enough for radical cure. The rarity of vomiting as a symptom of malignant disease was abundantly shown in this series of cases. Munro insists that the paper, with the numerous cases reported somewhat in detail, has been intended largely for the general practitioner; data that would be convincing to surgeons is promised later when the series is larger. He hazards the opinion that there must be a large number of people who should have intelligent surgical advice with regard to their symptoms of gastric and intestinal disorder. But just how much surgery can do for them and for what types of gastric and duodenal lesions, it is the best treatment. In the discussion of Munro's paper Joslin presented some statistics collected by Lund, Murphy and himself, a synopsis and the conclusions from which have already appeared in these columns.[1] [A.B.C.]

Medical Record.

September 3, 1904. [Vol. 66, No. 10.]

1. Arteriosclerosis of the Spinal Cord. Joseph Collins and Edwin G. Zabriskie.
2. The Treatment of Tuberculosis of the Larynx and of the Prostate Gland and by the Röntgen Ray, High-frequency Currents, and Cooper-Hewitt Light. Sinclair Tousey.
3. Internal Urethrotomy in the Treatment of Stricture of the Membranous Urethra. Charles C. Miller.
4. Alcoholism and Inebriety: An Etiologic Study. T. D. Crothers.
5. Minus Cylinders. F. W. Higgins.
6. Gastrostomy for Stoppage at the Cardia. H. W. Lincoln.
7. The Stomach Reflex and Percussion of the Stomach. Albert Abrams.

1.—Arteriosclerosis of the Spinal Cord.—J. Collins and E. G. Zabriskie report a typical case at length with the microscopic findings. This disease causes symptoms which permit a diagnosis to be made with considerable certainty, though there is no description of it in the books. The symptoms in the order of their development are: (1) Weakness and easily induced fatigue of the legs; (2) peculiar sensations in the lower extremities described as "jerky," "numbness," "heavy," and occasionally sharp pain; (3) progressive incontinence of urine; (4) progressive paraplegia. The objective symptoms in the case were atypical. There were small hemorrhages in parts of the cord and arteriofibrosis in both brain and cord, although the appearance of the vessels in the former was strikingly different from those in the latter. In the brain it was moderate and confined chiefly to the propria. In the cord the media was involved also, and the vessels were thickened to several times their normal volume. The degenerations were of both the ascending and descending type. Another patient still under observation is improving on small doses of nitroglycerin and iodid, rest, warm baths, and massage. [H.M.]

2.—Tuberculosis of the Larynx and of the Prostate Treated by Röntgen Rays, and the Cooper-Hewitt Light.—Tousey reviews the literature relating to the treatment of laryngeal tuberculosis by röntgen rays, and reports a case in which he employed not only the röntgen rays, but alternated this with the employment of the Cooper-Hewitt light. The patient was a woman who for three years had increasingly pronounced symptoms of laryngeal tuberculosis. Expectoration became profuse, was loaded with tubercle bacilli, and there was ulceration. The alternating treatment, as above mentioned, there being four sittings (two of each) per week, has resulted in great improvement. Another case is reported in which a patient of 31, who had suffered for several years from tuberculosis of the bladder and prostate, was submitted to röntgen ray treatment. Not only were the rays directed through from the suprapubic aspect, but a rectal tube was devised by which the diseased area was attacked by way of the rectum. At the time of writing the patient was still under treatment, but was very greatly improved, having gained five pounds in weight, urination was much reduced in frequency, and blood had disappeared from the urine. [A.B.C.]

3.—Internal Urethrotomy for Stricture of the Membranous Urethra.—Miller points out some of the more important reasons for preferring internal urethrotomy to gradual dilation of the membranous urethra. Gradual dilation is a reasonably safe method of treating strictures anterior to the penoscrotal junction, but unsatisfactory when posterior to this point. In gradual dilation the liability of causing a chronic form of infection is much increased, but the most unsatisfactory phase is the difficulty of holding patients under this form of treatment. The length of time and annoyance necessary to effect a cure are more than the majority of patients will stand. Many instances of stricture in the membranous urethra are complicated by an infected prostate and seminal vesicles. Here there can be no question of the necessity of performing internal urethrotomy. Treated by internal urethrotomy, the average patient is well in almost a few weeks, while by gradual dilation the treatment drags on for months. Internal division can be accomplished under local anesthesia, but it is not so satisfactory as under a general anesthetic. Miller prefers the Maisonneurve urethrotome to that of Otis. [A.B.C.]

5.—Minus Cylinders and Eyestrain.—F. W. Higgins' first proposition is that fitting a pair of glasses is a problem that requires all the skill which medical training can bring to it; it is totally beyond the socalled graduate optician. He asserts that we, as physicians should give more attention to the symptoms of eyestrain. These symptoms are multiple and varied; about the eyes may be seen the red lids, with crusted edges, and at times styes. The lids are rough, as if there were sand under them, and when reading it is difficult to hold them open longer than a short time; black spots dance in the field of vision, and the images are blurred. More remote symptoms are, occipital headache, nervous dyspepsia, gastralgia, twitching of the face, and often choreiform movements in the young. These may be due to astigmatism or want of muscle balance. These symptoms are often made worse by badly fitting glasses. The mistake most often made is putting on minus cylinders. Higgins says in his last 500 refraction cases he has found eight instances in which the symptoms had been greatly aggravated by the patient trying to wear minus cylinders. [A.B.C.]

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[1] See *American Medicine*, August 13, 1904, p. 295.

6.—Gastrostomy for Stenosis of the Cardia.—Lincoln reports that a woman of 49 had complained for a year of progressive inability to get food into the stomach, vomiting of mucus, distention, constipation and dragging pains from the the back. Loss of weight had been progressive. Efforts to introduce a stomach-tube failed, the tube blocking 17 inches from the incisor teeth. To prevent starvation gastrostomy was done and the patient fed through the artificial opening. She improved greatly, and her distressing symptoms were for a time relieved, but with progressive toxic absorption from the malignant area, the patient progressively wasted and died, after about a year from the time of operation. Necropsy showed not only a large malignant mass involving the cardia, lesser curvature and esophagus, but the pancreas and neighboring glands were greatly involved. [A.B.C].

7.—The Stomach Reflex and Percussion of the Stomach.—A. Abrams states that the elicitation of the stomach reflex enables us to distinguish the percussion note from that of adjacent intestine. This is produced by concussion in Traube's area as described by him in a previous paper. The stomach after this yields a dull or tympanitically dull sound by which the area can be distinguished from the tympanitic organs about it. Percussion of the epigastrium by means of the hammer or fingers will abolish the reflex at once. If for any reason a pleximeter and hammer are not at our command, concussion of the Traube area may be executed with the flat surface of the fingers of the closed hand, although this is less effective and agreeable. Tympany in the stomach is caused by the periodic vibration of the air within it. If the gastric walls are made tense, vibration is induced by percussion not only of the contained air or gas, but also of the walls. The result is that the vibration of the walls and gas are mutually disturbed and the conventional tympanitic tone is lost. [H.M.]

New York Medical Journal.

August 27, 1904. [Vol. LXXX, No. 9.]

1. Multiple Sarcomas of the Subcutaneous Tissue, without Evidence of a Preceding Primary Growth. T. TURNER THOMAS.
2. A Case of Arthritis Deformans of the Spine (Spondylitis Deformans). OTTO LERCH.
3. What are the Facts and Arguments for and against the Infectious Nature of Malignant Newgrowths? CHARLES H. RICHARDSON.
4. The Röntgen Rays in the Treatment of Tuberculosis of the Joints. J. RUDIS-JICINSKY.
5. Bacteriuria. EDWARD L. KEYES, JR.
6. Pulmonary Tuberculosis: Some General Considerations and Its Treatment. CLARENCE L. WHEATON.
7. Remarks on the Use of the Nasal Saw. GEORGE A RICHARDS.
8. Case of Poisoning by Illuminating Gas. SAMUEL E. EARP.
9. Status Lymphaticus and Death following Chloroform Anesthesia. FREDERICK A. SIMMONS.

1.—Multiple Subcutaneous Sarcomas.—T. T. Thomas reports such a case in a man of 80. The first tumor appeared just above the left iliac crest. It grew rapidly, and was followed by other similar tumors, spreading out from this point, particularly over the anterior surface of the abdomen, but involving also to a less extent the back. One about the size of a hen's egg developed over the prominence of the chin. They increased rapidly in size and number. Each tumor was at first freely movable, but later tended to become firmly adherent to the skin. The skin over the tumors, where it was adherent, was of a brownish-red color. The masses were firm, not tender, and showed no tendency to break down. No evidence could be obtained of internal involvement or of any preceding single growth. At autopsy the abdominal cavity was palpated everywhere, and nothing suggesting a tumor was found. A microscopic examination showed the growth to be a round-celled sarcoma. [C.A.O.]

2.—Arthritis Deformans.—Otto Lerch discusses the subject and reports a case of the Bechterew type occurring in a man of 54. The spine is the only part affected; all other joints are free, with the exception of the shoulder-joints, which are very slightly involved. The man was perfectly well until seven years ago, when he had a fall, not upon the spine, but upon the hands, face, and chest. Four months passed after the fall before he noticed the first symptoms. The stiffness slowly progressed downward, finally involving the whole spine, making it stiff and entirely immovable, bending him and forcing him to stoop. The absence of pain and atrophies is perhaps best explained by an absence of bony excrescences pressing upon the spinal roots. The patient denies syphilis. His occupation, always exposed to the inclemencies of the weather; his constant and excessive drinking for many years, coupled with cirrhotic changes in liver and kidneys, are thought to have furnished a favorable soil for the disease. [C.A.O.]

3.—Nature of Malignant Newgrowths.—C. H. Richardson has made a thorough review of the literature of this subject, and submits the following conclusions: The various mentioned socalled parasites fail to make good in fulfilling the requirements of an infecting agent. The vast majority of competent pathologists is of the belief that the socalled parasites are changed or degenerated cells, not yet thoroughly classified. Contaminations could not be excluded in the few cases that showed any growth out of the vast number of cultures taken on every known media. The tumors produced by inoculation of blastomycetes show them to be only granulomas. Blastomycetes can be cultivated from the air, hence, contamination is always possible. In short, it is true that no one has to the present been able to grow or demonstrate parasites in malignant growths. The facts and arguments are so overwhelmingly on the side of embryonic cell theory, that for the time being, at least, we shall have to believe that malignancy is due to an abnormal play of forces within the body, of which as yet we know but little. A benign tumor is an abnormal deposit of growth of normal tissue, at least for a time; a supernumerary toe is normal tissue growing in an abnormal position. Why is not a malignant tumor an abnormal growth of abnormal tissue? A logical conclusion would be that it is. He believes time will show a reaction in the present movement of parasitism, and many of its strongest advocates will refute their theories and admit that their conclusions were reached without sufficient investigation. [C.A.O.]

4.—Röntgen Rays in Joint Tuberculosis.—J. Rudis-Jicinsky says that the röntgen ray will not only absolutely diagnosticate tuberculosis of the joints for us in the earliest stage of development; it will, by fluoroscopic examination, not only show us the smallest tuberculous focus developing in the spongy tissue of the bone near the epiphysis, or any extension of the destructive process toward the surface of the joint, or perforation of the joint by this focus, or the inception of tuberculous synovitis or the presence of other secondary affections complicated by abscess; but it will show us the effusion by dark and marked shadows, indicating destruction, necrosis, or caries of the bones plainly, and will for the main part remedy all these troubles, at the same time building up a greatly improved muscular system about the affected joint if properly treated. The joint—hip, knee, spine, foot or hand—soon grows stronger in every part, showing a greatly improved condition, and thus proving that joint tuberculosis offers perhaps the best field for the röntgen ray worker among all the other possibilities lying in the near bright future. The proper support adapted to each individual chronic case must be supplied so that the joint will become ankylosed in about four months under the influence of the radiation. In simple tuberculous synovitis of any joint, a prompt cure may be obtained with perfect motion and usefulness of the joint by injecting it once with iodoform emulsion, formalin, and glycerin, and exposing it immediately to röntgen ray treatment. A case is reported in which fluoroscopic examination showed tuberculous foci in the cartilaginous ends of two phalanges of the right hand and in the middle phalanx of the right foot. The condition yielded to röntgen ray treatment, and since then the author says he has treated three similar cases with the same gratifying results. The second case is that of chronic tuberculous disease of the hip-joint of two years' standing. Treatment by traction and plaster-of-paris support, with a proper opening over and a little beyond the sinuses for raying, brought good results in four months. Proper hygiene, good nutrition, fresh air, and light are important factors. [C.A.O.]

5.—Bacteriuria.—E. L. Keyes, Jr. says that bacteriuria is evidently not "a simple urinary infection without parietal lesion." The theory that bacteriuria is but a symptom of catarrh in certain parts of the urinary tract, is, on the other hand, fully in accord with the observed facts. It is the only striking feature of certain diseases, notably certain varieties of catarrhal pyelitis, such as typhoid, puerperal and acid retention pyelitis. Any of these may become suppurative. It would further appear that cystitis never causes bacteriuria. Prostatitis and spermatocystitis exceptionally cause bacteriuria. The treatment is simple, and in the puerperal and typhoid cases, often brilliantly effective—urotropin to the limit of tolerance, and diluent waters. When the bacteriuria is due to other causes, such as kidney stone or retention cystitis, these must be treated; similarly, bacteriuria in general sepsis is but an insignificant by-product. In all cases, constipation must be energetically combated, since the stagnant intestine is the chief source from which the bacteria are reinforced. The prostatic and vesicular cases may be very rebellious, and in many of them, urotropin appears to be quite valueless. Prostatic and vesicular massage, together with deep urethral instillations of the various silver salts, are our main reliance. [C.A.O.]

8.—Poisoning by Illuminating Gas.—S. E. Earp reports such a case in a man of 44, who had been confined in a small room, in which there was escaping gas, for a period of 11 hours and yet recovered. When examined he showed a wellmarked coma, skin cold, pulse weak and rapid, breathing stertorous, pupils contracted and a well-developed cyanosis. The temperature was 97° F., and upon the second day it reached 102° F. After 48 hours the temperature became normal, and for 10 days was at intervals subnormal, while the pulse was slow and intermittent. The patient remained in a semiconscious condition for several days. Six days after the accident the patient was sensitive to pain, and would reply to questions when urged to do so and kept aroused by the nurse. After 20 days he had almost wholly recovered. [C.A.O.]

9.—A case of status lymphaticus and death following chloroform anesthesia is reported by F. A. Simmons. The patient, aged 10, had been circumcised and was being operated upon for adenoids and hypertrophied tonsils, the anesthetic having been discontinued. The pulse suddenly failed, the face became cyanotic, and restorative measures proved useless. An autopsy was performed which revealed the following conditions: Extreme venous engorgement and dark fluid blood everywhere present. The vessels of the brain showed deep injection, and there were adhesions between the dura and pia. The thymus gland was large and deeply congested. The heart had stopped in systole. Examination of the abdominal viscera revealed, with the exception of congestion, organs normal, except the spleen, which on section showed a normal capsule, but a very dark and congested pulp, with numerous small tubercles throughout and too regular to be tuberculous. [C.A.O.]

Medical News.

September 3, 1904. [Vol. 85, No. 10.]

1. Comparative Progress of Medicine and Law. HON. W. W. GOODRICH.
2. High-frequency Currents: Their Physiologic Action and Methods of Application. A. D. MABIE.
3. Arthritis Deformans and Its Treatment. LOUIS KOLIPINSKI.
4. Paratyphoid: A Case of Hemorrhagic Variety. T. H. EVANS.
5. Intestinal Obstruction following Appendicitis Operations: Report of 86 Cases CLARENCE A. MCWILLIAMS.
6. A Case of Ludwig's Angina. C. M. HARRIS.
7. Endermol, a New Vehicle for Ointments. PROF. VIRGIL COBLENTZ.
8. A Simple and Accurate Method for Estimation of Sugar in the Urine. HARVEY C. BECK,
9. Present-day Treatment of Tuberculosis. J. W. KIME.

1.—Comparative Progress of Medicine and Law.—W. W. Goodrich, Presiding Justice of the State Supreme Court writes an interesting paper under the above title. The key-note of the comparison is that law is founded upon precedent, hence it has to be most conservative; medicine has little regard for precedent and is ever alert, pushing into new fields in original research and discovering new facts, all of which it uses for the benefit of humanity. He says the fruits of a lawyer's services to his client are gathered or lost at the end of the lawsuit. The result is concrete and apparent. But we must start with the fact that in all cases one of the opposing lawers always loses. Hence each lawyer theoretically loses half of his cases. The physician's single adversary is the Grim Reaper. But we have this advantage: We advise and act upon the facts as related to us by our client. The physician can only diagnose, necessarily with difficulty, because partially, upon symptoms described by a sick patient's fancies. You may not see inside the body except by the imperfect röntgen rays. The wonder is that he accomplishes so much. [A.B.C.]

3.—Arthritis Deformans—L. Kolipinski describes the pathologic appearances and symptoms. Those which must always be considered for correct diagnosis are Heberden's nodes of the phalangeal joints of the fingers, numbness and tingling of the hands and forearms, crepitation of the knee-joint on pressing the patella with rapid flexion and extension of the leg, a pulse of 100 or more. The writer advises for the pain, anemia, rapid pulse and malnutrition, arsenic; for stiffness, contracture, and muscular atrophy, voluntary exercises; for weakness, anemia, loss of weight and pain, greater nutrition brought about by increasing and selecting the food supply. For the mild type liquor potassii arsenitis, two drops, after meals, may be used for a long time, being continued after the disappearance of the pain; or zinc arsenite, $\frac{1}{12}$ gr., may be given twice daily. In severe forms hypodermic injections must be used. Sodium arsenite, $\frac{3}{8}$ gr., and sodium chlorid, $1\frac{1}{2}$ gr. should be dissolved in 60 m. of boiled water and injected in the gluteal region every third or fifth day for a year. Rest in bed aggravates the disease. Exercise, though causing pain, is beneficial. To restore abolished form of locomotion, the daily use of bicycle pedals secured to the top of a short upright bar is valuable. There should be three regular meals with three or four pints of milk between. Desserts, fruit and alcohol are injurious. Remedies for articular rheumatism and gout do harm when given for arthritis deformans. [H.M.]

4.—Paratyphoid.—T. H. Evans reports a case in which the Widal reaction did not appear until during convalescence. During the febrile period there was a profuse vaginal discharge of blood for five days, although regular menstruation had occurred two weeks previously. [H.M.]

5.—Intestinal Obstruction following Appendiceal Operations.—McWilliams concludes his article, reporting 86 cases collected from the literature; of these 57 (66.3%) recovered after operation for the obstruction, and 29 (33.7%) died. His conclusions are in part as follows: 1. The rarity of intestinal obstruction is noteworthy. 2. It may follow an attack of appendicitis which has not undergone operation. 3. Obstruction may follow the "interval" operation. 4. It is most apt to follow appendicitis with abscess formation. Eighty-one percent were of this class. 5. Mechanical obstruction may come on within a short time after the appendicitis operation, when the differential diagnosis from that due to peritonitis may present great difficulties. 6. Obstruction may occur years after the original attack or operation, when it may come on suddenly in perfect health, or preceded by a period with symptoms denoting "partial" occlusion. 7. There may be several attacks of true mechanical obstruction. 8. The small intestine was occluded in all of the 50 cases where it was noted. 9. The cause of the obstruction was given in 53 cases as follows: Constrictions by bands in 28 patients; volvuli in 10; kinkings or angulations in 11; and internal hernias in 4 cases. 10. We may expect a much smaller deathrate in the future, due to the earlier recognition of the symptoms and their more prompt relief by operation. 11. Prophylaxis consists in operating upon appendicitis before the formation of pus, the use of as little drainage as possible, and the least possible amount of handling of the intestines at the time of operation. [A.B.C.]

6.—Ludwig's Angina.—Harris reports a case, which he diagnosed as Ludwig's angina, occurring in a man of 22. There was tense swelling in the submaxillary region and about the base of the tongue. The swelling and pain increased until the fifth day, having extended posteriorly. The fifth day showed some diminution, and under expectant treatment the symptoms all subsided. Some discharge of pus from the ear of the affected side appeared on the ninth day, and disappeared within a week. Calomel internally and saline purgation constituted the essential part of the treatment. A proprietary preparation was applied to the swollen area, but Harris believes it was of no special value, and that lead-water and laudanum, and ice would have acted equally well. On general principles he would recommend surgical treatment, but as the case in question was not urgent, he did not resort to active measures. [A.B.C.]

8.—**Simple and Accurate Method for Estimating Sugar in Urine.**—H. G. Beck suggests the following method which he esteems a decided improvement over the usual method. The equipment consists of: (1) A beaker; (2) four centrifugal tubes graduated at 2 cc.; (3) a pipet of 2 cc. capacity, graduated into twentieths cc.; (4) a wire tube-holder to support the tubes when placed in the beaker, and (5) the beaker one-third filled with water. The centrifugal tubes are filled to the graduation mark (2 cc.) with standard Fehling's solution. The tubes are placed in the tube-holder and transferred into the beaker. They should be numbered 1, 2, 3 and 4 respectively. When the water boils, remove the tubes and, by means of the pipet, add the urine in quantities of $\frac{1}{20}$ cc. Begin by adding $\frac{4}{20}$ to tube No. 1, and increase the quantity by $\frac{1}{20}$ in each successive tube. The tubes are next violently shaken, after which they are returned to the beaker and allowed to remain in the boiling water for three minutes. They are then removed, and the red cupric oxid is allowed to precipitate by standing, or precipitation is facilitated by centrifugalization. The first tube in the series which is completely decolorized is chosen, and 20 divided by the number of twentieths cc., which have been added to this tube, gives the percentage of sugar present. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

Ankylostomiasis, the World-wide Plague of the Present Day.—The ankylostomiasis of Europe and the trypanosomiasis of Asia would appear almost to divide between them the intellectual monarchy of the profession in the old world just now. Indeed, when taken with the appendicitis of the new world (and some other regions) they may be said to constitute the clinicopathologic triad whose coming oracular revelations will mark the most important era of the healing art in the early portion of the twentieth century. In a communication, M. Dopter[1] tells his readers that "the study of ankylostomiasis is the order of the day; it actually preoccupies the attention, not only of the scientific world, but also of the public authorities; everywhere there is a hustle to establish prophylactic measures capable of resisting its invasion, and to efface the ravages which it produces, especially in the mining countries." M. Dopter's researches in this domain have been very extensive, and show that the privilege of ankylostomiasis is indeed common to all the continents. In Asia—particularly in India and Ceylon, the ill-health produced by it is almost boundless; Dobson avers that 75% of the native Hindus are the subjects of ankylostoma, and Thoris affirms that its ravages in Ceylon are more mischievous than those of the cholera. In Africa the regions along the west coast are specially affected, so that the proverbial hygiene of the "White Man's Grave" is largely dependent on the presence of this parasite. It is also known on the east, in Zanzibar, in Abyssinia, and (in the north) in Algieria and Tunisia; but it is especially common in Egypt, where, as most readers know, the clinical features of "Egyptian chlorosis" were described in 1851 by Griesinger. The parasite is of very frequent occurrence in some regions of America, especially of the southern section of the continent; Brazil is extensively affected, Cayenne is a favorite habitat, so are Colombia, Guiana, Peru, etc. In Brazil it seems, however, to confine its tenancies to the hot regions, avoiding the cool and temperate ones. It is there known by the various names of *opilaçao*, *cançaço*, *anêmie intestinale*, *hypohémie intertropicale*, etc. In the United States the condition of ankylostomiasis has been extensively recognized in Louisiana and in Georgia. In Europe it has received a great deal of attention recently. The epidemic which occurred among the workmen engaged in the construction of the St. Gothard tunnel first focussed the searchlight of science upon the condition. The reopening of the South African mines closed by the Boer war, has made the term *randworm* as familiar in English medical literature as *hookworm* is with ourselves. It seems not to have hitherto forced its presence on the northern countries. We hear little of it in Norway, Sweden, or the northern parts of Russia. The true nature of ankylostomiasis was determined in 1881 by Perroncito. In a communication made to the Congress of Brussels last year, Breton estimated the proportion of miners affected in the northern districts of his country at 2%.

Ankylostomiasis: Symptomatology.—The initial troubles of ankylostomiasis are usually referred to the digestive tract; epigastric uneasiness is followed by continuous pain, which is sometimes relieved by ingestion of food, but is often increased. The appetite is altered; there is sometimes anorexia and persistent nausea, but much oftener there is a combination of boulimia and pica. There are colicky pains, borborygmus, attacks of diarrhea, which may be lienteric, and this may alternate with constipation. When there is great irritation of the large intestine, the consequent tenesmus and mucous evacuations—sometimes blood-stained—have led to a diagnosis of dysentery. The symptoms, once established, may continue *in statu quo* for several years; sometimes they are continuously progressive—even rapidly so. The temperature is rarely elevated; there may be some edema, but emaciation is not a characteristic. If death takes place, and an autopsy is made within two hours after, the *Ankylostoma duodenale* is found fixed on the mucous membrane by its buccal armature—in number from dozens to hundreds, sometimes several thousands even. They are specially prone to adhere to the lining membrane of the lower part of the duodenum and adjoining part of the jejunum. In exceptional instances they are found in the upper portion of the ileum. In the rare cases, in which they fix themselves in the large intestine, they produce dysenteriform symptoms. Two hours after death they become detached from the mucous membrane and then float about in the contained secretions and fluids. Their punctures—with circumferential extravasations of blood—are easily recognizable.

Ankylostomiasis: Its History.—Although there can hardly be any doubt that ankylostomiasis is a disease old in fact, it is unquestionably new in history. In 1802, Halle called attention to a special anemia which inflicted the miners of Anzin; and his successful treatment of the symptoms with preparations of iron caused a rapid rise of the reputation of this metal as a remedy in such conditions. In 1838, Dubini announced the discovery of the ankylostoma in the intestine of a young girl who had died of progressive anemia. In 1851, Griesinger announced the dependence of "Egyptian chlorosis" on its presence. But it was not till the deadly epidemic of the St. Gothard tunnel that the etiology of "miners' anemia" was definitely settled. In a communication made to the Académie des Sciences in 1882, Perroncito demonstrated the dependence of the epidemic of Saint-Etienne on the presence of the ankylostoma. Since that date the etiology has been regarded as finally settled. Still it is admitted that all bearers of these parasites are not victims of the characteristic anemia. This fact is so well recognized in Germany, that in that country there are two classes distinguished: *Wurmträger* (wormcarrier), and *Wurmkrank* (wormsick); these distinctive epithets have been expressively "traduced" by Watteyne, *ankylostomisés* and *ankylostomasiques*, respectively. It is now generally conceded that the previous state of health of the affected greatly influences his susceptibility. And not only does the susceptibility, or power of resistance, of various miners differ, but that of mines also displays a diametric divergence! In the mines of Schemnitz (in Hungary), the ankylostoma lives in riotous abundance; in those of Kremnitz, not far distant, it has failed to effect even a temporary lodgment. The marcessite (bisulfid of iron) walls of the latter furnish sulfuric acid to the waters, which makes the existence of the parasite impossible. Nevertheless, it must be added that this explanation has been held to be insufficient, on account of the resistance displayed by the larva to acid fluids. The last word has not yet been said regarding the necessary conditions. It is, however, generally admitted that *stagnant waters* are the most favorable media. The miner who works at the surface is unaffected; those far beneath are the selected victims. Brickmakers and tilemakers furnish many specimens; but it is among those who mold the bricks or tiles, not those who burn them in the furnaces. Even the savants of the scientific laboratories, who manipulate the infected tissues and fluids, are sometimes "caught." But, to make the etiology still more complicated, recent reports have been furnished of cases occurring among agricultural laborers in Germany, and shepherds in Roumania and Servia; but ankylostomiasis still remains a plague of the country, not of the city; of civil life, not of military.

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[1] Gazette des Hôpitaux, July 23, 1904.

Ankylostoma Duodenale: Its Natural History.—The ankylostoma is a nematode worm. The sexes are separate. The male is about 11 mm. in length by about 0.5 mm. in width; the female 15 mm. long, and about 1 mm. broad. The mouth is placed on the dorsal aspect of the cephalic extremity; there are two chitinous plates, furnished with four hooks—a veritable dental apparatus, and a pair of accessory pharyngeal plates, so that the organs of prehension and suction are perfectly elaborated. The generative apparatus of the male is placed at the distal end; the vulva of the female at the junction of the posterior third with the anterior two-thirds of the body. Accordingly, when joined in copulation, they form a Y-figure, of which one branch is represented by the male, while the other branch and the trunk are formed by the female. The egg is oval is shape, about 60 μ in length and 40 μ in width; its translucency distinguishes it from those of the ascaris and the trichocephalus. The contents include two or four blastomeres each, with a well-defined nucleus. Segmentation rarely proceeds further in the intestine; Perroncito has demonstrated that a temperature above 35° C. (95° F.) inhibits the evolution. When expelled from the intestine the adjuncts of air and moisture are indispensable, and a temperature of 25° C. (77° F.) is most favorable for development. Embryos may be found as early as 12 hours after expulsion from the intestine; some are, however, formed as late as the fourth day. They grow rapidly, and are very active in their movements; they pass into the larval state in the second week. The larva takes no nutriment, and exists in a state of profound torpidity. It may live on in this way for months, and it is now generally agreed that, although other varieties of this parasite infest the dog and cat, no "intermediate host" is ever adopted by the *Ankylostoma duodenale*. Reintroduction into the human intestine is, accordingly, absolutely essential for development into the adult state. For the complete evolution, in addition to the initial and final lodgment in the human intestine—it is found that air, moisture, heat, and darkness are essential. These facts throw light on its prevalence under certain conditions. As may well be expected, the egg and larva both display marked resistance to any action of organic secretions and tissues. They are also remarkably proof to the influence of the ordinary antiseptic and dilute acid solutions, and to that of the usual larvicide media. The lessons to be gathered from these facts in the genesis and life history of the *Ankylostoma duodenale* are, very obviously, the extreme care which should be taken regarding the food and water-supply in an infected locality, and the necessity for complete destruction of the alvine evacuations.

REVIEW OF LITERATURE

Lymph Adenoid and Aplastic Change in the Bone Marrow.—H. Senator[1] reports a case with all the clinical symptoms of pernicious anemia; the blood-examination, however, showed a pronounced simple anemia without any of the aberrant forms of cells that are characteristic of pernicious anemia. The number of leukocytes was practically normal, but the differential count showed a preponderance of mononuclear lymphocytes, diminution of polynuclears, and absence of eosinophiles. Autopsy showed these symptoms to be due to a lymphatic metaplasia of the bone marrow, which completely displaced the normal tissue. The author believes that the case was in a stage of transition from pseudoleukemia to true lymphatic leukemia. Lymphatic metaplasia of bone marrow is also found in leukemia (both lymphatic and mixed forms), also in pernicious anemia and leukemia. It may lead to proliferation or to atrophy of the bone tissue, and in both cases may cause aplasia of the marrow. It may also be secondary instead of primary to bone disease. Aplasia of the bone marrow occurs in severe anemia without the characteristics of pernicious anemia, and also in socalled Barlow's disease. It may likewise be either primary or secondary to bone disease. [B.K.]

Injuries by Electricity.—H. L. Staples[2] gives conclusions based on the observation of injured employes of several electric companies during 15 years. Electric burns should be washed with peroxid or other weak antiseptic, protected by rubber tissue strips, and well covered with cotton. Lard or vaselin ointments should not be at first used. Blisters must be opened immediately. In cases of apparent death, continual efforts at resuscitation must be employed for hours if necessary. Instances of recovery after 40 and 45 minutes and seven hours are cited. Staples emphasizes the importance of looking out for fancied injuries, especially of the nervous system, real cases of which are rare. In more than 200 injured employes, not one developed a sign or symptom of nervous disorder; very much depends on the physician who first treats them. He should say to such patients suffering from shock that they will surely recover, and he should not resort to drugs or other remedies to cure a disease which does not exist. A great many cases are feigned to secure damages from the company involved. [A.G.E.]

The Oats Diet in Diabetes.—In 1903 v. Noorden first recommended the oats diet as a new departure in treating diabetes. A. A. Arkhipoff[3] has made this cure the subject of a dissertation, and offers the following conclusions: The characteristic feature of the oats cure is the reduction of carbohydrates by more than a half. The diet has a mere nutritive effect, and in point of monotony, ranks below the meat diet. Severe forms of diabetes are no better off under the oats cure than under any other dietetic regime. When the teeth are unable to perform their duty, an oats diet may be a useful expedient, but on the whole the new cure must be pronounced a failure. The author thinks that we ought to emancipate ourselves from the teaching of those who believe in strict dieting, and the harmful effect of carbohydrates in diabetes. In general, the severity of a given case is estimated much better by the diaceturia than by mere glycosuria. The general nutrition is also an important factor, and when the body-weight falls below 40 kilograms, a bad prognosis must be given. [L.J.]

Chappa in Cuba.—J. Guiteras[4] reports 10 cases of mutilating acropathy originating in the central provinces of Cuba, which he considers essentially identical with the affection described by Read, in 1901, under the name of chappa. Read's cases were among the Popo people on the west coast of Africa. The only important difference between the African and Cuban chappa is the presence in the lesions of the latter of thick, yellowish pus. The Cuban patients are all whites, the African all negroes. The disease begins as nodules in the skin. These may undergo resolution or suppuration, in the latter instances forming ulcers, cavities, and fistulous tracts that extend deeply, and in some cases involve bones, especially near joints. The lesions and resulting scars often lead to marked atrophy and deformity of the limbs. The duration of the disease is many years. Nothing is known of the etiology, but popular opinion attributes the disease to one of three causes—the bite of insects, the eating of wild boar, or contact with horses affected by multiple tumors. The disease is diminishing in Cuba since sanitation has improved. [A.G.E.]

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[1] Zeit. für klin. Med., Bd. liv, p. 1.
[2] Northwestern Lancet, August 1, 1904.
[3] Russki Vratch, July 3, 1904.
[4] Pub. Superior Board of Health, Havana, Cuba, 1904.

The Relations of the Thymus Gland to the Calcium Salts in the Body.—F. Sinnhuber[1] finds that the thymus gland is not a vital organ in postembryonal life. Its extirpation has no effect on the excretion of calcium, and therefore the organ apparently bears no relation to the development of rachitis. If an atrophy or a hypertrophy of the thymus occurs in rachitis, both are evidences of a fundamental disease. This fundamental disease bears some relation to the lymphatic or lymphatochloranemic constitution, and this is usually the expression of faulty nutrition arising from the intestinal tract. Administration of thymus gland likewise has no influence on the excretion of calcium. On the other hand, administration of considerable quantities of thyroidin increases markedly the excretion of calcium, and also of nitrogen. [B.K.]

The Pharmacology of Hypnotics.—I. E. Petchnikoff[2] publishes the results of his experiments with various popular hypnotic remedies. Speaking of their effect on the central nervous system and taking the psychomotor excitability as the indicator, he arranges the hypnotics in the following series, beginning with the strongest: Hedonal, isopral, chloral hydrate, veronal, paraldehyd, urethane. If we take the effect on the heart as the index, the same remedies must be ranked as follows: Urethane, veronal, paraldehyd, hedonal, chloral hydrate, isopral. In conclusion our author expresses his preference for veronal, which appears from the experiments to be the most efficient as well as the least harmful of our hypnotics. [L.J.]

Mental Phenomena and Visceral Disease.—C. B. Gamble[3] corroborates many of Head's conclusions regarding the relation of these conditions, and also states that the importance to the general medical man and also to the alienist has not been sufficiently recognized in this country and England. The mental phenomena are believed to be the result of stimuli from pain reflected from the viscera involved. Gamble reports two series of cases. In the first, six are represented hallucinations of sight, smell, and hearing, the moods of depression and exaltation and suspicion, the loss of attention and memory and unreasoning fear. The diseases were asthma, mitral stenosis, and adherent pericardium. The second series of four cases is similar, but differs in that in the first class the individuals can be easily persuaded that their hallucinations are hallucinations, or that their moods have simply a physical basis, while in the second class this persuasion is impossible. Gradation from the one class to the other is easy. Among the points shown by these facts is that the study of causes of diseases may put us upon the road that leads to the solution of many causes of insanity. A second point is, that many symptoms placed under the head of hysteria should not be so grouped. [A.G.E.]

Uncinaria Duodenalis.—A case is reported from Tampico by A. Matienzo.[4] The discovery of the disease produced by *Ankylostoma* or *Uncinaria duodenalis* has been ascribed to Dublini in 1838, at Milan. Autopsy shows that it produces some pulmonary edema at base of lung and a corresponding pleuritis. There are no valvular heart lesions, but a serous accumulation present in the pericardium is common. All cellular tissues show proliferation. There is hepatic hypertrophy and fatty degeneration and intense hyperemia of the duodenum, which has an appearance of punctiform hemorrhage, and shows numerous parasites along its course, adherent and filled with blood. Examination of body fluids fails to show the parasite of Laveran, although by some the disease has been clinically confounded with malaria. The main symptoms are vague but persistent epigastric pains and anorexia; diarrhea of a fetid type is constant. The spread of this disease is alarming. At one time known principally in Europe, it is now met with in Central America, and is gaining ground in certain localities of North America. [T.H.E.]

Serum Therapy of Ozena.—A few years ago two Italian investigators found a peculiar bacillus in 63 cases of ozena. This bacillus resembled the bacillus of diphtheria, and it was furthermore observed that animals which had been rendered immune to diphtheria also resisted injections of the ozena bacilli, while other animals developed suppurations and gangrene at the site of injection. This furnished the basis for employing antidiphtheric serum in ozena. W. Sizemski,[1] reviewing the literature of this treatment, has collected 110 cases, showing a very favorable outcome of the method. The majority of cases was either cured completely or at least considerably bettered. He then reports two original observations, both emphasizing the value of diphtheria antitoxin in ozena. While abstaining from a satisfactory theoretic explanation of the method, the author does not hesitate to recommend it warmly, on clinical and experimental grounds. [L.J.]

Cytodiagnosis.—O. Niedner and G. L. Mamlock[2] find that histologic investigation of the cerebrospinal fluid for the occurrence of lymphocytosis is not of as much value as had been hoped for when first proposed. Their investigations cover tabes, hemiplegia, cerebral and spinal tumors, tetanus, uremia, cerebrospinal syphilis, alcoholic neuritis, traumatic neuroses, and secondary syphilis. The results were variable in tabes and hemiplegia, even in the syphilitic cases. Lymphocytosis was found in uremia and tetanus, as well as in many cases of syphilis; this leads to the conclusion that intoxications are important factors in the production of this symptom, especially if they exert a long-continued irritation on the central nervous system. Mechanical irritation is also an important factor in the production of lymphocytosis, especially if long continued. This is shown by the effects of cerebral or spinal tumors, and also by the results of experimentation in animals. The general conclusion is, that lymphocytosis in the cerebrospinal fluid is dependent upon long-continued and powerful irritations affecting the central nervous system. [B.K.]

Seasonal Distribution of Typhoid Fever in Cleveland.—G. W. Moorehouse[3] furnishes tables showing the typhoid mortality in Cleveland by months for 11 years. The smallest mortalities are found in the months from November to February, January having the minimum. The mortality is relatively high from March to October, and of these months, August has the largest rate. March has also a relatively high mortality, due to spring epidemics. On comparing this chart with that of the entire registration area of the United States a marked difference is shown, the latter giving the highest mortality in October, and the effect of spring epidemics is not noticeable. The year 1903 was a "freak" year in Cleveland in that the mortality throughout was high and was highest in April instead of August. Further tables are explained by stating that while the possibility of infection is present at all times, the amount of infection depends upon inconstant factors, of which the state of the weather is presumably the largest and most variable, or is at least secondary only to the number of typhoid bacilli in the water-supply. [A.G.E.]

Facts concerning Tuberculosis.—E. Maragliano[4] in an important publication issued by the institute that bears his name, in Genoa, Italy, asserts that he has demonstrated the following beyond scientific doubt: 1. The possibility of immunizing animals to tuberculosis. 2. The creation of a tuberculous standard unit. 3. The demonstration that serum of immunized animals contains defensive material which destroys this standard preparation, which neutralizes in the man the pyogenic action of tuberculin, which arrests bacillary development in culture, *i. e.*, is a serum at once antitoxic and bactericidal. 4. The demonstration that certain animals, notably guineapigs, are of little value for the study of tuberculosis toxin and antitoxin. 5. The demonstration of the possibility of measuring the standard of antitoxin by the standard preparation or unit of toxin. 6. The biologic demonstration of two groups of fundamental toxic agents in the tuberculous: the protein, which resists high temperature, and the toxin, which is readily destroyed by heat. 7. The demonstration that tuberculous toxins are able, without the actual presence of *B. tuberculosis*, to work all the mischief discoverable in the tuberculous. 8. The demonstration that tuberculous products are able to cause the evolution, both in man and lower animals, which are sound, of defensive agents which have antitoxic and antimicroorganismal qualities. 9. And that in normal animals, including mankind, a certain quantity of these antituberculous products should always be the rule, and are able to destroy relative quantities of the pathogenic forces. 10. In patients spontaneously cured of tuberculosis, there can be demonstrated agencies similar to the defensive agencies found in immunized animals. 11. While in the tuberculous patient, the defensive agencies are not discoverable. 12. In the normal, or in the tuberculous, serum of immunized animals will evolve these defensive elements. 13. A cure is demonstrable in tuberculosis by the injection of serum of immunized animals, giving rise to a process similar to that which occurs in cases of spontaneous recovery. 14. These antitoxic elements confer immunity to the extremest virulent tuberculous infection, *e. g.*, endovenous. [T.H.E.]

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[1] Zeit. für klin. Med., Bd. liv, p. 38.
[2] Russki Vratch, July 3, 1904.
[3] Johns Hopkins Hospital Bulletin, July and August, 1904.
[4] Crónica Médica Mexicana, June 1, 1904.

[1] Russki Vratch, July 24, 1904.
[2] Zeit. für klin. Med., Bd. liv, p. 109.
[3] Cleveland Medical Journal, August, 1904.
[4] Annali Inst. Maragliano, Genoa, May, 1904.

Influence of Water Filtration on the Deathrate from Typhoid Fever.—J. D. Craig[1] says the consideration of statistics of typhoid fever in Albany since 1890 furnishes indisputable evidence of the efficacy of sand filtration in limiting this disease. Filtration of the water of the Hudson river began in 1899; immediately there was a falling off in the number of typhoid cases. During the years 1890–92 there was an average of 285 cases per year, and for the four years preceding the introduction of filtered water 489 cases yearly; during the four years following the introduction of filtration the cases averaged 109 yearly. It is of passing interest to note that the bacterial purification by the Albany filters averages about 99.7% of the contained bacteria. [A.G.E.]

The Incubation Period of Pneumonia.—Eustace M. Callender[2] states that the actual incubation period of pneumonia has never been fully determined. This is occasioned by the fact that the germ or germs which are commonly supposed to cause pneumonia, are often found in the mouth in a state of health, consequently it is difficult to determine when the real pneumonic infection takes place. Five cases are reported, four of which appeared to give a fairly accurate idea of the incubation period. One was a man of 40, who, on the evening of May 10, had a severe headache, and on rising the next morning felt ill, and that afternoon went to bed with a typical case of pneumonia. His death resulted on the eighth day. This patient is supposed to have derived his infection from another patient and it could not have been prior to a certain time, so that the incubation period in this instance was reckoned definitely at 58 hours. In another case the incubation period was reckoned with equal certainty at 69 hours, and in still another at 45 hours, and in the fifth and last, the incubation period was reckoned at 55 hours. The cases are reported somewhat in detail and the observations of Callender appear accurate. [A.B.C.]

2,796 Cases of Enteric Fever.—A report of these, with a mortality of 10.4%, is given by Müller.[3] Enterorrhagia occurred in 9.3%; peritonitis from perforation in 1.9%; pneumonia in 6.71%; pleurisy in 2.8%; tuberculosis complicated 1.5%; albuminuria and nephritis in 7.8%; hemorrhagic diathesis in 7%; special decubitus in 2.6%; furunculosis in 2.4%; phlebitis in 2.8%; relapse noted in 13.4%. Of the relapsed cases the mortality was no higher than 3.19%. Other comment by the author includes comparative statistics outside his personal experience. [T.H.E.]

Gastric Tetany.—T. G. Moorhead[4] reports a case of this condition, the fourth published in Ireland. The patient was a woman of 54, who had gastric dilation, due to adenocarcinoma of the pylorus. The classic symptoms of Ert, Trousseau and Chvostek were absent, and for this reason the case would not by some writers be called tetany; Moorhead, however, does not regard increased irritability of the peripheral nerves as absolutely pathognomonic of the affection, particularly as those nerves show no pathologic change postmortem. The clinical course of the case was of the ordinary type, except for complete disappearance of symptoms and apparent general improvement for a period of five days. The blood condition lent weight to the theory that the death of tissues may be one of the determining factors in the disease, and make it so serious in character. The increase of polynuclear cells favors the view that the disease is toxic in nature. In Moorhead's case the leukocytes numbered 31,500. Negative results followed injection of the vomit. No changes were found in the ganglion cells of the spinal cord. The thyroid gland was enlarged and cystic. This organ should be more carefully studied in cases of tetany. Moorhead is inclined to favor the toxic theory of the disease, although it is yet defective. [A.G.E.]

Treatment of Dental Diseases in the Navy.—Norman G. Bennett[1] states that general diseases traceable directly or indirectly to dental disease may be conveniently divided into: (1) Local affections within the oral cavity; (2) glandular affections; (3) gastric and intestinal affections; (4) affections of the blood; and (5) remote effects due to absorption of bacteria or other toxins. Bennett points out that if the pulp within the teeth becomes infected it is a very different matter from an ordinary focus of infection in other tissue. Alveolar disease is apt to result. In an upper tooth there is risk of infections of the antrum, and secondarily of other sinuses. If in the lower jaw, the abscess may burrow down as far as the thoracic cavity with disastrous results. Septic fever may follow osteitis, and necrosis may follow alveolar abscess. Glandular affections: The parotid lymph-nodes receiving lymph from the upper teeth, and the submaxillary and superficial glands of the anterior triangles of the neck, to which the lower teeth drain, are the ones most affected. Gastric and intestinal affections resulting from septic dental conditions are numerous and varied. All of the organisms in the intestinal canal, whether good or bad, reach the alimentary canal by passing through the mouth. Certain forms of enteritis, especially of endemic and epidemic character, may be ascribed to organisms passing through the mouth. Bennett makes a plea for the appointment of regular assistants in the British Navy to correct these conditions. [A.B.C.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

EDITORIAL COMMENT

The Value of Iodoform as an Antiseptic.—Almost immediately after its introduction into surgery by Mosetig, iodoform found favor, and it is now in general use in the majority of hospitals all over the world. This widespread use has continued in spite of many disadvantages; the penetrating, persistent, odor of the drug is disagreeable to many people, and its frequent use in venereal diseases leads many people to look with suspicion on those who carry the odor. Experimentally, it was found that while it inhibits the growth of bacteria they are not killed by it and the growth of some more resistant forms is but little affected. Its use in the treatment of tuberculosis has not been attended with as much success as was hoped for when it was introduced, and cases of iodoform poisoning of a serious nature have not been very uncommon. In spite of all these objections, and its high price, iodoform has maintained an honored place and is among the antiseptics in most common use. No preparation has been found which seems to fill its place, although many substitutes have been introduced. The fact that it has proved such a satisfactory agent clinically would seem to indicate that it has some real virtue, and in order to determine its worth, Heile[1] has again investigated the antiseptic value of iodoform in the laboratory of the University of Breslau. Some previous investigators have believed that the favorable results from the use of iodoform have been from free iodin that was set free from the iodoform molecule when broken up in the tissues. Heile finds, however, that not nascent iodin but a very much more active antiseptic, diiodacetyliden, is set free by the breaking up of the iodoform molecule in the tissues. This occurs only when external air is excluded and is most active when the iodoform is in contact with organic substances. The setting free of the diiodacetyliden is rapid in the presence of such tissues as liver, spleen, kidney, lung, or the blood; less active in the presence of fatty tissue. The more strongly alkaline, the higher the degree of infection and the longer the exposure to the action of these fragments of tissue with the exclusion of air, the larger the quantity of this powerful antiseptic is set free. Heile finds that under these conditions the antiseptic value of iodoform is much greater than that of corrosive sublimate and that it is in the true sense a powerful antiseptic. These experimental studies seem to explain some of the peculiarities of the action of iodoform: The failure to have any effect in case of open wounds exposed to the air, the satisfactory results of the use of gauze packing impregnated with iodoform for deeper wounds and the occasional cases of iodoform poisoning. A further study of the action of iodoform along the lines which Heile has followed seems very desirable. Whatever may be determined experimentally, however, clinical experience has satisfied very many practical surgeons the world over of the real value of iodoform gauze as a packing for wounds and until some more satisfactory substitute is discovered its use seems likely to continue.

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[1] Albany Medical Annals, August, 1904.
[2] British Medical Journal, July 16, 1904.
[3] Il Policlinico, Rome, No. 25, 1904.
[4] The Practitioner, August, 1904.

[1] British Medical Journal, August 20, 1904.

Cysts of the Appendix Vermiformis.—Having regard to the prominent position which has of recent years been accorded to the surgery and pathology of the vermiform appendix, every new addition to our knowledge of this enigmatic organ must be received with attention and interest. The discovery of the formerly unsuspected clinical importance of one of the unfittest of the anatomic survivals of the human frame has indeed been one of the special triumphs of our own generation. The knowledge of its pathology having naturally led to the diagnostic study of the symptoms and physical signs connected with the various lesions, the protective safeguards afforded to the operator by the methods of aseptic surgery have enabled our profession to save perhaps more lives during the last decade in connection with appendicular disease—which in former days would have been inevitably lost—than in connection with that of any other single organ. Of course, all readers know that it is within the past quarter of a century that the frequency of appendicular lesions has been recognized. In all the former ages, disease of that structure was regarded as a rare occurrence, not even sufficiently interesting to excite curiosity, and almost as unimportant as its unrecognizable function. It will also be remembered that even if appendicular lesion was diagnosticated during life, the surgeon would never operate except as a last resort. The ghastly mortality of intraperitoneal interference in prelisterian days enforced such negative conduct. A large proportion of living surgeons remembers when it was deemed unjustifiable to operate in cases of strangulated hernia till "*stercoraceous* vomiting" had set in; and also the vital importance of a thorough acquaintance with and a full recognition of the pros and cons of the "major" and "minor" operations, respectively. The science and art of surgery have surely made an electric record in the progress of our own day! In this connection every lesion of the appendix, as well as of other internal organs, is of importance; as the presence of such may at any time complicate the diagnosis and treatment. And an interesting communication on the subject of the rare condition of cysts of the appendix has recently been made by Dr. Lafforgue.[1] One was found in the body of an Arab woman of 50, who died of cardiopulmonary disease. The first centimeter of the tube was impermeable, and resembled a piece of cord; a cylindric cyst of 14 cm. in length and 2 cm. in diameter had formed. The epithelium was destroyed, and the muscular fibers of the wall greatly thinned out. The second specimen was one of a double hydatid cyst of the cecal appendix, found in the body of an Arab girl of 13, who had succumbed after rupture of hydatid cysts of the mesentery. No special symptoms, of course, were produced by either of the above appendicular lesions; but the recognition of the occasional existence of such may be sometimes of great clinical use.

REVIEW OF LITERATURE

Influence of Growth upon Deformities.—Howard Marsh[2] states that the influence of growth is more often recognized as an agent in producing than in removing deformities. It is well known that a child's bow-legs may grow straight, but the subject is not followed up in other directions. The disappearance of deformity under the influence of growth in childhood may be observed frequently in the case of fractures. In fracture of the clavicle union nearly always takes place with deformity, which at first is considerable, yet often in the course of six months this deformity almost completely disappears. Formerly Marsh was in the habit of forcibly correcting deformities resulting from green-stick fracture in long bones in children. This he has abandoned since discovering that nature may be trusted to effect correction. Deformity of nontraumatic origin is, of course, most frequently observed in rachitic children. The tibia and femur are softened and made yielding by the disease, and the weight of the child, if allowed to walk, tends to produce curvature of these bones; opposing this tendency is nature's effort to bring the bones in alignment to a certain type—the normal form. While the rachitic process is at its height, nature's efforts are overbalanced and the deformity increases; with subsidence of rickets, however, nature gains the ascendency and the deformity will be corrected, subject to certain conditions. If the deformity induced by disease and the superimposed weight has existed too long, nature will have deposited a strong buttress of compact osseous tissue on the concave aspect of the bone to strengthen it. This will later act as a tie-beam to prevent nature's effort at correction. The deductions are plain: Keep the child off his feet for the most part, and control the rachitic condition; otherwise osteotomy will become necessary. [A.B.C.]

Theory of Congenital Dislocation of the Hip.—P. Le Damany[3] ascribes the basis of congenital dislocation to an anatomic defect present in the hip of all human beings; this is the oblique angle between the neck of the femur and the plane of the opening of the acetabulum. All persons during the months preceding birth pass through a critical phase in which the femur changes its shape and the acetabulum diminishes in depth; ordinarily these changes are within a limit compatible with reparation after birth. If this limit be passed, luxation of the hip is produced. Luxation then is really but an exaggeration of a malformation common to all human fetuses, a malformation that is special to the evolution of man and which is greatest in individuals anthropologically most elevated by race and in addition by sex. In the whites the deformity occurs once in 1,500 persons; in negroes, 1 to 20,000. It is four times as frequent in females as in males. This condition is called by Le Damany superior degeneration, or excessive humanization. In other words an anatomic degeneration accompanies anthropologic elevation. The article contains many figures in illustration of this theory which is most ingeniously explained and supported. The writer asserts that this theory leads to a simple and rational method of treating congenital dislocation of the hip; this will be explained in a future paper. [A.G.E.]

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[1] Archiv für klinische Chirurgie, 1903, Volume lxxi, p. 787.

[1] Gazette des Hôpitaux, January 12, 1904.

[2] The Lancet, June 4, 1904.

[3] Revue de Chirurgie, February and March, 1904

Wounds Made by Japanese Firearms.—J. B. Feldowitsch[1] publishes an interesting paper dealing with his observations on the wounds made by Japanese bullets. The first striking feature of these wounds is their comparative mildness. In numerous cases no shock whatever was experienced by the wounded men, who either continued to do duty in the ranks or else were able to walk to the hospital. The second important feature is the rapid and smooth course of healing. In 150 cases only once did suppuration occur, and even then it could be accounted for by the communication with the oral cavity. Summing up, the author considers the Japanese missiles to be the mildest so far employed, and hopes that they will soon be introduced into European armies in place of the large caliber and explosive bullets. [L.J.]

Clinical Value of Leukocytosis.—C. Julliard[2] considers at length the question of leukocytosis in a great variety of surgical diseases, and especially of appendicitis. He concludes that the leukocyte count possesses a real value in many surgical cases, especially appendicitis, peritonitis, and all suppurative affections, in which the collection of pus cannot be directly explored and diagnosed. Leukocytosis is destined to hold a place among the well-established signs that long experience has shown to be of value in diagnosing these conditions. It possesses a value equal, if not greater, than that of the temperature curve, in which the latter is unreliable, and the leukocyte count may positively determine the state of the patient. Those cases which at the present time appear paradoxic, will in the future probably be explained, and we will see why the leukocyte count appeared to depart from the general rule. Julliard impresses upon physicians and surgeons the necessity of recognizing the value of blood-examinations in clinical pathology. [A.G.E.]

Multiple Myeloma.—Scheele and Herxheimer[3] report a case of multiple myeloma in which the noteworthy features were an obscurity in the diagnosis for a long time, a spontaneous fracture of the left femur, and the absence of Bence-Jones albumosuria. The diagnosis was first made of rheumatism, was changed to sarcoma or carcinoma when the bone tumors first appeared, and the final diagnosis of myeloma was only confirmed at autopsy. The authors believe that albumosuria might have been demonstrated in the earlier stages, if it had been sought for; periodic appearance, or even entire absence, of albumose has been recorded in previous cases of myeloma. An interesting feature of the case was a radiograph of the fractured femur, which showed an absence of the compact bone tissue at the seat of the fracture. A radiograph of the ribs showed plainly the rarefaction of the bone and the globular tumor masses. Histologically the tumors were made up of round cells with one nucleus and a somewhat scanty, but evident, protoplasm, these cells being a normal constituent of the bone marrow. Myeloma is to be distinguished from myelogenous sarcoma by its multiple nature, absence of metastases and of extensive growth into surrounding tissues, and uniformity of the cells making up the tumor. [B.K.]

Analgesia; Lumborachidian Puncture and the Use of Hydrochlorate of Tropacocain.—This method, especially as applied to surgery, in connection with treatment on the battlefield, is the subject of an interesting paper by Caccia.[4] He reports 43 cases. No mortality. This should be the usual result, for tropacocain is less dangerous than cocain. The Trendelenburg position effects more rapid and complete diffusion. The solution of tropacocain will act with greater precision if used at a temperature of 40° C. to 45° C. A standard solution will retain its force over a month in ordinary conditions. Analgesia is best and longest obtained in the regions of the rectum, anus, and gluteal eminences. [T.H.E.]

Immediate Cardiac Massage restoring Pulsation.—The case is reported by P. Sik.[5] A youth of 15 was being operated on for tuberculous peritonitis. Respirations ceased, and feeble heart action gave way to absolute pause. It was found impossible to restore pulsation by artificial respiration or by mediate cardiac massage. The chest wall was opened by Rotter's incision, the pericardium divided, and after five minutes of cardiac cessation, direct cardiac massage was employed. After 15 minutes, cardiac action was restored and soon became rhythmic. The patient's condition improved until speech was possible. He complained of thirst and much difficulty in breathing. The pulse rose to 144, and after 24 hours of dyspnea the patient died. Autopsy revealed a tuberculous invasion of the peritoneum, with hepatic and colic involvement, which, in the judgment of the author, were fatal in any event; otherwise, he believes cardiac action was sufficiently reestablished to have saved the patient's life. The possibility of immediate and efficient applications to the heart is shown; but conditions so grave as to render heroic treatment necessary, will militate against a favorable outcome. [T.H.E.]

Bacteriology of Appendicitis.—O. Lanz and E. Tavel[1] present the results of a study of 8 normal and 138 pathologic appendices. They find that the normal appendix is never sterile, the pathologic organ is sterile in 10% of cases. This is explained by the fact that the normal organ contains the same bacterial flora as does the intestine; in inflammatory conditions, phagocytosis may be sufficient to remove the bacteria, and hence the organ will be sterile, though diseased. The organisms found in pathologic appendices in their order of frequency were: *B. coli*, *diplostreptococcus*, *pseudotetanus*, *streptococcus pyogenes*, *B. edematous maligni*, *B. Friedländer*, *proteus*, *pneumococcus*, *pseudodiphtheria*, *staphylococcus*, *tetragenus*. The number of species varied from 1 to 6, the average being 3. Extraappendicular abscesses, chronic, were sterile in 75% of cases; such abscesses when acute, perityphlitic abscesses, were always infected. The authors give brief clinical notes of the 138 cases reported, these forming a very instructive series. They conclude that the recurrence of appendicitis does not depend on the mere presence of bacteria, nor upon a special bacterial flora that is introduced; the cause must be sought elsewhere. [A.G.E.]

Delayed Chloroform Poisoning.—H. J. Stiles and S. McDonald[2] believe that Guthrie has not brought forward sufficient evidence to show that the fattiness of the liver found at postmortem after chloroform administration existed previous to the administration, the chloroform merely acting as a "last straw." They believe the fatty change entirely due to the chloroform acting on a healthy liver, experimental evidence seeming to give strong support to this possibility. While the liver changes are so striking, other organs give evidence of general poisoning and it seems hardly justifiable to attribute the result to hepatic insufficiency. Fatal cases are rare and may be attributed to idiosyncrasy. The authors agree with Guthrie in condemning the use of morphin in treatment. Rectal and subcutaneous injections of normal saline solution and, if necessary, intravenous injections must be employed. If vomiting is copious the stomach should be washed out and calomel or gray powder given. Cardiac stimulants must be used, but in moderation. [H.M.]

Acute Intestinal Obstruction Caused by Impacted Gallstones.—James Cantile[3] reports that a man of 43 was seized with abdominal sickness and vomiting and severe abdominal pain, followed by a free evacuation of the bowels. Pain continued for two days when a physician was called. On the third day the patient passed into collapse and death was expected; on the fourth day he rallied; tongue was clean, temperature and pulse normal, abdomen somewhat distended, and the pain elicited by palpation slight and indefinite. Vomiting of a bilious character had occurred at long intervals, flatus and feces had passed. Improvement urged against operation. On the seventh day, however, improvement was not maintained, and laparotomy was performed. The intestine was distended as far as within 18 inches of the ileocecal valve. A hard movable mass was found at the junction of the distended and collapsed portion of the intestine; the ileum was opened, a rounded, pear-shaped mass was removed, and the intestine closed. The mass proved to be a conglomeration of small gallstones and measured three and a half inches in length and one and a half inches across at the blunt or lower end. The patient unexpectedly died. The case is peculiar in that intestinal obstruction was not complete, vomiting was not alarming, and the patient retained liquid food. A theoretic explanation is entered into to account for these conditions. [A.B C.]

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[1] Russki Vratch, July 24, 1904.
[2] Revue de Chirurgie, May to August, 1904.
[3] Zeit für klin. Med., Bd. liv. p. 57.
[4] Il Policlinico, Rome, No. 25, 1904.
[5] Rev. de Med. y Cir. Havana, October 25, 1903.

[1] Revue de Chirurgie, July and August, 1904.
[2] Medical Press and Circular, June 8, 1904.
[3] British Medical Journal, July 23, 1904.

Traumatism and Hernia.—William Sheen[1] states that if the hernia is wholly acquired (sac and contents) one cannot imagine it resulting suddenly from a single trauma, because the peritoneum will not stretch suddenly, but tears. He quotes Tillman, who says: "The supposed sudden development of true hernia is, in my opinion, always due to a mistake in diagnosis." Under ordinary circumstances, then, the only explanation of the initial sudden appearance of hernia lies in the existence of a preformed sac, and the interesting question arises: Is the sac congenital or acquired? Sheen appears to regard this as difficult to determine, even in operation, though the congenital sac should reasonably be supposed to be more adherent to the cord and other structures than the acquired one. Certain conditions must be fulfilled before trauma can be regarded as the cause of hernia. These are: 1. The trauma must be of a certain character, either as a sudden general muscular contraction compressing the abdominal contents, as in lifting too heavy a weight, or in resisting a blow, or a general abdominal squeezing as in a buffer injury. 2. The hernia must be quite small at first. 3. The hernia must appear immediately after the accident. 4. The development of the hernia must be accompanied by acute pain and tenderness at the site of the hernia, and by the formation of a small, tender lump. 5. The symptoms must be so acute as to compel the patient at once to leave his work and seek medical aid. His conclusions are that, granting the existence of a preformed sac, oblique inguinal hernia may occur suddenly as the result of a single trauma. [A.B.C.]

Treatment of Intestinal Fistulas by the Elastic Ligature.—T. A. McGraw[2] discusses treatment of severer grades of false anus and intestinal fistula. The pathology of such lesions is considered at length, as success must come by a careful study of the obstacles to be overcome in each individual case. When gangrenous bowel is present, resection and anastomosis is hazardous and the formation of a false anus means a second operation. To avoid this it is proposed to make lateral anastomosis between healthy appearing portions of the bowel before it is fastened in the wound; this enables the false anus to heal after the ligature cuts through. McGraw has tried this plan as a primary operation in hernia, but in a patient too far gone to recover. As a secondary operation for false anus he has employed it in two cases. Both were fatal, one from a preventable, the other from a nonpreventable cause, but in each the operation was successful in opening a passage between the afferent and efferent bowel and in obviating the passage of feces through the false anus. In both cases the false anus had begun to heal before death ensued. The results justify the further employment of the method, both in primary and in secondary cases. [A.G.E.]

The Prevention of Ventral Hernia after Abdominal Operations.—E. Stanmore Bishop[1] states that the percentage of cases in which ventral hernia develops after laparotomy is probably between 1 and 2. Rutherford Morrison states that in his own practice it amounts to 2%. Bishop has had 4 cases in 350 abdominal operations. These are reported in detail. One was in a woman of 29, who was operated upon for ovarian cyst; 3½ years after recovery a ventral hernia developed, which, after some 3 subsequent operations, remained cured. Another was a woman of 31, who had ventral fixation done for prolapsus uteri. Within a year ventral hernia appeared and 3 subsequent operations had failed to effect a cure. The third was a woman of 33, operated upon for parovarian cyst; 4 years later ventral hernia appeared and 2 subsequent operations were done to effect correction; the last resulted fatally. The fourth case was a woman of 47, who underwent hysterectomy for a fibroid uterus; 4 years later ventral hernia appeared, and operation was done to effect a cure. This was so recent that opinion cannot be expressed as to the outcome. Bishop states that the essential thing to prevent ventral hernia after laparotomy is to unite the tendons of the oblique and transversalis muscles in such a complete manner as once more to restore their mutual antagonism, and to keep them firmly united sufficiently long for firm organic union to take place; a process which, according to MacEwen, takes six weeks, but Bishop believes in some cases this is accomplished within a month. Approximation must be maintained by a material which can be trusted to remain firm and strong for the necessary period. If at the end of that time it can be eliminated or removed from the tissues, the ideal method will be attained. This is by no means the simple problem which the earlier operators believed. Ventral hernia following operation upon the stomach and gallbladder is rare. Bishop explains, by way of several illustrations, his method of closing the abdominal wound. [A.B.C.]

NERVOUS AND MENTAL DISEASES

J. K. MITCHELL

REVIEW OF LITERATURE

Trauma in Relation to Disease of the Nervous System. Judson S. Bury[1] uses the term trauma in the sense of a violent shock or shaking and he considers the subject in relation to the effects of concussion of the brain and spinal cord, apart from the results of injury or disease of their envelopes. He uses the term concussion in the sense of a violent shaking or agitation. The pathologic results following such concussion to the brain are hemorrhage, in its various situations; inflammatory changes, such as abscess, pachymeningitis, meningitis, etc.; lacerations of the brain: and newgrowths. The following are discussed in detail: The symptoms produced by concussion and by compression; those indicated by meningeal hemorrhage; those that may develop soon after the accident but are not usually conspicuous until some weeks later, such as neurasthenia, some forms of insanity, and symptoms of brain tumors. Of the immediate effects of head concussion none are more important than meningeal hemorrhage. The points at which such hemorrhage may occur are discussed at length; subdural hemorrhage may be distinguished from subcranial hemorrhage by the absence of a lucid interval and by the more rapid onset and development of compression symptoms. To this rule, however, there are many exceptions. Traumatic neurasthenia, insanity and cerebral tumor are discussed at length. Concussion of the spinal cord is likewise dealt with in detail. Indications of cord disease may come on immediately after the concussion or be delayed for a few days or weeks. In the former case the lesion is usually a severe one. Occasionally the cord is lacerated and the vertebras are uninjured; hemorrhage may occur either outside or inside the dura or into the substance of the cord itself. The author has found that a relation to trauma can be traced more frequently in disseminated sclerosis than in locomotor ataxia. In regard to whether trauma may alone produce the socalled traumatic tabes, the author states that a study of the literature, as well as his own experience, leads to the conclusion that concussion may imitate the development of characteristic signs of tabes, but it rarely acts as the sole cause of this disease. A number of cases illustrating the various topics discussed are reported. [A.B.C.]

Pathologic Risibility.—J. Ingegnieros[2] notes the neglect of this symptom in treatises on nervous disease and psychiatry. From the peculiar nature of the laugh, many interesting conclusions may be derived. Laughing, in general, is of three kinds: 1. With people of low state of mentality it occurs most often, imitative or independent of any relation to a psychologic process. 2. Among average people it serves to distinguish an emotion of pleasure or amusement. 3. In those of supreme mental power it may mark a purely intellectual state without regard to the establishment of any emotional value. Pathologically, the above elements are so modified by disorganization of normal factors as to assume relations and an importance entirely owing to the nature of the disease. So that the relations of emotion and psychic process to the nervous discharge and muscular action will be more or less independent. Such risibility may be classified according to causes—imitation, organic lesion, neurosis, etc.; or characteristic, as laugh of idiocy, of tic, of the degenerations, of certain bulbar scleroses, of hemiplegia, of lowered nerve tone, of hysteria, etc. Or according to manner and duration: 1. Permanent, with organic lesion. 2. Accessive, in hysteria and temporary psychoses. 3. Accidental, as in tic. Hysteric laughing affords the subject of interesting study. It has almost every possible mode of occurrence: 1. It may be paroxysmal—accompanying real convulsions. 2. It may be an *aura* (as in epileptic seizures), which indicates the onset of some hysteric outburst. An interesting case is noted. In the treatment of hysteric laughing, considered apart, hypnotism and simple suggestion, in the author's experience may be recommended. [T.H.E.]

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[1] British Medical Journal, July 9, 1904.

[2] Journal of the Michigan State Medical Society, August, 1904

[1] British Medical Journal, April, 30. 1904.

[2] La Escuela de Med., México, April 15, 1904.

Nervous Complications of Influenza.—C. L. Mix[1] presents an elaborate summary of these complications; he states that but few really good papers on the subject have appeared since 1896. He compares the action of *B. influenzæ* with that of the Klebs-Löffler bacillus: they are similar, but the former enters the blood, and thus adds to toxemia a bacteremia. The complications are considered under these heads: (1) The prodromal period, toxic in origin; (2) the fastigium and lysis, both toxic and bacteremic; (3) convalescence, entirely toxic; (4) paragrippal or metagrippal diseases; (5) psychoses. This valuable paper, though claiming to present nothing new, is one of the most complete of recent summaries; it cannot be briefly abstracted. [A.G.E.]

Mental Condition in Epilepsy in Relation to Prognosis.—After an extended discussion of this subject, William Aldren Turner[2] gives his conclusions, which are in part as follows: A total of 160 cases at the Colony for Epileptics, Chalfront, St. Peter, was used for investigation. The mental features of the paroxysmal state have been divided, for descriptive purposes, in four classes, the first containing those epileptics without deficient mental impairment, and the fourth with the highest degree of dementia. Sex has little influence upon the mental condition, but males are numerically more affected than females (91% males, 78% females). A family predisposition to epilepsy and insanity favors the supposition of some degree of mental impairment, the duration of the disease influences to some extent the mental condition. Mental impairment is less frequent when the fits have lasted for under five years, just as mental integrity is less commonly seen when attacks have persisted for 10 or more years, but mental health and mental deficiency are observed in cases in which the disease has lasted for over 20 years and no less than five years. The age at the onset of the convulsions influences the subsequent mental condition; the earlier the onset the less the probability of an unimpaired mental state. The character, in combination with the fits, having an important relation to the mental condition, the profoundest degree of dementia being most commonly seen when the major and minor attacks coexist; the petit mal seizures occurring alone are found with the lower course of mental impairment; when only grand mal occurs, mental health is as common as mental deficiency; the more frequent the seizures the greater the degree of mental impairment. The following figures show the percentage of frequency of the four classes of mental deficiency among the 161 patients: Intellect normal, 13.6%; with unimpaired memory, 31.6%; feebleminded, 25.4%; demented, 29.1%. [A.B.C.]

Treatment of Neurasthenia.—C. W. Buckley[3] says, in treating this disease, one must be guided largely by objective symptoms, yet not be indifferent to the patient's suffering; one must be sympathetic without sympathizing. Methods of treatment are placed in five groups: 1. Relief from nervous causes responsible for the condition. Home treatment at the outset is generally useless, but extended travel is fatiguing; appropriate health resorts are probably best. 2. Every system or organ that is in any way abnormal must be corrected. 3. The vasomotor system must receive attention. Buckley says the vast influence over this system, wielded by suitable physical measures, is only faintly realized at present, largely because quacks and empirics have so exploited them that regular physicians have regarded them with suspicion. Electricity appeals most to the patient, but it must be employed with circumspection. 4. Supplying nourishment. If the Weir Mitchell treatment be adopted, it will be found that few, if any, of the cases really requiring it can dispense with any one of the cardinal features, isolation, rest, full feeding, and massage. One rarely hears of a cure from "modified" Weir Mitchell treatment. 5. Relief of symptoms. Drugs must take a place entirely subsidiary to rest, diet and other physical methods of treatment. [A.G.E.]

Adiposis Dolorosa in Two Sisters.—J. A. Hammond[1] reports that he has under his care two sisters that illustrate the fact that adiposis dolorosa may at times be a family disease. One patient is a stout woman of 61; she has had six children and one miscarriage; there is a strong alcoholic history. The disease started when she was 35, by the deposit of localized fatty swellings in both forearms. At the present time these are also situated on the thighs and abdomen. They vary in size from a small orange to that of a walnut; the hands, face and feet are free; pain has constantly been a marked and persistent feature. Associated with this is considerable tenderness. There have been no hemorrhages, but the skin is more pigmented than usual; there are no mental symptoms, and there have been no convulsions. No change in the thyroid can be made out clinically. The patient's sister is a woman of 40; she has seven or eight children, and has had several miscarriages, and there is probably a specific history. The disease started some years ago in much the same manner as that of the elder sister, with the local tumors in the arm, and fresh ones are gradually forming elsewhere. Pain is a constant and noticeable element. [A.B.C.]

Referred Pains.—W. Bruce[2] endeavors to prove sciatica is an inflammatory affection of the hip-joint. The peroneal pains are really sympathetic, the posterior part of the capsular ligament receiving branches from the sacral plexus. If sciatica were an inflammation of the sheath of the sciatic nerve, why should the pains be limited so often to the peroneal region, and not show themselves frequently in other regions supplied by that nerve? Bruce has found it associated with gout in the majority of 458 recorded cases. Gouty deposits probably occur where the circulation is most interfered with, and that the blood current at the back of the acetabulum is so affected is likely, when we consider the strain from jars from walking, running, and even standing. An articular branch for the hip leaves the fourth and fifth lumbar and the first sacral segments, and on entering the joint lies close to the hind border of the acetabulum, and might easily get involved in mischief there. From the same spinal segments arise cutaneous nerves for the peroneal region. The pain may be referred from the hip articular branch also, to the skin over the back and inside of the heel. There is wasting in most cases of the glutei muscles which are not supplied by the sciatic nerve. The lameness points to joint trouble. Tenderness can be elicited by pressure over the joint in one out of three cases, while it is rarely present along the course of the nerve. There is relief at the outset from rest, as in use of the splint, and later from massage or even forcible movements at the hip-joint. [H.M.]

Paralysis after Trauma.—Ruhemann[3] reports seven cases of paralysis agitans in which there was a history of trauma. Beside trauma he calls attention to the fact that emotion is an important factor in production of paralysis agitans. Intoxications are also causative factors not to be overlooked. Ruhemann agrees with Erb when he says that syphilis plays no part in the production of paralysis agitans. Ruhemann believes men are affected with this disease more often than are women because they are overworked. In the traumatic cases the disease is first manifested in those parts that were affected by the injury. [J.F.]

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[1] Medicine, May, 1904.
[2] The Lancet, April 9, 1904.
[3] The Practitioner, August , 1904.

[1] British Medical Journal, July 16, 1904.
[2] Scottish Medical and Surgical Journal, April, 1904.
[3] Berliner klin. Wochenschrift, 1904, Nos. 13, 14 and 15.

Hyperalgesic Zones of the Neck after Gunshot Wounds of the Head.—Milner[1] reports three cases, in one of which the zones were definitely outlined, in the other two the condition was not studied so carefully. In the first case the wound was in the temporal region. When he was brought to the clinic the hyperalgesia was already marked upon the posterior portion of the head and neck and the anterior and upper part of the chest. There were no symptoms of meningitis, except occasional vomiting. The patient likened the pain to needle pricks. The hyperalgesia, when he left the hospital 20 days after he was admitted, was markedly diminished. Milner believes the source lies in the sympathetic nerves of the pia and possibly in the gray matter, from where it is carried to the cervical ganglions, then to the cervical segments (first and second) of the cord, which he says supplies the parts affected. In the second case the hyperalgesia disappeared in the course of 18 days. The painful zones of the third case were still present to a slight degree one and a half months after the wound was inflicted. Although meningitis was present in this case, Milner cannot attribute the hyperesthesia to the meningeal condition, since the hyperalgesia persisted so much longer than the meningitis [J.F.]

Pathologic Histology of the Choroid Plexus.—C. Tsiminakis[2] studied the choroid plexus in 17 cases of chronic internal hydrocephalus, of which 8 cases were in progressive paralysis, 1 in pyelonephritis, 1 in compression of the spinal cord, 1 in atrophy of the brain of unknown cause, 1 in cyst of the brain, 1 in acute leukemia, 1 in hemorrhagia intermeningealis, 1 in pernicious anemia, 1 in apoplexy, and 1 in brain tumor. Later he studied 7 other cases of tuberculous leptomeningitis, and 2 cases of acute cerebrospinal meningitis, in all of which there was present acute internal hydrocephalus. In 6 out of the 7 cases of tuberculous leptomeningitis, the plexus was tuberculous. In the 2 cases of acute cerebrospinal meningitis the plexus was likewise inflamed. In the 8 cases of progressive paralysis there was distinct change in the choroid plexus, though only relatively intense in 3 cases. In 4 of the remaining cases of chronic internal hydrocephalus the condition could be looked upon as one of *hydrops ex vacuo*. Of these, cellular infiltration was present in 3, and also in still another case of chronic internal hydrocephalus. In one, the case of leukemia, there was a leukemic infiltration in the neighborhood of the bloodvessels, and an accumulation of lymphocytes within the vessels. In the other four cases of leukemia no changes could be found. The condition was a regressive metamorphosis, and belonged to the hyaline or sclerotic degeneration of the connective tissue as described by Imamura. [J.H.W.R.]

Syphilis and Tabes.—After ventilating the data concerning the causal relation between these two diseases, P. A. Preobrajensky[3] contributes original statistics and sums up thus: 1. Although no direct proof is existing of their etiologic connection, all indirect evidence leads us to look upon syphilis as the chief cause of locomotor ataxia. We may say, without syphilis no tabes, as without Löffler's bacillus no diphtheria. 2. All arguments to the contrary are inadequate. 3. The nature of antisyphilitic treatment seems to be without influence on the appearance of tabes. We do not know the immediate factors which lead to tabetic disease in a syphilitic, but so much is now certain that the etiology of tabes, like that of general paresis, is comprised in the two words, syphilization and civilization, to quote Krafft-Ebing. [L.J.]

Rare Forms of Peripheral Paralysis.—Bernhart[4] describes a case in which there is an atrophy of the supraspinatus and infraspinatus muscles. He finds there is some interference in raising the arm to a horizontal position and in external rotation. Since the onset of the disease was marked with pain in the right upper extremity, and since the patient's occupation exposes him to wet and cold, Bernhart believes he has to deal with a neuritis about the brachial plexus. Bernhart says it is interesting to note that this patient presented two cervical ribs. Although this extra rib may in some way be the cause of the neuritis, yet Bernhart believes this is merely a coincidence, and that overwork is the more probable cause. In addition to this, Bernhart observed two other cases of paralysis, one due to injury to the musculocutaneous nerve, the other to compression of crural and sciatic nerves in consequence of a bloodless operation for congenital dislocation of the hip. [J.F.]

Family Periodic Paralysis.—L. Cheinisse[1] gives a review of this subject. The syndrome is characterized by the periodic occurrence of attacks of paralysis with diminution or loss of electric excitability and reflexes, but no disturbance of sensation or intelligence. The frequency of the attacks progressively increases for a while, and then diminishes. They usually last several hours, but may be prolonged. They frequently come on during sleep, and seem to be favored by repose. Usually the paralysis is flaccid, and the recovery complete, though gradual. The patient otherwise enjoys perfect health. A very interesting feature of the paralysis is the hereditary character of the affection, the transmission always being in a direct line. As to its etiology, the most plausible theory seems to be that of an autointoxication. As the onset of this paralysis is favored by repose, the proper therapy would seem to be massage and gymnastics, instituted as soon as the prodromes of an attack announce themselves. [B.K.]

A New Reflex.—W. M. Bechterew[2] discusses a new reflex which he was the first to describe. Quite recently Mendel has published an account of the same reflex, which he appears to have found independently. The phenomenon is this: If we strike lightly over the dorsum of the foot, in the region of the metatarsal and the bases of the tarsal bones, we observe a flexion of the toes. Bechterew claims a pathognomonic significance for this reflex. It points to an organic lesion of the pyramidal tracts, and thus has the same meaning as Babinski's reflex. In some cases, when the latter is absent or uncertain, the new reflex must be of distinct diagnostic value. In absolutely healthy persons the reflex is absent. Occasionally, when the reflex is very marked, the toes are not only flexed but also spread out, but the flexion is the more important feature. This phenomenon is analogous to another reflex observed on the fingers, and described by the same author. Here we note a flexion of the fingers when we percuss the dorsum of the hand in the carpal and metacarpal regions. [L.J.]

Continuous Rhythmic Spasm of the Muscles of Deglutition.—H. Klein[3] reports two cases; one of the patients only was affected on both sides. In both cases a central cerebral disturbance was diagnosed and most probably areas of degeneration existed in the medulla. The first patient had parasthesia of the left side of the body, not affecting the face, with attacks of dizziness at the beginning; later cramps developed in this side with pain of right side of head; he frequently vomited and dizziness continued; then his left side become temporarily paralyzed and still later he developed difficulty in speaking and swallowing with rhythmic tremor above mentioned, mental dulness, loss of memory, weakness of facial and palatal muscles and tendency to laughing and crying. In the second patient the condition came on suddenly with vomiting and loss of consciousness; she was dull mentally for weeks, and had paresis of right side of body; there was disturbance of speech and swallowing was made difficult on account of the rhythmic spasm of all the muscles of deglutition. She also had a tendency to laugh and cry. The Babinski phenemenon was present on the right side. [E.L.]

Limiting the Term Insanity.—W. J. Wherry[4] believes that there are good reasons for limiting the term "insanity" to certain mental conditions which have their basis in delusion. He suggests the following classification. Under the head of "unsoundness of mind," he divides the cases into those which are physical, resulting from defects of brain; and those which are psychic, resulting from defects of the mind. In the first category he places congenital cases, *i. e.*, idiocy and imbecility, and the acquired cases namely, dementia and general paralysis. He separates the psychic cases under two headings, insanity, including the toxic psychoses and autotoxic psychoses and moral degeneracy. Under the first are the infection and intoxication psychoses, and under the second heading, mania, melancholia, manic-depressive, paranoia and exhaustion psychoses. Under moral degeneracy are sexual perverts, incorrigibles and other moral delinquents. He claims that there can be no insanity which is not the result or outgrowth of a delusion or delusions. The delusion, he believes, is the starting point. He suggests the following as a definition of insanity. "Insanity is a mental attitude characterized by a radical departure from a man's usual manner of thinking, feeling and acting, due to a delusion which has its origin in some physical disorder." He also believes that "evidence of a delusion is always evidence of insanity, and neither can exist without the other." [J.H.W.R.]

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[1] Berliner klin. Wochenschrift, 1904, No. 17.
[2] Wiener klin. Wochen., 1903, No. 38, p. 1051.
[3] Medizinskoe Obosrenie, lxi, 1904, No. 6.
[4] Berliner klin. Wochschrf., No. 10, 1904.

[1] La Semaine Médicale, April 13, 1904.
[2] Obosrenie Psychiatrii, June, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, Nos. 17 and 18, 619, 665.
[4] Alienist and Neurologist, St. Louis, May 1904.

Uremic Paralyses and Foci of Disintegration in the Brain.—J. Castaigne and J. Ferrand[1] examined the brains in 18 cases of uremia, of which six exhibited during life some form of uremic paralysis. In five of these cases there were areas of disintegration involving the internal capsule, and the other case revealed a cerebral tubercle. No cerebral lesions were found in the twelve cases which did not have paralytic symptoms during life. The inference is thus unavoidable that these preexisting lesions favor the action of the uremic poison on the parts of the brain affected. The lesions found were of two classes: (1) Simple rarefaction of nervous tissue around an arteriole previously diseased; (2) small, irregular cavities. [B.K.]

The Value of the Examination of the Cerebrospinal Fluid in Nervous and Mental Diseases.—Siemerling,[2] of the 38 cases of progressive paralysis examined, found the lymphocytes increased in the cerobrospinal fluid of 37 cases. In all these cases he found, after filtering the fluid, a decided clouding upon the addition of magnesium sulfate. He believes an increase of the lymphocytes must be regarded as an early symptom of paralysis. Three cases of delirium tremens showed no increase of the lymphocytes in the fluid, while five cases of alcoholism in men over 50 years in whom there were nervous symptoms and sluggishness of the pupils, a slight increase occurred. There was an absence of lymphocytosis in four cases of epilepsy, and six cases of mental disease. [J.F.]

Differential Diagnosis between Hysteria and Neurasthenia and Treatment.—L. H. Mettler[3] attributes many failures in treatment of these two diseases to the fact that differential diagnosis has not been properly made. Both conditions are considered at length, and finally certain major points in the differential diagnosis of the two. One has but to bear in mind the nature of a psychosis, and remember that hysteria is a psychosis; on the other hand, remember that true neurasthenia is in all probability a symptomatic expression of more or less definite intracellular anatomicophysiologic changes in the nervous system. On this basis, symptoms may be attributed to one or the other with a degree of precision. For example, the common symptom headache is different in the two. In hysteria it is an exaggeration of the pain sense; in neurasthenia it is a paresthesia. The same principle holds good for the anesthesias and paralyses of each, and they may be differentiated. Two points in treatment are mentioned by Mettler, who says that advice to strengthen the patient's will is one of the erroneous suggestions given for the treatment of hysteria; the will is not lost, nor is it often weakened in hysterics. To restore the will we must appeal to the psychic elements, the feelings. The second point is the rest cure. In not many cases wherein it is instituted is a genuine conscientious effort made to apply it in its details as a mode of psychic treatment in hysteric patients, or as a means of fostering the nutrition in neurasthenics. [A.G.E.]

Polyneuritis.—L. H. Mettler[4] says we are better informed regarding the etiology, prognosis and general management of this affection than we are in regard to its exact symptomatology and pathology. Cases of pure, uncomplicated multiple neuritis are rare, though some that are believed to be strictly and solely peripheral do occur. Lesions of the cord and brain are so frequently discovered in association with those of the peripheral nerves as to suggest an intoxication of the entire nervous system; on this basis the frequency and number of the socalled complications and accidents of polyneuritis become explainable. They are, perhaps, more truly integral manifestations of the disease. Mettler has not seen a case in which he was satisfied that the disease was solely peripheral. The many cases reported by different observers should check the tendency to regard multiple neuritis as a simple and distinct disease of common occurrence. In conclusion, Mettler warns against the careless use of the term, and urges a more careful study of the nature of the disease and of its nosologic position in its various forms. A more accurate and definite diagnosis is needed in all cases, in order that each may be treated on its merits. [A.G.E.]

The Relation of Inebriety to Mental Disease.—R. Jones[1] finds that in long-continued moderate drinkers a severe illness precipitates a mental breakdown. Illusions, visual and persecutory, are characteristic. When illusions are grandiose they are egotistical and selfish in comparison with the altruism of general paralysis. In drink insanity there is impairment of memory for recent events with a tendency to bring past events into the present. This causes the apparent lying in drink cases, although the moral sense is also perverted. He divides inebriates into periodic and constant drinkers. Periodic drinkers are mostly young men who in the intervals are apparently rational, fulfilling their social obligations. The distinction between the inebriate and insane alcoholic is the result of the personal equation. In the inebriate the bodily organs undergo fibroid degeneration, the brain being the last to hold out, although in all there is considerable mental deterioration, as 20% of inebriates under treatment in institutions have been referred in one year to insane asylums. His experience of drink cases has been disappointing as to actual recovery, almost all relapsing if they tasted alcohol at all, and there were only a few who could afterward go through life without it. [H.M.]

Intermittent Claudication.—W. Erb[2] finds that angiosclerotic dysbasia or intermittent claudication is not as rare as supposed at first, he having been able to collect 45 cases in a period of 6 years. Of these cases 38 presented a typical symptom-complex; this consists of paresthesia and pain in feet, appearing after the patient has walked a short distance, tension, pain and stiffness in the calves, vasomotor disturbance in feet, gradually increasing difficulty in walking, the necessity of rest after walking a short distance, recovery after a short rest, but reappearance of symptoms after again taking up walk, etc. The most important objective condition present is the absence or smallness of the pulse in one or more of the four arteries of the feet, sclerotic blood-vessel changes, and vasomotor disturbances of the feet. In atypical cases, while the objective changes are marked the subjective symptoms vary from the almost typical complex more or less. In 30 cases the foot pulses were altered on both sides, in 16 of them no pulse could be felt; in 4 perfectly typical cases all 4 pulses could be made out; they were very weak however. General arteriosclerosis was present in the great majority of cases (37), but cannot be said to be constant; very few presented kidney disease. Cardiac changes were found in 15 patients; in 32 cases vasomotor changes were present; in 5, neurasthenia. The diagnosis as seen from the above facts must be considered easy; an early diagnosis is of importance as the disease is sometimes the forerunner of gangrene. Concerning the cause of the disease he says, most of the patients are males and from the higher walks of life; Jewish people furnish many of his patients (14 of his 45). Eleven of his patients came from Russia, where the disease is better known than elsewhere; 10 of his patients had acquired syphilis and 7 confessed to abuse of alcohol. Tobacco abuse (25 out of 38) and exposure to cold were more important from the etiologic standpoint than other factors. The treatment consists in recognizing the cause and removing it, diet, iodids, cardiac tonics but only such as are not vasoconstrictors, heat, foot baths, galvanism, massage and regulating the amount of walking. [E.L.]

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[1] La Semaine Médicale, June 29, 1904.
[2] Berliner klin. Wochenschrift, 1904, No. 21.
[3] Medical Standard July, 1904.
[4] Medicine, July, 1904.

[1] Medical Press and Circular, April 13, 1904.
[2] Münchener medicinische Wochenschrift, 1904, li, 905, No. 21.

Hemiplegia and Pseudobulbar Paralysis; Unilateral Cerebral Lesion.—R. Pérez Vento[1] reports the case, a microcephalus aged 10 years, was an only son of healthy parents. Delivery had been attended by a lay friend of the mother, and fetal injuries occurred as well as puerperal sepsis. A few hours after birth the child had repeated convulsions. He was unable to nurse and was fed by a teaspoon. The symptoms at the date of report were the same only in an aggravated form, as those first noted. These symptoms, such as salivary incontinence and facial distortion, are indicative of the sort of lesion to be expected from the accident at birth, namely in certain cortical regions of the first, second, and third frontal convolutions. A persible clot in the internal capsule, or lesion of the optostriate body is to be admitted. A delayed or arrested development of motor areas is clearly in evidence. [T.H.E.]

Retrograde Atrophy of the Pyramidal Tracts.—J. Ramsay Hunt[2] believes that retrograde atrophy of the medullated nerve fibers is an ascending centripetal process, which extends slowly from the seat of lesion toward the trophic center. It occurs only after a considerable time, in the peripheral nerves as well as the fibers of the cord. It is unlike the acute changes seen in secondary degenerations and the socalled retrograde degenerations, and it is to be differentiated from the atrophy of the latter. The sclerosis of the retrograde atrophy is less compact and contains innumerable medullated nerve fibers in its meshes, of which the myelin sheaths are attenuated. The appearance of the field is "peppered." The myelin sheath is atrophic, fragmented or absent, while the axis cylinders are well preserved, though they may be slightly swollen. The process extends only a few inches above the lesion, as a rule, and the pathologic changes in the nerve fibers are more active at the upper limit of the atrophy. There have only been a few cases described, and the process in these cases was of long duration. Hunt reports a case in which the cord was slowly compressed over a period of at least ten years. The usual secondary degenerations were present also, and retrograde atrophy of the pyramids could be traced to the decussation of the pyramids, and also to the medulla and pons, though to a less degree. The case was that of a woman of 25, in whom the symptoms of pressure were insidious and the progress of the disease slow. There was total sensory paralysis corresponding to the level of the seventh and eighth cervical segments; spastic paraplegia with flexion contractures was present and the anesthesia extended to the clavicles. There was some atrophy of the forearm muscles and intrinsic muscles of the hands. A dense fibrous tumor was found beneath the laminas of the seventh and eighth cervical and first dorsal vertebras. Under this tumor the cord was reduced to a mere ribbon-like remnant. The direct and crossed pyramidal tracts were degenerated below the lesion all the way down. The direct and crossed pyramidal tracts were degenerated above the lesion, and there was also the secondary degeneration of the long ascending tracts, which is usually seen in transverse lesions. The retrograde atrophy extended as high as the crura. There was no change found in the paracentral lobules by the Nissl method. The retrograde atrophy of the pyramidal tracts is of the same nature as the retrograde changes seen in the central stump of nerve fibers after injury or disease of the central and peripheral nervous systems, in which condition an atrophic process exists in the contiguous neurons having similar functions. This degeneration is explained most satisfactorily by reason of the long duration of the disease and the functional incapacity and nutritional changes which accompany such conditions. The secondary ascending sclerosis following the atrophy appears to be in the nature of a simple replacement proliferation, in which the adjacent normal fibers entering the cord at higher levels have not been compromised. [J.H.W.R.]

A New Symptom and a New Instrument.—W. M. Bechterew[3] draws attention to the fact that in tabes dorsalis the muscles early become insensitive to pressure. Especially is this noticeable in the calf muscles and together with the analgesia of the popliteal nerve this symptom is a very early and perfectly reliable precursor of tabes. The same author has devised a simple but ingenious instrument, called the myesthesiometer, which permits an exact determination of the muscular sensitiveness to pressure. [L.J.]

A Case of Manic-depressive Insanity.—John W. Stevens[1] describes the symptom-complex known as manic-depressive insanity. There is a history of heredity in over 70% of the cases, while in 10% there is a history of alcoholism and other excesses. Childbirth appears to have some etiologic influence in a large proportion of the cases in women, and many cases have followed attacks of infectious disease. The disease usually appears first in early adult life. Nothing is known of its pathology. It manifests itself in one or two forms, the maniacal or depressive, or a mixed type. The manic type is characterized by hypersensitiveness and an emotional attitude. Distractibility is a prominent symptom. Disorientation is present only in the severe cases, and delusions and hallucinations are unimportant symptoms. The manic forms can be divided into hypomania, mania, and delirious mania, the difference being merely one of degree. The depressed type is characterized by psychomotor retardation. In this type delusions are present and depressive in character. Three degrees of the depressive type are recognized: (1) Simple retardation without delusions or hallucinations; (2) retardation with delusions and hallucinations; (3) the presence of a stuporous state. The duration of the attack is 12 to 18 months on an average, and the prognosis for the attack is good, but if the patient lives he certainly will have recurrence. Treatment should be directed toward controlling the excessive activity and talkativeness, which is best done by rest in bed, isolation and discipline. Hot and cold packs or a prolonged warm bath are indicated. Sulfonal, trional and the bromids may be safely employed. The patient should be watched carefully on account of the tendency to suicide. Stevens describes the case of a man of 31 who presented the history of four periods of excitement, two of depression, and of one stuporous period. During three intervals the patient was almost normal. In the maniacal attacks there was increased motor activity, incoherence of thought, word salad, sound associations, and marked distractibility. These attacks were followed either by great improvement or periods of depression, in one of which latter there was a condition of absolute stupor. [J.H.W.R.]

The Center for Micturition.—In connection with a case of complete destruction of the cauda equina beginning at the fifth lumbar nerves, and based upon a number of experimental studies Van Gehuchten[2] differs from the statements accepted thus far, that the function of the bladder is dominated over only by a center in the spinal cord. He says there must also be a center in the sympathetic nervous system and presiding over it a center in the spinal cord. This latter is connected both with the sympathetic center as well as with the cerebral cortex. The sympathetic center is active only during the earliest childhood days and later, if through any accident the center in the cord is destroyed. No other hypothesis can explain the fact, that spontaneous evacuation of the bladder is reestablished after from four to five weeks in dogs and man, in whom the lower spinal segment is destroyed. [E.L.]

Artificial Microcephalus.—This interesting subject has been studied experimentally on dogs by Prof. W. Danilewski.[3] The experiments consisted in applying a sort of metallic helmet snugly to the puppy's head and thus limiting the development of the cranium. The resulting physical and psychic traits were then studied, using control puppies, without the helmet, for comparison. It was thus found that the intelligence and impressionability of the maltreated puppy is distinctly behind the normal. The dog becomes dull and stupid in time, ceases to bark, growls, develops a vicious disposition. The appetite increases to voracity. The muscular development is slow and incomplete. The head acquires a dolichocephalic form, the facial part being elongated. After two to three months of such helmet life, convulsive attacks usually appear and end fatally. Such are the leading features of the preliminary report on this important subject. [L.J.]

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[1] Rev. de Med. y Cir. de la Habana, July 25, 1904.
[2] Journal of Nervous and Mental Diseases, August, 1904, p. 504.
[3] Obosrenie Psychiatrii, March, 1904.

[1] Journal of Nervous and Mental Diseases, August, 1904, p. 513.
[2] Revue Medicale de Louvain 1904, No. 3.
[3] Russki Vratch, May 1, 1904.

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Women's Clubs and Hygienic Improvement.—There is probably nothing more promising in the cause of preventive medicine and hygienic progress than the way in which women through their clubs and leagues are interesting themselves in the work of civic and social betterment. If this work could only be extended to the country! Perhaps when the women get their reforms started in the cities and villages their country sisters will also take up their duties in rural districts. It is certain that neither in city nor country will we secure the practical application of the laws of the prevention of disease and the improvement of health until our natural housekeepers take up the duties of national housekeeping and arouse the men out of their lethargy, the local political bosses out of their corruption, and legislators out of their indifference to the ill-health of the people. The Wisconsin State Federation has raised some money, and it should be 100 times as much, to establish in one of their colleges a chair of domestic science. Many clubs are taking up the study and encouragement of forestry, parks, outdoor leagues, civic associations, cookery schools, school-house grounds, personal and domestic thrift, the consolidation of rural school districts, traveling and local libraries, schoolroom sanitation, town improvements, etc. It is noteworthy that the new West is so largely sharing in this noble endeavoring. Indian Territory has as many as 30 well-organized and active women's clubs in the homes of the five civilized tribes, the Choctaws, Chickasaws, Creeks, Seminoles, and Cherokees.

The Widow and Pension Business.—There are 994,762 names on our pension rolls, and last year $141,093,571.49 was the sum paid out to them. The average pension from the Revolutionary war down to our time has been $962, and the average annual value of each is today $134.84. Over $3,000,000,000 has been paid in pensions on account of the Civil war. The Revolution cost a forty-first of that amount. About 3,000 private pension bills will also be passed at this session of Congress. The comparative demands of different States are of interest. Ohio, with 55% of the population of New York, has 11,000 more pensioners. Indiana, with a smaller population than Massachusetts, has more than 50% more pensioners, and a pension disbursement nearly double. Only $5,121,000 goes into the old Bay State per year in pensions, while $10,139,000 goes into Indiana. Ohio gets very nearly $15,000,000, Pennsylvania $13,400,000, and New York slightly less than $13,000,000. Nevada has but 318 pensioners. If her senators and representatives get their usual quota of private acts, they would seemingly be able in time to get almost that number on the roll without the operation of any general law. The most amazing fact about the pension disgrace is the professional widow business. Women may live a year or so longer than men on the average, but what shall one think of the ludicrous fact that only one pensioned soldier of the war of 1812 now lives, while 918 soldiers' widows continue to draw pensions. The old soldiers of the Civil war are evidently in greater demand as husbands than the youngest and handsomest men. During the last five years the number of Civil war invalids has decreased by 50,476, but there has been an increase of 27,457 widows, and the less the number of the pensioned the greater the amount of the total disbursements. What a demonstration of demagogism is made by this showing! Nothing would be easier than to stop the humbuggery of these adventuresses mocking at death, patriotism, love, and decency, with their waving marriage certificates.

Foolish Theories of Disease.—The thousand foundationless theories that have been devised to explain the cause of disease, clutched as it were, out of the air, and without a fact to justify them, are at once proofs of the mystery of disease, the haste with which the mind seeks to "explain," without careful observation of actual conditions. When Napoleon's official physicians "explained" his ailment as the itch struck in, they did not observe that he had no itch, and as for the striking inward of the disease, it was a theory consisting only of words and fancy with no study whatever of pathologic processes. When millions of people said bad air caused ague, it was, perhaps, with a little more accuracy, but they failed to see that darkness does not make air impure or unhealthful. In other countries there was just as much night, and no ague whatever. This test of carefulness in logic, if followed up, might have led to a knowledge of the role of the mosquito in causing "malaria" and yellow fever. When Mrs. Eddy contends that the material world and disease do not really exist, but are creations of the imagination, and that the mind alone cures sickness, one sees the same habit of theorizing at work, which flops down upon facts with a fallacy or with a theoretic statement, sometimes slightly true, but wholly unwarranted by any close study of actuality or knowledge of morbid processes. Oriental nations have a still shorter cut to rid themselves of the need of hygiene, effort, and observation. They say simply, that it is fate, or the will of Allah, and that is about as sensible as many of the popular, and even many of the professional pathologies of the past, although why Fate or God should be quite so vindictive, is hard for the occidental mind to understand. One thing is sure, that the mystery of disease is very largely responsible for the actual belief in fatalism. But the scientific habit of mind is slowly supplanting the idea of resignation or fatalism in disease, and we are fast coming to believe that no disease is entirely necessary, that causes may be found for all, and that most of them are obviable. But the making of fanciful and unbased theories is still prevalent, even among the scientists. The theory as to dyspepsia is an illustration as apropos as was that of *gale rêpercutêe.*

The Theory of Improper Diet as the Cause of Dyspepsia.—A great authority in the medical profession has recently written as follows:

> Dyspepsia, the besetting malady of this country, is largely due to improper diet, imperfectly prepared and too hastily eaten. One of the great lessons to be learned is, that the preservation of health depends in great part upon food well cooked and carefully eaten. Sweets between meals, ice-cream sodas, the hurried meal at the lunch counter, overeating and drinking, kill more people than the sword.

Is not every word of this also mere theorizing, and devised without any attention whatever to the real facts? Individual and accurate clinical observation will probably reveal:

1. That there is not more "dyspepsia" in this country than in others.
2. That there is probably not so much in modern times as there was, generally, *i. e.*, of all peoples in past times.
3. That those troubled with modern "dyspepsia" have not been more guilty of the sins of hurried eating, sweets, or overeating, than their nondyspeptic neighbors.
4. That food in modern civilized nations is far more properly cooked, and more carefully eaten, than ever before in the history of the world.
5. Careful statisticians find that war has killed an almost incredible number of people, the greater number of whom have, undoubtedly, been killed indirectly rather than by "the sword" itself.

A little reading of history, and especially that of economics and of diseases, shows that, broadly speaking, the food supply, preparation and eating, were generally atrociously unhygienic and insufficient as compared with that today in civilized Europe and America. A mere theory has been caught out of the air to explain malobserved and partly unsubstantiated fact. If ever man was careful of his diet and had hygienicly the best eating habits, that man was Carlyle. Sir Richard Quain, however, had to "explain" his dyspepsia by his eating gingerbread. It is like this with the famous "dyspepsia" of Americans, and of others. Ten thousand dyspeptics live most carefully, dieting, perhaps, too much rather than too little, their sufferings plainly not due to bad food or to other errors of diet. Hundreds of thousands of others have broken more rules of dieting, and broken them longer, and yet they have no trace of dyspepsia. It is high time that this diet-dyspepsia pathology were cleared up, and that we began the clarification with some observation of things as they are, and with some scientific gathering of statistics. Gastrology and dietetics are still largely in the prescientific stages, notwithstanding all that has been written about them.

The bases of national power, in the long run, are food and health. Whatever may be the other factors these are indispensable, and the nation that best solves these problems will grow strongest and endure longest. The nation most indifferent to them, no matter what its other advantages, will inevitably fall behind. The food problem, of course, is the agricultural problem, as all food comes from the ground directly or indirectly. New countries are prone to luxury and waste of the food products; their farmers think that a farm of less than one hundred or several hundred acres is beneath their dignity and incapable of supporting a family. The people generally waste, and take pride in their lavishness, a large part of the created food products and values. A comparison of the methods and amount of food produced and consumed in the United States with those of Japan would result in profound astonishment. There are possibly single farms out West nearly as large as the total land tilled in Japan, and yet the Japanese are as well nourished and as healthy as the average American. The average food expense is also but a fraction of our own. A writer in the *Booklovers' Magazine* says that the real secret of Japan's success is in her scientific husbandry. She has only 19,000 acres of arable land, and from this little lot, which Mr. Balce says an automobilist could run around, if all together, in 11 hours, she feeds her 47,000,000.

> Japan, more scientifically than any other nation, past or present, has perfected the art of sending the roots of its civilization enduringly into the soil. Progressive experts of high authority throughout the Orient now admit that in all the annals of agriculture there is nothing that ever approached the scientific skill of Sunrise husbandry. Patient diligence, with knowledge of the chemistry of soil and the physiology of plants, have yielded results that have astounded the most advanced agriculturists in western nations.

Japan the Most Healthy of Peoples.—The second great source of national power and success is the health of the people. All wealth is at last reducible to and is, in fact, identical with healthy human bodies. There are only two civilized nations which have accepted and carried out compulsory vaccination—the German and the Japanese. Their consequent freedom from smallpox is but one illustration of many that might be adduced, showing that in making science practical, that is, in hygiene and preventive medicine, the Japanese are in advance of all others. The fundamental condition of this health of the people lies far back of all the contributions of occidental civilization, and are wholly indigenous to this remarkable people. It consists in the national and historic habit of living in the fresh air and sunshine. Every hygienist knows and preaches that almost the sole cause of tuberculosis and pneumonia is the ill ventilation and impure air of our houses. They are house diseases. Many others are in part or indirectly due to the same cause. Personal uncleanliness of body is also a contributing source of morbid mischief, against which the best of our Western nations must also fight a long war. The Japanese have plenty of fresh air and light in their houses. The typical Japanese house, indeed, is open on all sides and at all times to wind and sun, and those who live in it are the most cleanly of body of all peoples. They have no bedrooms, and no beds, as we understand the term, and so they are also free from the diseases which are almost inevitably connected with that otherwise universal piece of household furniture. Those who are astonished at the sudden appropriation by this people of all that science and civilization can give or teach, forget that it has long been possessed of the prime essentials of civilization, of which our hygienists and Boards of Health are vainly now trying to teach the people the true value.

The Japanese Red Cross is a striking illustration of the scientific foresight and organized care the government gives to the health of its people. In a recent number of *The Outlook*, George Kennan describes the marvelous perfection of this branch of the service. Six or seven years before the first Red Cross Association was organized in the United States, and long before Japan became a party to the Geneva Convention, she acknowledged and carried into execution the fundamental principle of Red Cross work—the impartial treatment of all wounded belligerents in time of war. Today the Russian wounded and dead are cared for by the Japanese soldier, who an hour before may have done the wounding, as well as his own brother in arms. The Red Cross is indeed now a part of the government's own military establishment, although deriving its support from the people and within limits managing its own affairs. In 1896 it had 201,011 members, received from them $270,000, beside 292,277 other gifts. Kennan says that on January 1, 1904, the Japanese Red Cross had ready for immediate work 14 chief surgeons, 277 ordinary surgeons, 45 pharmacists, 1,920 trained nurses, 457 probationary nurses, and 763 stretcher bearers and male attendants. In the shape of material resources and relief stores, it had 4 hospital steamers, 398 cases of surgical instruments, 496 stretchers, 52,438 suits of clothing for sick or wounded patients, 27,199 suits of clothing for nurses, and a great quantity of bedding, cots, tents, medicines, and other supplies for field and hospital work. In short, it was prepared to take the field at once, in a war of the first class, with abundant resources, with a highly trained and competent force of surgeons and nurses, and with a most complete and up-to-date equipment. Compare this—but no, we will not!

Window-glass, Civilization, and Eyesight.—Few people realize what an influence upon health and civilization has been the invention, and the cheapening of the process of manufacture, of window-glass. Few, also, know how recently this has come. Down to the last generation the window-tax was one of the measures by which European governments helped themselves out of financial difficulties, and at the same time effectually cursed their people. Up to the last few centuries the northern European house of our ancestors was gloomy, windowless, one-roomed, its only light, at least in winter, being derived from a hole in the roof for the escape of the smoke, and from the dull glow of a little charcoal fire on the open hearth, aided perhaps by the rushlights or diplights whereby one could avoid stumbling over another. When glass windows came into more general but still restricted use by the common people in the fifteenth and sixteenth centuries, the few rich constructed a "solarium," one room to which the sunshine was admitted, but the other room or rooms of the house long continued so dark that reading and writing were impossible. Civilization, as we understand it, which so largely comes from reading and writing, was therefore impossible before the general use of window-glass. The influence of the dim light also caused many diseases of the eyes, of which we are now happily rid. An acute observer, a man now living, thus writes of the times, so recent, that he can remember them :

> Seventy years ago the evenings were wasted in a million houses of the poor. After sundown the household lived in gloom. Children who could read, read as I did, by the flickering light of the fire, which often limited for life the power of seeing. Now the pauper reads by a better light than the squire did in days when squires were county gods. Now, old men see years after the period when their forefathers were blind.

The Nostrum-Exploiting "Temperance" Advocate.—As the *Union Signal* illustrates, not all temperance reformers are nostrum praisers. But those who are not, should hasten to renounce their foolish and traitorous allies. The temperance cause at best is too willing to treat the medical profession as an enemy, when, in fact, it is the best friend it has ; it is too willing to seek and even invent reasons for criticism of us, and for entertaining hard feelings toward us. It is noteworthy that those temperance papers and people who are least open to reason and argument, those most rabid and fire-eating, are precisely those most careless as to other ethical matters, and especially as to nostrum advertising. A vehement prohibitionist, one *sans phrases*, as Diderot would have said, seems to take the quack in his arms and love him as a long-lost brother. *The American Issue*, the official organ of the Antisaloon League, pours the vials of its wrath (the rabid is always an anti ; the rabid prohibitionist loves temperance but little, while hating national reform a vast deal) upon many things, but seems to us to render its preaching of no avail by its practices in the advertising department of the paper. This glows with wild puffery of "rheumatism cured through the pores," by "magic foot drafts ;" "piles cured on approval," by Dr. Van Flick Co. ; and a full page of stuff about "vitæ-ore," which surely cures "rheumatism, Bright's disease, blood poisoning, heart trouble, dropsy, catarrh and throat affections, liver, kidney and bladder ailments, stomach and female disorders, la grippe, malarial fever, nervous prostration and general debility."

One hundred percent profit a year is promised physicians who become partners of a pharmaceutical manufacturing firm, if they will confine their prescriptions to the articles made by itself, and report the records of such prescribing. There is, of course, much talk of avoiding substitution, of decreased cost to patients, of the advisability of physicians dispensing their own medicines, etc., but the plain reliance is upon the enormous dividends—eight consecutive semiannual of 10% or 12½% each—and the immediately coming doubling of values of the stock of the company. Hospitals, sanatoriums, and physicians are appealed to with this logic, supposed or real:

> In enhancing the interest of the —— Company we are enhancing your interest. We want the business of the Company to justify the payment of dividends equal to 100% per annum. It can be done, and we are going to do it. How soon will depend to some extent on you. If you are not familiar with the formulas, physiological action and general uses of our entire line, which are not extensive, write to us; let us help you to become acquainted with them, so that you can use them to the benefit, first of your patient, and then, of the —— Company, and yourself.

The subtlety and attractiveness of the scheme are shown in the fact that no cash investment in the stock of the company is required—only a renunciation of his profession and of his professionalism on the part of the shareholder:

> The par value of each share is $10.00, on which 20% annual dividends have long been paid, but with the added cooperation we shall have, we believe, dividends, equal to at least the par value of the stock, can shortly be paid. Consider what this would mean to you as a stockholder. If you have 25 shares of stock, this would give you annually $250.00. It also means, the intrinsic, salable value would be at least $5,000.00, and this you would have acquired without the outlay of a dollar.

"Success Clubs" have been found so successful, for the proprietors, at least, that not only the faith-curers, Weltmers, vibralogists, etc., have made money by forming them, but they are now being started in many places, generally in the West, and especially in that wonderful land of strange sects, Southern California. The proprietor of one sends out a remarkably varied and interesting lot of leaflets. It is all based on experiments, perfectly successful, by the famous Mr. Stead, "Dr." Wallace (the antivaccinationist, we naturally suppose) and other great scientists, who can mentally transfer, at least across 125 miles, thoughts from one "telepathist" to another. If so far, why not across a continent, and, to be sure, all around the world? And so the members of the "Segno Success Club" constitute "a perfect circle surrounding the earth." Those of us who do not hurry to join the club must soon "get off" the earth, as we cannot compete with the great success of the brilliantly successful members, Nos. 6,127, 7,413, 5,429, etc., from Denver to Haiti. And if wealth comes at once with $3.00 of membership for $1.00, why not health? That is the great thing seemingly desired by the successful American. Hence the "testimonials" ($1,000.00 in gold if not genuine) run strongly to the class illustrated by "physician's daughter cured;" "medicine failed;" "thousands of dollars spent with doctors, but they did not help me;" "verge of physical collapse;" "helpless last winter;" "my back was very crooked, and now it is growing straight," etc. If a patient has to submit to operation by the surgeon, it is the "Professor" of "Success Club" that saved her life, in spite of the surgeon, it would appear. Testimonialists' names are not given because this would place them "on a level with patent medicine testimonials." The "treatments" for nonsuccess are given twice a day to all members, and at a certain hour, when the members will be "harmonized" to the others wherever located about the world—a repetition of the old ludicrous forgetfulness of the difference in time between Haiti, where the Rev. A. O. lives, and Butte, Mont., where No. 5,996 lives and Bulls, Rangitikei, New Zealand, where A. E. Thacker lives. But a cynical smile will not affect the success of "mentalism." The law and the post-office regulations are also needed.

BOOK REVIEWS

Unconscious Therapeutics, or the Personality of the Physician.—By ALFRED T. SCHOFIELD, M.D., M.R.C.S. Philadelphia: P. Blakiston's Son & Co. 1904.

The subtitle of this little book of 300 pages gives the keynote of its contents. The author writes under the stimulus that there is pressing need for books upon psychotherapeutics, and has elaborated his theme very well indeed. He skilfully avoids the border line between the legitimate exercise of this art, surely this is the side of medicine that entitles it to be called an art by the true physician, and its employment by the deceiving, mercenary fakirs of the profession. This is given as one of the reasons for writing the book, "the rampant progress of quackery and the impotent futility of our opposition to it." If we interpret him correctly, Schofield would fight the quack with his own weapon, differently used, of course. This would do for men of the author's stamina, but might be dangerous advice for some whose usual report is "We have met the enemy and are his'n." This does not upset Schofield's theory, but suggests a difficulty in its practice. The following is one of the many good things found in this book: "Everything, indeed, a physician says and does in the sick-room is to be regarded as a medicine, and producing as real, if not as manifest, effects upon the state of the patient as any of the drugs he administers." The point to be decided is whether the force of mind in disease is a subject of practical value to medical men. The author believes he has said enough and quoted enough to show that it is. He then brings up another phase of the question by saying it is a subject alluded to everywhere, and taught nowhere, closing with an elaboration of the statement that it could with advantage be taught in our medical schools. The book will prove exceedingly suggestive to every reader.

Pathological Technique.—By FRANK BURR MALLORY, A.M., M.D., and JAMES HOMER WRIGHT, A.M., M.D. Third edition, revised and enlarged. Philadelphia: W. B. Saunders & Co., 1904.

It is unnecessary to commend the third edition of this standard work further than to say that laboratory workers who have been eagerly awaiting its appearance will in no wise be disappointed. It now has 448 pages of text and 156 illustrations. The same plan of considering postmortem examinations, bacteriologic methods, and histologic methods, has been followed. Among the additions to Part II are Hill's hanging block method, Harris' celloidin sac method, methods for isolating typhoid bacilli from the feces, and also for isolating the bacilli of dysentery and of chancroid. Among the new material in the histologic section are improved methods for imbedding and manipulating frozen sections by Wright, not before published; Weigert's latest staining methods; the application of Wright's blood-stain to blood films and malarial parasites; cytodiagnosis and inoscopy in the examination of serous fluids; Mallory's stain for fibroglia fibrils; Mayer's stain for amyloid. Among the new photographs deserving mention are those of malarial parasites. This edition fully sustains the reputation of the book as one of the very best laboratory guides in the English language. The typography is excellent and the binding seems durable enough to withstand the frequent usage given such volumes.

A Textbook of Human Physiology.—By ALBERT P. BRUBAKER, A.M., M.D. Philadelphia: P. Blakiston's Son & Co., 1904.

The author of a textbook of physiology cannot at the present day hope to add much truly new to what has already been written by many others, except, of course, advances made since previous books were issued. There will always be, however, room for improvement in the manner of stating well-known facts and describing methods by which those facts are gained. Justification of a new book must therefore be based on the latter grounds, and for these reasons we believe Brubaker's Physiology will occupy a prominent and enduring position among textbooks on that subject. The author's 20 years' experience in teaching physiology has enabled him to produce a book in which the physician and the student will find things *explained*, and this is one of the highest functions of a textbook. Those who have been fortunate enough to listen to Dr. Brubaker will find in his book the positiveness of statement, the lucidity of expression and the lack of verboseness that characterize his lectures. There is a notable absence of discussion of theories, the straightforward and positive treatment of the various topics being a feature of the book. The description of physiologic apparatus has been largely excluded, because it is more appropriately considered in laboratory guides, and also because students now gain this knowledge in their laboratory course. An appendix of 20 pages contains a brief account of some essential forms of apparatus. We believe this part of the book might profitably be enlarged. Most of the illustrations, other than tracings and laboratory preparations, are from standard works. Inaccuracies and other points inviting criticism, are exceedingly few; we cannot surmise the author's authority for the latter part of his statement regarding the corpuscles of the blood: "There are two varieties, the red and white, including among the latter two small bodies, the blood-plates and elementary granules." No further mention is made of the last-named bodies. The technic of blood counting, which is in parts given very minutely, is in other portions stated in such general terms as to be of little value in instructing the novice. The index occupies but little more than six pages, being entirely too brief properly to include the subjects considered in 692 pages of text; we hope to see this enlarged in future editions of the work, which we are confident will soon be demanded, the book being one that will rank with the very best of modern treatises on physiology. We unhesitatingly recommend it to physicians and students as an accurate and admirably written textbook on the subject. The publishers have made of the work a very neat and apparently durable volume, although personally we prefer thinner and less chunky books.

A Textbook of Materia Medica, including laboratory exercises in the histologic and chemic examination of drugs for Pharmaceutic and Medical Schools and for Home Study.—By ROBERT A. HATCHER, PH.G., M.D., and TORALD SOLLMANN, M.D. Illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904.

The authors state that the book was written with the object of popularizing the laboratory method in the study of organic materia medica. As the experiment of basing the instruction in materia medica entirely on laboratory work had never been tried, so far as they knew, they introduced it gradually and tentatively at the Cleveland School of Pharmacy. The students not only showed a greater interest, but they obtained a very much better grasp of the subject, so that they were able to apply it better in further studies. The authors found no book giving the necessary information in convenient compass, and none giving exercises adapted to students. This was especially true as regards chemistry. To remedy the defect they have produced the volume before us, which can be unhesitatingly recommended. It is clear, and so far as we have been able to test it, accurate, and exhibits good judgment both as to what is included and as to what is excluded. Part I comprises a guide to the study of crude drugs, both official and unofficial; while in Parts II and III, the histologic and chemic examinations of drugs are considered. The histologic descriptions are supplemented by laboratory exercises upon important drugs. Throughout the entire work stress is laid on the recognition of adulterations.

The Principles of Hygiene. A Practical Manual for Students, Physicians and Health Officers.—By D. H. BERGEY, A.M., M.D. Second Edition, thoroughly revised and enlarged. Philadelphia: W. B. Saunders & Co., 1904.

The second edition of Bergey's Hygiene contains 524 pages of text, and in a more complete manner than the first, sets forth the general principles of this important subject. The part dealing with immunity has been rewritten. The author states that no new specific bacteria have been discovered since the first edition appeared two years ago, but the knowledge of the action of the old has been greatly extended. The subject of animal parasites is considered in greater detail. The classification of the plasmodium of malaria into *Plasmodium malariæ*, *Plasmodium vivax* and *Laverania malariæ* as the parasites respectively of quartan, tertian and quotidian fever, is unusual, and we fear will prove confusing to many readers. Though but two sentences are devoted to the Myxococcidium of Yellow Fever, they are more positive than our present knowledge of the subject seems to warrant. The discussion of trypanosomiasis is unsatisfactory; the section is headed "Trypanosomiasis Fever" (the latter word is superfluous), and no mention is made of sleeping-sickness, the human disease which has almost, if not quite, conclusively been proved, due to trypanosoma infection. That trypanosoma, or trypanosome, fever is now supposed to be an early stage of sleeping-sickness, is also omitted. The chapter on Quarantine contains in full the quarantine laws of the United States, a very commendable feature; the inclusion of the Pennsylvania laws might be considered as giving a local character to the chapter, though doubtless cited as illustrating State regulations. The chapter on Vital Statistics is quite complete; we should like to see writers on this subject lay more stress on its importance to the profession and the public. As a whole, the second edition of this work is very satisfactory, and is a valuable and safe guide to put into the hands of every student of medicine and physician; it is also an exceedingly instructive book for the general public, to whom physicians may well recommend it.

A Textbook of Alkaloidal Therapeutics. Being a condensed review of all available literature on the subject of the active principles, added to the personal experience of the authors.—By W. F. WAUGH, M.D., and W. C. ABBOTT, M.D., with the collaboration of E. M. EPSTEIN, M.D. Chicago: The Clinic Publishing Company. 1904.

This book is dedicated to those who believe in "The smallest possible quantity of the best obtainable means to produce a desired therapeutic result." The inscription thus quoted strikes the key-note of the book. The authors' belief is that the use of galenics tends to crudity and inexactness, while active principle remedies afford accuracy of dosage and certainty of action. It is arranged alphabetically, beginning with Aconitin and ending with Zinc Valerianate. It includes such recently introduced remedies as Yohimbin and Menispermin. Good accounts are given of the physiologic and toxicologic action of the drugs described and a very large list of conditions of disease, in which each is said to be useful, is given under the head of therapeutics. These statements are notable for positiveness rather than for critical weighing of evidence. Nevertheless, many of them are indisputably correct and the others may afford useful hints to the conservative physician. The book is bound with alternate blank pages, so that one may make notes of his own experiences with the different remedies described. To those who follow "Alkalometry" the book should prove a veritable *vade mecum*, to others it may often prove useful for reference.

AMERICAN NEWS AND NOTES

GENERAL.

Dangers in Illuminating Gas.—Sir William Ramsay is quoted as saying: The danger from carburetted gas, or water gas, being too freely mixed with illuminating gas for purposes of economy is a public danger in municipalities, and offers a field for scientific research. A proportion of one-third water gas to two-thirds illuminating gas is about right. If a man blew out the gas in his room, such a proportion would not be fatal under ordinary conditions. A larger proportion of water gas would be dangerous. New problems are coming up all the time to demand the application of the chemist. The main requirement is to fit men capable of doing the work to deal with them.

Miscellaneous.—New York: Chemists Honor Dr. Remsen. At the meeting of the Society of Chemical Industry, September 8, the society's medal, founded in 1896, and awarded once every two years for conspicuous service to applied chemistry, was awarded to Ira Remsen, president of the Johns Hopkins University.—**Sir Wm. Ramsay Visits America**: Sir Wm. Ramsay, who is at the head of a British delegation of scientists to attend a series of international conferences this month, was the guest of honor at an informal reception recently in New York City.—**Prof. Johannis Orth Visits America**: Prof. Orth, the Kaiser's surgeon, is making a tour of the United States. He is considered one of the most eminent pathologists in Europe. He was the chief physician in the operations performed some time ago on Emperor William's throat.

Divorces Increase.—The divorce figures of the Census Bureau just published, show that divorces are increasing in the country, and present some interesting features, notably the fact that early marriages appear to be the least imprudent. In 1900 five out of every 1,000 men, gainfully employed, who had been married, were living in a state of divorce on census day, compared with four out of every 1,000 in 1890. This ratio of increase held good in nearly every occupation, except that there was no greater tendency to divorce is shown in the case of clergymen, teachers, professors in colleges, manufacturers, public officials, or textile mill operatives. Considering the occupations of males in five great classes, it was found the highest percentage of divorce was in the class devoted to domestic and personal service. In this class eight out of every 1,000 who had been married were divorced, being 60% more than in 1890. The lowest percentage was found among men engaged in agricultural pursuits. The number of divorced men here was four to every 1,000 who had been married, but this was considerably higher than the percentage in 1890.

The Problem of Foods.—Sir William Ramsay, the eminent scientist now visiting the United States, is quoted in the *New York Times* as follows with reference to foods: One of the new problems that chemic science may decide to attack is the manufacture of foods. Professor Fischer, of Berlin, is now at work on an albuminal substance to resemble the white of an egg. The only way to do this, of course, is to disintegrate and then build up. There has been some hue and cry of late about the danger from phosphorus matches. A German manufacturer has followed up this line of thought and has invented a phosphorus that is not dangerous to factory operatives or anybody else, and which gives us a match we can strike without carrying the box. There is room for experiments in the disposal of sewage from large cities by chemic process. You are not yet confronted with this great problem in America so seriously as we are in England. We are experimenting over there with filtration processes on an advanced scale. Heretofore we have been handicapped by lack of definite laws concerning the pollution of rivers. Now the English rivers have been divided among four or five boards of managers, each with absolute authority in its own district. In the course of time some such arrangement may be advisable over here.

Copper Treatment of Water.—Anent the discussion which has been going the rounds of eastern newspapers for some days with reference to the treatment of drinking water by copper, for the purpose of destroying algæ, killing the typhoid bacillus, and other germs, A. F. Wood, chief pathologist and physiologist to the Department of Agriculture, Washington, writes to the *Public Ledger* of Philadelphia, in part as follows: You will be interested in learning that the method recommended by the Department of Agriculture has been used, or is in the process of being used, in about 50 places throughout the country, and that reservoirs containing hundreds of millions of gallons have been successfully treated with copper sulfate. It is true that many of these water-supplies were polluted by algæ, rather than by bacteria, but the important point is that the local authorities were willing to use copper sulfate, and that the communities either used the copper treated water uninterruptedly or the supply was cut out of service for but a few days. Furthermore, the strength of copper used in most of these places was no greater than would probably have been recommended for the destruction of typhoid under similar circumstances. It would seem that the numerous references recently made in the public press and engineering journals to the successful use of copper at Elmira and Cambridge, N. Y.; Butte, Mont.; Baltimore, Md.; Winchester, Ky., and other localities, would be sufficient to demonstrate that in the four months since the bulletin describing the method was issued a considerable number of Health and water boards had been sufficiently convinced as to the efficiency and harmlessness of the copper treatment to warrant something more than being classified as in a "waiting" attitude.

NEW YORK.

Annuity to the Blind.—A recent issue of the *Post* says: The red-letter day of the year for the blind folks of the city was today, when they received their annual present from the city treasury. The amount of money to be expended for the blind this year was $31,349, and, as there were 667 blind persons to receive it, each got $47.

The Blue Light System.—A correspondent to a London paper writes his personal experience concerning the anesthetic effect of blue light, administered for the purpose of drawing teeth. The anesthetic was administered by Dr. Camille Redard, the discoverer of the method. A tooth was removed without pain, the anesthesia being produced by the patient gazing steadily at a blue light. There was no loss of consciousness, but complete analgesia.

Crowded Condition of New York Public Schools.—The Board of Superintendents of the Department of Education is considering plans for reducing the number of children on part time. The superintendents admit that there will probably be more than 100,000 part-time pupils this fall, and say that the graduating of 15,000 children last July will not reduce the number. Beside the old plan of consolidating classes and hiring vacant rooms for classes, the superintendents are anxious to adopt a system of transporting pupils from congested to uncrowded districts on street cars.

Deathrate in New York.—A deathrate of 22.08 per thousand for New York City is reported for the second quarter of the year by the Board of Health. There were 21,110 deaths in April, May and June, which, on the basis of an estimated population of 3,838,024 gives the rate quoted. In the same period last year there were 16,919 deaths, a rate of 19.15. This is an increase of 2.93 points. The explanation for this high deathrate depends upon several events, namely, an epidemic of measles, an epidemic of influenza, increased deathrate from pneumonia, Bright's disease and pulmonary tuberculosis, an epidemic of cerebrospinal meningitis, and the Slocum disaster.

The Indeterminate Sentence.—Frederick Howard Wines, secretary of the City Charities Aid Society of New York, says: There is no criminal type, any more than there is a bankers' type, or any other profession. Heredity is a minor and subordinate factor. The criminal must be treated as an individual. Crime is an unsocial art. When can the one who perpetrates it be set at liberty? When this antisocial character is changed. The prisoner's treatment should restore and rehabilitate him. The prison should educate him, and the prison manager should be a very high-grade man. Such treatment takes time and requires the indeterminate sentence. No more hopeful sign of the advance of these views is found than that shown in the rapid extension of juvenile courts and the probation system.

PHILADELPHIA, PENNSYLVANIA, ETC.

Germantown Hospital Annex Completed.—One of the most complete buildings of its kind in this city is the Germantown Hospital's new annex for private pay patients, recently thrown open for public inspection.

The Medical Society of the State of Pennsylvania announce, through their committee of arrangements, that the regular meeting of the society will take place in the Music Hall of the Carnegie Institute, Pittsburg, beginning September 27.

Evans Institute to Materialize.—Decisive steps will shortly be taken looking to the establishment of the museum and dental institute in West Philadelphia provided for in the will of Thomas W. Evans, the American dentist who died a millionaire in Paris in 1897. The will directs that the buildings shall be located at the corner of Fortieth and Spruce streets, where the parents of Dr. Evans lived and died.

A Half Century of Hospital Work.—During the present year Dr. John B. Chapin, superintendent and physician of the Pennsylvania Hospital for the Insane, Philadelphia, will have completed a half-century's work in behalf of the insane. Since 1884 he has been the medical chief of the Pennsylvania Hospital for the Insane, succeeding the late Dr. Kirkbride. It is proposed to give Dr. Chapin a dinner some time in October next, and to have his portrait painted for presentation to him in honor of the event. To accomplish this purpose, a committee has been formed to solicit subscriptions and to make all other arrangements. Subscriptions may be sent to Edward N. Brush, Sheppard and Enoch Pratt Hospital, Station A., Baltimore, Maryland.

Food Dealers Held by the Grand Jury.—Twenty-four food dealers, most of them milkmen, were indicted September 9 by the Grand Jury for alleged violations of the Pure Food law. These are the first indicted of many arrested recently by the State authorities, in pursuance of their determination to bring such cases before the courts, instead of allowing them to be settled in Magistrates' Courts by the payment of small fines. The Magistrates, following the request of the Dairy and Food Commission, have held the defendants for court, and it is expected those guilty will be sentenced to imprisonment or to pay heavy fines. In a large number of other cases the papers are being prepared for the Grand Jury, and it is believed that altogether several hundred indictments will be found for similar offenses.

SOUTHERN STATES.

Men in the Majority.—The fact is brought out in recent footings of census reports that West Virginia is the only State east of the Rocky Mountains that is short of its due quota of women. Males are largely in excess of females, and old maids are almost unknown. For every 521 males in the State, there are 479 females. This condition is unusual in the eastern part of the country. The average number of persons to a family in West Virginia is 5.1.

Splendid Gift for Hospital.—Capt. Salvatore Pizzati, a philanthropic citizen of New Orleans, has announced his intention to give $250,000 toward the erection of a hospital "for the alleviation of suffering, which shall stand as a monument to the Italian Colony in New Orleans, and which shall be maintained for the honor and glory of God." The plans for the hospital are being drawn, and it is estimated that the institute will cost $1,000,000. The remainder of the necessary funds, it is believed, will be subscribed by the various Italian societies in New Orleans, or that Capt. Pizzati will give even more liberally.

Would Stop the Sale of Cocain and Morphin.—News from Birmingham, Ala., says: Strong efforts are being made in Birmingham to have the City Council adopt an ordinance putting a stop to the promiscuous sale of cocain and morphin. It is pointed out that the habit of using cocain and morphin has grown so extensively here, mostly among negroes, that the conditions are becoming alarming. According to the Chief of Police of Birmingham, many negroes constantly buy the drug. A large number of white persons, women in particular, are also using cocain and morphin extensively. There is no law against the sale of the drugs except to persons under 21. An ordinance will probably be adopted by the City Council prohibiting the sale of the drugs except on a prescription by a reputable physician.

WESTERN STATES.

Died at the Age of 134.—From Roswell, N. M., comes the news that Juan Chaves, aged 134 years, is dead. He was the oldest Mexican in New Mexico, and was born in the Pecos Valley when this was a portion of Mexico. He retained his faculties to the end, and frequently related incidents occurring in the eighteenth century.

American Pharmacists.—From Kansas City comes the news: The annual convention of the American Pharmaceutical Association began September 5. The most intricate and important problem to be considered will be a system of interchangeable State certificates, on the order of those recognized by the American College of Medicine, that will permit practice in all States without further examination.

Mosquito Plague in Mexican Town.—News from Mazatlan, Mexico, says: A plague of mosquitos is reported from the town of El Dorado. The insects are said to be of extraordinary size, and appear in swarms at night. The people of the town have appealed to the State authorities for aid, and the authorities have asked for experts from the city of Mexico. The plague seems to be confined to the town and vicinity, the insects coming from nearby swamps.

Deathrate in Chicago.—The Bulletin of Chicago's Health Department says: The total 5,820 deaths from all causes during the summer quarter of 1904 represent an annual deathrate of 11.95 per 1,000 of population, and were 867 fewer than in the corresponding period of 1903—a reduction of 15.6%. There were fewer deaths in each age-period than in 1903. The greatest reduction, 502, being among those under 5 years of age—a decrease of nearly 22%. During the first eight months of the year there have been 1,640 fewer deaths than in the corresponding period last year, and the annual deathrate is 11% less. Compared with 1903 there have been 737, or 13.3%, fewer deaths under 5 years of age, and the following decreases among the important causes: Pneumonia, 327; nervous diseases, 299; measles, 240; whoopingcough, 190; acute intestinal diseases, 177; bronchitis, 172; typhoid fever, 133; scarlet fever, 129; diphtheria, 121.

"Milk Sickness" in Illinois.—According to the physicians first settling in Illinois, there frequently appeared during the fall of the year a peculiar illness which was believed to be developed because of drinking the milk from cows which had what was termed the "staggers," and that in turn the "staggers" was supposed to have developed from the cattle having fed on certain unknown plants. With the development of civilization and the plowing of the prairies the disease disappeared. It is claimed that the disease has now reappeared near Danville, in Vermillion county, and at Newton, in Jasper county. The Illinois State Board of Health, whose investigations brought to light these cases, is continuing a study of the disease, and is accumulating as much material as is possible from various parts of the State. The very nature of "milk sickness" and the fact that it disappears from a community when civilization has made some headway, has stood in the way of investigation of its causes by scientific means, the disease existing almost altogether in localities in which proper scientific investigation is practically impossible.

CANADA.

Check on Patent Medicines.—The Canadian Medical Association has passed a resolution asking the government to control the sale of patent medicines, on the ground that most of them contain alcohol and their use is becoming a menace to the country. The government was also asked to appoint a Federal Health Board.

Typhoid Fever at Winnipeg.—An Exchange states that there are at present in the Winnipeg General Hospital no fewer than 90 cases of typhoid fever. Never in the history of the hospital have there been so many. The new unfinished wing has been brought into use and gives room for a large ward of fully 50 patients. In St. Boniface Hospital there are 60 typhoid patients, a large proportion of these being from the Winnipeg side of the river. It is said that while some cases have been light, the majority have been considerably above the average in severity.

FOREIGN NEWS AND NOTES

GENERAL.

Fears of Epidemic in the Armies of the Far East.—It is stated from St. Petersburg that Red Cross officers fear that an epidemic of disease will break out in both armies, the torrents of rain which fell after the 10-days' battle at Liao Yang having compelled the worn-out and hungry troops to sleep without shelter in the mire by the roadsides. In any case, it is believed to be certain that the hardships endured by the soldiers will result in a great increase in sickness.

Enumeration of School Children in Berlin.—This year, for the first time, all the children in the schools of Berlin were examined as to their health; there were 15,000 children and 36 examiners. The results were astounding. Ten percent of the pupils were found insufficiently developed in body or mind and had to be excluded for half a year or longer; 16% were not strong enough to attend school, owing to the debilitating effect of scarlet fever and other diseases; 15% suffered from anemia or scrofula; 5% had tuberculous trouble.

German Teeth Bad.—German teeth are becoming so bad that the municipalities are employing dentists to care for the teeth of the school children. Of many thousands of boys and girls whose teeth were examined in these school clinics, but 2% of those between 8 and 13 were found to have perfect teeth. Forty percent of the teeth of the children were affected. In the Darmstadt schools 1,376 children had their teeth examined, and it was found necessary to fill 1,561 teeth belonging to these children and to extract 1,871. In Strasburg 2,666 children were examined, and 669 teeth filled and 2,912 extracted.

Miners' Anemia in France.—United States Consul Brunot, writing from St. Etienne, France, says: Since the beginning of the present year the subject of miners' anemia, supposed to be a consequence of the existence in those parts of the intestine known as the duodenum and the jejunum of a worm to which an Italian doctor gave the name ankylostoma, is occupying the attention of the French Government. A committee has been appointed to study the question of its prevalence in the different mining centers of France, and circulars have been sent out to all the mining companies for reports from the doctors attached to the mines. The disease is being investigated in other European countries also. Consul Brunot has forwarded a historic sketch of the disease, which is on file in the Consular Division of the Bureau of Statistics, Department of Commerce and Labor, for consultation by all interested.

Low Deathrate in Great Britain.—According to an exchange, the amelioration of the condition of the population of Great Britain in recent years is indicated in the official report of vital statistics for 1902, which shows in that year a deathrate of but 16.2 per 1,000 of population—the lowest yet recorded. This rate is also lower than in any other European countay except

Sweden, Norway, and Denmark. The mortality of children under 1 year has fallen to 133 per 1,000 births, against an average of 154 in the 10 years 1892-1901. The greatest saving of life has been in children under 5. Urban districts, however, compare unfavorably with rural districts, the mortality of infants under 1 year being for cities 170, against 128 in the country. Deaths from pulmonary tuberculosis have largely decreased, while those from cancer and the "fashionable disease," appendicitis, and alcoholism have increased.

Opium Licensing in Formosa.—In his report on the trade of North Formosa for 1903, British Consul Playfair says that during the year the value of the opium imported fell from £153,822 to £116,819, a decline of £37,000. He adds the following interesting particulars of the methods adopted by the Japanese to suppress the addiction to this pernicious drug: "The authorities are doing their best to put down the opium habit, and appear to be meeting with a fair measure of success. No one but the Government is allowed to deal with opium in any way, save those who are licensed. Only those proved to be addicted to opium are given permission to buy and smoke it. The attempt to control the opium habit caused at the outset many disturbances which might easily have ripened into rebellion but for the policy of the administration. The authorities found great difficulty in ascertaining the number of smokers, as people refused to give information, and it was not until late in 1900 that it was believed that all the opium smokers in Formosa were registered. Since that date it is reckoned that the number of smokers has decreased by about 1,000 a month.

Less Crime in Ireland.—Ireland, as judged by the amount of crime in 1903, bears very favorable comparison with anything recorded in recent years. The exact figures are given in the usual detail in the volume of Irish Criminal Statistics issued as a Blue Book. From this it appears that the total number of indictable offences in Ireland, which had fallen from 9,003 in 1901, to 8,736 in 1902, rose to 9,137 in 1903. This represents an increase of 1.5%, as compared with 1901, and of 4.6% as compared with 1902. The rate represented by such crimes was, however, only 2.0 per 1,000 of the estimated population. On the other hand, the number of persons proceeded against for nonindictable offences was 5,047 less than in the year 1902 and 22,236 under the average for the 10 years 1893-1902. The chief decrease in the nonindictable offences, as compared with 1902, was in cases of drunkenness. Offences against the person fell from 803 in 1899 to 681 in 1900, to 651 in 1901, to 650 in 1902, and to 614 in 1903. Offences against property with violence reported to the police during the year 1903 was 603, being 26 under the number for the preceding year. The relation of lack of education to crime is shown by the fact that while 28.7% of convicted prisoners committed to prison in 1903 were absolutely illiterate, only 12.7% of the general population in 1901, aged 12 and upward, were in a similar condition of ignorance.

OBITUARIES.

James Herbert Hogue, at his home in Altoona, Pa., August 30, aged 44; a graduate of the College of Physicians and Surgeons, Baltimore, in 1885; member of the American Medical Association, and a member of the staff of the Gynecean Hospital, Altoona.

Willis Duff Green, for more than 50 years a practising physician in Mt. Vernon, Ill., in that city September 5; he was a graduate of the Medical College of Ohio in 1844. He was an extensive land owner and president of the first railroad built into Mt. Vernon.

Henry Marshall Fenno, at home in Rochester, N. Y., August 17, from malignant disease, aged 58; a graduate of Harvard Medical School in 1876; member of the American Medical Association, New York State Medical Association, and various local societies.

Oscar Wiley, at his home in Salem, Va., August 25, aged 73; a graduate of the Medical Department of Randolph Macon College, Prince Edward Court House, Va., in 1851; surgeon in the Confederate Service during the Civil war.

Benjamin D. Watkins, as the result of an accident, at his home in Natchez, Miss., August 12; a graduate of Tulane University, New Orleans, in 1887; one time president of the State Board of Health of Louisiana.

Henry Tuck, of New York City, at Seabright, N. J., September 2, aged 62; a graduate of Harvard University Medical School in 1867. He was vice-president and medical director of the New York Life Insurance Company.

Henry C. Barnard, at his home in Charleston Ill., August 10, aged 68; a graduate of the medical department of the University of Iowa, Keokuk, in 1866; surgeon in the Confederate service during the Civil war.

James M. Poyntz, of Richmond, Ky., at Mt. Sterling, Ky., August 16, aged 67; a graduate of the University of Louisville in 1878, and a surgeon in the Confederate Service during the Civil war.

John Forney Zacharias, at his home in Cumberland, Md., August 16, aged 63; a graduate of Jefferson Medical College in 1860; associate surgeon in the Confederate Service during the Civil war.

Herman Baar, former superintendent of the Hebrew Orphan Asylum of New York City, on September 5. He resigned from the institution several years ago on account of ill-health.

Philip Gary, of Wakeman, Va., from typhoid fever, at a hospital in Newport News, Va., September 7; a graduate of the University College of Medicine, Richmond, Va., in 1900.

Eldridge G. Simons, of Ripley, N. Y., was struck by a train and killed, in Cleveland, Ohio, September 1; a graduate of Bellevue Hospital Medical College, New York, in 1875.

Claude R. Wellington, at his home in Mansfield, Mass., August 18, aged 34; a graduate of Medical School of Maine, Bowdoin College, Brunswick, Me., in 1898.

William D. Spore, of St. Louis, at the Mullanphy Hospital, in that city, August 10, aged 63; a graduate of the McDowell Medical College, St. Louis, in 1861.

Isaac N. Dalbey, at his home in Rochester, N. Y., August 15, aged 58; a graduate of the medical department of the Wooster University, Cleveland, in 1868.

David C. Murphy, at his home in Edwardsville, Kan., August 22, aged 57; a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1874.

Charles L. P. Smith, at his home in Cornwall Bridge, Conn., August 18, aged 28; a graduate of the Yale University Medical Department, in 1898.

William E. Boteler, at this home in Middletown Md., August 14, aged 83; a graduate of the University of Maryland School of Medicine, Baltimore.

John P. James, at his home in Gibson, Tenn., August 14, aged 73; a graduate of the University of Nashville (Tenn.) Medical Department in 1861.

P. E. Craig, at his home in Baltimore, of typhoid fever, September 10, aged 35; a graduate of the Baltimore Medical College in 1897.

George Henry Fales, at his home in East Boston, Mass., August 8, aged 62; a graduate of Harvard Medical School, in 1868.

Alfred Keene, at his home in Lancaster, Pa., September 8, aged 43; a graduate of Jefferson Medical College.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 9, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
District of Columbia:	Washington	Aug. 27-Sept. 3	1	
Florida:	Jacksonville	Aug. 27-Sept. 3	1	
Illinois:	Chicago	Aug. 27-Sept. 3	5	
Louisiana:	New Orleans	Aug. 27-Sept. 3	4	
			One case imported.	
Massachusetts:	Lawrence	Aug. 27-Sept. 3	1	
	North Adams	Aug. 27-Sept. 3	22	1
Michigan:	At 51 localities	Aug. 20-27	Present.	
Ohio:	Cincinnati	Aug. 19-26	1	
Pennsylvania:	Philadelphia	Aug. 27-Sept. 3	1	
	Williamsport	Aug. 27-Sept. 3	1	
Tennessee:	Memphis	Aug. 27-Sept. 3	1	
	Nashville	Aug. 27-Sept. 3	3	
	SMALLPOX—FOREIGN.			
Brazil:	Rio de Janeiro	July 24.-Aug. 7	549	210
Canada:	Winnipeg	Aug. 13-20	1	
France:	Paris	Aug. 13-20	8	1
Great Britain:	Glasgow	Aug. 19-26	2	
	London	Aug. 13-20	2	
	Manchester	Aug. 6-20	6	
	Nottingham	Aug. 13-20	2	
India:	Bombay	Aug. 2-9	8	
	Karachi	July 31-Aug. 7	3	
Italy:	Palermo	Aug. 13-20	37	4
Mexico:	City of Mexico	Aug. 14-21	12	
Russia:	St. Petersburg	Aug. 6-13	7	2
	Warsaw	July 16-30		44
Spain:	Barcelona	Aug. 10-20		8
Turkey:	Alexandretta	Aug. 6-13		6
	Beirut	Aug. 6-20	Present.	
	Constantinople	Aug. 7-21		16
	Smyrna	Aug. 7-14		2
	YELLOW FEVER.			
Brazil:	Rio de Janeiro	July 24-Aug. 7	6	8
Ecuador:	Guayaquil	Aug. 3-10		2
Mexico:	Coatzacoalcos	Aug. 20-27	5	1
	Merida	Aug. 21-27	3	2
	Tehuantepec	Aug. 21-27		1
	Vera Cruz	Aug. 20-27	4	

Cholera.

India:	Bombay	Aug. 2-9		34
	Calcutta	July 30-Aug. 6		4
Persia:	Teheran	Aug. 6	Nearly extinct.	
Turkey:	Bagdad and v'c'ty	July 16-23	314	138

Plague—Foreign.

Brazil:	Rio de Janeiro	July 24-Aug. 7	15	6
China:	Amoy	July 16-30		15
			Estimated	
Egypt:		July 30-Aug. 6	12	7
India:	Bombay	Aug. 2-9	5	51
	Calcutta	July 30-Aug. 6		8
	Karachi	July 31-Aug. 7	5	2
Peru:	Eten	Sept. 1	Present.	

Changes in the Medical Corps of the U. S. Army for the week ended September 10, 1904:

Mabry, William C., contract surgeon, is granted leave for one month, from September 4.

Reilly, First Lieutenant John J., assistant surgeon, leave on surgeon's certificate granted August 2 is extended one month on surgeon's certificate.

Ashburn, Captain Percy M., assistant surgeon, is granted leave for one month, from about October 1, with permission to apply for an extension of one month.

Ashburn, James K., contract surgeon, is granted leave for one month, from about September 20.

Changes in the Medical Corps of the U. S. Navy for the week ended September 10, 1904.

Urie, J. F., surgeon, detached from the Missouri and granted sick leave for three months—September 7.

Drake, N. H., surgeon, detached from the Lancaster and ordered to the Hancock—September 8.

Guest, M. S., passed assistant surgeon, ordered to the Lancaster—September 8.

DeValin, C. M., passed assistant surgeon, unexpired portion of leave revoked; ordered to duty at the Naval Hospital, Philadelphia, Pa.—September 8.

Changes in the Public Health and Marine-Hospital Service for the seven days ended September 7, 1904:

Brooks, S. D., surgeon, granted leave of absence for 30 days, from September 2, 1904, on account of sickness—September 2, 1904.

Hobdy, W. C., passed assistant surgeon, granted leave of absence for seven days from August 20, 1904, under the provisions of Paragraph 191 of the Regulations.

Kerr, J. W., passed assistant surgeon, granted leave of absence for four days from September 5, 1904, in accordance with the provisions of Paragraph 191 of the Regulations.

Robinson, D. E., passed assistant surgeon, granted leave of absence for two days from September 6, 1904, under the provisions of Paragraph 191 of the Regulations.

Hunt, Reid, pharmacologist, detailed to represent the service at meeting of American Pharmaceutical Association, at Kansas City, Mo., September 5-10, 1904—September 2, 1904.

Ballard, J. C., acting assistant surgeon, granted leave of absence for seven days from September 5, 1904—September 2, 1905.

Mackall, B. McV., acting assistant surgeon, granted leave of absence for seven days under the provisions of Paragraph 210 of the Regulations.

Rochrig, A. M., pharmacist, granted leave of absence for 30 days from September 12, 1904—September 1, 1904.

Stearns, W. L., pharmacist, granted leave of absence for 29 days from September 6, 1904—September 1, 1904.

O'Gorman, T. V., pharmacist, Department letter of August 10, 1904, granting Pharmacist O'Gorman leave of absence for 30 days from August 18, 1904, amended so that said leave shall be effective from August 24, 1904—September 2, 1904.

La Grange, J. V., pharmacist, granted leave of absence for 23 days from September 15, 1904—August 30, 1904.

Holsendorf, B. E., pharmacist, Department letter of August 6, 1904, granting Pharmacist Holsendorf leave of absence for 30 days from September 1, 1904, amended so that said leave shall be for 24 days only—September 2, 1904.

Board Convened.

Board convened to meet at Washington, D.C., October 3, 1904, for the examination of candidates for appointment as assistant surgeon in the service. Detail for the Board: Surgeon W. P. McIntosh, chairman, Surgeon G. M. Guiteras, Passed Assistant Surgeon John P. Anderson, recorder.

Promotions.

Assistant Surgeon D. H. Currie, commissioned as passed assistant surgeon, to rank as such from July 28, 1904—August 30, 1904.

Assistant Surgeon J. M. Holt, commissioned as passed assistant surgeon, to rank as such from July 27, 1904—August 30, 1904.

Assistant Surgeon F. H. Trotter, commissioned as passed assistant surgeon, to rank as such from July 27, 1904—August 30, 1904.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SPINA BIFIDA, WITH REPORT OF TWO CASES.[1]

BY

E. STAEHLIN, M.D.,

of Newark, N. J.

First of all it is important to establish a correct clinical diagnosis as to the kind of spina bifida one is dealing with, with special reference as to the results or prognosis in respect to (*a*) function and (*b*) life.

Von Recklinghausen speaks of three kinds of spina bifida: 1. Meningocele. 2. Meningomyelocele. 3. Myelocystocele.

Differentiating clinically between these we will consider the last named variety first. It is the rarest and therefore of least practical interest. Children afflicted with this deformity are born usually either dead or prematurely. The deformity is generally associated with other deformities, ectopia vesicæ, rectal and genital cleft, etc. In all cases of myelocystocele the cleft in the bony parts is lateral. Entire vertebral bodies may be missing. According to Von Recklinghausen the defect is due to interference or suspension of development in the lateral growth in the spinal column, and the result is a congenital scoliosis. The cyst is always to one side of the median line as to its exit. Von Recklinghausen calls attention to the fact that with congenital scoliosis associated with other deformities one should always think of myelocystocele, for the latter may be overlooked, as this deformity may be very small at birth. The differentiating features between this variety and both of the other two, is, that the meningocele and meningomyelocele are always median in situation, most frequently in the lumbosacral region. Among a number of cases, only one is mentioned in which the situation was in the cervical region.

Clinical points of difference between the meningocele and the meningomyelocele are as follow: The meningocele is generally smaller, and less broad at the base, and the skin over it is more apt to be intact, though these factors are by no means to be relied upon conclusively. More important points of differentiation are that the meningocele is situated higher up on the spinal column, either at the last lumbar or first sacral vertebra; where it has as its seat of predilection the sacral region. The bony cleft is closed below the lower border of the cyst, whereas the cleft with the meningomyelocele is extensive, involving often the whole sacrum or even the coccyx. Large defects of skin, *i. e.*, area vasculosa, together with an umbilicated depression, are pathognomonic signs of meningomyelocele.

Transmitted light, as it is used in hydrocele examinations, is said by de Ruyter to be of great value as a factor in establishing a correct diagnosis clinically, as well as pathologically. He says one can recognize not only the nerve trunks which run through the sac, or which are imbedded in the sac (points which shall be considered under pathology), but also the individual neural layers as well as portions of the cord itself.

If we consider for a moment the pathologic differentiation, the surgical procedure becomes self-evident.

In the meningocele the meninges constitute the sac so that its cavity, *i. e.*, the sac, is continuous with the subarachnoid space; the cord, and consequently the nerves do not extend into the sac or beyond the cleft. The sac is filled with cerebrospinal fluid.

In the meningomyelocele, as the sac protrudes, it draws the attached cord with it so that the cord extends through the cleft, and is imbedded firmly in the wall of the sac, forming sort of a layer of neural tissue, and the nerve trunks of the segments of the cord thus involved spring from the layer of nerve tissue and course through the sac. The umbilicated appearance mentioned under clinical differentiation marks the point of attachment of the spinal cord to the inner surface of the sac, and is accordingly a sign of some value. With this variety may be associated various degrees of paraplegia, paralysis of bladder and rectum, clubfoot, and sensory and trophic disturbances, according to how much nerve tissue and how many nerve trunks are involved.

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[1] Read before the Newark Practitioners' Club, June, 1903.

In the third variety the sac protrudes and carries the cord with it, as well as the central canal (*canalis spinalis centralis*). There is a special disposition for the canal to dilate and communicate with the central canal of the cord, and so in turn with the ventricles of the brain; in fact, the inner fold of the sac is the lining membrane of the dilated central canal; consequently in this variety the nerve trunks do not run through the sac as they do in the preceding variety, but along the sides of the sac, or they lie imbedded in it. From the meningocele it differs in that the sac in the meningocele is continuous with the subarachnoid space, and not with the central canal.

Prognosis.—Spina bifida is an exceedingly grave affection, and the prognosis in the case of the newborn is always doubtful. In more than half the cases of spina bifida death occurs in the first year, and the majority of these in the first three months. In all forms, except simple meningocele, the probability is that if the child survives it will have clubfoot, and either partial or complete paraplegia with incontinence of urine, etc. On the other hand, according to Treves, patients with spina bifida have lived 37, 43, and 50 years.

Treatment.—The treatment for spina bifida is almost entirely surgical, but is sometimes conducted with too much disregard for the pathology of the affection and has met with mortifying results. Thus Holmes relates how he excised a spina bifida from a girl of eight, who had paralysis of the sphincters. The child succumbed to meningitis with opisthotonos. The surgeon looked for nerve trunks to warn him away from dangerous ground, but apparently ignored the fact that in the type of spina bifida to which his case evidently belonged, the sac itself is composed partly of undeveloped spinal cord, and therefore that he was excising part of the cord. In simple meningocele in which type no nerve tissue is included in the sac, the prognosis is more hopeful, and the prospect of cure by surgical means, brighter. When operative interference is decided upon, de Ruyter recommended beginning at the lower part of the cyst, laying it bare first, to establish a true diagnostic state of affairs. If a meningocele, pure and simple exists, it is simply dissected out and ligated, cut off, the skin sewed over it, and dressed aseptically. A safe dressing is all-important, from the very situation of the cyst and the irresponsible age of the patient. The patient in question was dressed aseptically and then several layers of guttapercha tissue were hermetically sealed over the dressing to the skin by means of iodoform collodion and left so for seven days, when the sutures (silk) were removed and a similar dressing applied for another week. If, on incision along the lower border, a meningomyelocele is found which is inoperable on account of the nerve tissue contained, or if there is too large a pedicle for ligation, the skin wound is simply closed again. When the pedicle is moderately large, yet too large for simple ligation, de Ruyter sutured the sac, coapting the sutures very accurately, but in all his patients thus treated (four or five) there was a continuous and uncontrollable oozing of the cerebrospinal fluid. As the liquor cerebrospinalis does not coagulate, three patients died in this manner a considerable time after operation, simply on account of the slow oozing of the cerebrospinal fluid, with no symptoms of meningitis. When one is so unfortunate as to open the cyst of either variety of spina bifida during operation, thereby allowing the fluid to drain away rapidly, the patient dies very shortly in convulsions.

The myelocystocele is the most infrequent variety of spina bifida, and is always inoperable because of the large amount of nerve elements involved, and the direct communication of the cyst with the central canal of the cord.

The meningocele is the next in point of frequency, and is operable.

The meningomyelocele is the variety most frequently met, and may or may not be operable (1) according to the amount of nerve tissue and trunks involved, and (2) according to the size of the pedicle.

The patient I operated upon was a male child aged 11 weeks, suffering from a meningocele. After ligation, about a tablespoon of cerebrospinal liquor escaped, the cyst being clamped ineffectively at the proximal end of the pedicle. After removal it was clamped again, and ligated. The child was fairly well nourished, and seemed normal in every other respect. The operation was carried out in accordance with the rules laid down, and all went well. Immediately after the operation the temperature began to rise, and reached its height eight hours after the operation, 105.8°, with marked nervous symptoms. The child twitched all over, and I feared that any little disturbance might throw it into a convulsion. Paregoric was used with good effect. Next day, temperature reached 104°; third day, 101.2°; fourth day, 98.8°, when all nervous symptoms abated. The child did remarkably well for the next three weeks, took its food well, stools were normal, and the wound healed primarily and effectively. During the fourth week the stools turned green, were very offensive, and frequent vomiting set in, with emaciation, irregular temperature curve, and death just four weeks from the day of the operation.

In the second case, that of a male child, aged 13 weeks, the meningocele was as large as a good-sized orange. I operated April 17, 1903; the patient was discharged May 26, perfectly cured; up to August 20 there had been no recurrence.

TEACHING OF THERAPEUTICS.

BY

WM. M. GREGORY, M.D.,

of Berea, Ohio.

To the Editor of American Medicine:—Thorough experience in very hard general practice in which I have used the "allopathic," homeopathic and eclectic materia medicas, brings me to believe that the man who uses the materia medica of any one school will fall very far short of what he ought to accomplish. In acute rheumatism the results I get from combined prescribing, producing rapid and thorough elimination of toxins from all the outlets of the body, are surprising. At present the great need of the profession is better and far more thorough teaching in materia medica. It should be taught the value of standard tinctures and fluid extracts, always clean and of uniform strength, instead of the filthy preparations generally used, and which are never twice alike. This is especially true of drugs like aconite, digitalis, and veratrum. The profession should be taught:

1. The superiority of quinin hydrochlorate over the sulfate, and that it should be prescribed in solution and combined with an acid.

2. That tonsillitis, rheumatism and sick-headache are all toxemias, caused almost entirely by uric acid and cured by its prompt and thorough removal.

3. To use more nux vomica, and less strychnin, and more cinchona and less quinin, as the alkaloids do not represent nearly all the medicinal virtues of many drugs. Drugs like veratrum, bryonia, and iris versicolor give me prompt and decided results in the form of standardized tinctures that I use. I find through reading and conversation that most physicians know these drugs only in the form of the U. S. P. preparations which are the poorest on the market, many of them entirely useless. True salicylic acid and salicylate of sodium are vastly more effective and less toxic than the synthetic articles, and ignatia and matricaria should be used in many cases in which bromids and chloral are now prescribed.

[We publish this interesting communication, not because we agree with it but because it illustrates the attitude of many practitioners of medicine toward the art of therapeutics. It is true that the teaching of therapeutics in many medical colleges (not in all) has lagged behind that of pathology and diagnosis. But therapeutics is far from being synonymous with materia medica or with pharmacology. Drugs are often useful, often harmful. It is well to know when *not* to give them, as well as when to give them. The virtues of inert substances and of inefficient dosage may be due to just that fact—that they are inert or inefficient, and therefore harmless. Our correspondent speaks of "sectarian materia medica," but this must mean the materia medica of a sect, and hence its apparent absence from our columns, not its presence, is the actual cause of his courteous complaining. We assure our friend that we do not exclude any item of interest which comes under our observation because of its publication in a sectarian journal. We have cited and expect again to cite in our department "For Investigation," reports from eclectic sources, and should not hesitate, were any such brought to our notice, to cite reports from other sectarian sources if the subject-matters seemed to be sufficiently important. But we cannot be expected to turn aside from the rich field of scientific medicine, where the harvest is beyond the reaper's strength, to glean amid the stubble of sectarianism for a chance ear.

Neither do we endorse all that we cite, nor condemn all that we omit to cite. Novelty, timeliness, and many other considerations enter into the culling of "far-spreading items from the meadows" of medical publication.

Our correspondent is entirely right concerning the advantages of simple and trustworthy preparations—this, quite apart from the question of the truth or error of his statements in illustration. He is not so happy in coupling sick-headache and tonsillitis as effects of one cause—and as for the etiologic moment of "uric acid" we had hoped that that error had seen its best days. That a faulty purin metabolism accompanies those conditions we term "gouty" is true, but the relationship of cause and effect in these varied and complicated processes is at present too obscure to warrant the clinician in assuming other than an observant attitude.]

ALKALOIDS OF INESTIMABLE VALUE.

BY

ALBERT S. ASHMEAD, M.D.,

of Greentown, Pa.

In charge of a tent camp in the Pocono Mountains for the treatment of tuberculous patients.

The alkaloid strychnin is used by us all, so is morphin. Who would think of using the crude drugs from which these alkaloids are obtained if he could obtain them? Quinin too, is far preferable to cinchona bark compounds. Camphor is preferable to camphor wood. We use it, but the Japanese still prefer camphor wood. We use turpentine, instead of pine wood as they still do. Those Japs are a thousand years behind us in medicine, in spite of what the Japanophilics say.

Ergotin hypodermically is far better than the crude ergot preparation. Hemorrhages may be checked in far shorter time by the use of ergotin thus administered. See too, how an irregularly acting heart can be steadied with Chanteaud's digitalin pills, 1 mg., and far more quickly than by infusion or powder. Hyoscyamin will quiet a *mania-a-potu* brain far more readily than the fluid extract or tincture. Roberts Bartholow some years ago in consultation taught me the use of this remedy in just such cases, and in gout. But should the case not respond and the remedy be used for any length of time, it produces very high temperature. I have seen a patient with a temperature of 108° F.

Mark, too, the effects we get from atropin. Who of us thinks today of using belladonna in powder, as formerly was done, to produce the rash to abort whoopingcough? To be sure, atropin is not used for this last purpose, but why not? If a Japanese hot bath, which produces a rash just like that of belladonna, will quiet whoopingcough and spasm, the same reason should apply to atropin "*rashing.*"

Certainly any remedy, even if it is only hot water, that does this would be scientific. All Japanese mothers give a child with whoopingcough a hot bath on going to bed. There is no spasm in the night to alarm her, ever following its use. The child is quieted and sleeps well. The flushing of the capillaries of the skin, by the effect of atropin or hot water on the vasomotor nerves, has a distinctly curative result, which if we would only keep up without intermission, might abort the disease. Atropin will do this for us.

Capsicin, the active principle of red pepper, which may be dissolved from the crude drug by alcohol, is extremely good in rheumatism. There is no better remedy for an external application to rheumatic joints than red pepper and alcohol. Tincture of capsicum is nothing else than a solution of capsicin, the alkaloid. Why then not use capsicin, instead of the bulkier remedy, when we must apply it internally, let us say, in delirium tremens or bowel affections? The Pennsylvania Dutch know the use of capsicin far better than we physicians do. They use it thus and obtain the best results.

Who of us uses podophyllum now, except in the shape of its active principle, podophyllin? What Western doctor would think of the grosser preparations of this mandrake root? Is there a Western doctor who does not know the use of salicin, a glucosid, in the treatment of rheumatism? And how much better result is obtained with this last alkaloid than with all the salicylates ever invented by the greedy chemists.

Pilocarpin is better than jaborandi. Bartholow taught us its uses in some affections, for instance, tetanus and pleurisy. There are also codein and picrotoxin, remedies which we all firmly believe in, and gelsemin and glonoin, and a host of others. I have said enough, however, to show that alkaloids are our advanced remedies. Perhaps later I may have the time to give some experiences obtained in Japan and our Great West as to the use of such preparations in preference to the cruder drugs.

A NEW ETHER INHALER.[1]

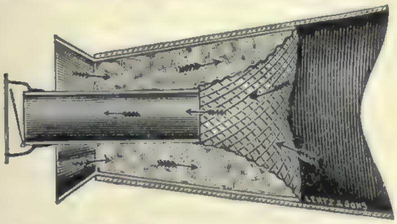
BY

EVAN O'NEILL KANE, M.D.,

of Kane, Pa.

This inhaler is brought to your attention with some feeling of diffidence, for inhalers, like needle-holders, seem always susceptible of alteration and improvement to such an extent as renders the subject wearisome. I can recall, however, no new form of inhaler since that of Allis, which has any really unique points in its construction worthy of consideration. My inhaler combines in its composition the principles of the Allis inhaler and of the ordinary cloth and paper hospital inhaler, with those of most laughing-gas apparatuses, together with a few origina. modifications of my own, which 27 years' experience with anesthetics gives me a right to claim as of value.

The cone is of metal with a conic inner roof of wire netting; the extremity of the cone terminates in a large central metal cylinder. This cylinder is surmounted by an accurately fitted hinged valve, so delicately adjusted and so light that the slightest breath operates it. The top of the inhaler is widely open for the reception of the gauze packing with which it is filled, and a flaring lip of metal projects sufficiently to prevent hastily poured ether from spilling over the edge. On removing the packing, it will be observed that the central cylinder has a projecting metal ridge encircling it half-way down. This is for the purpose of diverting any ether out into the gauze which might otherwise trickle down on the patient's face. There is a fenestrated cover over the valve for the purpose of protecting it, and for preventing any accidental splashing of ether down the cylinder. The valve is also toothed directly opposite the hinge to prevent its sticking to the cap when thrown open. Around the metal inhaler, and projecting well below, is a rubber face-mask, which fits accurately and softly and is adaptable to any face. It is laced onto the inhaler, and can, like the gauze, be removed for aseptic cleansing purposes.



The principal advantages of this inhaler are as follows: No inspired air and ether are reinhaled, the conic netted interior with its wide cylindric opening and delicately adjusted valve make the exit for the expired air absolutely unobstructed, while if the mask is properly adjusted, no air can be inspired, except that which pours through the ether-saturated gauze. During the administration of the anesthetic, neither the anesthetist nor the operator can fail to know whether the patient is or is not breathing, if the mask is snugly adjusted, as the valve which is within view must continue in motion during inspiration and expiration, and, unless the breathing is very shallow, its rhythm and force are indicated by the resonant sound emitted on each closure. This is a great aid to a watchful anesthetist—the cessation of the action in the valve proving either that the mask has been so carelessly placed that the air is drawn from beneath its edges, or that something is seriously wrong with the patient. This apparatus requires less ether than that of Allis or the hospital inhaler, on account of the expired air not being forced through the gauze. The rubber mask, too, is so easily adjusted that, no matter how a patient struggles, it can be kept in position with but little difficulty and without bruising or chafing the face. It is light and simple in construction.

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[1] Exhibited before the McKean County Medical Society, August 2, 1904.

PROTECTION OF THE PEOPLE BY THE GOVERNMENT.

BY

E. V. GREEN, M.D.,

of Martinsville, Ind.

The history of civilization in North America is one which is freighted with great interest, viewed looking backward over the pathway which we have traveled to the present, and looking forward to the ideal civilization and the perfected government, setting its influence and protection into each avenue of business, safeguarding the home, shielding the children, safely guiding them through infancy, childhood and youth to mature manhood and womanhood, protected by the strong arm of civilization from the unseen dangers, which are responsible for the long list of infantile deaths; and from the dangers which arise in our increasing population; from the contagious diseases which weaken and unfit many for the duties which fall upon them as citizens.

The people should demand at once that measures be adopted by the government to protect children from the four diseases that are sapping the blood of the nation—tuberculosis, smallpox, typhoid fever, and diphtheria. All of these diseases are of the nation, they are not confined to any particular locality, but are distributed from point to point without any interference whatever from the government. They will never be checked or managed until the nation formulates a system of national work that gives the same protection to every State, with one great central head, radiating its influence and protection to all its citizens alike.

It is true this will require the expenditure of vast sums of money, at the least $300,000,000 or $400,000,000; practically a tax per capita of $3.50 to $4, covering a period of 25 years, but at the end of this time tuberculosis and the other diseases will be practically things of the past. Perhaps the people themselves are not cognizant of the fact that we are losing by death and disablement more than a fifth of this sum annually by these diseases.

Typhoid fever causes every year 90,000 deaths between the ages of 14 and 45; and the victims of the disease number about 350,000; add to this loss the expense of treatment and care and to each one the loss of an entire year's labor. At the present time tuberculosis is responsible for 30 deaths each hour, 720 each 24 hours, or a total for each year of 244,230; and these sufferers, for an average of 4 years, have been distributing their poisons, uninstructed, unprotected, not shielding those with whom they come in contact from the danger. This is no fault of the unfortunate sufferer, but of the government. Every sufferer could have had the same latitude of freedom, if they had the proper knowledge of the danger arising from their diseased condition to those with whom they came in contact. The secretions and excretions could have been taken care of in proper receptacles and burned.

At the present time the losses and expenditures accruing from tuberculosis and typhoid fever alone reach $52,423,000 annually. With the establishment of a national health commission, equipped with the proper authority invested in it by the government, in a quarter of a century, with the expenditure of less than $400,000,000 in equipping, building, and maintaining government hospitals and laboratories for the production of vaccine virus and antitoxins, distributing them to the unfortunate invalid absolutely free of cost, as ants are given to save the cotton crop, this evil could be mitigated.

The children and mature young manhood of this nation, commercially considered, entirely removed from all humanitarian ideas, are of vastly more importance to the greatness, goodness, and perpetuation of our nation than the fruit, cotton, pigs, and chickens. And now is the time for every patriotic citizen, man and woman, to make each member of Congress and each senator clearly understand that action should be taken. The money could be raised by increasing the letter postage a half cent on each letter, postal card, and all second-class matter; levying a fee of $15 a year on each physician and surgeon for the privilege of practising medicine in the United States. This the profession would gladly pay. With the establishment of a National Health Commission with two qualified members from each State and Territory, given the proper power to take hold of this situation with a systematic course of 25 years of work, we will master the situation and practically stamp these diseases out.

THROMBOSIS OF LATERAL SINUS FOLLOWING ACUTE OTITIS MEDIA.

BY

M. V. BALL, M.D.,

of Warren, Pa.

In recent years reports of cases of thrombosis of the lateral sinus have become quite common, and in the account of the case which follows, I have nothing new to offer. It is simply to place it on record that it is reported.

M. W., aged 28, a teacher, suffered during childhood with occasional attacks of tonsillitis. She had one or two attacks of acute otitis media in infancy. She has always been inclined to have a very high temperature from slight disturbances. During the past four years she has had several attacks of bronchitis and follicular pharyngitis of no importance, but since last December she has had a poor appetite with some loss in weight and a rheumatic or gouty affection of the left hypochondriac region; the latter, after a course of treatment, passed away. In this run-down condition, on April 18, she was seized with severe pain in the throat; temperature was 105°, and on examination an exudate was found covering both tonsils; this was very white, mushy, easily wiped off, and had the microscopic and cultural appearance of *Streptococcus pyogenes albus*. Her temperature continued high for three days (105° in the axilla), but her throat cleared up and then her fever subsided, and on the fifth day she went out of the house feeling well. One week later she came to the office, complaining of pain in her left ear. The drum was very much inflamed and bulging, and there was some tenderness back of the ear. Incision of the drum showed suppuration, and the pus on the knife blade gave cultural characteristics of streptococci. The patient was sent to bed, and her temperature a few hours after the incision was 104° in the axilla. A hot mercuric chlorid solution was used as an injection in the outer ear and the discharge seemed quite free. The next morning her temperature was 101°, and she felt better. In the evening, however, the discharge lessened and pain returned in the ear and behind it, and another incision was made. The night following, the temperature was again 104°. There was pain and restlessness with increased tenderness over the mastoid, and a slightly bloody discharge was present. A mastoid operation was urged and a consultation demanded. The consultant came Tuesday evening, but advised against operation, thinking that the trouble was in the middle-ear only, and believing that drainage was not sufficient, a large incision was made in the tympanum. Temperature, next morning, 99°.

Thursday morning some swelling was noted behind the auricle, and temperature gradually increased until at 6 p. m. there was a severe chill, temperature running up to 106°, and remaining so until 3 a. m., when it gradually dropped, reaching normal next (Friday) morning after profuse sweating. Another consultant was called in, and it was arranged to operate at once. Temperature was then 100°, there was only slight pain over the mastoid, and no symptoms of any other disease. On opening the mastoid, only two or three cells near the tip were found diseased, and the bone so very healthy looking that the consultant, a man of considerable experience, advised against exploring the sinus, or even baring it. Next morning the patient was feeling well. Temperature was 98.2°, but at 6 p. m. there was another chill and a sudden rise to 107°; the chill lasted but 15 minutes, and temperature came down rapidly, so that by 6 a. m. it was again 98.4°, and the whole day the patient was comfortable. Evening temperature, 99°; the pulse, however, remained more rapid than before—114; respirations about 18.

May 9, the third day after the operation, another chill, lasting eight minutes, occurred, with a temperature of 104.2°, pulse 128, at 5 p.m. By noon of May 10 her temperature returned to 98.4°. An exploration of the sinus was now advised and concurred in by the consultant, and performed on the evening of May 10, three days after the mastoid operation. A few more cells were found filled with granular material, and when the sinus was reached and opened a broken-down soft suppurative clot was found filling it and about one dram of pus flowed out from below. The operator did not attempt to secure a flow of blood from below or to explore the jugular, but believed the clot below to be aseptic.

The patient recovered from the operation fairly well; the pulse remained rather high; the temperature, however, ranged from 98.2° to 99° on May 11, increasing to 103.2° on the morning of May 12, and continuing so all day, reaching 105° at 6 p.m. The patient complained of slight sense of chilliness; pulse 130. At 5.30 a.m., May 13, a chill occurred, lasting 40 minutes; temperature immediately after 105°, pulse 160, respirations 30; the temperature gradually decreased, until 2 p.m., when it was 99.4°, but at 6 p.m. it was 103.4° again. It was then decided to explore and ligate the jugular as the only measure left, and, though the patient entered the operating-room with a temperature of 105°, pulse 140, she returned after one and a half hours with the internal jugular ligated and excised, in pretty fair condition, and toward morning felt very bright; the jugular showed no signs of thrombus.

The temperature now continued to take on a septic course, 101.2° in morning, 104° midday, and 104° during the night, the pulse remaining rapid but strong. There was slight delirium after waking from sleep and a tendency to become drowsy.

May 16. Temperature, which had been gradually growing higher, reached 105° in the axilla; there was no chill, but a feeling of collapse; pulse was 140 and thready, followed by free perspiration.

May 17. Patient complained of soreness in the shoulder-joints, which were somewhat reddened and very tender. Dressing of head wound showed healthy progress and the ear had entirely ceased discharging. No pus was discernible anywhere. Antistreptococcic serum, 40 cc., and unguentum Credé were used without any appreciable effect. The nourishment of the patient continued good and all bodily functions were performed, but the patient was growing weaker and more septic. The pulse remained about 120, growing intermittent on May 18, when the patient had a chill lasting 20 minutes, and became cyanosed and stuporous, the temperature finally reaching 107.3° in the rectum. After the use of the hot-pack and pilocarpin, perspiration was induced and the patient rallied so as to recognize those about her, and her temperature fell to 102° in three hours. During the night and next day she could be aroused to answer questions, but relapsed into a stupor immediately after; temperature ranged near 106° most of the time, and the next day she became more restless and delirious, finally becoming unconscious, with a temperature reaching 108° three hours before death. The left elbow-joint appeared more swollen on this day, but the heart kept up steadily to the end, although beating at the rate of 140 per minute for several days.

Death occurred May 21, four weeks after the first trouble in the throat and three weeks after the first symptoms of the acute otitis media. The pus obtained from the lateral sinus showed the same cultural and microscopic characteristics of the organisms obtained from the tonsil. Cultures made from the blood remained sterile. A test for Widal reaction proved negative. The urine showed a trace of albumin toward the end, but was normal during most of the illness. There was marked increase of leukocytes before the opening of the sinus, no later blood count was made.

A necropsy was not made, although the wound explored after death showed no evidence of suppuration and a probe passed into the sinus above and below brought no evidence of pus.

The lessons this case teaches are not new, and yet they need more emphasis and more study. An early chill with a freely incised tympanum points to thrombus. A thrombus can exist with a very healthy looking or very slightly affected mastoid. Thrombosis of the cerebral sinuses in ear troubles may be more common than we imagine, likewise infection of the veins in other diseases. The many cases that are being reported in which treatment has been successful, some being of a most desperate nature, should attract the attention of the general practitioner, so that the obscure cases of pyemia might be investigated from the standpoint of the aurist and treated accordingly. In the case reported, could the termination have been foreseen, the radical measures undertaken would have been resorted to earlier, and at one and the same time, but acting on the advice of two neighboring colleagues, both of considerable repute, the radical measures were deferred until apparently too late.

THE SECTIONAL BOOKCASE AS A MUSEUM SHELF.

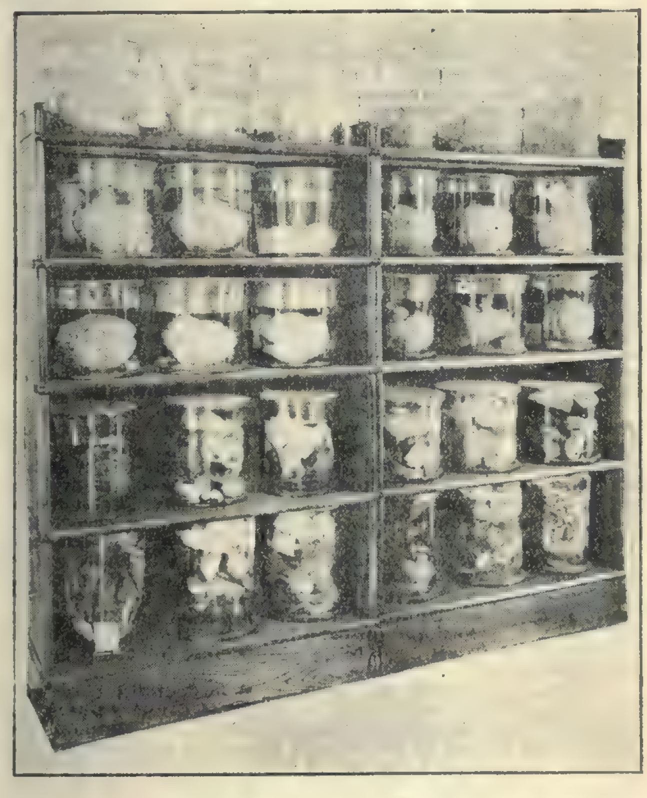
From the Pathologic Laboratory of the Ohio Hospital for Epileptics.

BY

A. P. OHLMACHER, M.D.,

of Gallipolis, O.

On the occasion of the 1900 Atlantic City meeting of the American Medical Association, it was contemplated to have the pathologic laboratory of the Ohio Hospital for Epileptics represented in the scientific exhibit, and in planning for that event it occurred to me to use portable shelf units, similar to those of the sectional bookcases. The contemplated exhibit was not made, and the opportunity for carrying out my original idea for museum shelving did not present itself until the summer of 1903, when the final equipment and furnishings for the new laboratory of this institution were being installed. It was found expedient to utilize for museum purposes a large hall connecting three of the rooms used, respectively, as incubatorroom, darkroom, and storeroom. Here was a particularly inviting opportunity to test the sectional bookcase plan, since the hall had several offsets, and since it was inexpedient to build permanent shelves or cabinets in it. Accordingly, we ordered from one of the wellknown manufacturers of sectional bookcases the requisite number of shelf, top, and bottom units to fill the available wall space (about 50 feet). The cases were of the cheaper kind, without glass doors, 32 inches in width, 10 inches in depth, half of them 10½ inches high, and the balance 12½ inches. They were coated inside with a flat, black Japan varnish. It was found that four shelf units, two of the 12½ inches and two of the 10½ inches would, with top and bottom units, assemble so as to make a case of museum shelves of convenient height. Two such groups of four sections, carrying 15 specimen jars each are shown in the accompanying illustration.



The specimens stored in our museum are brains and viscera. Our containers are the imported round "Preparation Cylinders" with heavy foot, ground lip, covered with round glass plates with ground borders, and often known as brain cylinders. Cylinders of four standard sizes were found well adapted to our purpose and suitable for storage on the standard sectional shelves, *viz.:* 8 inches wide by 12 inches deep, 7 inches wide by 11 inches deep, 8¾ inches wide by 8¾ inches deep, 8 inches wide by 6 inches deep. Cylinders of the other sizes, varying in diameter, and of height not to exceed the shelf spaces, and the rectangular museum jars may be accommodated in these cases, while the taller cylinders and jars find a place on the top shelf.

The advantages of the portable sectional museum case are obvious, particularly in laboratories in which permanent cases cannot be installed and in which the specimens may have to be displayed both along the wall and in stacks on the laboratory floor. In point of cost they compare favorably with that of well made oak shelving, and are less expensive than museum cases with doors.

CASE OF MARKED DIFFUSE CONTRACTION OF THE LARGE INTESTINE.

BY

JOHN G. SHELDON, M.D.,

of Telluride, Colo.

CASE.—The patient, a robust man of 45, complained of constipation and abdominal pain. He stated that he had been constipated since birth. During his childhood he was not obliged to take cathartics more than once a week, but during the last 15 years he never succeeded in having a bowel movement unless he took a heavy cathartic. During the last three months he secured small bowel movements with great difficulty. The pain, which at the time I saw him was his most distressing symptom, dated from an attack of sickness from which he suffered five months previously. At that time he had symptoms that corresponded to those of a mild attack of appendicitis. He recovered from all of the symptoms except the pain. This was continuous, but at times severe paroxysms of acute abdominal pain would occur. The pain was usually located in the right lower quadrant of the abdomen, but occasionally would be felt in the epigastrium or on the left side. It was not relieved or exaggerated by change of position or by eating or drinking. Free evacuation of the bowels relieved the paroxysms of pain, but did not seem to affect the continuous distress. He did not complain of nausea nor of vomiting. His appetite was good most of the time. In fact, his only complaint, besides the pain and constipation, was a moderate headache, which was partly relieved when a bowel movement was secured. He had had no previous illness. His family history was negative, except that one brother had suffered from appendicitis.

Examination.—The patient was a well-developed and well-preserved man of rather stout build. Examination of the thorax and its contents revealed nothing abnormal. The abdomen was not distended nor rigid. There was slight diffuse tenderness over the entire abdomen on deep pressure, and the region over the appendix was markedly tender. No masses or movable dulness could be detected by palpation or percussion. The liver dulness was not enlarged. There was no tenderness over the region of the gallbladder. The spleen could not be felt. Rectal examination was negative. Examination of the nervous system and of the lymphatics revealed nothing abnormal. A diagnosis of appendicitis was made, and the patient was told that adhesions resulting from the attack five months' previous were in all probability responsible for the progressing constipation.

A laparotomy over the region of the appendix revealed a firm circular band, about 1 cm. in diameter, directly under the line of incision. Examination proved this to be the sigmoid flexure. It was pushed to the left and the cecum brought into the wound. The cecum was about 1½ inches in diameter. Its walls were not thickened or indurated. The appendix was about 2½ inches long, was not adherent, but was firm, and showed a marked enlargement at about its middle. It was removed, and on section showed evidences of a subacute inflammation, with ulceration at its middle, and cicatricial formation in its distal end.

The large intestine was examined from the cecum to the rectum, and was found markedly contracted throughout. At a distance of four inches from the appendix its external diameter was not more than a half inch. No sacculations were present, and the three longitudinal bands were in contact with each other, and formed a complete covering of the bowel. The intestinal walls were thickened and indurated, and felt like scar tissue. These changes were diffuse, and involved the entire large bowel from the cecum to the rectum. At the splenic flexure of the colon the bowel was slightly larger than at any other point. At this place the diameter of the gut was perhaps three-fourths of an inch, but the walls were very much thickened and indurated. The small intestines appeared normal. An anastomosis between the ileum and the rectum was considered, but was not done. An enterostomy into the ileum was thought of, but I did not deem a permanent fistula into the small intestines desirable. It has been my experience that a fistula of the small intestines, through which discharge the entire contents of the bowel, produces so much weakness and emaciation as to terminate life in a few months.

The abdominal wound was closed. The patient reacted well from the operation. The attending physician wrote me that profuse and constant vomiting, paroxysmal pain, and abdominal distention began on the fourth day following the operation. The patient died four days later.

I am unable to find the report of a similar case. Lockwood[1] reports two cases in which the colon for part of its length consisted of two tubes. In Guy's Hospital Museum there is a specimen from a boy of seven, in which there was a membraneous occlusion of the bowel nine inches above the anus, and the gut below this point was narrowed to the size of a lead pencil.

It is probable that in the foregoing case reported there was present some congenital deformity. The long-continued symptoms, and the appearence of the bowel, would suggest that there existed in the coats of the large intestines a chronic proliferative process similar to that occurring in the submucosa of the stomach in cases of cirrhosis ventriculi.[2]

FRACTURE OF THE ANATOMIC NECK OF THE HUMERUS.

BY

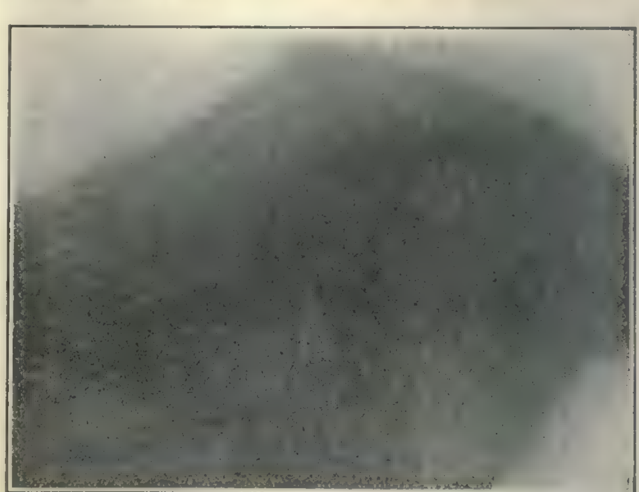
RAMON D. GARCIN, A.B., M.D.,

of Richmond, Va.

Surgeon Masonic Home, Virginia, etc.

The following case is of decided clinical interest because of the seat of fracture, the amount of separation of fragments—the amount of contusion present; and the excellent results of the treatment:

About three months ago I was called to see Mr. E., who gave the history of having fallen from some slight elevation three days before and sprained (?) his arm. The amount of swelling present was enormous, the shoulder-joint and, in fact, down to the elbow-joint the muscular structure was swollen to twice its natural size.



I had him removed to the Retreat for the Sick and made a tentative diagnosis of fracture of the surgical neck of the humerus; the swelling, etc., rendering anything like an absolute diagnosis impossible. Hot bichlorid dressings were ordered and after several days, decided improvement in swelling having taken place, I had a skiagraph made which only confirmed my later opinion, of fracture of the anatomic neck. Treatment consisted of a large axillary pad, adhesive plaster, and a modified Velpeau; of course, restoring the arm relatively to its normal position. As previously stated, the results were all that could be desired. The man has very good use of the arm and is able to labor at his usual vocation.

New Hospital for Brooklyn.—The Brooklyn Samaritan Hospital is soon to be established at Fifteenth street and Fourth avenue, that borough. The new hospital is the outgrowth of the dispensary work of the Fifteenth Street Baptist Church, in that neighborhood, although it will be non-sectarian.

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[1] British Medical Journal, 1882.

[2] Annals of Surgery, March, 1904.

ORIGINAL ARTICLES

INTERMITTENT LAMENESS AND OTHER NERVOUS SYMPTOMS OF PERIPHERAL ARTERIAL DISEASE.

BY
CHARLES W. BURR, M.D.,
of Philadelphia.
Professor of Mental Diseases in the University of Pennsylvania.

Many years ago Charcot described, under the name of intermittent claudication, recurring, transient, painful loss of power in the legs caused by obliteration of one of the primitive iliac arteries. Though the affection had been known to veterinarians, it was a long time before Charcot's paper attracted much attention, and in human medicine the subject was neglected. In recent years, however, more and more attention has been paid not only to intermittent claudication, but also to the general study of the nervous symptoms caused by peripheral arterial disease, and it is now becoming evident that many of the symptoms heretofore believed to be dependent upon lesions of the peripheral nerves or the spinal cord are in reality primarily due to disease of the arteries of the extremities and that nervous lesions, when present, are secondary. These nervous symptoms of peripheral arterial disease may be either paroxysmal or permanent; either motor (muscular cramp or loss of power) or sensory (paresthesias or pain). As a rule, sensory and motor symptoms are combined, but one or the other may greatly predominate. Sensory symptoms may occur alone, but it is doubtful if motor disturbances are ever met without some affection of sensibility.

The best known, the most studied, and today the least disputed, if indeed it be disputed at all, nervous effect of peripheral obliterating arteritis is intermittent lameness, or as Erb, who has most exhaustively studied it, calls it, dysbasia angiosclerotica. It is much more common than is generally supposed. It is true that papers upon it are not numerous, that in this country only Dana, Walton, and a few others have given attention to it, but on the other hand, Erb has within six years studied 45 cases, and other European authors have published elaborate papers. Its rarity is apparent rather than real, and due to its not being looked for or thought of. Patients do not always present the precise picture described by Charcot, indeed, there is quite a little variability in the symptomatology. In a typical case the course of events is as follows: The patient, while walking, is seized with pain or numbness, localized or diffuse, in one or both legs, and at the same time there is a feeling of stiffness, or even distinct cramp, in the calves or thighs. If the patient sits down relief comes quickly, but very soon after beginning to walk again the symptoms return, and soon he is unable to walk at all, not only on account of pain, but also because of muscular disability. If now the patient be examined, the arteries in the feet, and it may be even the femorals, will be found pulseless, the arterial walls will be felt to be distinctly thickened, and the feet may be warm, cold, or normal in temperature, and red, or cyanosed, or natural in color. The most striking thing is the absence of the pulse in the member or members affected. The duration of an attack varies from minutes to hours. They come on almost always during muscular exertion. The legs are much more frequently affected than the arms. Very rarely, as in a case reported, I think by Dana, the arm and leg of the same side are seized almost simultaneously, producing a condition superficially resembling a transient cerebral hemiplegia. Occasionally only one arm is affected, as in a case I shall refer to later. It is very rare under 40, and is much more common in men than women.

The following is a typical case, in which, however, the arterial disease progressed so far that finally thrombosis, gangrene, and death ensued.

M. D., a negress, aged 50, was admitted to the Philadelphia General Hospital, May 9, 1904, complaining of loss of power in the right leg. Her early history was unimportant, except that her ovaries and womb had been removed in 1902. She dated her illness from the autumn of 1903, when one day she was suddenly seized with pain in the left leg, followed instantly by loss of power in it. She did not lose consciousness, and in about half an hour power returned, and she was able to walk home without difficulty. Similar attacks recurred in a week, in two weeks, and again in two weeks. The left leg alone was affected each time. Numbness and sudden pain were always the first symptoms, and complete loss of power always followed immediately or in a few minutes. No attack lasted longer than an hour, and one less than 15 minutes. Each attack began while walking. One at least was so sudden in onset as to throw her to the ground. In none was there any disturbance of consciousness. In the intervals between the attacks she felt well. She had no attack involving the left leg after November, 1903, but one day in December she was seized with sudden pain in the right heel, and fell because of loss of power in the right leg. She was able to walk after an hour, and rapidly improved a great deal, but never recovered entirely the use of the leg, and was never entirely free from pain in it. Several weeks before coming to the hospital, the right leg became very painful, she gradually lost power in it, and four days before admission she went to bed because she could no longer walk.

Examination.—She was a fairly well-nourished middle-aged woman of good intelligence. She lay in bed with the right thigh a little and the leg much flexed. She could not lift the right leg nor move the toes, but could bend the knee and thigh a little. She said that it was not on account of pain that she could not move the leg, but because it was weak—"it would not move." All passive movement caused intense pain. There was no pulsation in the femoral artery, in the popliteal space, or in the arteries of the foot. In the left leg the pulse was strong. There was a trifling amount of edema in the right, but none in the left leg. There was no sign of gangrene. Tactile sensibility was normal. The knee-jerks were exaggerated, but not spastic. Stroking either sole caused slight flexion of the toes without movement of the foot or leg. Ankle-clonus was not present. There was no local muscular wasting. Good muscular power was preserved in the left leg and in both arms. The pupils were equal and reacted to light and with accommodation. The cranial nerves were normal. The urine contained both albumin and sugar in large quantities. She had continuous incontinence of urine. The temperature was normal. On May 12, the patient went into collapse. The temperature fell to 95°, the pulse at the wrist was no longer palpable, there was distinct gangrene of the right foot and she died a little more than two days after admission.

The *necropsy* was made by Dr. John Funke. Beginning at a point 8 cm. above the bifurcation of the right common iliac and extending 2 cm. into the external and 15 cm. down the internal iliac arteries was a pinkish-red mass which occupied the entire lumina of these vessels. The superior portion of this thrombus was fragmented, soft and split longitudinally. The portion extending into the external iliac had a cone-shaped extremity and was comparatively smooth. This portion, together with that in the common iliac, was quite soft, at points broke down readily, and was not attached firmly to the vessel wall. The part extending into the internal iliac was firm and strongly attached to the vessel wall. The wall of the right internal iliac was greatly thickened, its lumina in the lower part not being more than a sixth of an inch. It was strongly adherent to the surrounding structures as the result of an old local inflammation. The right internal pudic artery also showed extensive obliterating arteritis. The left common iliac artery and its branches were somewhat thickened but not enough to decrease perceptibly the lumina. There was no sign of a thrombus on the left side. There was slight atheroma throughout the aorta and the mitral valves were a little thickened and a little rough. There was fatty degeneration of the heart and chronic interstitial nephritis. The pancreas, spleen, and adrenals appeared normal. The liver was fatty. The lungs were edematous. There was marked cerebral edema, but very slight atheroma of the vessels of the brain. The brain itself showed no coarse lesion. A cancerous nodule was found on the lesser curvature of the stomach a short distance from the esophageal opening. (This was not suspected during life.) The bladder contained 350 cc. of straw-colored urine and its wall was very thin.

The diagnosis of this case when I saw the patient was easy enough. The absence of the femoral pulse, the pain, and the subsequent gangrene, made any diagnosis except peripheral thrombosis impossible. A physician who treated her before her admission to the hospital was misled by the urinary incontinence, and thought the seat of disease was in the spinal cord. Really the trouble with the bladder was not paralytic at all, but due to muscular malnutrition and consequent weakness from the scanty blood supply passing through the much diseased arteries.

In another case the right arm only was affected. The patient was a gentleman about 40. The attacks came on only when he was driving a spirited horse. He would be suddenly seized with pain and numbness in the arm, and almost at once it would fall helpless at his side. In a few minutes the pain and disability would pass off, but would soon return if he attempted to drive again before several hours had elapsed. I never saw him in an attack, and the condition of the pulse at that time is unknown. When I examined him the only sign of disease was a thickened right radial artery. He was free from heart disease, and presented no symptom of brain, spinal cord, or nerve trouble. I am inclined to believe that he had a small aneurysm of the axillary artery. He had many attacks and then went for several years without any, but what the final result was I do not know.

Many cases are much less severe than those detailed, and of course much less startling to the patients. They are disregarded altogether, or thought to be rheumatic or neuritic, or even neurasthenic. Really, they are the danger signals of trouble to come. In them there is merely rapid local tire on walking or using the arms, without great pain or any real muscular disability, but with sensations of prickling, numbness, or coldness, or more rarely heat in the member affected. The pulse is not always absent. Glycosuria is a frequent complication in both slight and severe cases.

The one constant lesion in intermittent lameness is chronic arteritis. Aneurysm, especially of the iliac artery, is not very infrequent. The fact that attacks occur almost exclusively during active muscular exertion indicates that the thickened vessels permit enough blood to pass to serve for nutrition while at rest, but not enough for the muscles actively at work. Arterial spasm has been alleged as a cause, and this may sometimes occur, but in a very badly diseased artery no contractile fiber remains. An artery may be so diseased and thickened that the pulse cannot be felt and yet be patulous enough to permit a slight stream of blood to pass through. Intermittent lameness bears some resemblance to angina pectoris. Both are paroxysmal, in both there is pain, and I believe that all cases of angina show postmortem sclerosis of the coronary arteries. It is noteworthy, also, that anginal paroxysms are most apt to occur during emotional stress or muscular exertion.

The morbid anatomy of erythromelalgia is much disputed. S. Weir Mitchell's own view, based on studies of the disease extending over many years, from his discovery of it till the present time, is that it is an end neuritis, but there is much to be said in favor of a vascular origin. It is true that excised nerves and the nerves in amputated parts have shown marked evidence of disease, but the bloodvessels have also been diseased, and sometimes the bloodvessels only. It may, of course, be that degenerative changes in peripheral bloodvessels are brought about by disturbances in nervous function, but it would seem more probable that the nerve changes found in erythromelalgia are secondary to the vascular disease and dependent upon it.

Of quite a different type are the chronic nonparoxysmal manifestations of chronic general arterial sclerosis. These appear with the oncoming of old age, whether the man be young in years or old. I do not think there is any doubt that some of the cases of the creeping palsy of old age are due to lack of muscular nutrition through the thickened arteries, and not to any disease of the spinal cord. I mean that condition which begins with slowness of movement and easiness of tire, a shuffling gait, a bent back, and socalled rheumatic pain which goes on to helplessness without true palsy. Often it resembles paralysis agitans without tremor, without festination, and without the speech defect, but with the wooden face and the waxy rigidity of movement. Some of these cases are spinal in origin, and there is found an overgrowth of the neuroglia and minute areas of softening, due to disease of the bloodvessels in the spinal cord, but at other times there is only sclerosis of the peripheral arteries with little or no spinal disease.

THE RÖNTGEN RAYS IN INJURIES NEAR THE WRIST.*

BY

M. I. WILBERT, PH.M.,

of Philadelphia.

Director of the Radiographic Laboratory at the German Hospital, Philadelphia, Pa.

Fractures of the lower end of the radius have long been recognized as being among the most common, and economically among the most important, of all the injuries to which the osseous framework of man is subjected. It was not until after the advent of the röntgen rays, however, that it was found that these fractures were not only frequently complicated by other more or less extensive injuries, but that, in addition to this, the other bones that enter into the formation of the wrist-joint are also subjected to fracture much more frequently than was formerly supposed. Even at the present time the full extent of the possible variation that may be found in fractures at or near the wrist does not appear to have been fully appreciated by writers of textbooks and others, who should be better informed.

With a view of suggesting possibilities of interesting observations in this same direction, I shall endeavor to call attention, in the present paper, to some of the points that have occurred to us in our everyday work. In this connection I shall endeavor to lay stress on the comparative frequency of fractures at or near the wrist-joint, with a view of emphasizing the relative importance of these injuries, and shall also endeavor to demonstrate that fractures at or near the wrist, contrary to the usual teaching, may, and actually do, vary very considerably in the location and direction of the fracture as well as in the nature and extent of the accompanying injuries to other structures.

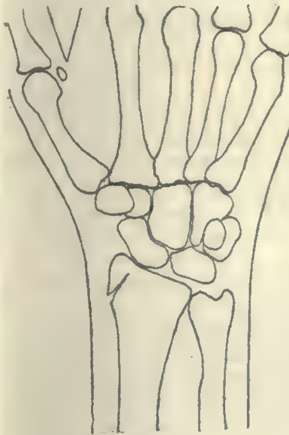

Fig. 1.

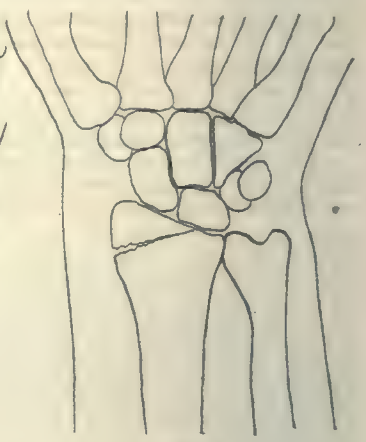

Fig. 2.

Fig. 1.—From No. 11,341. Right wrist of Miss B. T., aged 17; incomplete fracture of the styloid process of the radius.

Fig. 2.—Case No. 7,873. Right wrist of M. C., aged 29; fracture of the styloid process of the radius.

While it is true that the relative frequency of fractures at the wrist does, and of necessity must, depend largely on the season of the year, and the environment, pursuits, and occupations of the people, it was, nevertheless, thought that the statistics that we have gathered relating to this particular class of injuries would be of sufficient general interest to warrant their being embodied in this paper.

For upward of seven years all of the fractures of the extremities presenting themselves at the German Hospital, Philadelphia, have been referred to the röntgen ray laboratory as a routine part of their treatment. The statistics that have been compiled from time to time have been published, either in medical journals or in the annual report of the institution, so that some of the figures that we propose to give are necessarily a repetition of what has been published before.

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* Read at the meeting of the American Röntgen Ray Society, St. Louis, Mo., September 9, 10, 12, and 13, 1904.

From January, 1897, to January, 1904, we have records of 2,611 cases of fractures of the extremities. Of these 660, or a little more than a fourth, were fractures of one or more of the bones at or near the wrist-joint. As might be expected, there is a decided difference in the totals for the several months of the year, due largely, of course, to the fact that at certain seasons of the year, in our climate at least, sudden falls are much more common than at others. To illustrate this, I may say that in the cold and wet months, from October to March, inclusive, we have had 401 cases of fracture at the wrist, while in the remaining six months, from April to September, inclusive, we have but 257 such cases recorded. Dividing the months into seasons, commencing with December, January, and February as the winter months, our figures would be as follows: Winter, 227 cases; spring, 145 cases; summer, 135 cases; and autumn, 153 cases. A more detailed list of the several months is also appended, for comparison and study:

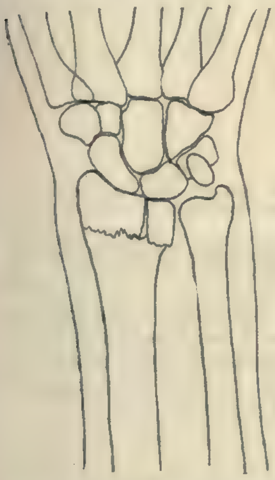
Fig. 3.

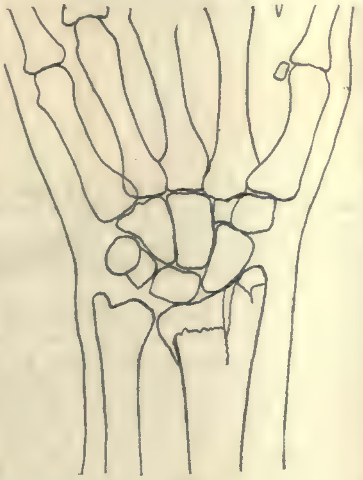
Fig. 4.

Fig. 3.—Case No. 6,758. Right wrist of Mrs. F., aged 45; fracture of the lower end of the radius with accompanying displacement of a small fragment at ulnar articulation.

Fig. 4.—Case No. 8,500. Left wrist of L. W. K., aged 34; impacted fracture of the lower articulating surface of radius.

January	75	July	37
February	93	August	51
March	58	September	38
April	39	October	58
May	48	November	57
June	47	December	59

This table, I believe, is a fair indication of the risks incurred by Philadelphians during the several months of the year. January and February, in this region, are usually the most rigorous months, and are frequently accompanied by several sleet storms that are the direct cause of a number of injuries due to falls on the extended hands. The apparent discrepancy for August is perhaps due to the fact that during this month by far the greater number of people take their annual outings, and incidentally indulge in unusual or hazardous sports or experiments that in turn prove disastrous.

The greatest number of fractures at the wrist that we have met in any one month was 23, in February, 1901. December, 1902, comes second, with 22; and February, 1903, third, with a total of 20 cases. Of the cases of fracture of the extremities that have been reported from the röntgen ray laboratory of the German Hospital, we have 2,000 consecutive cases that have been recorded with considerable detail. The totals of the figures relating to fractures at the wrist are probably of sufficient interest to bear repetition. Of the 2,000 cases, a total of 481, or a fraction more than 24%, involved one or more of the bones at the wrist-joint. Of these 481 fractures, 351 occurred in males and 130 in females; 221 involved the right and 260 the left side of the patient.

This latter item is perhaps of interest, indicating, as it does, that in fractures at the wrist, contrary to some of the other injuries to the upper extremity, there is a distinct margin of chance in favor of the economically less important left side being involved.

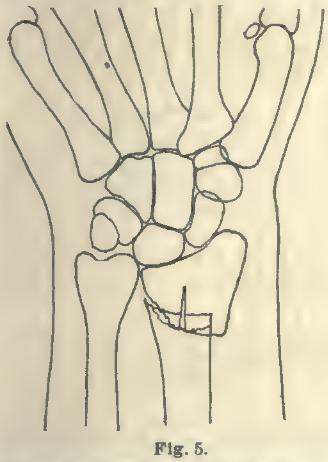
Fig. 5.

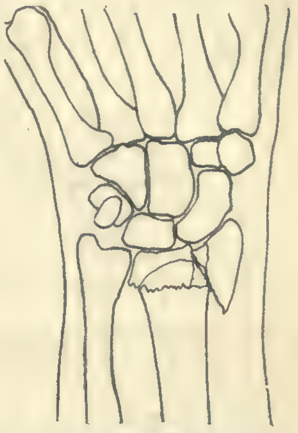
Fig. 6.

Fig. 5.—Case No. 10,534. Left wrist of Mrs. McV., aged 29; fracture of the lower portion of the radius accompanied by typical deformity.

Fig 6.—Case No 9,139. Left wrist of Mrs. S., aged 48; comminuted fracture of the lower articulating portion of the radius.

It should be mentioned, however, that in no less than 9 patients, or a total of 18 cases, both sides were injured. A table of the approximate ages at which the fractures occurred is also appended:

1 to 10	15
11 to 20	101
21 to 30	102
31 to 40	75
41 to 50	78
51 to 60	73
61 to 70	32
Over 71	5

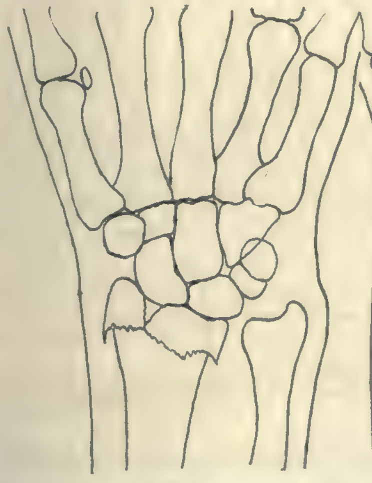
Fig. 7.

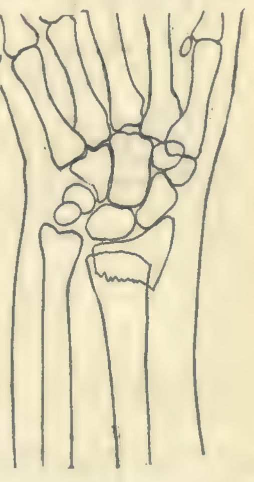
Fig. 8.

Fig. 7.—Case No. 7,666. Right wrist of T. V., aged 62; fracture of the lower end of the radius accompanied by marked outward displacement of the head of the ulna.

Fig. 8.—Case No. 10,511. Left wrist of Mrs. S., aged 42; fracture of the lower end of the radius with forward displacement of the lower fragment.

It will be seen that there is a direct increase in the proportionate number of the fractures at the wrist until after the sixtieth year. The possible falling off in the relative numbers after that period is probably largely due to the fact that elderly people are not so likely to expose themselves to the peculiar conditions that favor accidents of this particular kind: slippery pavements, running after street cars, falling from roofs or other elevated places, or working about moving parts of machines. The age factor also plays an important part in the location, direction, and extent of the injury; this feature will be considered at greater length later, when we come to discuss the variety or kinds of fractures at the wrist-joint.

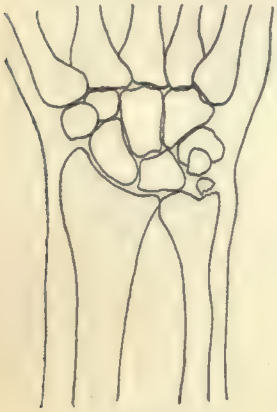
Fig. 9.

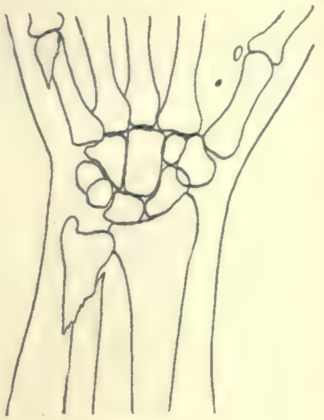
Fig. 10.

Fig. 9.—Case No. 5,636. Right wrist of T. H., aged 39; fracture of the styloid process of ulna.

Fig. 10.—Case No. 7,249. Left wrist of Mrs. J. D., aged 34; fracture through the neck of the ulna, also a fracture of the fifth metacarpal near the phalangeal articulation.

A list of the bones that were involved in the 481 cases under discussion may also prove of interest, indicating, as it does, the comparative frequency of fractures of these several bones.

Radius alone	172
Radius and lower end of ulna	129
Radius and ulna, higher up	17
Ulna alone	21
Carpus alone	85
Radius and carpus	36
Radius, carpus, and ulna	12
Carpus and ulna	7
Carpus and metacarpals	2

A list of the total fractures at the wrist that occurred in a series of 2,000 consecutive cases of fractures of the extremities.

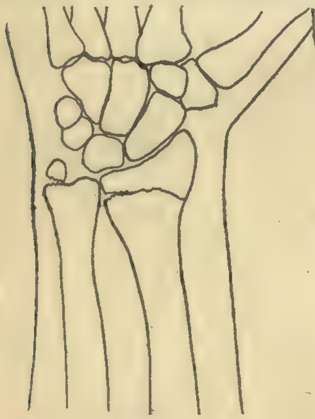
Fig. 11.

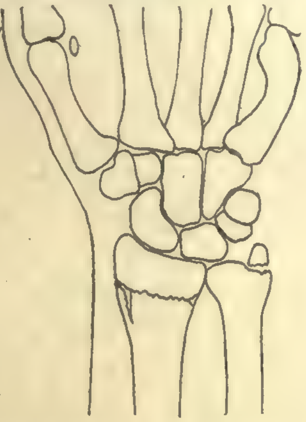
Fig. 12.

Fig. 11.—Case No. 7,582. Left wrist of W. H., aged 47; fracture of the lower end of the radius and a fracture of the styloid process of the ulna.

Fig. 12.—Case No. 7,725. Right wrist of J. E., aged 48; impacted fracture of the lower end of the radius with an infracture of the lower portion of the upper fragment accompanied by a fracture of the styloid process of the ulna.

The foregoing list includes a total of 366 cases in which the lower end of the radius was involved. In more than half of these cases, or in a total of 194, the fracture of the lower end of the radius was accompanied by a fracture of one or more of the other bones at the wrist.

Fractures of the lower end of the radius may vary very considerably in their nature and extent, they may be confined to a socalled sprain fracture, or even to a comparatively insignificant infracture, into the cancellated portion of the lower articulating surface, or may, on the other hand, constitute an extensive comminution of the cancellated portion of the bone and extend well up into the denser portions of the shaft. Our experience would lead us to believe that a considerable proportion of the simple fractures of the radius are of such a nature that it would be difficult, indeed, to recognize them without the use of the röntgen rays.

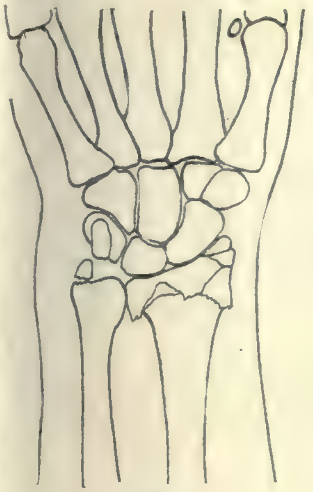
Fig. 13.

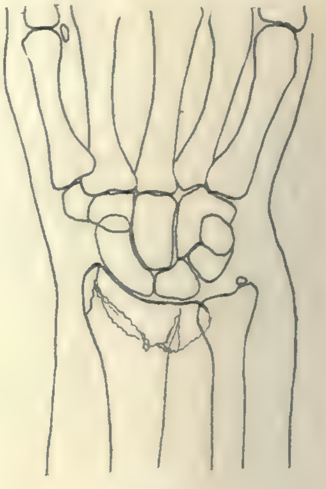
Fig. 14.

Fig. 13.—Case No. 11,300. Left wrist of Mrs. P., aged 52; impacted fracture of the lower end of the radius accompanied by a fracture of the styloid process of the ulna.

Fig. 14.—Case No. 11,299. Right wrist of Mrs. P., aged 52; fracture of the lower end of the radius with considerable deformity, accompanied by a slight injury to the styloid process of the ulna.

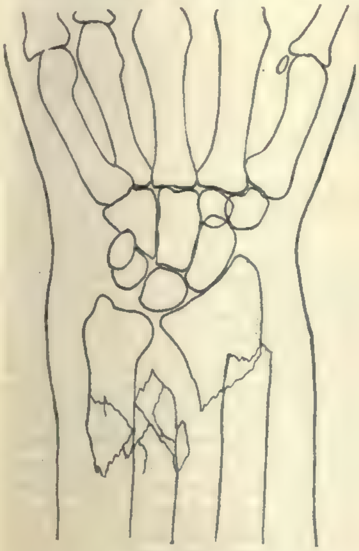
Fig. 15.

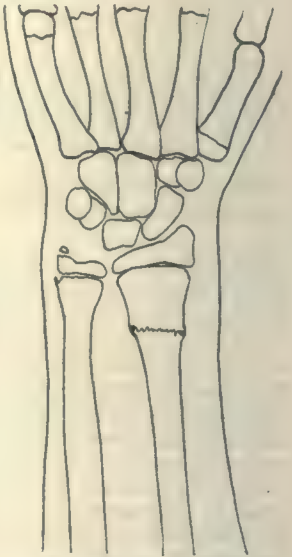
Fig. 16.

Fig. 15.—Case No. 7,016. Right wrist of M. D., aged 43; comminuted fracture of both bones of the forearm, in the lower third.

Fig. 16.—Case No. 8,101. Left wrist of Mary McI., aged 12; greenstick fracture of the lower portion of the radius accompanied by a fracture of the styloid process of the ulna.

To illustrate the difficulty that would be encountered in this direction I should like to call attention to the line of fracture in Fig. 1. This is an outline drawing from the röntgen ray negative taken of the right wrist of Miss B. T., aged 17, who applied for treatment at the German Hospital some days after spraining her wrist, while attempting to adjust a mangle in a laundry. The patient complained of a localized point of tenderness over the styloid process of the radius, and the surgeon, suspecting a fracture, referred her to the röntgen ray laboratory. The resulting examination demonstrated an infracture into the lower end of the radius that did not appear to extend into the articulating surface.

It is possible, however, to have a much more extensive fracture of the lower end of the radius without any accompanying deformity.

Fig. 2 is an outline drawing of the right wrist of M. C., aged 29, who was hit on the side of his wrist with a hammer. This accident resulted in a complete fracture of the styloid process of the radius with an accompanying impaction of the carpal bones, on the radial side. This impaction of the carpal bones is of frequent occurrence in connection with fractures at the wrist, and, as I shall endeavor to show later, is a matter of considerable moment.

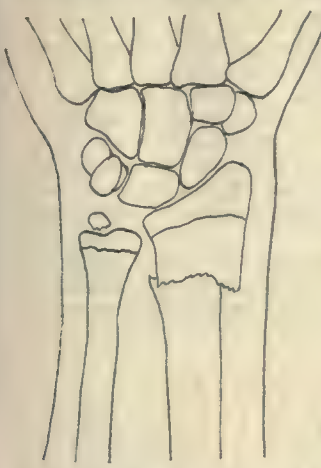

Fig. 17.

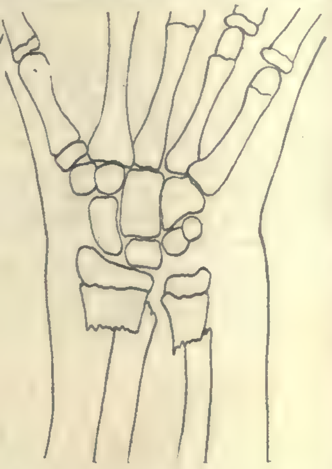

Fig. 18.

Fig. 17.—Case No. 8,619. Left wrist of J. G., aged 16; fracture of the lower portion of the shaft of radius accompanied by a fracture of the styloid process of the ulna.

Fig. 18.—Case No. 11,317. Right wrist of C. T., aged 10; fracture of both bones of the forearm above the epiphyseal line, with considerable deformity.

Fig. 3 illustrates another form of fracture that is not uncommon with us, and one that could readily be overlooked in an ordinary clinical examination. Fractures of this kind involve the breaking away of a more or less extensive piece of bone from the inner or ulnar articulating surface of the lower end of the radius. It will readily appeal to you that a fracture of this type, if not recognized, would be likely to cause trouble in two directions, at the radioulnar articulation as well as at the articulation of the radius with the carpal bones.

Fig. 4 represents still another type of fracture that while extensive and consequently important, does not afford sufficient clinical data to be recognized by any but an expert diagnostician in the fracture line. As shown in the diagram, this fracture consists of an impaction of the cancellated portion of the lower end of the radius, up and over the denser portion of the shaft, and is also accompanied by an infracture into the shaft itself.

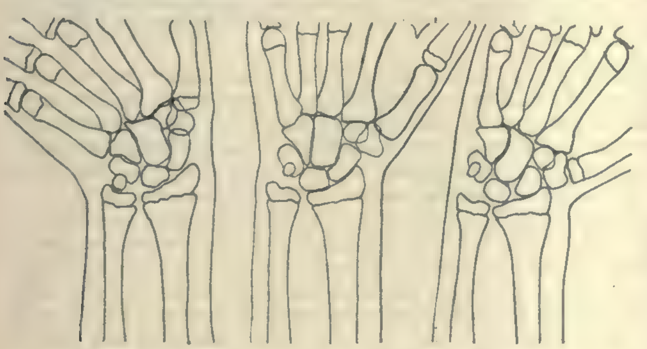

Fig. 19.—Left wrist of C. T., aged 10; abducted, extended and adducted to show variety and range of motion of carpal bones.

Fig. 5 represents a type of fracture that closely corresponds to what is usually understood to be a typical Colle's fracture. In cases of this kind the line of fracture is more or less transverse from side to side and distinctly oblique from before, backward, and upward, thus accounting for the accompanying deformity, and also for the difficulty that is frequently experienced in trying to keep the fragments in position. This particular type of fracture is not of such frequent occurrence as is the one shown in Fig. 6. In this case the line of fracture is much nearer the articulating surface of the radius, and almost always communicates with it either directly or by a transverse line as shown in the accompanying diagram.

Fig. 7 illustrates still another condition that is frequently met, and one that should not be overlooked. This, as shown in the diagram, consists of a marked separation at the radioulnar articulation; this displacement may or may not accompany a fracture, but when present is always an indication that the interosseous ligaments have been subjected to some undue strain, and that the mechanism of the wrist-joint has been seriously disarranged.

Fractures of the lower end of the radius may and sometimes are accompanied by a distinct forward displacement of the lower fragment. In our experience this particular accident has been rather uncommon as we have but four cases on record in which this condition was found. Two of the cases occurred in children under 15, and were little more than epiphyseal fractures, with a complete displacement of the hand to the volar side.

The case illustrated in Fig. 8 is that of Mrs. S., aged 42, who fell on a slippery pavement and struck the back of her hand. A side-to-side view of this same wrist gives a much better indication of the nature and extent of the deformity, and also shows the line of fracture to be practically the same as that usually described as Colle's, with the difference that the obliquity, in this case, runs from behind forward and upward. The forward displacement can readily be recognized in the view presented in the diagram when we remember that a röntgen ray tube at the distance usually used, gives a distinct difference in the shadow of the same size objects lying at different planes from the plate. This explains why the shadow of the lower fragment of the radius, with the usual backward displacement is always distinctly wider than the shaft of the bone and why in this particular case the conditions are reversed.

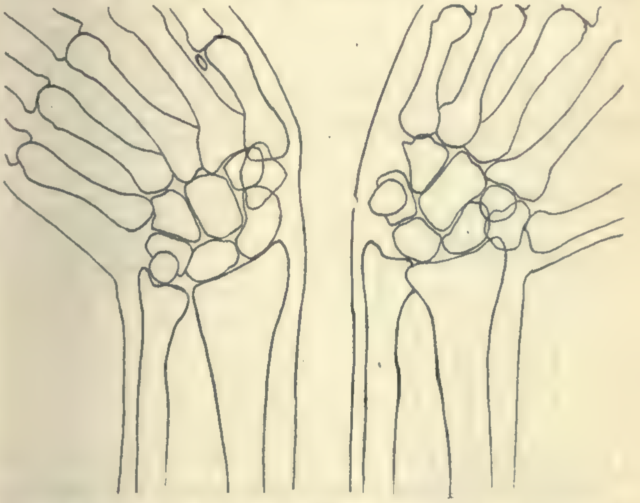

Fig. 20.—Left wrist of Miss N., aged 42, abducted and adducted to show range of motion of carpal bones.

Fractures of the lower end of the ulna while not nearly as common as the corresponding lesion in the radius, do occur, and are of sufficient importance to merit attention.

Fig. 9 illustrates a simple fracture of the styloid process of the ulna that may occur as the result of a fall on the extended hand and not be accompanied with any appreciable injury on the radial side. The cause of this particular fracture is probably due to the fact that while the impact has been of sufficient force to seriously spread and strain the various portions of the wrist, the remaining bones were in a position to compensate for the sudden strain and the sum total of the evident injury resulted in a tearing away of the styloid process of the ulna by muscular force.

Fig. 10 illustrates a not very uncommon fracture of the lower end of the shaft of the ulna. This type of fracture is usually caused by direct violence. In this particular case the patient, Mrs. J. D., aged 34, while being beaten by her husband, attempted to guard her head and was hit on the arm and hand with a club, resulting in a fracture through the neck of the ulna and also a fracture of the fifth metacarpal near the phalangeal articulation. This picture incidentally shows the importance of using a photographic plate that is sufficiently large to cover all of the suspected area, particularly the adjoining articulating surfaces. It will readily be seen how a comparatively insignificant fracture like that shown in the hand of this patient, if allowed to go untreated, might be the cause of considerable inconvenience and trouble at a later date.

Fractures involving the radius as well as the ulna are not infrequently of such a nature that they are readily overlooked by the average medical practitioner.

Fig. 11 is a diagram from a röntgen ray negative of the left wrist of W. H., aged 47, who fell on a slippery pavement and sustained a rather typical transverse fracture of the lower end of the radius accompanied by a fracture of the styloid process of the ulna; the fracture of the radius was, however, not sufficiently oblique, from front to back, to allow of any accompanying deformity.

Another fracture of a somewhat similar nature is shown in Fig. 12. In this particular case the impact also caused an infracture into the lower end of the upper fragment; the two fragments, as in the previous case were bound together in such a way as to give little or no indication of any deformity, while the accompanying swelling effectually masked all of the classic symptoms of fracture that otherwise might have been elicited.

Figs. 13 and 14 are from the röntgen ray negatives of the left and right wrist of Mrs. P., aged 52, who fell down a flight of stairs. The right wrist, shown in Fig. 14, was, clinically, a typical fracture of the lower end of the radius accompanied by all the classic signs, silver fork deformity, crepitation, swelling, immobility and pain. The left wrist, shown in Fig. 13, did not show any evident deformity, no crepitation, and, apart from slight pain, there was no marked interference with motion.

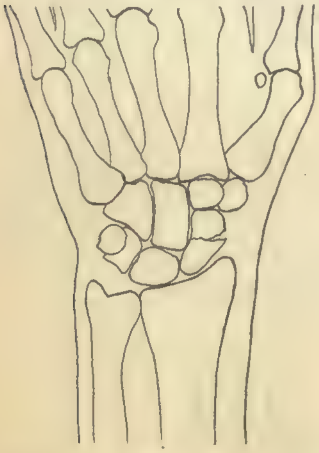
Fig. 21.

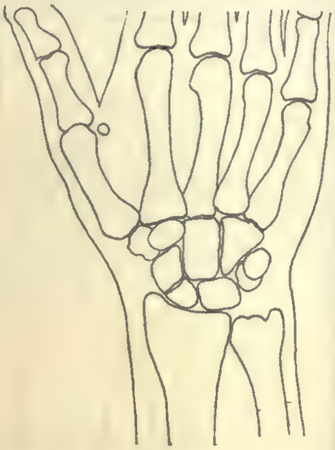
Fig. 22.

Fig. 21.—Case No. 10,297. Left wrist of T. B., aged 30; transverse fracture of the scaphoid.

Fig. 22.—Case No. 10,378. Right wrist of T. M., aged 20; transverse fracture of the scaphoid.

The difference in these two fractures is due largely to the fact that while in the one case there is a decided obliquity in the line of fracture from front to back, allowing of considerable displacement of the lower fragment, the fracture in the left wrist was more in the nature of an impaction directly upward and over the lower and denser portion of the shaft of the bone.

The fractures shown in Fig. 15, while not directly involving the wrist, are of importance in this connection on account of the probable deformity, and the possibility of its seriously interfering with the normal functions at the wrist-joint. This is true of nearly all fractures in the lower third of the bones of the forearm and should always be borne in mind in treating cases of this kind. In children we frequently meet fractures that are somewhat intermediate between the fracture shown in Fig. 15 and the more typical wrist fractures referred to.

Fig. 16 illustrates a typical greenstick fracture of the lower portion of the shaft of the radius, in a girl of 12; in this particular case the fracture of the radius is accompanied by a fracture of the styloid process of the ulna and also by some slight injury at the epiphysis of the latter bone.

Fig. 17 is a diagram from a röntgen ray negative taken of the left wrist of J. G. 16, and shows a fracture of the radius, with some deformity, that is accompanied by a fracture of the styloid process of the ulna. The apparent lengthening of the radius, shown in the diagram, is due to the angle that the lower fragment occupied in its relation to the tube and the photographic plate.

Fig. 18 illustrates a typical fracture of the lower portion of the shaft of both bones in a child, C. T., aged 10.

Fractures of this kind are frequently more transverse than oblique and are usually deeply serrated, making it practically impossible to restore the anatomic relations of the several fragments. Fortunately, the latter is not absolutely essential, as it is quite possible to secure a functionally satisfactory result without anatomic replacement, while in addition to this, nature, if properly assisted, will restore anatomic continuity much more rapidly, more certainly, and more satisfactorily than the average surgeon with his bungling and wire.

This is a subject that I am not prepared to discuss in detail at the present time, as it involves material that is still under observation. It must appeal to all, however, that the less interference we offer to the natural processes of repair, the more rapidly repair will take place, and the more satisfactory, necessarily, will be the ultimate results.

It is in connection with fractures of the carpal bones that the röntgen rays have been, and will continue to be, of greatest importance in cases of injuries at the wrist-joint. Before proceeding to a consideration of carpal fractures it may be well to lay some stress on the fact that contrary to the usually accepted idea, by far the greater part of all of the motion of the hand on the forearm is due to the motion of the carpal bones, one upon the other, in the intercarpal articulations, and not, as is usually taught, at the articulation of the carpus with the radius. This is particularly true of extension and flexion, which motion occurs almost entirely between the first and second rows of carpal bones. The lateral motion of the hand, adduction and abduction, is also largely dependent on the free movement of the carpal bones.

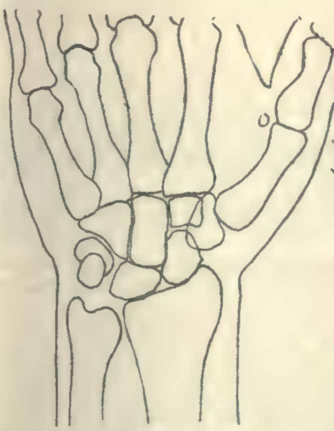
Fig. 23.

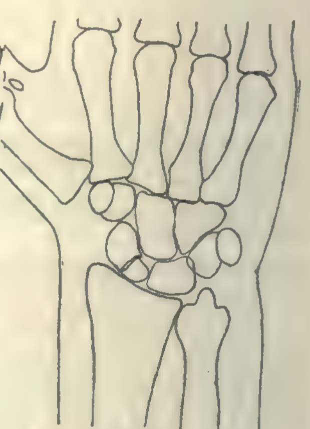
Fig. 24.

Fig. 23.—Case No. 10,379 A. Left wrist of T. M., aged 20; shows some impaction of the scaphoid, but no distinct line of fracture.

Fig. 24.—Case No. 10,379 B. Same case as Fig. 23, but taken from the dorsal surface, shows a distinct line of fracture in the upper portion of the scaphoid.

This latter motion is well illustrated in Fig. 19, taken from the left wrist of a girl aged 10, with the hand adducted, extended, and abducted. To show, however, that the motion is not confined to this earlier period of life, I call attention to the diagrams shown in Fig. 20, taken from radiographs of the left wrist of a lady well past middle life.

A complete discussion of the true mechanism of the wrist-joint would involve more time than has been allotted for this particular communication and I will therefore be content to call attention, particularly, to the range of motion that appears to be peculiar to the scaphoid bone. In addition to the sliding motion at its articulation with the radius the scaphoid also appears to have a radial motion that is evidenced by the change in the length and width of the shadow in the two views presented. The relative position of the os magnum and the scaphoid in adduction, extension and abduction is also of importance, particularly in connection with fractures of the scaphoid bone. These few suggestions, with the appended diagrams, will be sufficient I trust to controvert the repeatedly made assertion that the carpal bones, in their normal condition, have but little or no motion and articulate on the radius as practically one bone. The distinct evidence of motion in the carpus, particularly of the scaphoid, will also explain why a fracture of that bone may, and frequently does, interfere very distinctly with free movement at the wrist.

Recurring once more to our list of fractures at the wrist, it will be found that in no less than 142, or in a fraction more than 7% of all the cases reported, in the several series, a fracture of one or more of the carpal bones was found to exist. In 85, or in more than 4% of the total number, the fracture was demonstrated to be confined entirely to the carpus.

These figures, I am afraid, do not represent all of the fractures of this type, as from the particular nature and close relation of these bones it becomes difficult indeed to demonstrate clearly anything but a very evident transverse fracture of any one of the carpal bones.

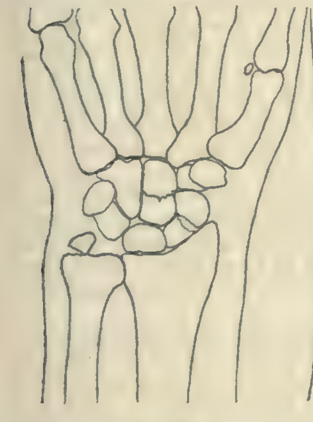
Fig. 25.

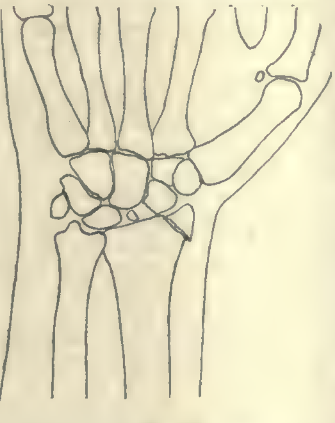
Fig. 26.

Fig. 25.—Case No. 8,135. Left wrist of F. S., aged 45; fracture of the os magnum and of the scaphoid, accompanied by a fracture of the styloid process of the ulna.

Fig. 26.—Case No. 8,322. Right wrist of G. E. S., aged [illegible]; fracture of the styloid process of radius; fracture of the scaphoid and an impaction of the semilunar.

The difficulty encountered in this respect, as well as the great liability to injury of the carpal bones, must become evident when we remember that the carpal bones are composed entirely of cancellated tissue covered with but a thin layer of compact bony material and this in turn crusted with but a thin layer of cartilage. It will readily be seen, therefore, that a sudden blow directly in line with the shafts of the long bones must be largely spent on these comparatively fragile structures in the wrist.

Singularly enough, this identical fact was demonstrated more than 50 years ago, and is recorded by Malgaigne[1] in his "Treatise on Fractures."

Malgaigne says: "The carpus does not always escape. M. Bouchet, in making forcible flexion and extension of the hand in the cadaver, found among the other lesions one or more fractures of the bones of the wrist; M. J. Cloquet met them in two autopsies upon persons who had sustained falls on the wrist; and M. Jarjavay lately detected a fracture of the scaphoid from a similar cause. In M. J. Cloquet's two cases the swelling of the soft parts prevented the detection of the fractures during life, and it would seem to have been so in M. Jarjavay's patient also. It is therefore to be presumed that most commonly the fracture is revealed only by crepitation; but care is required lest we mistake its seat and improperly suppose it to affect the radius."

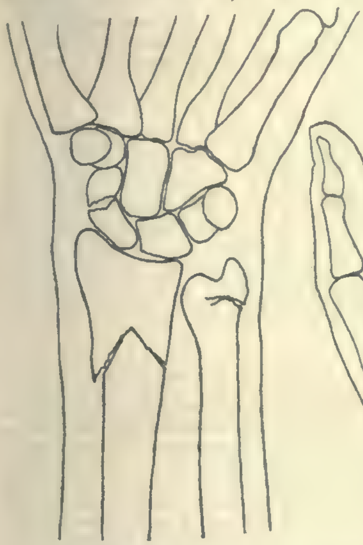
Fig. 27.

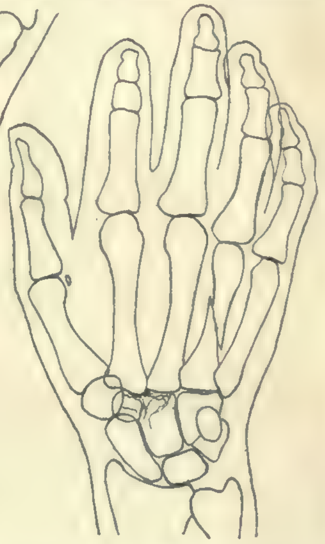
Fig. 28.

Fig. 27.—Case No. 11,330.—Right wrist of H. B., aged 18; fracture of the scaphoid, fracture of the lower third of the radius and a fracture at the epiphyseal line of the ulna.

Fig. 28.—Case No. 8,654. Right hand of M. W., aged 30; fracture of the fourth metacarpal accompanied by a fracture of the os magnum and of the trapezoid.

Despite these recorded experiments and actual findings, practically every textbook on fractures published since that time, in the English language at least, has disposed of this class of fractures with the stereotyped phrase, "Fractures of the carpal bones are extremely rare, and are usually accompanied by severe lacerated or contused wounds of the soft parts by which they are covered."

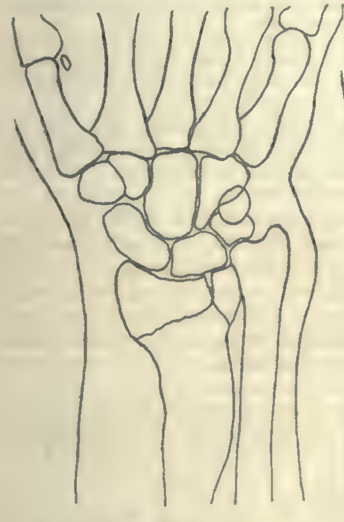
Fig. 29.

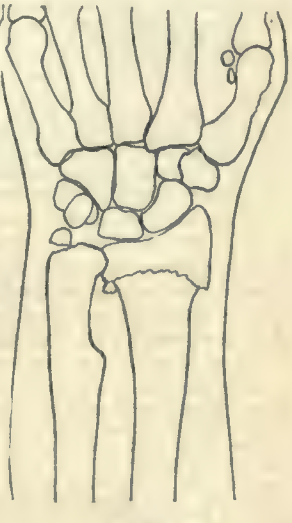
Fig. 30.

Fig. 29.—Case No. 8,588. Right wrist of W. T. M., aged 60; fracture into the lower articulating surface of a very much enlarged and deformed radius.

Fig. 30.—Case No. 10,116. Left wrist of A. B., aged 51; fracture of the lower end of an enlarged radius, accompanied by a fracture of the styloid process of the ulna. The latter bone has also, evidently, been the seat of a previous injury.

As is evidenced by this quotation the etiology of fractures of the carpus is usually ascribed to direct violence or crushes. This has not been our experience, as by far the greater number of fractures of the carpal bones that we have met have been occasioned by falls on the extended hand or on the closed fist.

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[1] Treatise of Fractures, by J. F. Malgaigne. Translated by John H. Packard, Philadelphia, 1859.

Fig. 21 illustrates a transverse fracture of the scaphoid in the left wrist of T. B., aged 30, who slipped and fell on a slippery pavement, presumably on his outstretched hand. In this case the absence of a similar condition in the other wrist, with the fact that he had met with an accident and had a localized point of tenderness over the region of the scaphoid, some impairment of motion and considerable pain, was taken for sufficient evidence that a transverse fracture of the scaphoid really existed.

The quotation recently printed in a book on the treatment of fractures,[2] that the scaphoid is frequently divided into two parts in the course of its development, undoubtedly relates to the fusion of the embryonal os centrale with the lower and inner edge of the scaphoid. The osseous development of this remnant I believe to be extremely rare, but even in cases in which it would undergo distinct ossification, it could not very well be mistaken for a transverse fracture of the scaphoid, and should, in addition, be found simultaneously in both wrists.

Fig. 22 is from the right wrist of J. M., aged 20, a lineman by occupation, who fell or was thrown from the top of a tower wagon and struck on his hands. Both wrists were painful, particularly on motion but there was no deformity, no crepitation and little or no swelling. The röntgen ray picture of the right wrist, as shown in the diagram, showed a transverse fracture of the scaphoid about the middle of that bone. A picture of the left wrist, taken with the photographic plate on the palmar surface did not show any distinct line of fracture but did show evidence of considerable impaction of the carpal bones on the radial side. This impaction I have endeavored to demonstrate in Fig. 23. Fig. 24 shows the same wrist reversed, with the photographic plate on the dorsal surface, and also a slight change in the relative position of the röntgen ray tube. The resulting picture clearly shows a distinct transverse fracture in the upper and narrow portion of the scaphoid.

As shown in Fig. 25 fractures of the carpal bones may be accompanied by a more or less extensive fracture of the lower end of one of the long bones. In this case the fractures of the os magnum and scaphoid have been caused by circumstances similar to what, under other conditions, would produce a fracture of the lower articulating surface of the radius, and are accompanied by a fracture of the styloid process of the ulna.

Fig. 26 is from the right wrist of G. E. S., aged 24, who had his right forearm caught in an elevator. In addition to the injury at the wrist, the patient also had a fracture of the coronoid process of the ulna and an accompanying backward luxation of the bones of the forearm at the elbow.

Fig. 27 represents the right wrist of H. B,, aged 18, who fell some 20 feet down an elevator shaft. In addition to the injury at the wrist the patient also sustained a fracture of the right os calcis.

Fig. 28 illustrates a fracture of the carpus that while it is rather unusual does occur occasionally. In this case the impact was received on the clenched fist and resulted in a fracture of the fourth metacarpal bone and an impacted fracture of the trapezoid and of the os magnum.

There is one more item in connection with fractures at the wrist that I should like to call attention to. This is the occurrence, or perhaps recurrence, of a fracture in the callous formation of a previous injury, or in the enlarged or soft portion of a diseased bone. In both of these conditions the röntgen rays are of inestimable value as an aid to a correct diagnosis.

Fig. 29 is from a fracture of the lower end of the radius in a man who at first denied having had a previous injury, but who later admitted that he had sprained the same wrist many years before and had had some impairment of function due to a slight deformity.

Fig. 30 illustrates a fracture into a much enlarged and deformed radius, accompanied by a fracture of the styloid process of the ulna, in a patient that had evidently had a fracture of both bones of the forearm above the wrist.

In conclusion I will say that I trust that this demonstration will convince you that fractures at or near the wrist are sufficiently varied to deserve most conscientious efforts at a correct diagnosis and that, having made a correct diagnosis, ordinary and wellknown therapeutic measures should be amply sufficient, when combined with the requisite amount of technical skill, to insure to the patient a functionally good result in the least possible space of time.

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[2] The Treatment of Fractures, Chas. Locke Scudder, M.D. Philadelphia, 1903.

EYESTRAIN AS A CAUSATIVE FACTOR IN SINUSITIS.

BY

WILLIAM LINTON PHILLIPS, M.D.,
of Buffalo, N. Y.

The recognition of frontal sinusitis has not been recent, for it was Nicolai, in 1724, who gave us the first clearly defined history, and later Runge and Richter, in 1776, added still more to the knowledge of this disease. This, of course, was at a time when eyestrain was little thought of, and, we may say, never corrected. In 1839 Dezernruens published an exhaustive treatise which covered fully the investigations of his time, as did Bouyer in 1859. Since then we find Steiner, in 1872, throwing more light upon this subject. Recently such men as Lichtwitz, Luc, Schaffer, Winkler, Nebinger, Jansen, Kuhnt, Weichselbaum, Fränkel, and many others, have by their individual investigations tried to give us a complete knowledge of sinusitis, but even today it is still mistaken for disease of the eye, more especially refractive disturbances. If we examine into the proximity of the orbits to the sinuses, we readily understand why the pathologic condition of the one may extend to the other, and this becomes more evident if we take into consideration that conditions arising within the sinus may cause pressure upon the eyeball. This, of course, is not hard to grasp, but it is quite another thing to understand why an overworked accommodation, with no pathologic lesion, is able to produce by itself, the same symptoms that have been described since 1724 as frontal sinusitis, and may be considered as belonging to that disease.

It is not my intention in this preliminary paper to separate the symptoms of sinusitis caused by tumors, insects, etc., from those due to eyestrain, but by showing the importance of my findings to keep others from operating upon sinusitis due entirely to other causes than heretofore considered.

The fact first to be ascertained in making a diagnosis of frontal sinusitis is at what early age do the frontal sinuses develop, for they are not present at birth. Upon investigating the literature of this subject, I find that authors vary greatly in their statements, which no doubt depend upon the number of skulls examined. Bishop says: "It is not to be expected before the twentieth year, since these sinuses, being developed from the anterior ethmoid cells, are not formed earlier." Sieur throws different light upon this, for he found upon investigating 150 frontal sinuses that in a third of the cases only very small openings were present. They could not be termed true sinuses, but were to be viewed as dilations of the upper end of the ductus nasofrontalis.

Syrington reports two cases in which fairly well-developed sinuses were found at the age of 9 and 13 years, but in his observations upon children under 6 years he did not find a sinus present, which is substantiated by Steiner, who says: "As these sinuses extend upward and outward, expanding the frontal tables in their growth, they reach in the sixth or seventh year above the frontonasal suture and supraorbital margin, and can be recognized at that age as distinct cavities." This also may be proved by the fact that the skulls of the Flathead Indians, although compressed before the sixth or seventh year, still present these cavities well developed in adult life. Although this does not definitely show at what early age we may expect to find it, it nevertheless does show that we can and must look for it as early as the sixth year of life.

Deductions drawn from A. Logan Turner's investigations upon 578 skulls show that nationality must be regarded as an important factor, for he found that in the German the frontal sinus attained a greater development, with the rest of the nations following in the order here given: Irish, Turk, Swiss, North American Indian, British, French, Greek, Egyptian, Peruvians; the Russians, Poles, and Esquimaux, collectively, next in order, and then the Negro and the Chinese. He states also that the frontal sinus is seldom developed in the skulls of the aboriginal Australians, and is more developed in all males except in the craniums of the Sandwich Islanders. Race and sex only help us to know that, when sinuses are the more fully developed, we may expect the more frequent occurrence of the disease; but this depends, too, upon the more or less complete closure of the sinus outlet, suppuration, and the effects of eyestrain upon these cavities.

Of all the symptoms for which the oculist is consulted, headache is the most frequent, and is found in over three-fourths of the patients. It is generally frontal in character, although it may be in other parts of the head. We find patients who suffer with frontal sinusitis complaining of frontal headaches, pressure above eyes, inability to concentrate thought, occipital headaches, dizziness, nausea; and associated with injection of conjunctiva, defective vision, swelling and redness of skin over cavity, edema of upper lid, with tenderness above and beneath supraorbital ridge; also, painful sensations in back part of eye. Exophthalmos is a symptom which may lead to error, if too much importance is placed upon it without excluding high degrees of myopia, paralysis of one or more ocular muscles, goiter, and tumors of orbit. These same conditions may cause diplopia.

A. Logan Turner refers to a frontal sinus that extended backward almost as far as the optic foramen. This teaches us how important it is for the ophthalmologist to know the anatomy of the nose in cases of amblyopia, displacements of the eyeball, limitations of eye movements, and narrowing of the visual field; for there are many eyes which have become blind through neglect to diagnose frontal sinusitis early enough to stop the suppuration; and it is as important for the rhinologist to be able to recognize eye symptoms, for they may tell him whether an operation upon these cavities would destroy or restore vision, or prove that the case is one of eyestrain, which has not progressed far enough to warrant operative interference.

In 195 adult autopsies, Kiaer found pus present in 88 of the accessory sinuses. Lopelle's investigations showed 55 cases out of 168. This goes to prove that pus was present in many of these cases undiagnosed. It also shows that a large percentage of the human race has sinusitis. We exclude the possible fact that the fatal illness, perhaps, caused the suppuration. The means of diagnosing frontal sinusitis does not absolutely prove that this disease exists, but it does prove that the knowledge of sinusitis is still in its infancy. Voltolini, of Breslau, demonstrated in 1888 that luminous rays could be transmitted through the bony wall of the antrum. This has been made more practical by the improvements of Heryng, of Warsaw.

Ever since its discovery, this method has been used as an aid in diagnosing sinusitis, but has never been proved of any great diagnostic value, except that in its illumination of these cavities it relieves the doubt of absence of the sinus.

Lubet, Barbon, and Furet, of Paris, also Moure, of Bordeaux, place opacity of the suspected sinus, in which there is illumination of the opposite side, in the certain signs, although this opacity may be due to the absence or shallowness of the sinus, or to a thickening of the mucous membrane of the sinus. We see, then, how this sign may prove to be misleading.

The mere discovery of pus within the naris, flowing apparently from the frontal sinus, does not prove that its origin was within that cavity, for, as Grünwald says: "It may come from the anterior ethmoid cells or parts further back, providing the middle turbinates are in close apposition to the septum in such a way as to form a capillary space, through which the pus rises to the surface." This is nicely illustrated in Fillebrown's eight cases, in which he found that the infundibulum, instead of terminating in the middle meatus, continued as a half tube, which terminated directly in the foramen of the maxillary sinus. In seven of the eight cases, there was a fold of mucous membrane, which served as a continuation of the unciform process and reached up covering the foramen, forming a pocket, which prevented any secretion from the frontal sinus getting into the meatus until the antrum and pocket were full to overflowing.

Of course, the only positive way to be certain of a diagnosis is first to establish the presence of pus within this cavity; but this is difficult to accomplish. Juraz was one of the first to try probing this cavity, and published in 1887 a report of 21 cases, showing how uncertain he found this method. In five cases the probe entered easily, six times with difficulty, and in ten cases it failed to enter, making about 50% of successes. This corresponded with Hartman's results. Winkler, in 1894, claimed good results in a sixth of his male and a fourth of his female cases. Here it is seen that he is even more conservative than the preceding authors, although we find Cholewa claiming 60% of successes, but this was before the röntgen ray became so generally used.

Sheier passed a probe apparently into the frontal sinus in 30 cases, but the röntgen ray showed that it had entered only in five cases. In the rest it was found in the ethmoid cells. Volnseu reports in 1897 a case in which the attempt was made to medicate the sinus by blowing powder through a catheter supposed to be in the infundibulum. At the autopsy it was discovered that the cranial cavity, instead of the frontal sinus, had been medicated. Mermod published a similar case. A probe, and subsequently a catheter, were supposed to have been passed into the sinus. Fatal meningitis followed, and a necropsy discovered that the frontal lobe of the brain was in the space usually occupied by the frontal sinus. After studying the results of Sheier, Volnseu, Mermod, and many others, it becomes evident that all known remedies should be tried to alleviate the distressing symptoms of those unfortunate individuals who are suffering with this disease before operating, and also, that the röntgen ray should direct the probe in those cases in which it is necessary to use it.

Dr. D. A. Kuyk calls attention to the use of the tuning fork in cases of sinusitis as a means of diagnosis, claiming that it is not heard as readily over the diseased side. This, like transillumination, may lead to error. Great care must be taken while diagnosing frontal disease to exclude supraorbital neuralgia on account of its almost latent course, as is pointed out by Professors Gradenigo and Milligan. We must also exclude meningocele, which is commonly described as appearing at the upper inner angle of the orbit. Lagleyze reports a case in which there was no pulsation or fluctuation of the meningocele, which might have been wrongly diagnosed if great care had not been taken.

In these cases of doubtful diagnoses between frontal sinusitis, meningocele, and aneurysm of the ophthalmic artery, it is well to draw off some of the fluid and examine it microscopically. It is well for the ophthalmologist to remember, that primary phlegmon of the orbit is rare in comparison with that due to perforation of the orbital wall, and a great many times the perforation is overlooked on account of difficulty in finding it. It is not strange that the eyeball and its surrounding tissue should become secondarily involved through the sinus, if we take into consideration that the orbital wall many times has a congenital defect, the remains of fetal life, and we find many cases on record which prove this.

While mentioning diseases easily mistaken for frontal sinusitis it might be well to refer to De Santi's case in which he saw an unusual example of blocked subdermal lymphatics of the face with edema of the eyelids and puffiness over the sinus simulating frontal and antral disease. Mr. Soelberg Wells calls attention to the fact that if the swelling extends somewhat lower so that it is crossed by the tendo oculi, it may be mistaken for distention of the lacrimal sac.

These patients suffering with sinusitis consult the oculist more frequently in America than in Europe. H. A. Lothrop says that in 1898 the frequency of frontal sinusitis in eye clinics in Vienna has been figured as 1 in 9,000, and in Berlin as 1 in 18,000. On the other hand I saw in May of this year six cases. Acquaintance with the numerous failures to cure, reported from time to time by eminent rhinologists, some of which are recorded herein, causes the thinking man to hesitate before resorting to operation, for many failures are due to a wrong diagnosis as to the cause.

In referring to frontal sinusitis that is caused by eyestrain, we must exclude tumors, worms, insects, and those conditions due to traumatic causes, and only consider inflammation of the lining membrane which may vary from that of a slight congestion to a purulent condition. The nervous system bears an important part in the production of secretion. The vasomotor nerves distributed to the muscular coats of the arteries control secretion. When these nerves are divided the vessels become dilated and secretion becomes free. If the extremities of the nerve be stimulated contraction of the vessel follows and the secretion is arrested.

To produce clear vision with an astigmatic eye we must use up all of the residual nerve energy because of the increased work required to focus an eye that has different meridional lengths. This drain of nerve force robs other parts of the required energy to keep up a normal condition and acts as would a division of the vasomotor nerves dilating the bloodvessels and increasing the amount of mucus in the frontal sinus. If this secretion is allowed to accumulate from day to day it will eventually become infected by germs entering the sinus from the nasal cavity, which may be forced upward by the act of blowing the nose, etc.

We find frontal sinusitis following grip and other depleting diseases, cured by removing eyestrain. This at first seems hardly probable and is explained, when we consider that many times people have a great refractive error that does not produce eyestrain, because of their being in such perfect health that it easily compensates for the waste of nerve energy; when the vitality of such a person falls below par it is impossible many times to restore health until the waste of energy is checked. I am unable to say at present what percentage of sinusitis is due to eyestrain and what percentage may be cured by glasses, as it has been my good fortune to relieve all the people upon whom I have tried this treatment.

The symptoms that are supposed to be caused by this process within this cavity are all due to the severe strain upon the nervous system of the eye which is illustrated by the almost immediate relief obtained by properly correcting glasses, that is with the exception of pus which slowly grows less and less and is at last stopped.

If the ophthalmologist will look over his records he will be surprised to find many cases in which the symptoms are similar to the foregoing, and if he be able to question his patient again will find that unknowingly he gave relief to many such patients. Not long ago I came across a record card having a perfect train of symptoms except there was no knowledge of pus being present. Upon investigation it was found that pus was present when the patient first came and it gradually decreased until now it is absent. This case I will not report because I have only the patient's word, and although she feels certain, she may be mistaken.

Case I.—October 30, 1902. Miss ——, aged 25. The patient complained of the following symptoms: Pain in eyeballs, passing from temples to top of head, then to the occipital and frontal regions; also dizziness and extreme nervousness. She had worn glasses for a number of years and they had caused the eyes to blur when reading. The conjunctivas were deeply injected; there was photophobia with a feeling as of fulness and great pressure within the frontal sinus. Pressure beneath the supraorbital ridge or on the eyeball caused unbearable pain.

The patient was referred to Dr. Mulford for examination of the sinuses. His report follows: Cold in head three weeks ago, since then has had frontal occipital and temporal headache; headache not more in one region than in another; some earache both ears; general health good; has lost some weight lately and is nervous, no increase of temperature. All turbinates hypertrophied, especially the left middle which crowds against septum, the anterior end of which seems to have undergone polypoid degeneration; mucopurulent secretion issuing from beneath both middle turbinates. No tenderness over either frontal sinus, tenderness beneath supraorbital ridge, especially left. Transillumination shows opacities over both sinuses.

Upon the fact that closing the eyes and lying down relieved most of these symptoms, I refracted her under homatropin and cocain and found V. R. Sph. — 1.25 cyl. — .25 ax. 90° = 20/20. V. L. Sph. — 1.25 cyl. + .25 ax. 180° = 20/20.

After wearing this combination for about three weeks all of the foregoing symptoms passed away. On March 15, 1904, there had been no recurrence.

Case II.—November 19, 1902, male, aged 31. The patient suffered with pain over and beneath the supraorbital ridge upon pressure; frontal and occipital headaches since 1885, but was partially relieved in 1890 by wearing glasses. So aggravating were these symptoms about the frontal sinuses and eyes that patient could go to sleep only by applying cold compresses to these parts. He complained also of nausea, dizziness, dread of light, and that motion would dazzle eyes when riding. It was difficult for him to concentrate thought, while use of eyes produced smarting and injection of conjunctivas, with pain on pressure above and beneath supraorbital ridge.

Nasal examination showed enlarged middle turbinates, a dry condition of the mucous membrane of nose, except about the middle turbinates, where it was bathed in a mucopurulent secretion. Under homatropin and cocain he accepted right eye Sph.+25 cyl.+62 ax. 70°=20/15; left eye Sph.+25 cyl.+87 ax. 120°=20/15.

After wearing this correction for a few days all these symptoms passed away, excepting that the discharge lasted several months, growing less and less until it had entirely disappeared.

Case III.—June 11, 1903, Mrs. D. G., aged 26. The patient came to me complaining that for the past 12 years she had had pain between eyes, on line with eyebrows, and extending to temples and to occipital regions; dizziness, nervousness, and a feeling as of great pressure within the frontal sinus. She was unable to bear slight pressure over or beneath the supraorbital ridge on both sides, this being more marked in the last five months. She complained, also, of a sensation as if fluid was flowing back and forth from each sinus; the conjunctivas were deeply injected. The pain and discomfort were relieved upon reclining, with eyes closed. Upon this fact I refracted her eyes under homatropin and cocain, although she received 20/15 vision in each eye, this being more acute than normal. After the use of the mydriatic, she was only able to see 3/4 vision in each eye, and accepted V. R. Sph.+.12 cyl.+25 90°. This gave 20/20. V. L. Sph.+.25 cyl.+.38 105°, which gave also 20/20. The right axis changed to 75° when free from the mydriatic, and the left changed to 100°. Although her visual acuity was not as great with her glasses, they nevertheless relieved her of all her symptoms until March 10, 1904. The report of Dr. Mulford, to whom I sent the patient for a nasal examination, is as follows:

Examination made June 11, 1903—Mrs. D. G. Frontal headache both sides; ache begins within nares and extends up through glabella to frontal region. Right middle turbinate markedly hypertrophied. Tenderness under right supraorbital ridge and under right eye.

Case IV.—July 21, 1903, Mrs. R., aged 29 years. The patient had suffered from severe headaches for six weeks. Moving objects dazzled eyes, causing a dread of things in motion. She was dizzy, nervous, and had indigestion, and when stooping, eyes feel as if they were about to fall out of orbits, accompanied by much pain and fulness as if within frontal sinus. Pressure over and beneath supraorbital ridge produces pain. A nasal examination showed middle turbinates hypertrophied and bathed in mucopurulent secretion. She did not wear glasses at this time. Her vision was 22/20, in each eye. After use of homatropin and cocain she accepted V.R. cyl. + .25 ax. 60°=20/20, V. L. Sph. + .25 cyl. + .38 ax. 90°=20/20. There was also present an exophoria of 6°. After exercising the muscles with prisms and prescribing the correcting glass the symptoms all disappeared in eight weeks.

Case V.—January 7, 1904, Mrs. ——, aged 27. Her headaches would commence at lower occipital region, extending to top of head, then to temples, and from here to the frontal bones. Motion would dazzle her eyes, and lights in theaters and church would cause her to become so sick that she would be confined to her bed for days. She was unable to use her eyes for any near work. She was very dizzy at times, and extremely nervous, forgetting easily. Pressure over and beneath supraorbital ridge was painful, and her conjunctivas were injected. Nasal examination showed all tissues hypertrophied, more especially middle turbinates, with a slight mucopurulent discharge in superior meatus. All these symptoms were more severe before marriage because of the use of her eyes at the near point in bookkeeping. Before using homatropin and cocain she had 20/15 vision in each eye. After the mydriatic she received one third vision with the right and $\frac{1}{12}$ in left. A+.75 cyl. ax. 75° gave her 20/20 in the right, and a+.75 sph.+1.00 cyl.; 90° ax. gave her 20/20 in left. With both eyes open, 20/15. After wearing her glasses for a week her symptoms disappeared, except that the mucopurulent discharge persisted for a few months and then disappeared. June 20, 1904, she reports that she has been free from all her old troubles for months, and is now able to enjoy life.

CASE VI.—Miss H., aged 20. She had suffered untold agonies for a number of years, but about February 1, 1904, became suddenly worse, and was confined to her bed, and was unconscious for ten days. At this time she suffered from meningitis with a hysteric element predominating, as was diagnosed by the family physician and a neurologist.

As soon as she was able to come to my office the family physician advised her to do so, thinking her glasses might need changing, although they had been prescribed recently by another oculist. February 23, 1904, I found her suffering with unbearable pain over both frontal bones. So sensitive were these parts that she would not allow me to touch them. Her pupils were unequal, and she was very nervous and could not stand the slightest amount of light, although she did not close her lids at the time of the exposure to light, and she complained nevertheless that she felt as if her eyes were being torn from the orbits. I examined her nose, and found that all turbinates were greatly hypertrophied and covered with pus. After the use of homatropin and cocain she accepted V. R. Sph. + .12 cyl. + .62 ax. 90°. V. L. Sph. + .12 cyl. + .75 ax. 180°. This made her vision 20/20 in each eye separately.

She began to improve from the first, although I had to allow her to wear a pair of smoked glasses because of the photophobia. Day by day the melancholic look gradually decreased, and her appetite returned. At the end of one month all of her symptoms had disappeared.

CASE VII.—April 18, 1904, Miss N., aged 29, of Hornellsville, N. Y., was referred to me by Dr. A. Huver, of Buffalo, who had operated upon the antrum but found that it did not relieve her symptoms. Miss N. had worn glasses for three years, which was the beginning of her trouble. The glasses were: V. R. cyl. — .50, 180°, 20/60. V. L. cyl. — .50, 180°=20/40. After using homatropin and cocain, her vision decreased to a sixth in both eyes, and I found V. R. cyl. + 1.12, ax. 90°=20/20. V. L. Sph. + 62, cyl. + .25, ax. 105°=20/20. She was very melancholy, and complained of headaches distributed over region of frontal bone, temple, medulla, and left vertex. She became dizzy upon reading, eyes blurred, and printed words would run together. There was present also photophobia, and conjunctivas were injected. If patient closed her eyes it would give relief. The nasal examination showed the middle turbinates hypertrophied, with a slight discharge of pus about them. Pressure over and beneath supraorbital ridge caused great pain. There was also an acne rash and swelling over sinuses.

Four days after prescribing the glasses all of these symptoms disappeared, including the acne, swelling, and pus. Dr. Huver's report is as follows: June 23, 1904, Miss N. Operated March 22, 1904, on antrum, entering external wall and alveolar border. Antrum filled with polypi. Surfaces were denuded, curetted thoroughly, and packed. Seen daily and dressed for five days. Patient sent home. Seen again April 18, 1904, when antrum was discharging pus. Referred to Dr. Phillips, after which antrum cleared up, and patient was dismissed; at last report was all right.

CASE VIII.—Miss L. S., aged 16, came to me April 28, 1904, complaining of the following symptoms: Headache above eyes, more especially over left frontal sinus, and also over antrum on that side. Left side was more tender to the touch, although both were much more so than they should be normally. She was dizzy, nervous, and complained of distress in stomach. Eyes would blur if she attempted reading, sewing or playing the piano. Lights bothered her eyes, causing them to pain, and they were deeply injected. The skin covering the left frontal bone was edematous, which would, according to her statement, come and go. She was unable to work, or remember accurately. Upon examination she was able to obtain three-fourths vision before the use of homatropin and cocain in the right eye and one-half vision in the left. Her right decreased to one-third and left to one-fourth under the mydriatic. She accepted V. R. Sph. + .85 cyl. — .25 ax. 15° = 1 nearly. V. L. Sph. + .38 cyl. + .50 ax. 90° = $\frac{3}{4}$. She reported to me June 28, 1904, that she felt entirely well if she kept on the glasses, but would have a return of all distressing symptoms if she left them off. Dr. H. J. Mulford, to whom I sent Miss S. for a nasal examination reported as follows: April 28, 1904, Miss S., aged 16. Constant and marked frontal headache over left eye close to supraorbital ridge, has had for years; aggravated by use of eyes in sewing and reading. Much thick, yellow discharge from left naris. Left eye waters. Examination shows all turbinal tissues are somewhat hypertrophied; middle turbinals seem more so than others, especially the left, anterior extremity of which is prominent and bathed in pus, which issues from beneath it. Tenderness in roof of orbit and directly over supraorbital ridge. No local treatment was used within nose or sinus, but patient was watched for a month after she began using Dr. Phillips' glasses.

On May 29, 1904, Miss S., reported as follows: In fine condition. Distressing symptoms have all disappeared, except that discharge from left naris continues, but has lessened. If she takes glasses off for any length of time the old troubles recur. Middle turbinals not so prominent; no pus seen beneath them.

CASE IX.—April 28, 1904, Mr. W., aged 42. The patient suffers with headaches and pain around eyes, especially the right; dizzy; stomach trouble; thick yellow discharge from both nares. If patient catches cold these symptoms are aggravated and there is in addition swelling over right frontal sinus with tenderness over and beneath supraorbital ridge. Ten years ago he was taken suddenly with a violent pain over right frontal bone. This was so tender that region could not be touched. This last condition lasted until the present time, but the tenderness has decreased until it is only painful on firm pressure. Again the middle turbinals greatly hypertrophied and bathed in pus, eyelids swollen and inflamed. Before the use of homatropin and cocain his vision was R. $\frac{1}{3}$, L. 20/22, after, R. $\frac{1}{3}$, L. $\frac{1}{2}$. He accepts under the mydriatic V. R. — 1.25 + .50 120° = 20/20, V. L. — .38 — .62 150° = 20/20.

Mr. W. wrote to me on June 2, 1904, that, although his symptoms are a great deal better, they have not entirely ceased, but are doing so gradually. The reason for this slow recovery lies, no doubt, in a condition of low general health, which has existed for 10 years. He says that he feels sure of complete recovery as he grows stronger.

Later (July 4, 1904) he reported that he is nearly well, and very little discharge remaining.

CASE X.—May 4, 1904. Mr. E., aged 18. The patient has headaches over eyes, passing to occipital region; he is nervous; eyes are injected; photophobia; hard to concentrate thought; dizzy; and objects seem to fade away if looked at for a few minutes. Six months ago he was taken with pain over the frontal sinus, which was so severe that he would not allow anyone to touch it. Although still very painful, it was less in intensity when I saw him. When Mr. E. looked up and inward he would complain of great pain in the superior rectus and superior oblique muscles, showing that these muscles were becoming inflamed. This is the point through which the orbit is most frequently infected, due to caries of the bone or to a congenital opening. Nasal examination revealed hypertrophy of all the turbinal tissues, the middle being so much so that they pressed against the septum on each side. Great quantities of yellow pus present. He did not wear glasses at this time. After the use of homatropin and cocain he accepted V. R. sph. + .25 cyl. + .25 ax. 180° = 20/20, V. L. sph. + .25 cyl. + .12 ax. 90° = 20/20.

On May 6 he received his prescription for glasses and after wearing them for a week all the symptoms disappeared except the pus, which slowly diminished in quantity, and, upon June 21, 1904, when I again saw him, it had disappeared entirely.

As I have said before, I do not think that all forms of accessory sinusitis are due to eyestrain, but I do think that eyestrain holds an important place in the production and maintenance of this condition.

In conclusion, I would say that, although I did not use or allow to be used any treatment for the relief of frontal sinusitis, other than glasses, I nevertheless do think and advise that the condition should be treated locally, in addition to correction of any eyestrain which may be present.

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ADMINISTRATION OF CHLOROFORM AND ETHER: COMPARATIVE NOTES OF THE TWO DRUGS.

BY

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So much has been written, and the relative merits discussed, of the two great general anesthetics, chloroform and ether, that comparatively little remains to be said in a special way about these two wellknown drugs. Still, in reviewing the literature on the subject, one can hardly help drawing the conclusion that those who favor one or the other drug in their daily practice, and who make a report of the use and effects of the same, base their knowledge on the fact that they have had more experience with one, and little or none with the other, and are therefore inclined to be partial to the one which they favor. Some reports have been made on general anesthesia from a series of only 25 or 50 cases, and although some salient point may be made clear, or a certain peculiar effect noted in either one or the other drug, still it is necessary to gain a thorough knowledge of the physiologic action of these two widely used agents, and this can only be gained by long experience with all sorts of cases.

It will not be amiss to mention the characteristics of the two drugs, and therefore a few of the more important points are given briefly.

Ether.—Pure ether is a colorless, transparent, very mobile liquid, with a characteristic fragrant odor, and a burning sweetish taste. It has a specific gravity of .725 and boils at a temperature of 37° C. (about 98° F.). It is highly volatile and very inflammable, so that it is dangerous to use near a flame, though if the latter be held high (the vapor of ether is heavy and descends), the chances of danger are lessened.

Chloroform.—Chloroform is a heavier liquid than ether; is clear, colorless, mobile and very diffusible; of a characteristic ethereal odor and a burning, sweetish taste. Its specific gravity is never below 1.49 when pure and it is not very inflammable, though it burns with a greenish, smoky flame.

Action on Economy.—The action of chloroform and ether on the human economy by inhalation varies considerably, depending on the condition and susceptibility of the patient, the method of administration, the amount given, and the purity of the drug, the first and last mentioned being particularly noteworthy.

The use of chloroform as a general anesthetic has been argued for and against by many of the most prominent men in the profession; long articles have appeared from time to time extolling and condemning its virtues and use; the majority of laymen are more sceptical today about its appearance in their homes than ether; textbooks, old and new, say that there is at least one death in 3,000, due to chloroform poisoning, while the rate of mortality from ether is given in smaller ratio. Many of these arguments and remarks are made from the fact, mainly, that chloroform is so rapid and dangerous in its action; and its method of administration differs from that of ether in that where the latter may be given, and should be, with very little air, if any, the other should not and must not be given in a concentrated condition for any length of time. It is a wellknown fact that a great majority of recent graduates, young physicians and surgeons, and even those more advanced in years in the profession, would much rather wield the knife than the ether or chloroform cone.

From this statement, and I believe it cannot be doubted, it is very evident why there are not many expert anesthetizers; and the cases of chloroform poisoning, at least many of them, may be attributed to the inability of the anesthetizer or to his ignorance of the peculiar drug he is handling.

On the other hand, ether is a stimulant to the heart and one of the best we have, but it is also a rank irritant to the bronchial mucous membrane and to the kidneys. It is a comparatively easy matter to hold an ether cone over or near a patient's face until the irritating effect has passed away and then clap it down over the face, hold it there, and pour ether into it, at the same time watching the breathing and color of the face. (Cyanosis is an early symptom of poisoning by ether.) I state the foregoing as being an easy matter, for I have been told so by anesthetizers and have also had a fairly good experience with the drug. Because of this it is claimed by many that ether is the "safer" drug.

At any rate, in the hands of one not skilled or experienced in its use, ether can be made to kill as quickly and easily as chloroform. The cone or chloroform inhaler cannot be put over the face and the drug poured into it for any length of time but by careful study and knowledge of this peculiar liquid and its physiologic action, and the condition of the patient known at all times, chloroform is rendered as easy of administration and as safe and sure in its effects as ether. Chloroform is an excellent instance of the law of dissolution, for it affects the highest sensory centers first, as evidenced by the first symptoms, after a few inhalations of the drug, and also by the fact that drugs which in small doses stimulate any part, in large doses often depress it.

Not so with ether, as before stated, it is one of the best heart stimulants, but an irritant to the lungs and kidneys. It nearly always produces a nausea and vomiting, postoperative, and although many drugs are advocated to counteract this effect they are not satisfactory to any great degree. Chloroform, if properly given and not in an excessive amount, does not cause the distressing symptoms nearly so often, and the effect of the drug passes away in a shorter time than does that of ether.

Ether as an Anesthetic.—Pure ether is best administered by the use of one of the numerous inhalers, the simpler, the better. I prefer the one which I have used in this hospital, made from a common grocer's rattan or cane cuff. This is covered with shellac and allowed to dry, then covered with oiled silk, and over this, gauze. The smaller end is packed with absorbent cotton to within three inches of the larger opening. A circular piece of wire splint is cut to fit snugly down over the cotton on the inside, and the cone is complete. This makes a cheap, neat, easily-made, and very convenient ether cone, and by placing the hand or towel over the smaller end, air or not, as is wished, may be allowed to pass through the cotton. Another point with this inhaler is that it readily fits the contour of the face, making it preferable to the metallic instrument with a rubber face piece, as the latter invariably splits at the angle where the bridge of the nose comes in contact with it.

The patient being ready for etherization, the anesthetizer must, if he expects to become proficient in the art (for it is surely an art), carefully examine the patient's chest, listening closely to the heart and lungs, provided he has not already done so. An examination of the urine should be made previous to giving a general anesthetic, and it is always a good plan to administer strychnin sulfate .002 every three or four hours for the 24 hours preceding an operation, and to give a hypodermic of atropin and morphin, .4 mg. ($\frac{1}{150}$ gr.) and 16 mg. ($\frac{1}{4}$ gr.), just before the anesthetic is given. The bowels should be emptied the night before and the following morning, and urine voided or drawn, also in the morning preceding the operation.

The next thing of importance is to ascertain if there are any loose teeth, gum, tobacco, or other substance in the mouth, and having removed such, if any, and being fully satisfied as to the condition of the patient, about 15 or 20 grams of ether are poured into the inhaler and the patient told to take long deep inhalations. The cone is held from 6 to 8 inches from the patient's face; if held any closer the vapor is very irritating, and even when held a foot from the face I have seen many patients cough and choke and ask to have the cone taken entirely away. After a moment or two the effect will wear away slowly and then the cone is brought down to the face and held tightly. A few words of assurance or a joke, work wonders. The patient is told to breathe deeply, and soon, along with continued winking and blinking of the eyelids, the face becomes flushed, the imagination becomes excited, and a feeling of general warmth and comfort is experienced. Then the mind becomes confused and the senses of sight and hearing are stimulated. The patient sees lights or objects and hears all kinds of noises. This stimulation is very transitory and he soon begins to lose consciousness. The motor functions are stimulated and he begins to kick and struggle (more violently under ether than chloroform). In the early part of this stage he may laugh or cry, talk or sing incoherently. The pulse is generally increased, as are the respirations.

This stage, known as that of stimulation or excitement, passes imperceptibly into the second, which may continue to be full of excitement in some cases, though soon the motor functions are paralyzed, there is loss of sensation and the reflexes, the pulse is lessened and respirations become more regular, though less frequent and strong. This is the proper stage at which to operate, as the patient cannot feel pain and the reflexes are so lowered that the heart will not be affected by shock. The third stage is one of total abolition of reflexes and complete paralysis of motor and sensory tracts, pupils are dilated, the breathing generally regular, though deep and stertorous. This is the stage of danger, and at the first exhibition of cyanosis the ether should be withdrawn and fresh air allowed to be inspired. Experience has taught me that the second stage is the one to keep the patient in and never to allow cyanosis to appear; as may be summed up in a word or two, it is unnecessary—for by watching the pupils (a *very* slight reaction to light is a good sign), heart and respirations, one can keep the patient at this point with comparative safety by careful attention at all times. The anesthetizer can, by glancing at the field of operation, ascertain when the operation is about finished and stop the drug, without giving more than is needed. The after-effects of ether have been mentioned; they are well known—the retching, nausea and terrific vomiting, nearly always one or more of the three, or all of them, often occurring. I have seen stitches torn from abdominal incisions, and once hemorrhage from the nose and mouth due to violent straining and vomiting.

The Method of Giving Chloroform.—The patient is thoroughly examined, as in the preceding manner. The simplest and most serviceable inhaler is the Esmarch, with which all must be more or less familiar. Enough, say 20 or 30 drops, is placed on the inhaler and the latter held near the face, the patient being told to take long breaths. Two inches or less is the best distance to hold the inhaler as plenty of air is then allowed to mix with the vapor. In one or two minutes, by dropping on enough chloroform to moisten the gauze well, a sense of numbness and tingling is experienced in the limbs, and a "buzzing" sound in the head. These are invariably the first effects of the drug and very quickly are followed by incoherent speech or motor excitement, though the stage of excitement is not nearly as marked in chloroform narcosis as in ether. There may be some struggling, but the duration is always short and the efforts more feeble than in ether. The patient has also the sensations of light and hears noises. Some of the most curious ideas imaginable are expressed under the effects of chloroform. As mentioned before, the highest functions are the first stimulated and are quickly depressed, at the same time the motor functions are excited. The pulse is increased in frequency and there is throbbing of the vessels in the neck. The pupils usually dilate widely within the first two or three minutes, but soon contract.

As the second stage is reached there is quickly a loss of consciousness and the patient appears to be in a deep sleep. The cardiac and respiratory apparatuses are depressed, especially the latter; the vasomotor center is depressed and blood-pressure falls. *This* is the time to operate in chloroform narcosis and is the proper condition to keep the patient in at all times. If deeper narcosis is produced danger is imminent. If this degree of anesthesia is lessened the reflexes are bound to return and the patient commences to kick and squirm about, making it oftentimes embarrassing to the operator.

The third stage is one of profound narcosis, even the lowest reflex centers of the cord are depressed, and all muscular tone is abolished. If this continues the pupils contract to pin points and then become widely dilated, probably on account of commencing asphyxia, and the respiratory movements become slight and irregular; the lower jaw drops, allowing the tongue to fall back into the pharynx; the heart-beat is small and irregular, the blood-pressure gradually falling to zero. There is a fall in body temperature of about one degree in chloroform narcosis, and even lower in ether, due to capillary dilation and fall of blood-pressure. Commissions have from time to time been appointed to investigate the cause of death from chloroform narcosis, and some have reported the failure of the circulatory center as the cause, while others have reported the failure of respiratory centers. (See report of the commission appointed by the Nizam of Hyderabad.) It has been shown conclusively that death in the healthy animal is always due to respiratory failure, but is accompanied by circulatory depression severe enough to cause death, and it is my experience that in every case, with one or two exceptions in which poisoning, slight or severe, has occurred in man, not followed by death (for none has yet occurred) the depression of the respiratory center was always first, and followed, it is true, by rapid depression of the circulatory apparatus.

Hare and Thornton, after a painstaking series of experiments, believe chloroform to be safe for the majority of patients, provided it be given by one skilled in its use, and who not only *knows how to give it*, but also *knows how to detect signs of danger*. Following are a few noteworthy points that I follow closely and believe to be valuable guides to the administration and effects of chloroform for anesthesia: 1. Don't give too much chloroform. 2. Watch the pulse with finger on left or right temporal artery; it is easy. 3. Watch respirations carefully; see that they are regular and not *less* than 16 to the minute—better to have 18 or 20. 4. From time to time raise the upper lid of either eye quickly; note the amount of contraction of pupil, if any, and mobility of the eyeball. There should be a very slight contraction of the pupil in the proper degree of anesthesia, but a rotary motion of the eyeball means that a few more drops of chloroform should be given. 5. Do not keep the head in a vertical position, but turn to either side; it is much easier to give the anesthetic, the lower jaw does not fall, allowing the tongue to drop backward, and with the forefinger placed above or at the angle of the jaw, one can push the latter forward and keep it there. There is also an opportunity to brace the inhaler against or close to the face by putting a towel along the under surface of the face, thus keeping the inhaler fixed, allowing one to watch the respirations, the left eye, and pulse of left temporal artery (if head is turned to the right). It also allows mucus and saliva to run from the mouth instead of having to wipe it out of the posterior pharynx.

This position of the head has proved of great benefit and help to me for the past year and a half, and is always used when possible, being an important factor in the successful administration of anesthetics in this hospital today.

In concluding, I desire to state that this article has been written, and the notes taken, from a series of 769 cases, extending from July 1, 1899, to May 1, 1900, and from January 1, 1903, to June 30, 1904, divided as follows:

July 1, 1899, to May 1, 1900.		
Number of cases of anesthesia		368
By ether	252	
By chloroform	116	
Total	368	368
January 1, 1903, to December 31, 1903.		
Number of cases of anesthesia		211
By ether	75	
By chloroform	136	
Total	211	211
January 1, 1904, to June 30, 1904.		
Number of cases of anesthesia		190
By ether	6	
By chloroform	184	
Total	190	190
Total number of cases		769
By ether	333	
By chloroform	436	
Total	769	769
Number of deaths, rate of mortality	0	0

Many more etherizations were made from July, 1899, to May, 1900, for the reason that I was a recent graduate and had the idea which is in vogue today by a great many, namely: That ether was and is the safer drug—in fact, I did not know chloroform very well. Having read many articles on general anesthetics, perused carefully the statistics and reports of authorities on the subject, and consulted textbooks on surgery, materia medica, and chemistry, I resolved to give chloroform for operative work exclusively, when, of course, it was not distinctly contraindicated, and to study its effects and results; to obtain the best method of administering it, and to note the after-effects in the cases in which it was possible. In summing up, then, from these 769 cases, 333 of them etherizations, and the remaining 436 chloroformizations, a fair comparison has been obtained as to the merits of these two widely known drugs—the two greatest general anesthetics in use by the medical profession. Taking it for granted that ether is a safe drug to use, why is not chloroform, when properly used, just as safe?

Agreeing with Hare and Thornton, and other well-known authorities, and from a personal experience long enough to establish facts, and in seeing its use thoroughly demonstrated, it is my firm conviction and opinion that, when used properly, never allowing the patient to reach the danger limit (which can be reached with ether as well), keeping at all times complete control of yourself as well as the patient, using as little as is absolutely necessary, thoroughly understanding the physiologic effects of the drug, and ability to treat accidents or emergencies should they arise, chloroform anesthesia is as easy to produce and maintain and is as safe to the patient as is anesthesia with ether. The results obtained are more satisfactory than by ether; it is quicker in action, easier for the patient to inhale, motor and sensory effects are as complete, and recovery is far more rapid.

The after-effects of ether, as has been stated, are often very distressing, while the majority of patients, under this report at least, who have been given chloroform were not nearly so depressed, and vomiting and nausea were eliminated in many.

The average amount of ether given was 160 gm. The longest sustained etherization was 1 hour and 40 minutes, the patient consuming 400 gm. of ether. The longest sustained chloroformization (operative) was 3 hours and 20 minutes and the amount of chloroform used was only 150 gm., with 40 gm. of ether. The shortest period of anesthesia was for manipulation of a joint, and 10 gm. of chloroform was used. The average quantity of chloroform used in over 150 operations was 40 gm., and I have compiled statistics from personal experience which show that in all operations not involving the face (for it is more difficult to give anesthetics in cases involving this region), it is not necessary, as a rule, to give more than 35 gm. to 45 gm. in operations of less than an hour. It must always be borne in mind that one must give undivided attention to his work when giving an anesthetic, whether it be chloroform or ether, and if attention to details is observed, and the progress of the case followed closely, there is no reason why chloroform as a general anesthetic should not be used as frequently and with as few dangerous results as ether.

TRAUMATIC EMPHYSEMA OF THE ORBIT AND LIDS.*

BY

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In order for air to enter the orbital cavity, there must be a break in the continuity of the mucous membrane lining the cavities accessory to the orbit, a fracture of the bony walls of the orbit and a rupture of the periosteum. Air may penetrate the subcutaneous tissue of the lids without fracture of the bones of the orbit or face, or rupture of the periosteum. Usually, however, emphysema of the orbits and of the lids is associated and dependent upon a single cause. In the majority of cases the air is confined to the structures named, and rarely reaches to the adjacent parts of the face. This limitation is the result of the arrangement of the orbital fascia, and it is only exceptional that the violence and character of the traumatism are such that the strong anterior lamina of fascia that binds the lids and orbital margins is broken.

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Emphysema of the orbit and lids may arise from (1) traumatism; (2) disease or necrosis of the bones separating the orbit from adjacent cavities; (3) surgical operations, and (4) spontaneously, from forcible expiration in the presence of erosion or ulceration of the buccal mucous membrane.

Traumatism.—The only scientific effort to discover the site of the lesion that I have been able to discover in literature was made by Walser at the suggestion of Fuchs.[1] Fuchs did not credit the usual explanatory statement that was to be found in most of the articles on the subject that the fracture occurred at the point of contact, namely, the orbital margin, for the reason that nothing was said of sensitive spots and no evidence given of fracture. Fuchs' theory was borne out by Walser's investigations on six dead bodies. These experiments demonstrated that the lamina papyracea of the ethmoid bone was fractured at the moment of impact, and that the periosteum covering this thin and friable bone was ruptured, opening up a communication between the nasal cavity and the orbit. The mechanism of the fracture as explained by Fuchs is, that the trauma by forcing the ball backward causes elevation of pressure in the orbit and the giving way of the lamina papyracea. In Walser's experiments, colored fluid, which was made to act as a substitute for air, was found to have entered the perforation and to be distributed throughout the posterior part of the orbit, where it was confined by the tarsoorbitalis fascia. The fluid did not enter the lids or pass between the fibers of the orbicularis muscle.

Case I.—A man was struck a sharp blow on the left eye and orbit by another's fist. On the day after the injury both lids were ecchymotic and emphysematous and the eye was proptosed and turned down and out. Movements in all directions were limited and the patient complained of diplopia and moderate pain. Under pressure bandage and by the avoidance of nose blowing and straining the swelling receded, the ball returned to its original place in the orbit and regained its movements and the diplopia disappeared. Recovery was complete in a few days.

Fuchs' theory explains some of the cases in which the effect of the traumatism was borne by the ball and the anterior margins of the orbit, but throws no light on those in which the injury involves the back of the skull. Hilbert[2] describes such a case. A workman fell, striking the pavement with the back of his head. He arose at once, experiencing only a slight pain in the head and neck. Three hours later he had diplopia, a feeling of pressure in the left eye, and swelling of the lids, increased by blowing his nose. There were convergent strabismus of the left eye, proptosis, emphysema of the lids, and limitation of movement externally. The author offered no explanation of the entrance of air and made the diagnosis of hemorrhage into and emphysema of the orbit. A similar case has been reported by Baudry.[3]

Disease of the Orbital Walls.—Instances of emphysema of the orbits and lids accompanying necrosis of parts of the walls of the orbit, such as the ethmoid plate or floor of the frontal sinus, are sufficiently familiar to obviate the necessity of citing cases. The extent and the shape of the distention depend upon the quantity of air and the position of the entrance point.

Surgical emphysema may be induced by the division of the mucous membrane lining the nasal duct during the introduction of the Bowman knife, by rupture of the membrane, by forcing a new passage in the attempt to probe the duct, and by operations upon the cavities accessory to the orbit. C. L. Birmingham[4] describes under the title of "Surgical Emphysema of the Lids" a case in which the end of a rib of an umbrella was forcibly blown against the right eye close to the caruncle. Three hours later, after blowing the nose, there was a high grade of emphysema closing the lids with a swelling so great that the eye-lashes could not be seen. His explanation was, that the lacrimal apparatus was ruptured at the junction of the canaliculi and sac.

Spontaneous emphysema of the orbit without history of fracture presupposes the existence of a communication between the orbit and the accessory cavities, yet in three of the reported cases no such communication could be found. Desmarres[5] reports the case of a man of 58, who subjected himself to heavy sneezing from his habit of taking snuff. Each time he inhaled the snuff the left eye protruded and swelled. Upon the resumption of normal breathing the eye fell back and the lids resumed their shape. The lesion was supposed to be a rupture of the tear sac. Schanz[6] observed the case of a glass-blower who forced one eye out in the act of blowing through a tube of small caliber. The traumatism to the nerve finally induced a mild neuritis. T. R. Pooley[7] records a classic case of emphysema of the orbit and lids in which there was no history of traumatism or disease of the orbital walls. The patient had repeated attacks preceded by blowing the nose or violent sneezing. Joncheray[8] saw emphysema of the right orbit and lids repeatedly and suddenly occur after blowing the nose and sneezing, in an individual who had no signs of fracture or history of injury. He had slight nasal catarrh with polyps.

Case II.—A boy of 16 presented himself recently at the Jefferson Medical College Hospital. He had been struck on the left cheek some days before by the head of a companion. The blow forced the buccal mucous membrane against the teeth, and lacerated it. The boy felt no inconvenience, except from the sore mouth. On the day following the accident he attempted to measure his power of expiration by blowing into one of the registering machines, often found in public places. Immediately the left side of the face became distended. The swelling extended from below the margin of the inferior maxillary bone to the temporal region, and laterally from the nose to the ear. Both lids were involved. By persistent massage the swelling was reduced until the two sides of the face were almost symmetric. On the following day the air was again driven out of the tissues by manipulation, and in five days the conditions were again normal.

Fontan[9] is the only writer I have found in the literature who mentions erosions of the buccal mucous membrane, as the site for the entrance of air in emphysema of the face and lids.

Proptosis, dislocation, and immobility of the ball are not, as some writers imply, evidence that the emphysema is complicated by hemorrhage into the orbit. The confined air of itself is sufficient cause for the distention. It is probable that a few drops of blood are exuded from the periosteum or other tissues that may be torn, but the amount is too insignificant for consideration in this connection. Extensive hemorrhage from the laceration of a large vessel is not likely to occur because the tortuous course of the large vessels and their protection by the soft tissues act as safeguards. Moreover, we would expect serious and permanent changes to the ocular structures and extensive conjunctival ecchymosis, conditions rarely associated with emphysema. As Hilbert has pointed out, complete recovery in a few days militates against the diagnosis of orbital hemorrhage. In Hirschberg's[10] case the assumption that hemorrhage coexisted is probably correct. A man fell, striking his right eye against an iron bar. Swelling and disturbance of vision were at once manifest. On the next day he blew blood from his nose. The lids and conjunctiva were suffused with both blood and air. Protrusion of the ball, emphysema of orbit and lids, and limited movement continued for three weeks. Fuchs[11] states that when the exophthalmos is due to air and not to blood, the ball may be pushed back into the orbit and again forced out by blowing the nose.

Emphysema limited to the lower lids has been reported by Malcolm.[12] A riveter received a slight blow with a hammer on the outer angle of the orbit, causing apparently a mere excoriation of the skin. As he blew his nose on the same night the lower lid became suddenly swollen. The emphysema was slight, and limited strictly to the lower lid. There was no pain or hemorrhage. Malcolm says, "The blow on the malar bone, I take it, caused a fracture indirectly of the orbital plate of the superior maxillary, so that when the air pressure in the maxillary sinus was increased some air found its way into the lid through the crack." Deprés[13] describes a case of traumatic emphysema of the lower lid. Each time the nose was blown the swelling began in the lower lid and spread to the upper lid. He states that there was a fracture of the superior maxilla, and air was admitted from the maxillary sinus.

The symptoms of emphysema of the orbit and lids—proptosis, limited movement, diplopia, swelling, gaseous crepitation supervening after blowing the nose, violent sneezing, or forced expiration with the outlet for the air closed, following injury or in individuals who have a communication, the result of disease or operation, between the orbit and lids and the accessory sinuses, or erosion of the buccal mucous membrane—are so well known that they are only mentioned. The interest in these cases lies rather in the mechanism of their production than in the diagnosis or treatment. The diagnosis is sufficiently easy, and there is no lack of uniformity in the measures adopted for their cure, namely, manipulation and pressure. It is doubtful whether potassium iodid, recommended by some writers, is useful.

It is difficult to estimate the frequency of emphysema of the orbit and lids, as compared with other ocular affections. No doubt many cases are met that attract no particular attention, and are not considered worthy of publication. Certainly the reported cases are few. In the out-patient service of the Jefferson Hospital the frequency is about .5%.

The interval between the injury and the appearance of the emphysema varies. Usually it is not longer than an hour or two before the patient feels the necessity of coughing, blowing the nose, or sneezing. It may be much longer. Knapp[14] mentions three days; Thompson[15] 10 years after an operation for exostosis of the orbit. Gosselin[16] had a patient who had his lacrimal bone injured in his twenty-fourth year, and when 46 he had sudden nose bleeding and emphysema of the orbits and lids. It is likely in these long delayed cases that the original injury was not responsible for the emphysema.

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CONTRACTURE OF THE NECK OF THE BLADDER.[1]

BY

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To introduce my subject I shall report three interesting cases:

CASE I.—R. L., aged 47, contracted a gonorrhea of three years' duration, when 18. Six years later he had several attacks of retention. The passage of sounds for the relief of this trouble infected his bladder, causing cystitis. Three years after this an internal urethrotomy was performed under chloroform. The operation was followed by profuse hemorrhage, and three days later by urethral fever, the patient being unconscious for several days.

In January, 1900, the patient consulted me at the dispensary. He was suffering with chills and fever due to the local infection. With great difficulty he succeeded in passing a small glass of urine, which was loaded with pus and mucus. Examination of the urethra revealed the presence of stricture in the anterior portion, two inches from the meatus, measuring No. 15 French, and a dense fibrous mass in the bulbous portion, which would admit only a No. 3 French. Examination of the prostate per rectum revealed no enlargement. The patient was advised to enter the hospital for operation.

I saw nothing of him, however, until March 17, when he applied to the hospital for admission, having suffered with retention of urine for three days. The patient was tapped and 40 ounces of urine obtained. Hot sitz baths with 16 mg. (.25 gr.) doses of morphin, were given, but with no abatement of the retention.

Operation.—External urethrotomy without a guide. A No. 15 French sound was inserted as far as the face of the stricture. An incision was made directly over the point of the sound, and carried carefully down in search of the urethra. The sound being engaged in a false passage, its point was diverted about three-eighths inch to the left of the median line. My incision was thus led astray; and, after a most careful search, I was unable to locate the lower portion of the urethra. A suprapubic opening was now made, and retrograde catheterization performed. Great difficulty was experienced in trying to engage the sound in the urethra, as the internal meatus was almost completely closed. After I succeeded in introducing the sound, the point was brought out through the perineal incision. Withdrawing the instrument, I followed the point back with my left forefinger. At the internal meatus I detected a distinct circular band resembling stricture. To my finger it felt like a hard, fibrous band, covered with mucous membrane. It imparted the same sensation as a piece of wire covered with rubber—like that used for babies at teething time. I dilated it with my finger until the resistance of the parts had been overcome. No. 20 French catheter was inserted in the perineal incision for drainage.

The following morning we were unable to obtain urine through the catheter after repeated attempts. Thinking that a clot might have lodged near the eye of the instrument, I decided to withdraw the catheter about an inch and reintroduce it. The catheter seemed to be engaged more firmly than usual, and after withdrawing it I was unable to reinsert it, owing to the presence of some obstruction. Suspecting that the band I had encountered in the operation on the previous day might be the cause of the trouble, I opened the perineal incision under ether. Carrying my finger back through the prostatic urethra, I again felt the same band of fibrous tissue. This band, or collar, had closed down, making it impossible to reintroduce the catheter. Using the finger for a guide, I passed the scalpel back, cutting through the band on the floor. Very little hemorrhage followed. A No. 20 French catheter was put in place, and the sides were packed with iodoform gauze. The closing of the perineal incision was retarded by the weakened condition of the patient, and by the presence of a great amount of fibrous tissue.

At the end of four weeks, although the patient was urinating through the perineal opening, I advised him to leave the hospital and seek fresh air and good food for a period of six months. He returned in the fall, having gained 50 pounds. The fistulous opening in the perineum was now dissected out, and the urethra joined. At the same time, I introduced my finger into his bladder to examine the condition of the posterior urethra. The constricting band at the internal meatus had entirely disappeared. Five weeks later the patient was discharged. He has since married and become a father.

CASE II.—F. C., of Middleport, Ohio, aged 35, had gonorrhea in 1895. A stricture developed at the bulbomembranous junction. Three years later he had his first attack of retention. Sounds were introduced, carrying infection back into the bladder. As a consequence, the patient developed cystitis, with frequent attacks of retention.

He reached the hospital at midnight in August, 1900, having had retention for two days. Although his bladder did not contain more than five ounces of urine, he was suffering the most excruciating pain. Being unable to introduce a filiform, I was forced to make an external urethrotomy without a guide. Digital examination per rectum revealed no prostatic enlargement. The incision was made in the median line of perineum. Careful dissection brought to view the posterior urethra. Thick, greenish-yellow pus began flowing out of the incision. It amounted to ten ounces in all, and showed evidence of stone in the bladder. After the stricture was divided, the left index finger was passed back to the vesical neck. At this point, as in the case previously described, I encountered an extremely rigid collar surrounding the urethral orifice of the bladder. This constricting band would barely admit the tip of the index finger. Forcing my finger through, I was able to detect the presence of several stones in the bladder; but the ring would not permit the introduction of the bladder scoop. The ring was therefore incised. At this juncture the state of the patient was such that we were forced to abandon our work, postponing the removal of the stones. The bladder was irrigated four times a day for six weeks. At the end of that period a suprapubic opening was made, and four stones were removed. Exploration of the prostatic urethra found the neck of the bladder in good condition, while the constricting band had almost entirely disappeared. The patient is now in good health.

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[1] Read before the Ohio State Medical Society, May 18, 1904.

CASE III.—T. R., of Altoona, aged 68, consulted me in December, 1900. The patient has had two attacks of gonorrhea. For the past nine years he has had marked frequency and urgency of urination. For the past year, he has urinated once an hour during the day, gradually increasing in the night until, in the early morning hours, he empties his bladder every 30 minutes. He experiences great difficulty in starting the stream, and has much pain at the close. He has had several attacks of retention, with more or less dribbling. Residual urine, 3 ounces. Urinary distance, 8½ inches. No appreciable enlargement of the prostate can be felt per rectum. The urine shows presence of pus, and small quantity of albumin. A small number of hyaline casts and cells from the pelvis of the kidney are present. Cystoscope is introduced with great difficulty, as it meets an obstruction at the vesical neck. Examination of the bladder shows the walls to be trabeculated and the seat of a chronic inflammation.

Operation.—Perineal cystotomy. There is a dense fibrotic ring at the neck of the bladder, which is incised with the knife. There is no reaction from the operation, and little hemorrhage follows. The perineal tube is removed in 10 days. The residual urine at the end of two weeks is but 1 ounce, and this is gradually reduced until, by January 30, there is no residuum. The urine is cloudy, but not offensive; dribbling has entirely ceased. March 1, he urinates 3 to 5 times a day, and can go the night through with emptying the bladder but once.

In addition to this class of cases, I have met cases of milder degree while operating for stricture, complicated with cystitis. These less rigid ones have been reduced by simply dilating and rupturing the band with the finger until all resistance has been overcome. More recently, I have used the galvanocautery of Wishard, which has been lately introduced.

Contracture of the vesical neck refers to a ringlike band of muscular and fibrous tissue surrounding the prostatic urethra at or near the internal meatus. This condition follows reflexly upon local disturbances in the urethra, the bladder, the seminal vesicles, or the kidneys. Normally, at this point, the canal is wide, funnel-shaped, and elastic. It passes into the cavity of the bladder in such wise that its junction with that organ is difficult to define. Contracture of the neck of the bladder is a subject that has been discussed from several different standpoints, although the literature is not extensive. There are various degrees of contracture, depending upon the length of time it has existed, and the intensity of the inflammation that gives rise to it. Its general symptoms sufficiently indicate that its nature is primarily that of a neurosis. The contracture may be temporary and mild, being purely functional and reflex in character; or, it may become chronic, resulting in a round-cell infiltration of the tissues encircling the neck of the bladder, and giving rise to a fibroid stenosis of the vesical neck. Finally, the bladder loses its tone, becoming pouched behind the stenosis, containing residual urine, and simulating prostatic obstruction. Although the closure is never complete, it is frequently so small and so rigid that the finger cannot be forced into it. There are no symptoms positively characteristic of this condition, except the signs brought out by a physical examination. The symptoms of contracture of the neck of the bladder are usually so masked, or complicated, by the symptoms of the diseases that give rise to it, that oftentimes a positive diagnosis cannot be made without an actual examination of the parts. Yet there is a certain group of symptoms which, coming on gradually and in the absence of prostatic enlargement, and vesical or renal tuberculosis, is very suggestive. Chief among these are: Pain; frequency and urgency of urination—more especially at night; difficult urination; dribbling from irritation or overflow. In chronic cases the force of the stream is diminished, and in many instances complete retention occurs. Examination per rectum reveals nothing peculiar to the condition. Since the caliber of the contraction corresponds closely to that of the urethra, its presence cannot be detected by the passage of a good-sized sound. A cystoscopic view of the bladder should be taken whenever possible. The symptoms of contracture oftentimes resemble those of stone in the bladder, although these conditions may coexist. Examination of the interior of the bladder, when this is possible, will enable the surgeon to detect the presence or absence of stone. I am not prepared to say whether the contracture in these cases is produced by the presence of the stone, or whether the stone is secondary to the contraction. In the case I reported I believe the contraction was secondary to the long standing posterior urethritis, which is the most frequent cause, and that the stones resulted from the obstruction offered to the stream by the contracture.

On account of the obstruction to the urinary outlet, many cases of contracture of the neck of the bladder are diagnosed and treated as senile prostatic hypertrophy. This is especially true in cases of prostatic atrophy, in which we have many of the symptoms of hypertrophy; in cases of socalled prostatic hypertrophy which occur at an unusually early age; and in cases of socalled prostatic hypertrophy in which the symptoms are not justified by the existing enlargement of the prostate. Keyes observes that "when there are symptoms of prostatic retention without any hypertrophy of the prostate, or increase in urinary distance, the essential lesion is a contracture of the neck of the bladder." Sir Henry Thompson emphasizes this fact when he says, "An organic obstruction may exist at the neck of the bladder when there is no enlargement of the median portion of the prostate. . . . In this case it is most commonly due to hypertrophy of the muscular fibers at the neck of the bladder, produced by long-continued irritability of the viscus, and generally occasioned by stricture of the urethra, inflammation or calculus of the bladder, and occasionally appearing without any of these conditions."

Contracture of the neck of the bladder may coexist with hypertrophy of the prostate, forming a part or all of the obstruction that produces the characteristic symptoms of prostatic hypertrophy. The possibilities of a mistaken diagnosis here will be readily perceived. The pronounced symptoms of prostatic hypertrophy in such cases are calculated to throw the surgeon off his guard, so that the contracture at the vesical neck may be entirely unsuspected. Thus, Eastman[1] reports the case of a man of 69, suffering from chronic enlargement of the prostate, with its attendant symptoms. He did a perineal prostatectomy, using the inverted Y-incision of Senn, without opening urethra or bladder. The removal of the prostate, which was five times its normal size, afforded no relief of the distressing symptoms. Accordingly, three weeks later, perineal cystotomy was performed. A collar-like obstruction was discovered at the internal meatus, which raised it a half inch above the floor of the bladder. The ring was divided with the galvanocautery of Wishard. This operation relieved the symptoms, and was followed by a good recovery.

The treatment of this affection consists, first, in the removal of the primary exciting cause. In the milder grades, rupturing the fibers with the finger, introduced through the perineal incision, usually suffices. In chronic cases it is impossible to do this, and it therefore becomes necessary to divide the contracture with a knife or with the galvanocautery, introduced through a perineal incision. It is important to make the division in the median line and on the posterior border of the vesical orifice. In cases in which the Bottini instrument can be introduced, it may be employed, although I believe perineal cauterization is much better and safer. By this method the surgeon can carefully palpate and inspect the parts, making the incision with greater accuracy, overcoming all danger from hemorrhage and affording perfect drainage. This last provision is very important, since the great majority of these cases are septic. Care should be exercised not to carry the incision too far, for if all the muscle fibers encircling the neck are divided, incontinence may supervene. Section of all the fibers with resulting incontinence is especially liable to follow the use of the Bottini instrument, since in the use of this instrument we are unable to determine the extent of the contracture, the manipulations being carried on wholly in the dark. With the Chetwood incisor, introduced through a perineal incision, we are able to palpate the parts and to form a very intelligent idea of the existing condition. But the Wishard incisor, with the combined cystoscope and air dilation, goes a step further, allowing us not only to palpate the parts, but to inspect the vesical neck and the interior of the bladder, and giving the best view obtainable. For these reasons the Wishard incisor is preferable to all other methods.

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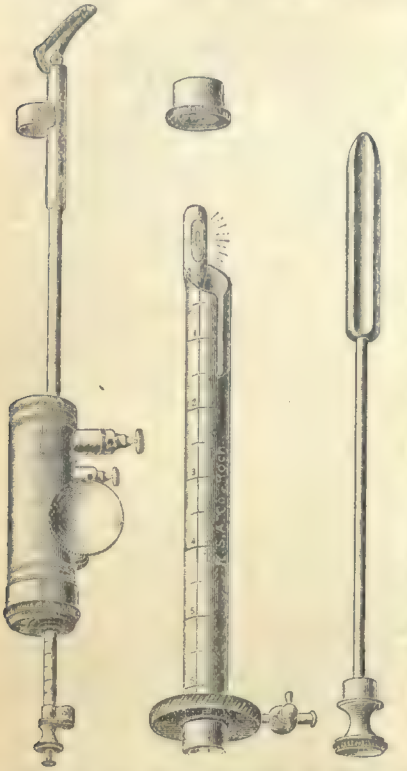
[1] Medical News, September 5, 1903.



The after-treatment is important, and resolves itself into that of a perineal section. Drainage by means of a soft rubber catheter, introduced through the perineal incision, should be established for a period of 3 to 10 days, when the incision should be allowed to close, the patient urinating through the natural channel. Urotropin should be given in .49 gm. (7.5 gr.) doses in a glass of water four times a day. Daily irrigations of the bladder with silver vitellin (argyrol) should be practised until all signs of cystitis have disappeared. In cases complicated with stricture, sounds are not indicated until perineal incision has had ample time to heal. Too early and too frequent use of sounds often proves detrimental.

Appended is a cut of the Wishard incisor. Dr. Wishard is the pioneer in the use of the cautery for work upon the prostate through a perineal incision, having performed his first operation some 13 years ago, with an ordinary free hand cautery introduced through a small straight rectal tube. Illumination was secured by using reflected light with head mirror.

Dysentery and Summer Diarrhea.—The Monthly Bulletin of the New York State Department of Health, for May, states that the antitoxin laboratory is now in a position to supply health officers with a limited amount of antidysenteric serum for the use of the physicians who have cases of dysentery in adults or in children, or cases of summer diarrhea in children, and desire to test the efficiency of this treatment. According to the present weight of evidence, cases of diarrhea characterized by the presence of considerable amounts of blood and mucus in the stools, and generally with severe prostration, are caused by infection with *B. dysenteriæ* (Shiga). The feces in these cases usually show the presence of this bacillus in large numbers to the almost complete exclusion of other bacteria. In other forms of diarrhea, especially when the stools contain considerable quantities of mucus, and possibly a small amount of blood, *B. dysenteriæ* has been frequently found in the feces, but usually after more or less prolonged search. It is open to question whether this microorganism is of any etiologic significance in all of such cases. If the antidysenteric serum is likely to be shown to be of therapeutic value it will certainly be demonstrated in its use on the first class of cases. According to the present conceptions it should also act more efficiently as a preventive agent than for the treatment of these forms of disease. It should, therefore, be used as early as possible in the course of disease, or at once in suspected cases. It should be injected subcutaneously in the same manner, and with the same precautions, as in the injection of diphtheria antitoxin.

SPECIAL ARTICLES

SAND FILTERS AND TYPHOID FEVER IN POUGHKEEPSIE.[1]

BY

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of Poughkeepsie, N Y.

The *Engineering Record* for April 23, 1904, comments on the fact that Poughkeepsie and Lawrence have been looked upon as the two examples of the theory that it is not necessary to have covers for slow sand filters. It is my purpose to show that the experience of Poughkeepsie is the reverse. A steady excessive prevalence of typhoid fever shows pollution of the water-supply. Table I shows Poughkeepsie to have had the excessive typhoid mortality of 42 per 100,000 of population from 1890 to 1899. The European cities mentioned are supplied with filtered water, and their rates are of the year 1893.

TABLE I.—TYPHOID DEATHRATE PER 100,000 POPULATION.
(FROM NEW YORK STATE BOARD OF HEALTH, 1890–1899.)

LOW PREVALENCE.			
New York	17	Utica	20
Yonkers	16	Auburn	25
Kingston	20	Rochester	26
MODERATE PREVALENCE.			
Oswego	27	Syracuse	35
Buffalo	31	Newburg	37
EXCESSIVE PREVALENCE.			
Poughkeepsie	42	Troy	55
Amsterdam	52	Elmira	55
Binghamton	52		
VERY HIGH PREVALENCE.			
Watertown	80	Cohoes	90
Niagara Falls	80	Schenectady	100
Albany	86		
RURAL TOWNS, NEW YORK STATE.			
1890–1899	23		
UNITED STATES CENSUS.			
1890	32.1		
1900	35.4		
1893. FILTERED WATER.			
London	17	Hague	2
Amsterdam	16	Berlin	9
Rotterdam	5	Hamburg	18

Table II shows the prevalence of typhoid and malarial fevers in Poughkeepsie since 1893, and that more deaths relatively have been reported in Poughkeepsie than in the rest of New York State. Much confusion is caused by applying the terms bilious fever, typhomalarial fever, gastric fever, remittent fever, etc., to cases which, from their course and symptoms, are obviously typhoid. From the standpoint of public health, such cases can only be regarded as typhoid, and would, I am convinced, prove to be so upon postmortem examination. It is a fact that in large institutions where autopsies are made, these alleged diseases are never found, and have not been shown to have scientific existence. Deaths from malarial fevers in this part of the country are very rare, and in discussing the deathrate from typhoid, those from malaria should be classed as typhoid. This matter is important for Table II shows that from 1893 to 1903 there were 108 deaths reported in Poughkeepsie from typhoid and 47 from malarial fevers. Certainly this ratio of 108 to 47 proves that most, if not all of these cases were typhoid. Drs. Reed, Vaughan, and Shakespeare, in their report on the origin of typhoid in the Spanish war of 1898 prove that those cases reported as typhomalarial and malarial fevers, were simply typhoid. These physicians censure the army surgeons for not recognizing typhoid, and state that they did in military life the same as many are doing in civil practice—that is, failed to diagnose properly the milder cases of typhoid fever.

In studying the seasonal prevalence of typhoid, several curves are found: 1. Explosive epidemics such as those of Butler, Ithaca, and Watertown, due to some specific pollution, usually of the water-supply, which should have been prevented. 2.

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[1] Rewritten from a paper read before the Dutchess County, N. Y., Medical Society.

There are places like Chicago and Philadelphia, where they have frequent fall and spring epidemics, due to grossly polluted water-supplies, the heavy autumn rains and the spring floods carrying into the water a larger amount of pollution than at other times. 3. The normal curve is where the typhoid increases with the temperature in the spring and falls with it in the autumn, with a temporary decrease during the time of greatest heat. Poughkeepsie's curve does not agree with any of these, but depends on the relative efficiency of our filtration system and its inferior work in winter as is shown on the chart.

TABLE II.

	Total deaths		Rate per 1,000 deaths					
	Poughkeepsie		Poughkeepsie			New York State		
	Typhoid	Malarial	Typhoid	Malarial	Combined	Typhoid	Malarial	Combined
1893	21	10	38	20	58	14	5	19
1894	14	6	30	13	43	13	3	16
1895	10	8	19	15	34	14	4	18
1896	5	4	10	8	18	13	4	17
1897	10	5	10	5	15	12	4	16
1898	5	2	11	5	16	15	4	19
1899	6	3	14	7	21	13	2	15
1900	11	3	24	6	30	17	2	19
1901	10	1	23	2	25	13	2	15
1902	5	3	11	7	18			
1903	11	2	23	4	27			
Totals	108	47						

Table III shows that for six years 201 cases of typhoid were reported to our Board of Health as occurring from November to April inclusive, and that more occurred in February and March than at any other time. I think that many of these cases can be charged to defective working of our filtration plant, especially to its lack of cover in cold weather and its inadequate size. Poughkeepsie from November, 1903, to April, 1904, had 97 cases of typhoid reported. Albany using the same Hudson River water taken from a more polluted point than Poughkeepsie does, had only four cases of typhoid reported in January, 1904, with one death, while Poughkeepsie in the same month had 14 cases reported. Albany up to about five years ago was noted as a typhoid fever center, but its new, effective covered filter beds have caused a very marked decrease in the number of cases of this disease. In addition we have had in Poughkeepsie during the past as well as previous winters a large number of cases of diarrhea, the socalled "winter cholera," and other intestinal troubles.

TABLE III.—TOTAL CASES TYPHOID REPORTED IN POUGHKEEPSIE.

	1898	1899	1900	1901	1902	1903	Average 1898–1903	1904
January	1	12	5	5	3	3	4.83	14
February	2	12	5	9	6	8	8.66	15
March	3	12	4	19	3	4	7.16	36
April	3	6	3	9	6	3	5	16
May	....	....	2	1	....	1	.66	2
June	....	....	....	2	2	1	.83	2
July	1	2	....	4	3	....	1.66	2
August	2	....	4	2	....	1	1.50	
September	2	2	5	1	1	....	1.83	
October	2	2	9	2	8	2	3.33	
November	3	3	6	4	1	4	3.50	
December	3	1	8	5	5	12	5.66	
Totals	22	52	51	63	33	39		

Poughkeepsie has two filter beds, each about two-thirds of an acre in size. The first was erected in 1872, and was the first sand filter bed in the United States; the second was first used December, 1896. Figures show that for the past few years this plant has been performing very inferior work in comparison with results obtained at other places. In a well planned filter the water is first sent to a large settling basin, where the larger impurities settle out. Then the water goes to the filter beds for purification. The filter bed itself should consist of a water-tight tank, covered by masonry, and with open drains on its floor. On the drains are placed layers of different-sized gravel, with several feet of sand covering this. The water slowly passes through the sand and the different layers to the underdrains on its way to the clear water basin. The filters should consist of several small units of about a half acre in size, so that they can be cleaned in turn as needed, without putting the others out of use. The spaces between the sand grains are so small that the foreign matter in the water is retained on the surface of the sand, where a layer of sediment is formed, and it is here that the essential work of purification takes place. This is not simple filtration, but is of a biologic nature, and consists in the burning up of the organic matter in the water by the process of nitrification. This is done by the growth of nitrifying bacteria, which collect in the sediment on top of the sand and which destroy the disease germs, as well as remove all other organic matter, including the poisonous products of disease germs known as toxins, etc. A filter does not work effectively till this scum has had time to form, which takes about a day. It then does good work for a month or six weeks, by which time the scum layer has become so thick as to prevent sufficient water for practical purposes to work through the filter. Now by scraping off the top inch of the sand the filter is again ready for use, only, as at first, the water passing through for about the first 24 hours is not completely purified, and should be run to waste.

TABLE IV.—POUGHKEEPSIE.

•	No. of examinations	Average bacteria per cc. left in filtered water			Average percent removed by filter	
		Old bed	New bed	Combined	Old bed	New bed
1898	12	386	242	314	94.13	95.54
1899	18	98	91	94	94.33	94.16
1900	22	59	59	59	95.73	95.65
1901	15	143	150	146	95.16	94.55
1902	22	241	252	247	93.81	93.70
1903	23	Not examined separately		108	92.92	
Total aver.				161		

1904	Bacteria per cc. left in filtered water	Percentage of removals
January 4	116	91.8
January 30	120	90
February 6	208	78
February 27	184	83.9
March 12	224	96.5
March 26	132	94.5
April 9.	120	95.8
April 23	274	89.2
April 30.	194	88.8
May 3	244	88.4
May 17	257	59 2
May 28	412	79.6

TABLE V.—TOTAL MONTHLY AVERAGES POUGHKEEPSIE, 1898–1903.

Bacteria per cc. left in filtered water.

	Old Bed	New Bed
January	168	226
February	578	774
March	560	237
April	76	78
May	84	85
June	82	77
July	64	78
August	87	77
September	55	47
October	*	*
November	205	98
December	225	245

The test of efficiency of a filter plant is determined by a bacteriologic examination to show the number of germs left in the water. There are two different classes of results, and both must be considered. One is the actual number left in the water after filtration, and the other is the percentage of germs removed from the raw water. Chief Engineer Hill, of the new Philadelphia filtration plant, before a Senate committee which was investigating the subject for the benefit of the city of

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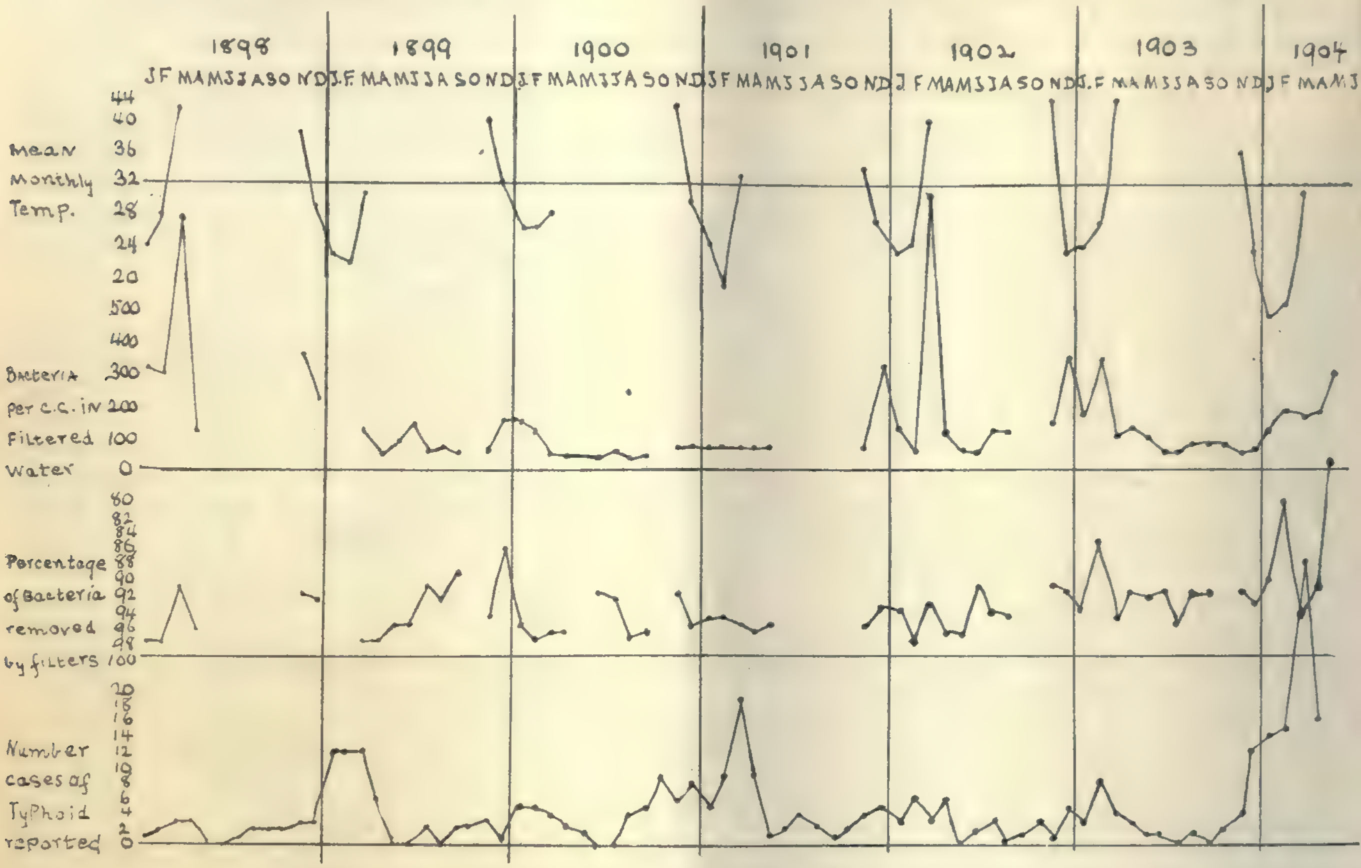
*Only examination in October was one in 1903, which gave 75 in clean water basin.

Washington, stated that the general bacterial efficiency of the filters abroad is from 98% to almost 100%, and that reports from the East London water works show as few as 4, 6, or 8 bacteria per cubic centimeter. The average percentage removed by the Albany plant for the past four years has been 99.27. The New York State Board of Health requires that the mechanical plant at East Albany shall remove, when the raw water contains over 3,000 germs per cubic centimeter, not less than 97%,



1898.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Mean monthly temperature	24	28	42	......	......	......	......	......	......	......	39	29
Bacteria per cc. in filtered water	328	305	804	118	......	......	......	......	......	......	370	222
Percent of bacteria removed by filters	98	98	91	97½	......	......	......	......	......	......	92	93
Number of cases of typhoid reported	1	2	3	3	......	......	1	2	2	2	3	3
1899.												
Mean monthly temperature	23	22	31	......	......	......	......	......	......	......	40	32
Bacteria per cc. in filtered water	......	......	116	51	94	140	51	80	59	......	61	160
Percent of bacteria removed by filters	......	......	98	98	96	96	91	93	89	......	95	86
Number of cases of typhoid reported	12	12	12	6	......	......	2	......	2	2	3	1
1900.												
Mean monthly temperature	26	26	28	......	......	......	......	......	......	......	42	29
Bacteria per cc. in filtered water	155	114	62	54	......	46	59	31	35	......	84	84
Percent of bacteria removed by filters	96	98	97	97	......	92	93	98	97	......	92	96
Number of cases of typhoid reported	5	5	4	3	2	......	......	4	5	9	6	8
1901.												
Mean monthly temperature	24	19	33	......	......	......	......	......	......	......	34	27
Bacteria per cc. in filtered water	84	85	80	79	74	......	......	......	......	......	77	330
Percent of bacteria removed by filters	95	95	96	97	96	......	......	......	......	......	96	90
Number of cases of typhoid reported	5	9	19	9	1	2	4	2	1	2	4	5
1902.												
Mean monthly temperature	23	24	40	......	......	......	......	......	......	......	43	23
Bacteria per cc. in filtered water	120	68	890	102	69	69	116	111	......	......	168	359
Percent of bacteria removed by filters	94	98	93	97	97	91	94	93	......	......	91	92
Number of cases of typhoid reported	3	6	3	6	......	2	3	......	1	3	1	5
1903.												
Mean monthly temperature	24	27	43	......	......	......	......	......	......	......	36	23
Bacteria per cc. in filtered water	180	352	99	114	94	59	52	70	66	75	58	66
Percent of bacteria removed by filters	94	85	95	92	93	92	96	92	92	......	92	93
Number of cases of typhoid reported	3	8	4	3	1	1	......	1	......	2	4	12
1904.												
Mean monthly temperature	15	17	31	......	......	......	......	......	......	......	......	......
Bacteria per cc. in filtered water	118	196	178	196	304	......	......	......	......	......	......	......
Percent of bacteria removed by filters	90	80	95	91	75	......	......	......	......	......	......	......
Number of cases of typhoid reported	14	15	36	16	2	2	2	......	......	......	......	......

and that when the number of bacteria in the raw water is less than 3,000, the average number of bacteria left shall not exceed 100. The rules of the German Imperial Board of Health require that filters be so operated as to have the least possible number of germs in the effluent, as compared with the previous records of said plant, and that filtered water containing more than 100 germs be run to waste. Mr. Hill states that the standard at Philadelphia is 50 germs, and that when the number exceeds that standard an investigation is made to locate the cause and to remedy the increased bacterial content of the filter's effluent. He states that he wants the result to be 50 or less, no matter how few or how many may be in the water originally.

Table IV gives the yearly average results of all the examinations made in Poughkeepsie for the years 1898 to 1903. This shows results far below the standards and results of other plants.

Table V gives the averages by months and shows how the Poughkeepsie plant has failed to give pure water in cold weather. During the month of October the only examination made was one of the water in the clear water basin in 1903, when the count showed 75 bacteria.

The following chart shows the relationship in Poughkeepsie of the low winter temperatures, the average number of bacteria left in the water, the percentage of germs removed, and the number of cases of typhoid fever reported to our local health officer, which without doubt includes many less than the real number of cases which have occurred. This chart shows a decided relationship of the colder winters with the number of cases of typhoid. The temperatures given are those of Albany, N. Y., an average temperature for the month below 24 being uniformly followed by an increase in the amount of typhoid. Unfortunately, there were many months when no bacterial examinations of the water were made, which leaves some bad gaps in the chart. Table IV gives the total number of examinations made during each year, which ran from 12 to 23, and which is too small a number to make the germ count and percentage removal lines of the chart as satisfactory as if they had been made at more frequent and regular intervals, as they should have been. For instance, the count in March, 1898, was high, but only one examination of the water was made that month, and the result, moreover, only showed the count of one filter bed, for that of the second was spoiled so that this exceptionally high rate was no average at all, but only a single count. In fact, an average of weekly counts for that month might have shown a much lower figure.

The greatest defect with the Poughkeepsie filters is their lack of cover. All the new plants in this section have masonry covers. Places having a mean normal January temperature below 30° F. require covered filters, as otherwise an inferior efficiency of filtration results in prolonged cold weather. The trouble comes with the freezing of the sand when the water is taken off for the purpose of cleaning, and interferes with the efficiency of filtration afterward. From a financial point of view, covers are an economic measure. Table V shows that the Poughkeepsie filters have done much inferior work in cold weather, and Table III shows the increase in typhoid fever to correspond with this, indicating the necessity of covering these beds.

Experience at Altona shows that their typhoid epidemics have had a direct connection with disturbances of the action of their uncovered filters by frost, which resulted in the supply of insufficiently purified water. Such disturbances of filtration preceded the explosive epidemics of typhoid of 1886, 1887, 1888, 1891, and 1892, and the cholera outbreaks of 1871 and 1893, beside the winter outbreaks of cholera infantum, which have been repeated so often. In the annual report of vital statistics of Hamburg for 1875 it is stated that "It is quite possible that the addition of unfiltered water to milk is the cause of the high mortality from cholera infantum as compared with London." In Berlin, in those parts of the city supplied from open filters, frost at the filter works has at certain times resulted in high numbers of bacteria in the filtered water, which was in every case followed by greatly increased deathrates from diarrheal diseases, and those parts of the city which were supplied from covered filters took no part in those outbreaks. No important outbreaks of typhoid fever have ever occurred at Altona in the summer or fall, when typhoid is usually most prevalent, which clearly shows the bad effects of frost upon open filters. Certainly the conditions at Poughkeepsie are similar.

Another defect at Poughkeepsie is, that the rate of filtration has been too high. This is figured at so many million gallons per acre for 24 hours. The Poughkeepsie rate for the year 1903 was $2\frac{42}{100}$ million gallons. The second filter bed was first used in December, 1896, and was followed by a decreased typhoid fever rate to correspond with the lowered filter rate. In a general way, the efficiency of filtration varies inversely with the square of the rate. At Poughkeepsie this is partially due to the fact that economic reasons have caused a pumping system in which the filters are in use only four days out of seven, and also because the beds leak so badly that a third of the water filtered leaks away. The German Imperial Board of Health requires that the rate of filtration shall not exceed 2,000,000 gallons per acre a day. Not only has the rate of filtration been too high, but the supply of filtered water has been so small, as a rule, that it has been impossible to waste the water for the first 24 hours after scraping and cleaning a bed, as is the practice at well-regulated plants. In fact, the people of Poughkeepsie little realize how narrow an escape from a water famine there has been in the past years when the beds have had to be cleaned.

A most dangerous condition has arisen during the past few months at Poughkeepsie, in that a leak has occurred from the filter beds, allowing leakage of unfiltered water into the clear water basin. This at the present writing (June 1, 1904) seems to be increasing and a reference to the chart will show that the bacterial count for March, April, and May of this year has remained high, which means a larger amount than usual of diarrheal troubles, especially among children, during the coming summer if there is a prolonged heated term.

It is a pleasure to state that it has just been decided to rebuild the filter beds at Poughkeepsie and this work is to be started within a few weeks. This will include dividing each of our present beds into two, making four beds each a third of an acre in size, and rearranging our pumping service so as to pump every day. This will allow one filter unit always out of service for cleaning, etc., and will reduce the rate to 2,000,000 gallons for 24 hours. At the same time the filters will be covered and regulating appliances added which will give Poughkeepsie a first class plant. Mr. Fowler, our city engineer, who deserves much credit for the comparatively good work which he has secured from our imperfect plant, states that if the trial of preliminary filtration proves satisfactory, that it can be added to our plant at a small cost and at the same time there is a probability that a coagulant can be added to remove the turbidity which at times occurs in our water due to its being heavily charged with clay.

A future requirement will be that enough examinations be made of the water to enable those in charge to conduct the plant properly. Examinations should be made daily in large plants, and at least several times a week in smaller ones. A peculiar condition exists in Poughkeepsie, in that the plant is located just above the normal salt water limit of the Hudson, and this may have some bacterial effect on the filter.

Some of our local papers have done excellent work in the matter of securing improvements to our plant; others have contended that our water has been and is all right, and that there has been no need of the people of our city being alarmed concerning the unhealthy condition of the water, notwithstanding the fact that we have had 97 cases of typhoid in the past six months. In fact, they have shown their utter ignorance of the importance and the real scientific side of the question.

I express my thanks to Mr. Allen Hazen for many facts in this article, and also to those whose names have been mentioned.

In Memoriam to Dr. Sophia Frances Hickman.—The memory of Sophia Frances Hickman, the London hospital doctor, who was murdered in Richmond Park last year, has been perpetuated at Clapham Maternity Hospital, where she was house surgeon, by the dedication of the principal ward in a new building, to be known as the "Frances" ward, in honor of Dr. Hickman, and an expression of the deep regard of the staff for her. An admirable portrait of the late doctor hangs on the wall.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 10, 1904. [Vol. XLIII, No. 11.]

1. The Pelvic Ureteral Sheath. Its Relation to the Extension of Carcinoma Cervicis Uteri. JOHN A. SAMPSON.
2. Excision of Part of the Ileum and All of the Cecum and Ascending Colon. Ileum and Transverse Colon United by a New Method. J. SHELTON HORSLEY.
3. Gallstones in the Common Duct. ARCHIBALD MACLAREN.
4. The Anatomy and Radical Cure of Inguinal Hernia. DANIEL N. EISENDRATH.
5. The Relation of Acute Infections to Arteriosclerosis. WM. SYDNEY THAYER and CLINTON ETHELBERT BRUSH, JR.
6. Arteriosclerosis of Syphilitic Origin. S. TRAVIS DRENNEN.
7. Arteriosclerosis of Nephritic Origin. GEORGE DOCK.
8. United States Public Health and Marine-Hospital Service. Part II. The Service as It Is Today. (Continued.)
9. Travel Notes. Medical Affairs in the Hawaiian Islands. VIII. NICHOLAS SENN.

1.—See *American Medicine*, Vol. VII, No. 26, p. 1010.

2.—See *American Medicine*, Vol. VII, No. 25, p. 969.

3.—Gallstones in the Common Duct.—A. MacLaren states that while a primary cholecystitis without stones may occur, with a secondary attack there are invariably stones present in either gallbladder or ducts. He thinks it practically impossible that a patient should pass all of the stones through the common duct. Gallstones may exist a long time without symptoms. If a stone is forced into the common duct it is likely to remain there, because the middle portion is more easily dilated than the distal extremity. The obstruction results in infected bile from the gallbladder passing back through the hepatic ducts, setting up a cholangitis. It is important to entirely clear the ducts of all stones. Their presence keeps up a subacute cholecystitis. The chronic obliterative inflammation resembles that of the appendix and is a reason for cholecystectomy as against simple drainage. Gallstones should be removed as soon as a diagnosis is made before they have reached the common duct or other complications have occurred. The complications produced by stone in the common duct are jaundice, cholangitis, peritonitis, inflammation of the pancreas, and cancer. They are sometimes overlooked in operation. To permit exploration, a sand bag should be placed under the small of the back, an incision about five inches long should be made, and the liver rotated so as to expose the duct. After opening it a drainage-tube should be stitched in. This may be removed when the catgut softens. [H.M.]

4.—See *American Medicine*, Vol. VIII, No. 2, p. 49.

5.—See *American Medicine*, Vol. VII, No. 25, p. 967.

6, 7.—See *American Medicine*, Vol. VII, No. 25, p. 968.

Boston Medical and Surgical Journal.

September 8, 1904. [Vol. CLI, No. 10.]

1. What Shall We Do with Patients Having Pulmonary Tuberculosis? FREDERICK I. KNIGHT.
2. The Interrelation of Medicine and Surgery in the Treatment of Gastric Ulcer. HUGH CABOT and GEO. S. C. BADGER.
3. Spindle-cell Sarcoma of Foot; Amputation; Recovery: Lung Metastases; Death. Autopsy. CHARLES L. SCUDDER.

1.—What Shall We Do with Patients Having Pulmonary Tuberculosis?—F. I. Knight divides patients into (1) those financially able to pursue any course recommended, (2) those who can afford only limited time and money, (3) those who must depend entirely on charity. Suspicious cases should be treated as if the diagnosis were positive. The nonexpert should remember that slight relative dulness at the apex of the right lung and a relatively longer expiratory murmur is normal. Those who present no clinical signs and symptoms and yet in whose sputum the bacillus is found accidentally should, if this condition is persistent, be put on restorative hygiene. It is well-nigh impossible to carry out fresh air treatment at home. Skilled supervision is of transcendant importance. Patients of both the first and second classes should be sent to sanatoriums not too far away to prevent occasional visits from the family. Hospitals and sanatoriums for the poor would be an economy to the State. Those who are obliged to remain at home should be visited repeatedly until the family is made familiar with the hygiene and prophylaxis of the disease. A patient with far-advanced disease and of moderate means had better husband his resources for comfort at home, rather than go to a sanatorium. [H.M.]

2.—Interrelation of Medicine and Surgery in the Treatment of Gastric Ulcer.—Cabot and Badger contribute an interesting article showing the interrelation of medicine and surgery which exists in the correct treatment of gastric ulcer. Acute attacks of hemorrhage from the stomach due to gastric ulcer are in the vast majority of cases to be treated medically. On the other hand, cases are occasionally seen which demand surgical treatment, hence the necessity for the composite judgment of the physician and surgeon in these cases. After discussing acute and chronic gastric ulcers and their proper treatment the authors consider the indications for surgical treatment as follows: 1. Perforating ulcers of the stomach. 2. Bleeding ulcers in which the hemorrhage either cannot be controlled by medical means, or having been controlled, tends to recur, thus placing the patient's life in immediate danger. 3. Cases with a long history of dyspepsia culminating in hemorrhage, after the hemorrhage has been controlled by medical means and the patient put in proper condition for operation. 4. Cases of intermittent recurring hemorrhage which, though individually small in amount, tend by their persistency to produce a profound anemia. 5. Cases of chronic dyspepsia without dilation, which fail to yield to proper medical treatment. 6. Cases of chronic dilation of the stomach which fail to yield to medical treatment, and are not due to a general visceral ptosis. [A.B.C.]

3.—Spindle-cell Sarcoma of the Foot; Amputation: Lung Metastases and Death.—Scudder reports that a medical student of 22 fell, twisting the right foot; he used crutches for a time and apparently entirely recovered. Three months after initial injury there appeared pain, swelling and tenderness about the dorsum and sole of the injured foot. An incision into the sole of the foot permitted the escape of three ounces of apple-tapioca-pudding-like material. Microscopic examination of removed material showed spindle-cell sarcoma. The glands removed from the groin showed no malignancy. Four months after the original injury, amputation was done eight inches below the tuberosity of the tibia. The stump healed satisfactorily, and the boy went back to the medical school, and in the fall was planning to get an artificial leg. He entered the hospital eight months after the original injury with evidences of an intrathoracic lesion, and died four days later. An autopsy was held, and it was found that he died from sarcomatous metastases in the lungs. [A.B.C.]

Medical Record.

September 10, 1904. [Vol. 66, No. 11.]

1. The Cycle of the Tubercle Bacillus. STEPHEN J. MAHER.
2. Clinical and Other Features of the Recent Epidemic of Cerebrospinal Meningitis. HENRY W. BERG.
3. Report of Two Cases of Mastoiditis with Paralysis of Facial Nerve: Recovery of Paralysis following Operation. SEYMOUR OPPENHEIMER.
4. Regarding Hamlet's Sanity. JOHN W. WAINWRIGHT.
5. Illuminating Gas Poisoning: Its Rational Treatment. ERNEST VALENTINE HUBBARD.

1.—Cycle of the Tubercle Bacillus.—S. J. Maher was attracted by a new organism ten times as large as the tubercle bacillus, occurring in chains and single, with much granular acid-fast spore matter. This could be made to change into forms very unlike that of the mother bacillus. On blood-serum and milk *B. maternus* reproduces itself by fission, depositing acid-fast spore granules, large ovoids, rings, and rosets. The rings and rosets swell and under favorable conditions contain small ovoids, crescents, and blunt rods. The large ovoids produce large granular rods. The small ovoids and crescents and blunt rods will, in suitable environments, become acid-fast rods, indistinguishable from tubercle bacilli. In a medium unsuitable for the full development of large mother bacilli rods, a number of segments roll together, and from this ball small nonacid-fast biscuit-shaped diplococci make their way. Under certain conditions he finds that tubercle bacilli instead of continuing on the return half of the cycle to mother bacilli, retrogress by one of several longer courses which he describes. He has found it possible, but not easy to reduce tubercle bacilli to bacilli materni without the use of milk. He is as yet unable to formulate rules for the conduction of tubercle bacilli back to their mother shapes. There seems to be a constant struggle in a milk culture between two tendencies of the germs, one simply to reproduce themselves and the other to complete their larger cycle. *Bacillus maternus* is unquestionably one of a large family. [H.M.]

2.—Cerebrospinal Meningitis.—H. W. Berg states that the disease is endemic in New York. The epidemic of 1904 has been much more severe than was that of 1893. Three-fifths of the deaths were of children under 6, but the proportion of older children and adults is greater than ever before. A synchronous increase in deaths from pneumonia has occurred. Various types of organisms have been found in different cases of sporadic and epidemic cerebrospinal meningitis, not only *D. intracellularis meningitidis* and *D. pneumoniæ*, but also *Streptococcus* and *Staphylococcus pyogenes*, while sporadic cases of tuberculous cerebrospinal meningitis are perhaps the most frequent form of that disease. The most frequent cases are the chronic, beginning with acute symptoms. After weeks or months these may die or recover with or without disabilities. The next in frequency are those acute throughout their course. The fulminating cases are fewest. The disease in this epidemic has had no prodromal stage. The acute symptoms are those of febrile disease involving the brain and spinal cord. Leukocytosis differentiates it from typhoid and tuberculous meningitis. There is little hope of producing a serum. The writer uses lumbar puncture, sodium iodid, mercury inunctions, ice-bags, and warm baths. [H.M.]

3.—Mastoiditis, with Paralysis of the Facial Nerve.—Oppenheimer says facial palsy during the course of chronic empyema of the tympanum and mastoid cells should always be considered a grave symptom of bone destruction. The presence of facial palsy does not necessarily imply that there are extensive bone lesions, but it suggests such, and it is presumptive evidence of either necrosis of the posterior superior wall of the tympanum, whereby the nerve is exposed, or of a neuritis from inflammatory extension to the nerve through the osseous tissue surrounding it. This may be the result of caries, necrosis, cholesteatoma, the escape of pus into the facial canal, or from pressure by excessive granulation tissue. Even in severe palsies operation may reveal an apparently normal canal, the palsy being due to the exudate within the nerve sheath. The fact remains, however, that palsy in chronic ear disease must be looked upon with suspicion. Two illustrative cases are reported. [A.B.C.]

5.—Illuminating Gas Poisoning.—E. V. Hubbard describes the symptoms in a woman of 75, seen three hours after she was discovered comatose. He removed a liter of blood from the median cephalic vein, following this with abdominal hypodermoclysis, 1,200 cc. of saline solution being injected, introduction through the vein having failed. This was followed in the course of the day by complete recovery. The secret of success lies in early venesection, every hour bringing death so much closer. The danger of mental symptoms and peripheral neuritis is enhanced in proportion to the time before operation. Prolongation of this period is relatively of graver import than the duration of the gas inhalation. The amount of blood taken and of saline infused must be determined by the strength of the pulse. If four or five hours have passed with no evidence of awakening a second cautious venesection may be performed. [H.M.]

New York Medical Journal.

September 3, 1904. [Vol. LXXX, No. 10.]

1. How May the Public School be Helpful in the Prevention of Tuberculosis? S. A. KNOPF.
2. A Study of the Vagus Reflex in 380 Individuals: A New Physical and Prognostic Sign in Pulmonary Disease. THOMAS J. MAYS.
3. Chronic Splenic Anemia: Report and Presentation of a Case. E. F. CONYNGHAM.
4. Pruritus Ani. A. B. COOKE.
5. Constipation as a Habit. CHARLES B. FORSYTH.
6. The Value of Local Treatment Preparatory to Operation. H. C. COE.
7. Hypernephroma as a Result of Traumatism. Nephrectomy. Recovery. GEORGE CHANDLER.
8. A Case of Anophthalmus. CHARLES GRAEF.

1.—The Public School and Tuberculosis.—Knopf discusses the duties of the school board, superintendent, teacher and school physician relating to the prevention of tuberculosis. The board of education should use great care in choosing a site for the building and in its equipment. A large play ground, or if this is not possible, a roof garden which can be covered in winter is absolutely necessary. A gymnasium and swimming tank should be part of the equipment of every public school. The duties of the superintendent are manifold. The curriculum should be so arranged that the intellectual training will not be pushed to the detriment of the bodily development or physical welfare of the pupils. A judiciously divided curriculum, intercepted with gymnastics, swimming, and as much outdoor instruction as possible, is a most important factor in the prevention, not only of tuberculosis, but of all indoor diseases, and even nervous troubles. The teacher should, of course, be familiar with all the practical and feasible methods in vogue in regard to the prevention of tuberculosis as an infectious and communicable disease. The teacher should refer to the physician all suspected pupils for careful examination. The school physician should have constant supervision of the sanitary condition of the school buildings; he should make regular visits to the gymnasium and the swimming school and, lastly, he should make a periodic examination of the chests of all pupils, teachers, and employes of the school. [C.A.O.]

2.—The Vagus Reflex.—T. J. Mays has observed that pain and even sharp pain, can be readily elicited by applying pressure with the finger or thumb over the vagi in the neck of tuberculous persons. This paper consists of a study of the vagus reflex in 380 individuals, and is divided into two parts, the first being a consideration of the behavior of the vagi under pressure in 138 persons suffering from pulmonary tuberculosis, and a similar study of the vagi in 242 healthy people in which the vagus reflex was present or absent in accordance with certain specified conditions. Of the tuberculous cases (138) the vagus reflex and the lung disease were located on the right side in 79; in 48 the vagus reflex and the lung disease existed on the left side; in 8 the vagus reflex and lung disease existed on both sides; while in 4 the vagus reflex and the lung disease were located on opposite sides of the body. Of the 242 healthy persons who were examined, there were 117 who presented either a vagus reflex or a family history of tuberculosis, and out of these 117 cases there were 94 in which a vagus reflex and a family history of tuberculosis coexisted in the same individual: 14 in which a family history of tuberculosis was unaccompanied by a vagus reflex, 9 in which the vagus reflex was present without a family history of tuberculosis, while in 125 there was complete absence of a family history of tuberculosis and vagus reflex. Mays says that there is sufficient pathologic evidence for believing that the integrity of the vagi is always impaired in pulmonary tuberculosis, that the vagus reflex is universally present in active pulmonary tuberculosis, and in the vast majority of cases of this character it is situated on the same side of the body as that on which the lung affection is found, that the vagus reflex is present in about 80% of healthy people who have a family history of tuberculosis, and that in healthy people without a family history of tuberculosis the vagus reflex is universally absent, provided there does not exist a family or personal taint of alcoholism, insanity, or some other neurosis. In the development of the vagus reflex, dizziness, dyspnea, coughing, sweating, and other symptoms are produced at the same time in about a sixth of the number of tuberculous persons, while the same is true in about a third of the number of healthy people whose family history is burdened with tuberculosis. The intensity of the vagus reflex, or, in other words, the number of symptoms that accompanies its development other than those which manifest themselves locally in the neck, seems to be dependent on the number of deaths that has occurred in the families of the tuberculous and in those of healthy people. He believes that the vagus reflex is a valuable sign in the diagnosis and prognosis of pulmonary tuberculosis, for by projecting the family history of the potential tuberculous individual into the present, it not only foreshadows that which is not otherwise evident to the senses, but becomes an important factor in the prophylaxis and treatment of this disease. [C.A.O.]

4.—Pruritus Ani.—A. B. Cooke says that the treatment of this condition depends very largely upon a proper conception of its true nature. The chemic caustics, silver nitrate in saturated solution or solid stick, tincture of iodin (Churchill's), and pure carbolic acid, applied at several different times, when necessary, have been of great benefit. Dilation of the sphincters occasionally proves a very useful remedy. The essential features in the management of the local condition are: Cleanliness, protection of the parts from friction and irritation of all kinds, local applications according to the indications of the individual case, for the relief of the itching and the restoration of the altered skin to normal; and in exceptional cases the destruction of the diseased skin, preferably with the chemic caustics. [C.A.O.]

5.—**Constipation as a habit** is discussed by C. B. Forsyth. He believes that 90% of cases of chronic constipation (barring those of obstruction from anatomic causes) can, with a suitable remedy to start the action, be cured if we can get the patient to have a regular time for evacuating the bowels and to go at that time every day, whether he feels the desire or not. [C.A.O.]

6.—**Local Treatment before Operation.**—H. C. Coe believes that much time and patience are wasted in attempts to prepare for an operation that should be done at once. He says that he has the greatest respect for hot douches and ichthyol or boroglycerid tampons in the treatment of pelvic exudates, but he believes that these are misapplied when their use is persisted in, in cases in which laparotomy has taught us adhesions can be separated only by the fingers within the abdominal cavity. [C.A.O.]

7.—**Hypernephroma.**—George Chandler reports such a case in a man of 43, who received an injury from lifting, causing intermittent hematuria for four years. The tumor developed over three years from history of traumatism. It was successfully removed and measured 9½ inches in length, 5½ inches in breadth, and 4½ inches in thickness, inclosed in a thickened capsule, with one or two distorted calices and a dilated kidney pelvis. The mass was composed throughout of adrenal tissue. Chandler calls attention to the rarity of the condition, there being only a few cases recorded, and to the fact that malignancy may develop in 50% of such cases with metastasis. [C.A.O.]

8.—**A case of anophthalmus** is reported by Charles Graef. After birth the peculiar closure of the lids drew attention to the child's eyes; the upper lid was curled deep into the orbit, the thickened lower lid overlapping it. A small orbital cavity could be made out. No trace of an eyeball could be detected. The child was perfectly formed in every other way. [C.A.O.]

Medical News.

September 10, 1904. [Vol. 85, No. 11.]

1. An Analytic Study of 28 Cases of Arthritis, with Special Reference to Gout and Its Treatment. CHARLES C. RANSOM.
2. Contributions to the Pathology and Treatment of Acute Gonorrhea. LUDWIG WEISS.
3. Recent Advances in the Therapeutics of Pediatrics. NOBLE P. BARNES.
4. Hereditary Chorea in 18 Members of a Family, with a Report of Three Cases. MALCOLM MACKAY.
5. Influenza in Children. KENNETH E. KELLOGG.
6. Report of a Case of Addison's Disease Treated by Means of Suprarenal Extract and Adrenalin Chlorid. DOUGLAS SYMMERS.
7. The Gastrointestinal Crisis of Erythema Exudativum: Simulating Appendicitis. A. M. POND.

1.—**Analysis of 28 Cases of Arthritis with Reference to Gout.**—Ransom, in his work at the City Hospital in New York, says that during the months of November, December, and January last, 415 patients were admitted to the medical service. Of these there were 28 cases of arthritis, or 6% of the total number; 23 being males and 5 females. Of the 28 arthritides 12, or 43%, were gout, this being 2.89% of the total number of cases admitted. Five of these were acute podagra, while the other 7 were of the chronic type of the disease. Of the other cases there were 5 (18%) of rheumatic arthritis, or 1.2% of the total admissions, 4 acute and 1 chronic; 5 gonorrheal arthritis, 1 septic arthritis, 1 arthritis deformans, and 2 cases of erythromelalgia. The acute cases of gout were typical, and responded promptly to treatment by colchicum, hence there is no source of error in diagnosis with these. Special study was devoted to the chronic cases, and a careful attempt made to eliminate error in diagnosis. Illustrative cases are reported. A careful analysis is made of the various forms of arthritis, and the treatment of gout discussed. [A.B.C.]

3.—**Advances in Pediatrics.**—N. P. Barnes briefly discusses the medical inspection of schools; infant feeding; the antidysentery serum, together with the employment of gelatin and olive oil; the use of formaldehyd, calcium sulfid, manipulation of the lower jaw, and the fresh air treatment in pertussis; the use of antistreptococcic serum in scarlet fever and smallpox, with urotropin in the former to prevent nephritis, and lumbar puncture in uremia; the use of antistreptococcus serum and rheumatic remedies in chorea minor; fresh air in pulmonary diseases; potassium iodid in pneumonia, and lumbar puncture in cerebrospinal meningitis. [H.M.]

4.—**Hereditary Chorea.**—M. Mackay notes the number of children in the families affected—10 or 15 is not unusual among the French Canadians. The descendants appear to develop the symptoms earlier than the parents. He found no cases in which a generation had been skipped. The most distressing symptom in the family reported was the increase in the violence of the twitchings at night with resulting sleeplessness. The occurrence of the disease in groups having the tic of consanguinity, the slow development of the symptoms, usually in middle life, the absence of adequate cause, and the correspondence of the outward manifestations to the functions of the cortex, all point to an inherent defect in vitality of the structures forming the gray matter of the brain; while comparative or absolute freedom from disease of the rest of the body suggests that the disease is limited to this definite group of cells. [H.M.]

5.—**Influenza in Children.**—K. E. Kellogg emphasizes the seriousness of the condition, and makes a plea for enlightenment of the public. The germ is probably carried by the catarrhal secretions. While bacterial diagnosis is not simple, it may be resorted to by the general practitioner. The disease at times assumes many phases and is difficult to recognize. There is usually a band of redness on the palatine arch, the uvula and tonsils not, as a rule, being involved; enlargement of the cervical and submaxillary glands usually accompanying the catarrhal symptoms. The fever is markedly irregular. With infection of the bronchioles there is great dyspnea and cyanosis. In the nervous type there is great irritability, aching of the limbs, drowsiness, and occasionally symptoms of meningeal irritation. Gastrointestinal infection is not as a rule serious. The accessory nasal sinuses are often involved, as also the mastoid. Acute cardiac dilation sometimes occurs; nephritis is rare. A pseudopertussis is fairly common. [H.M.]

7.—**Gastrointestinal Crises of Erythema Exudativum.**—A. M. Pond notes the perplexing nature of this affection when the eruption does not occur at all, or is delayed for several days following the attack of abdominal pain, and when the temperature and pulse are high and the vomiting continuous. He reports a case with grave symptoms, in which the resemblance to appendicitis was increased by a slight leukocytosis, and in which he would have operated had not the symptoms subsided on the withdrawal of food. There was a history of rheumatism for three generations. Osler considers the crises due to localized edema of the gastrointestinal walls. The skin lesions in this case were so varied that they could not be accounted for by a bacterial cause. The fact that the gastrointestinal crises are sometimes absent, argues against the assumption that the skin lesions are due to pathology of the abdominal contents or consequent disturbance of metabolism. Erythema, coincident with cholelithiasis or with susceptibility to certain articles of diet, is accompanied by intolerable itching, absent in this case. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

Concerning the Tuberculin Reaction.—During the past four years Drs. Trudeau, Baldwin, and Kinghorn have been conducting animal experiments to increase our knowledge regarding the nature and specificity of the tuberculin reaction. From their recently published report[1] we glean the conclusions reached, which are best given in connection with the subjects for inquiry: 1. Can the diagnostic use of tuberculin scatter the disease and produce new tuberculous foci? Conclusion: In localized corneal tuberculosis of the rabbits' eyes, no spread of the disease in the cornea could be observed after the use of tuberculin injections. On the contrary, as in previous observations, a favorable absorptive influence was noted upon the diseased focus. 2. What relation has healed or eradicated tuberculosis to the reaction? Conclusion: Extirpation of a tuberculous focus was followed by loss of reaction susceptibility in the one rabbit where the operation was thorough. 3. Is the reaction always dependent upon the presence of specific tubercles? Conclusion: It appears that specific tubercles are necessary to a local tuberculin reaction. 4. What relations have the alleged reactions from other substances to the true tuberculin reaction? Is the reaction due to enzymes like trypsin? Conclusion: The direct action of trypsin upon tuberculous abscesses failed to produce reactions, and thus does not favor an enzyme theory of the tuberculin reaction: Temperature and local reactions may occasionally result from the injection of trypsin, peptone, and sodium cinnamate. 5. How long after infection with tubercle bacilli does reaction susceptibility begin? Conclusion: It is more than probable that the specific susceptibility is not fully acquired until the stage of fully developed tubercles—10 to 15 days—is reached. 6. What constituent of the tubercle bacillus induces reaction susceptibility in the animal? Conclusion: Fat-extracted bacilli appeared to possess more reacting substance than the others; the nuclein substance was presumably more abundant in these, and may produce reaction susceptibility independently of the fat, though this is only suggested by the results of the experiment. We interpret the general results of these experiments as tending to support the claim of specificity of the tuberculin reaction, and also as indicating that tuberculin is essentially harmless. The writers, further than slight elaboration of certain of their conclusions, make little comment on the findings. This is doubtless because the experiments were made upon guineapigs and rabbits, both less susceptible to tuberculin than human beings; this, as stated, necessitates caution in applying the results in human practice. Nevertheless, the relation of the subject to diagnosis and to immunization against tuberculosis is of such importance as to render very acceptable every contribution concerning the action and limitations of tuberculin.

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[1] Journal of Medical Research, Vol. xii, No. 2, August, 1904.

REVIEW OF LITERATURE

Paroxysmal Attacks of Tachycardia.—James Barr[1] reports the case of a youth of 17, who had had five attacks of paroxysmal tachycardia. Great frequency of the heart's action is a common accompaniment of many morbid conditions, but the paroxysmal character of this affection occurring in an otherwise healthy subject, marks it as a particular entity, due, perhaps, to deranged physiologic conditions rather than a morbific influence. We must dissociate any connection between the tachycardia of exophthalmic goiter, or that occurring after the removal of the parathyroids from paroxysmal tachycardia. No connection whatever exists between them, though textbooks frequently fail to appreciate the fact. Barr is of opinion that the basis of these attacks lies in a hyperdistention of the right side of the heart, a distention which would quickly terminate the life of the patient were not the musculature in a healthy condition. The right side of the heart, especially the auricular appendix, is much more sensitive to stimuli than the left. In these attacks of paroxysmal tachycardia there is comparatively little cardiac distress manifested by the patient and there is no dyspnea, even when the heart is contracted rapidly. This indicates that the blood-pressure is high, and the writer enters into a lengthy discussion to show how this can occur. In reference to treatment, he states that the patient should be put to bed, amyl nitrate or nitroglycerin freely used to lessen peripheral resistance and equalize the amount of blood in the two sides of the heart, encourage the patient to take long, deep breaths, so as to aspirate the blood from the right side of the heart into the lungs and thus give a better supply to the left ventricle. If the preceding measures have failed and the hyperdistended right ventricle does not properly contract, then the addition of digitalis or of digitalin and strychnin is required. Purgation and a dry diet are indicated. Wood, of Nashville, Tenn., is quoted as relieving attacks of this nature by inducing vomiting from the passing of a stomach-tube. In neurotic subjects many remedies will succeed and as often fail. [A.B.C.]

Considerations Regarding Substitute Feeding.—T. M. Rotch[1] discusses many of the general points regarding substitute feeding during the first year. Concerning human milk as a guide in substitute feeding it must be remembered that this product varies and hence its substitute may be varied. In many cases greater variations than normally occur in human milk are called for and very low percentages of fat are necessary. Regarding cow's milk as a substitute, a practical point is that it has to be modified and hence the varying percentages in different breeds is not of great importance. Another point is that pure materials must first be secured; modification is secondary. Routine mixtures can not be relied upon any more than indiscriminate breast feeding. The fats of Jerseys and Guernseys differ so much from human milk that it is preferable to use the milk of such cows as the Holstein, Ayrshire, Durham, and Devon. A temperature of over 155° F., except in cases of transportation in hot weather, should not be used in preparing the milk. The use of cereals in substitute feeding is important. Rotch has not found them necessary or advisable during the early months, but later they become of value in certain cases; here an exact system as used in the other ingredients would prove a valuable adjunct to our feeding. Rotch is now having worked out a system by which any percentage of starch may be ordered. [A.G.E.]

Secretion Neuroses of the Intestines.—G. Geissler[2] believes, opposing himself to prominent authors, that the watery diarrhea of nervous patients may be due to a secretion neurosis, and not necessarily to a motility disturbance. He relates the case of a patient, who had suffered repeatedly from gastrointestinal disturbances, and who lately had after overexertion developed a grave type of neurasthenia. The catarrh improved under treatment, but the nervous symptoms increased in intensity, and intestinal symptoms appeared, which he considered purely nervous. The nervous character of the patient's diarrhea was attested to by the patient's increase in weight, the appearance of the attacks after excitation, also after the slightest change from a diet, which the patient had taken for months, and which he said was the only diet he could digest, and their instantaneous disappearance upon the return to the old diet. He never had blood or mucus in the stool, and the examination of the feces showed remarkably good digestion, a condition not noted when diarrhea is due to other causes. The patient also had nausea, abdominal distention, gastric hyperacidity, and a discharge of gastric and enteric juice by intestines. Occasionally he secreted large amounts of pure intestinal juice; it was sometimes discharged in conjunction with a movement, but after it, and sometimes independent of a movement. The fluid was perfectly clear, alkaline, and contained albumin. The digesting properties of the juice were tested; it was found to have peptogenic, amyolytic, diastatic, maltose digesting and inverting actions. This case causes him to conclude that the secretion of intestinal juice may depend upon nervous causes, and that nervous hypersecretion may be the cause of diarrhea. [E.L.]

Hemorrhage from the Bowel in Malarial Disease.—S. F. Clark,[3] of the Royal Army Medical Corps, has seen a number of undoubted instances of hemorrhage from the bowel in malarial disease, in spite of the scepticism of those who have not observed these cases, and who attribute the condition to dysentery or enteric fever. He suggests that the condition may be becoming more frequent in India, and hardly believes it a coincidence that he served there some five years, during which time he treated hundreds of patients with malarial disease before he saw a case belonging to the type under consideration, and that during his sixth year of service he saw several. Prognosis under proper treatment is not so grave as the symptoms would apparently warrant. One of the cases seen proved fatal, and a detailed report of the conditions seen at necropsy is given, the most essential deduction being that the hemorrhage is due to capillary oozing from a greatly congested mucous membrane throughout the entire intestinal tract. Clark suggests that the blood leakage is probably due to an abnormal condition of the blood, rather than the bloodvessels. Bowel hemorrhage appears to occur almost entirely among patients who have suffered from several previous attacks of malarial disease. Hemorrhage comes on suddenly, is very copious, and bright red in color; vomiting is apt to accompany and aggravate the hemorrhage. It also limits proper treatment by preventing medicine given internally from reaching the intestinal mucosa. Successful treatment depends upon absolute quiet in bed, with the patient upon his back, and the abdomen covered with icebags. Astringents, such as tincture of opium and fluid extract of ergot should be given by the mouth, and ergotinum should be given hypodermically. Great faith is placed in the latter, especially when there is vomiting. Once the hemorrhage is definitely controlled, it manifests no tendency to recur. [A.B.C.]

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[1] British Medical Journal, July 16, 1904.

[1] Archives of Pediatrics, August, 1904.
[2] Münchener medicinische Wochenschrift, 1904, li, 521, No. 12.
[3] Journal of the Royal Army Medical Corps, August, 1904.

Relation of Excretion of Salt to Dropsy.—N. S. Davis, Jr.,[1] noted during last winter several cases of diffuse nephritis, in which there was uniformly a small elimination of sodium chlorid when there was much edema and, conversely, increased elimination when edema was lessening. One patient at first eliminated 1.5 % chlorids, on a basis of 8% normal; as the urine increased and the edema lessened, the chlorids rose to between 6% and 8%, although an exclusive milk diet was not maintained after the first week. Davis recognizes the importance of studying the power of the kidney to eliminate chlorids, as well as urea, in order to appreciate the effect of their disturbed function upon any patient's general condition. He has long contended that meat diet in nephritis is harmful, because of the toxins contained or generated; now salt must be regarded as one of those toxins. It may be possible to employ salt in demonstrating the existence of interstitial nephritis before albuminuria comes on; salt given generously in such cases may quickly provoke a temporary albuminuria. Surgeons about to perform operations which may require copious injections of salt solution, had best study beforehand the ability of the kidneys to eliminate chlorids. Another point worth studying is the effect of foods containing no salt in averting edema of the lungs in pneumonia. [A.G.E.]

Continuous Flow of Gastric Juice (Reichmann's Disease).—A. Bittorf's[2] patient had been a neurasthenic for many years; he had been taking a tea made of uva ursi for a long time because of a supposed gonorrheal cystitis. For four years he had complained of violent gastric pain occurring especially in the middle of the night, or when the stomach was perfectly empty, and disappeared when the stomach was full. The tea evidently had irritated the gastric mucosa; there were no signs of change in the size, position, or form of the stomach, nor signs of past or present gastric ulcer. There were no stagnating contents of the stomach, nor were there other signs of motor weakness. Every morning, however, if the stomach was emptied before any food had been partaken of, large quantities of gastric juice were found in it; there were present normal amounts of free HCl, also pepsin, but never lactic acid, starch, dextrin, or sugar. The filtrate after a test-meal showed normal values. The patient was cured by frequent meals, meat diet, sodium bicarbonate, tonics, and hydrotherapy. A diagnosis of chronic continuous gastrosuccorrhea was made. Pure primary cases of Reichmann's disease are rare, the greater number of the cases being secondary to changes in the stomach, such as dilation or ulcer. [E.L.]

Scarlatina, Measles, Uremia, Venesection: Recovery.—C. J. Caddick[3] reports the case. The patient was a soldier in South Africa. He was admitted to the Hospital on September 11 with a sharp uncomplicated attack of scarlatina; temperature 105°, falling to normal on the fifth day; progress was satisfactory and no trace of albumin was found, though the urine was examined regularly; 18 days after admission he developed measles with a pronounced rash; temperature at once rose to 106°, and four days later fell to subnormal. It was unregistrable with any clinical thermometer for three days, and continued subnormal for six days. During this time the patient was comfortable; had liquid diet; bowels and kidneys acted well; there was no trace of albumin. Suddenly the patient had a typical uremic attack; convulsions; vomiting of large quantities of watery fluid; involuntary passage of feces and urine, which later became almost solid when tested with nitric acid. There were coma and muscular twitchings. After unavailing attempts to make the skin act, venesection of the left median basilic was done. The patient, who had had 10 convulsions prior to venesection and 1 during the performance, began to improve immediately and had no more convulsions. The temperature rose to 102° and the urine contained albumin for 14 days, by which time the patient was convalescent. The case is interesting on account of the complications, high and low temperature, and the uremia, which occurred with no previous albuminuria a month after the original scarlatinal attack and a week after the fall of temperature following the attack of measles. [A.B.C.]

Scarlatina and Milk Supply.—A. A. Mussen[1] reports a series of 59 cases of scarlatina, due to infected milk, occurring in Liverpool. The dairy contained 13 cows, and 138 customers were supplied. About January 16, a son of the dairyman was taken sick with what afterward proved to be scarlatina, though no physician was called until convalescence was well under way. The cows were examined, but found to be perfectly sound. Disinfection of the place was made thorough, but cases of scarlatina began to appear in the families supplied by the dairy, and continued to appear until February 23. The probable incubation period as determined by the series was between three and four days. There was evidence to show that the means of disinfection employed absolutely stopped the distribution of infected milk. [A.G.E.]

Cancer and Uric Acid.—A. Haig[2] makes the following points: Cancer tends to affect seats of local irritation or ulceration. Uric acid is responsible for more local irritation than any other substance. Insurance statistics seem to show that cancer is increasing side by side with many other diseases due to uric acid, as more and more uric acid is poured into the body in flesh, soup, meat extracts, tea, and coffee, all of which are consumed much more largely than 30 years ago. Countries in which the diet is more uric acid free, suffer but little from cancer, while there is evidence tending to show that when uric acid is excessive the incidence of cancer is increased by substances which tend to precipitate uric acid in the tissues and is diminished by substances which aid its removal from the body. If further statistics confirm this, we can diminish cancer by cutting off supplies of uric acid and giving solvents. [H.M.]

The Collection and Preservation of Phlebotomic Diptera.—N. Manders,[3] of the Royal Army Medical Corps, writes an interesting article concerning the blood-sucking diptera, their capture or cultivation, and preservation for purposes of scientific study. The diptera of interest in medical research are culicidæ, including culex, anopheles, and stygomyx (mosquitos); chironomidæ (midgets); simuliidoe (sand flies); and tabanidæ (gad-flies). The most interesting comments from a medical standpoint have reference to the mosquito. He says: To the perennial question, What are mosquitos? the answer is given that they are gnats that bite, or rather suck. All mosquitos are gnats, but all gnats are not mosquitos; the true gnats have no long projecting beak or blood-sucking proboscis. The word mosquito is a diminutive of the Spanish mosca and is applied to any small biting insect. The chief genera it is important to discriminate are culex and anopheles. Structurally, culex may be at once distinguished from anopheles by the palpi of the female being much shorter than the proboscis; whereas, in anopheles in both sexes, and also in the male culex, the palpi and proboscis are of equal length. The larva of the two species are totally different. The pupal stage in each, however, lasts only about 24 hours. A number of illustrations accompany the article. [A.B.C.]

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[1] Illinois Medical Journal, August, 1904.
[2] Münchener medicinische Wochenschrift, 1904, li, 516, No. 12.
[3] British Medical Journal, July 9, 1904.

[1] Public Health, August, 1904.
[2] Medical Press and Circular, June 15, 1904.
[3] Journal of the Royal Army Medical Corps, August, 1904.

Antimalarial Operations in Mian Mir.—G. M. Giles,[1] of the Indian Medical Service, says the reason but little has been effected in combating malaria in the Punjab district in India is due to a mistaken effort to adopt measures applicable to the whole country. The very life of the population in this district depends on cánal irrigation, hence the breeding places for mosquitos cannot be removed. Efforts applicable to the whole district are for the present useless, and they should be confined to the protection of garrisons. It is common to find closely adjacent parts of the same town or village differing greatly in malariousness. Reports from Italy also show clearly that endemic malaria is a strictly local manifestation, and that it is by strictly local measures that we can successfully combat the disease. Giles argues then, that canal irrigation should be absolutely effaced within the confines of every military station, and that in India immediate results can be expected only by the adoption of properly contrived wire gauze protection for barracks, and that malarial patients shall be isolated in special wards protected against the entry of mosquitos. [A.B.C.]

The Diacetic Acid Reaction in the Urine.—H. D. Rolleston and B. N. Tebbs[2] consider the diacetic reaction in the urine under many conditions, and state that these show a special disposition on the part of the female sex to the development of diaceturia. In Litten's 81 cases of diaceturia, there were 46 females and 35 males. The essential factor for its production is starvation, for while patients are being fed by the mouth they do not tend to develop diaceturia. As to whether the reaction may be associated with acute gastric ulcer, as this is commoner in the female than in the male, appeared to be supported by one of their cases, but on examining the ages of their female subjects, they find that of the 40 patients 13 were 30 years of age or over, 3 being over 40 and, therefore, presumably cases of chronic ulcer, and of these 13 gave the reaction. The reaction appeared as early, and was as marked in women over 40 as in women under 20. The only conclusion that can be drawn is that the determining factor is a matter of sex, and that neither the age of the patient nor the chronicity of the ulcer has any appreciable effect on the development of diaceturia. The reaction does not appear to be determined by any actual lesion of the stomach, the direct cause being starvation. In any disease in which the brunt of the morbid process falls upon the intestinal tract, females or children develop diaceturia more readily than males. Statistics are given in support of this view. Sodium bicarbonate given internally or by intravenous injection will quickly eliminate diacetic acid from the urine. [A.B.C.]

GENERAL SURGERY

Martin B. Tinker

A. B. Craig C. A. Orr

EDITORIAL COMMENT

The Operative Treatment of Cardiospasm and Resulting Esophageal Dilation.—Dilation of the esophagus because of obstinate spasm of the circular muscles at the cardiac end of the stomach, has received but little attention in this country. A considerable number of cases of this kind has been reported by German writers, however, and quite probably the condition would be occasionally seen in this country if clinicians were on the outlook for it. Mikulicz,[3] to whom we are indebted for so much of our knowledge with regard to pathologic conditions of the esophagus, states in a recent paper that at present at least 100 cases of this kind have been reported in which the disease has been thoroughly studied and correctly diagnosed. Thirty years ago Ziemssen and Zencker reported 17 cases of so-called idiopathic dilation of the esophagus, in which nothing could be found at necropsy to account for symptoms of difficulty in swallowing. Mikulicz believes that these cases were caused by obstinate contraction of the circular muscles at the cardiac end of the stomach, and soon after he invented the esophagoscope, he studied a number of cases carefully in which cardiospasm was the cause of the entire trouble. It is necessary to make the differential diagnosis between carcinoma, cicatricial stenosis, and diverticulum of the esophagus, and this he finds is possible through the use of the esophagoscope. Very little is known at present of the cause of this condition, though five etiologic factors have been suggested—cardiospasm, which Mikulicz himself believes to be the cause; primary atony of the musculature of the esophagus; spasms of the cardia and paralysis of the circular muscles in consequence of paralysis of the vagus nerve; congenital deformations, and primary esophagitis. The symptoms are in some cases extremely obstinate, so that the patient is unable to swallow enough to support life. In other cases the condition may be relieved by careful regulation of the diet, washing out the esophagus, and other internal measures. In still other cases it is possible to dilate the cardiac opening with the esophageal bougie, though in many cases the passing of the bougie causes irritation of the cardia and increases the spasms. Rosenheim[1] has devised a soft rubber dilator, which can be passed through the cardia folded, and then inflated, so as to dilate the stricture. Mikulicz found in some of his cases that it was not possible to secure permanent, satisfactory dilation even after repeated treatment with this dilator for as long as four weeks. In the very obstinate cases the patient loses rapidly from lack of nourishment, being unable to swallow, most of the time, and death from starvation has followed in a number of cases. For the treatment of these obstinate cases, Mikulicz first devised a dilator which could be inserted through the cardia like an esophageal bougie, and considerable amount of force could then be applied. This he hesitated to use, however, because of the danger in applying a great amount of force to structures, the resistance of which he could estimate only very imperfectly, and which might have resulted in tearing into and infection of the peritoneum or mediastinum in consequence. In four cases of this kind he finally decided to open the abdomen, wall off the peritoneal cavity with gauze, open the stomach by a longitudinal incision, and dilate under the direct control of his fingers. This was accomplished by means of very long, strong, curved forceps, the blades of which were protected by rubber tubing. The forceps were introduced carefully, and the blades were separated until the cardia was dilated to 6 cm. The stomach and abdomen were then closed, and in all cases the patients made good recoveries. The improvement in the patient's condition was very marked in all cases, and the gain in weight was as great as 51 pounds in one of his cases. The relief of the condition has thus far proved permanent. In a number of such pathologic conditions of obscure nature we in America still have something to learn. We do not question the ability of a large number of surgeons in our country to successfully perform an operation of the character just described, but we have been slow to adopt advanced methods for the diagnosis of some of the more obscure conditions. Few, even of our most progressive men, have familiarized themselves with the modern methods of determining the functional condition of various organs, which have been in use for a number of years. Much less have they become skilful in the use of the esophagoscope. Skill in using such special methods of diagnosis and judgment in interpreting the significance of such examination can be acquired, in most cases, only through long-continued practice. The pathologic conditions calling for such special diagnostic methods are

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[1] Journal of the Royal Army Medical Corps, August, 1904.
[2] British Medical Journal, July 16, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, Vol. xxx, p. 17.

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[1] Berliner klin. Wochenschrift, 1902, Vol. xli, p. 298.

relatively rare, but we feel that there should be some one or two men at least, in all of our large medical centers, who are familiar with these technically difficult, diagnostic procedures, and to these men should be referred all doubtful cases in which it is impossible from lack of skill and experience for the average practitioner to give an opinion of any value.

REVIEW OF LITERATURE

Notes on 1,140 Cases of Gunshot Wounds.—G. H. Younge,[1] of the Royal Army Medical Corps, in South Africa, during the Boer war, reports that from December, 1899, to July, 1901, 1,140 cases of gunshot wound passed through the hospital of which he was in charge. Of these 87 (7.6%) were caused by shell, and 1,053 (92.4%) by rifle bullets, classified according to severity, 603 (52.9%) were slight, 366 (32.1%) severe, and 171 (15%) dangerous. Surprise is expressed at the relatively small number of "dangerous" wounds. The preponderance of wounds of the lower extremity is attributed to the mode of warfare. It was surprising how closely wounds of any particular region of the body corresponded in the different battles. Interesting is the account that a lyddite shell burst over a man. He was brought in in a semiconscious condition and in an attitude of rigid flexion. No wound of any kind could be found, but the skin on exposed parts of the body was stained of an ocher-yellow color, and washing could not remove it. Flesh wounds caused by Mauser bullets were, as a rule, "humane," but this was far from invariable, and in many cases conical masses of tissue were carried away, the wound of exit being occasionally several inches in diameter. Bone injuries produced by the Mauser bullet were often very severe. Not only was the bone in many instances badly splintered, but occasionally large pieces were carried away, and in some instances the shaft of a long bone was pulpified for three or four inches. There were 92 wounds of the head, and in several instances a bullet traversed the brain without producing immediate or remote symptoms of serious import. Two such instances are reported in detail. The general experience was that preventive trephining should be done in all gunshot wounds of the cranium, especially in "gutter" wounds, owing to great depression and fissuring of the inner table in these cases. Of 85 gunshot wounds of the chest 9 resulted fatally, and that quickly from hemorrhage. Escaping a rapid fatal hemorrhage the patient usually recovered. The great danger lay in wounds near the root of the lung. Wounds in other portions of the lung usually caused but little dyspnea, sometimes no hemoptysis, rarely hemothorax, and in but one instance was there marked superficial emphysema. Of 66 patients admitted with gunshot wound of the abdomen, 12 promptly died. When the intestines were perforated, blood usually passed by the bowel. Its absence, however, did not negative perforation. Recovery from perforating wounds of the abdomen, contrary to all previous experience, was not uncommon under expectant treatment. The general experience in the campaign was that laparotomy for gunshot wounds of the abdomen should be performed only under special circumstances in the field. Should the wound be in the epigastric, umbilical, splenic or hypogastric region, operation would depend on the symptoms, otherwise expectant treatment is indicated. Though many of the 1,140 wounds were lacerated and fouled with dirt there was no case of tetanus. [A.B.C.]

Excision of the Thyroid in Graves' Disease.—M. Figueira[2] arrives at these conclusions: In neurotic subjects, especially, emotional and other nervous influences may cause changes in the nerve-centers capable of influencing distant organs and initiating in them morbid processes. In such way the centers in the medulla are affected in Graves' disease, and as a result the characteristic symptoms of the disease are produced. The changes so initiated in the thyroid cause hypertrophy of its glandular tissue and an increase and alteration of its secretion. This increased and vitiated secretion constantly pouring into the blood has a tendency to perpetuate and aggravate the other symptoms of the disease, such as tachycardia and exophthalmos, as shown by clinical experience with thyroid extract, and by improvement of these symptoms after resection. Finally, the operation of resection of the thyroid gland is justified not as a means of curing the disease, but of removing a cause that keeps up the symptoms and prevents nature and science from relieving conditions of the nervous system forming the cause and origin of the disease. [A.G.E.]

Operations in the Thoracic Cavity with the Aid of Sauerbruch's Chamber.—Pneumothorax, the great danger of endothoracic operations, has prevented the performance of large numbers of necessary thoracic operations. Sauerbruch's chamber, which has been successfully tested with dogs, prevents this dangerous complication. It is a pneumatic chamber kept in a constant negative pressure by means of a suction apparatus. The dog's head and the anesthetizer are outside the chamber, an airtight opening separating them from it; the animal breathes atmospheric air, but the pleural cavity is kept under constant negative pressure, thus enabling the operator, who is also in the chamber, without disadvantage to himself to perform any operation on the lungs, or any of the thoracic contents; both sides of the chest have been opened without either lung collapsing. The animal's breathing is spontaneous, and without disturbance of any kind. It was seen that a constant rhythmic respiration was not necessary, but only a maintenance of the difference between the intrabronchial and intrapleural pressure. Mikulicz[1] also discusses the possibility of an "increased pressure procedure," when the animal's head and the anesthetizer would be inclosed in the air chamber alone, and the intrabronchial pressure increased. This has, however, not been sufficiently tested to permit of any conclusions. After the operation the wound must be closed airtight. On this account, resections of ribs are not as suitable as incisions of intercostal muscles between ribs, which after the operation can again be perfectly united. This can be done in front as well as behind, and the operative field probably sufficiently uncovered for any procedure, due to the elasticity of the ribs. Fractures or resections of ribs, or even of the sternum are not absolutely contraindicated. He discusses the possibilities of this chamber, and says that tumors of the chest wall, diseased lung foci, cardiac wounds, mediastinal diseases, foreign bodies within the esophagus, carcinoma of the esophagus, vertebral disease, and many other conditions, can be operated on now with comparative impunity. He even speaks of the probability of instrumental dilation of mitral stenosis. [E.L.]

Present Status of Suprapubic Prostatectomy.—J. W. T. Walker,[2] in a lengthy and very able commentary on recent work in urinary surgery by English surgeons, finds that the treatment of enlarged prostate presents a quite different aspect from that of two years ago. Castration and vasectomy were then demanding much attention; now they are scarcely noted. Bottini's operation never received widespread support from English surgeons. The question in cases of enlarged prostate is not now whether catheter life, vasectomy, orchidectomy, Bottini's operation, ligature of the internal iliac arteries, permanent bladder drainage, or prostatectomy should be recommended, but whether the case is suitable for prostatectomy, and if so, what form of prostatectomy should be performed. Walker believes the question of perineal as opposed to suprapubic prostatectomy is not yet ripe for discussion, and will not be until the advocates of the former show that the operation can be performed with the same rapidity, accuracy, and completeness, and with similar perfection of after-results, in as wide a variety of cases of enlarged prostate as Mr. Freyer has shown to be possible by his suprapubic operation. Such efficiency of the perineal operation has not yet been demonstrated. The mortality in 83 fully-described cases of suprapubic prostatectomy by different surgeons was 10.8%, a very low rate when the condition of the patients and their age—averaging nearly 66 years, are taken into account. [A.G.E.]

Alcohol Dressings.—O. Amrein[3] lauds the pain relieving action of alcohol applications, which he has tried in a number of instances and varieties of conditions, as panaritia, lymphangitis, appendicitis, etc. In the latter without opium, it was much more efficient than hot applications of water. He relates the case of a patient suffering with tuberculous spondylitis; her pain was so intense that she had not walked in months, although numerous sedatives had been tried. Her worst pain she suffered during her menstrual period, and nothing had been found to even mollify this pain, until one day he applied an alcohol dressing (90%) to the back, and produced almost instantaneous relief. The dressings were changed in intervals of from three to five hours and the patient suffered but very little from then on; since then the patient has begun to walk, extending these walks over periods of a half to an hour. [E.L.]

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[1] Journal of the Royal Army Medical Corps, August, 1904.
[2] Brooklyn Medical Journal, August, 1904.

[1] Deutsche medicinische Wochenschrift, xxx, 1904, 530 and 577, Nos. 15 and 16.
[2] The Practitioner, August, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 555, No. 15.

Chronic Gastric Ulcer and Pyloric Stenosis.—Herbert F. Waterhouse[1] states that no sharp diagnostic line can be drawn between gastric ulcer and pyloric stenosis, as in many cases the stenosis of the pylorus is not organic, but spasmodic, and due to the presence of an ulcer, fissure, or erosion in the pyloric segment of the stomach, which may be so minute as to escape notice on hasty examination. Pylorospasm has been frequently observed by Waterhouse, and from his experience he would consider it almost as frequent a cause of pyloric stenosis as is cicatricial contraction. The great indication for gastroenterostomy in simple ulcer of the stomach is the occurrence of repeated hemorrhages. In three cases with extreme hemorrhage in a single occurrence in each, he found that absolute rest in bed, with ice-pack over the region of the stomach, abstinence of food and drink for five days, the injection of sterilized normal salt solution under the breast, and feeding by nutrient enema, sufficed to sustain life in each case. Gastroenterostomy should be performed in all cases operated upon for gastric hemorrhage, although at times the desperate condition of the patient will not permit the operation. He has met with several cases of pyloric stenosis with, and several apparently unaccompanied by gastric dilation. In pyloric stenosis vomiting is the most constant and definite symptom, and thirst is excessive. Aside from the surgical treatment of the cases, gastric lavage is important. In 31 gastroenterostomies for gastric ulcer in pyloric stenosis, he had two deaths; of the 29 patients which recovered, 27 made perfect cures, and can eat anything; 2 were neurotic. Dilation of the stomach never persists longer than six months after a gastroenterostomy for stenosis. [A.B.C.]

Surgery in the Aged.—W. A. Jack, Jr.,[2] counsels more frequent operative treatment of disease in the old and infirm. These patients are too often told they are so old that nothing radical can be done for them and they must be satisfied with palliative measures. The objections most frequently urged are inability to survive the shock on account of lack of vitality, damaged heart or kidneys, and atheroma. Careful preparation for the operation and getting the patients out of bed as soon after as possible will enable the surgeon to diminish the number of those to be refused operation simply on account of infirmity. The liberal use of whisky and strychnin for a few days and stimulating enemas a few hours before operating enable one to tide many old patients over the critical period in surgical interference. Jack reports in detail five cases of hernia, cancer, osteomyelitis, and other lesions operated on by him successfully, the ages of the patients varying from 70 to 76. He does not advocate indiscriminate operating, but refers to patients needing surgical attention and the surgeon hesitates to give it because of age alone. The tissues of old persons often possess more recuperative power than we credit them with. [A.G.E.]

Curability of Mammary Carcinoma.—P. Schmidt[3] reports concerning the results of 211 cases of mammary carcinoma operated upon by Braun at Göttingen during the last 19 years. He only considered such cases as cured in which at least for three years after the performance of the operation neither local recurrence, glandular enlargement, nor signs pointing to internal implication were noted. Of the patients, 164 were operated upon for primary growths, and of these, 113 having been operated on at least three years, responded to letters; in 32 the conditions above named were fulfilled; in 81, recurrences had occurred. Of the 32 many had been without signs of recurrence for periods varying from 10 to 15 years. In 202 of the 211 patients, at least one year had elapsed between the onset and operative period of the disease, so that from the standpoint of prognosis they left much to be wished for. The average age of the patients was 51 years; the youngest patient was 27 years. Braun always removes the pectoral fascia, and in many cases large portions of the pectoralis major muscle. Concerning the etiology of the affection, Schmidt does not regard mastitis, heredity, and single traumatisms very highly, but he attributes many of the cases to the atrophic changes of the menopause. [E.L.]

The Radical Cure of Hernia.—Mayo Collier[1] states that in 25% of the patients operated upon for hernia recurrence takes place, requiring a subsequent operation or truss. Concerning the question how early operation shall be performed, he is inclined to recommend a truss up to the fourth year; some cases longer, unless urgent complications arise. As to the use of a truss after operation, he states that in case the sac is small, the tissue sound, with well-formed abdominal wall, and the patient is permitted to rest for two or three months after operation, no truss is required. On the contrary, if the abdominal wall is weak or pendulous, with much fat, or the patient is required to do heavy manual labor after operation, or suffers from chronic bronchitis or asthma, a broad, well-fitted truss should be worn. He discusses the various suture and ligature materials, and states that each has in turn been tried and his personal preference is for plaited Chinese silk, but even this may cause suppuration. The perfect ligature has not been found. As to the choice of operation, he states there are at least ten well-recognized surgical procedures for the relief of rupture in the inguinal regions, and his preference is for the operation of Barker. No one should attempt the operation for the radical cure of rupture who is not perfectly acquainted with the anatomy of the region where the hernia exists. An interesting and instructive dissertation upon the anatomy of the inguinal canal, its boundaries, contents, relations, etc., is given. [A.B.C.]

Treatment of Intestinal Obstruction.—J. F. Percy[2] details the history of a case in which, efforts had been made to produce catharsis under the supposition of acute indigestion. The patient was in extreme shock, but survived the formation of an artificial anus, and later removal of adhesions and resection of intestine. Percy emphasizes points in the treatment of obstruction that general physicians seem slow in appreciating, although often cautioned. He says we all know what should be the rational treatment of a case of obstinate constipation, and if we do not attempt more in a given case of pain in the bowels with symptoms of shock, we have not jeopardized either the life of the patient or our reputation if the case should prove to be more than one of constipation. When vomiting persists, wash out the stomach, and if necessary empty the lower bowel by enemas; do not give morphin, but send for a surgeon. If a surgeon is not near, or the people object, do just the opposite of what is usually done; instead of giving medicines, give absolutely nothing. If this does not stop pain, give brandy by the rectum, 30 cc. (1 oz.) or more in 120 cc. to 180 cc. (4 oz. to 6 oz.) warm normal salt solution. Repeat every hour for two or three hours, if necessary. If forced at last to give morphin, never make the initial dose more than 0.004 gm. ($\frac{1}{16}$ gr.). [A.G.E.]

Chromocystoscopy.—F. Voelcker and E. Joseph[3] report the cases, in which they have employed their method of chromocystoscopy to date; it consists of the injection of 4% solutions of indigo-carmin into the muscles of the thigh previous to cystoscoping the bladder. The urine secreted by the individual kidneys is ejected at periodic intervals as a strongly colored cloud, and in cases where one or the other kidney or ureter is diseased or obstructed, the disease can be recognized by the change in the color or strength of the cloud. The method is in itself sufficient to indicate which, if any, kidney or ureter should be operated on. On account of the ease and simplicity of the measure and its great value from the standpoint of diagnosis, they recommend their method. [E.L.]

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[1] British Medical Journal, July 16, 1904.
[2] Washington Medical Annals, September, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 540, No. 15.

[1] British Medical Journal, July 9, 1904.
[2] Illinois Medical Journal, August, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 536 and 585, Nos. 15 and 16.

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

EDITORIAL COMMENT

Stagnin.—Some weeks ago we abstracted a noteworthy communication by Drs. Landau and Hirsch,[1] concerning a new physiologic styptic which they have prepared from spleen pulp by the method known as Salkowski's antiseptic autolysis. Briefly, they have dissolved out from the spleen pulp by sodium chlorid solution and heat, a substance which is not destroyed by boiling and is, therefore, not a ferment, but a fixed chemic compound. This substance was found to be rich in what it has become the fashion to call "organic iron compounds," and was, therefore, after preliminary testing on animals, administered to several patients suffering with secondary anemia, the result of uterine hemorrhage. Unexpectedly it manifested the property of checking such hemorrhages. Further investigation was made clinically and experimentally, and several precipitates separated from the concentrated solution of spleen pulp by various methods. One of these precipitates, found to be the most active in styptic powers, was given the name of "stagnin." Its hemostatic property depends upon a chemic action in the blood, which produces coagulation, and not upon constriction of the vessels. The exact chemic or physiologic mechanism of the coagulation process is not stated. The concentrated solution or a solution of equivalent strength, made by redissolving the precipitated stagnin in sodium chlorid solution, is used by intramuscular injection. Landau and Hirsch have utilized the gluteal region. The dosage is not definite, one or two "syringefuls," repeated daily, being the quantity stated in the reports. Among the cases in which this method was successful in arresting hemorrhages one of hemophilia is included. It is pointed out that capillary and not arterial hemorrhages are controlled by stagnin. Its field of usefulness is thus limited, but is still sufficiently large to characterize the discovery of this substance as one of the most notable of recent advances in therapeutics. Doubtless from the spleen and other organs can be extracted or prepared many other substances having definite physiologic powers, and the field of organotherapy may be thus enriched with opulins innumerable, each having some definite relation to various physiologic—and by perversion, pathologic—processes. There is no field more promising for investigation, and none in which results will more certainly contribute to the establishment of a science of therapeutics.

REVIEW OF LITERATURE

Saline Purgatives and Their Counteraction by Calcium.—J. B. MacCallum,[2] in a second publication upon this subject, states that experiments indicate that saline purgatives must be first absorbed into the blood to produce their effect even when introduced into the intestine. They affect the intestine by increasing the irritability of the nerves and muscles, and produce an increased secretion of fluid into the intestine. By injecting solutions of calcium chlorid, the peristalsis caused by these salts may be entirely inhibited. The administration of calcium is therefore rational, especially in those cases of diarrhea in human beings which accompany hysteria or nervous excitability of any sort. A second series of studies has shown that solutions of many salts produce increased peristalsis when applied locally to the peritoneal surface of the intestine. These peristaltic movements may also be inhibited by solutions of calcium or magnesium chlorid similarly applied. [A.G.E.]

Diet in Chronic Heart Disease.—Theodore Schott[3] states that the principal rules to be regarded may be summed up in two statements: 1. Patients must avoid anything which excites the action of the heart. 2. Everything must be avoided which embarrasses the action of the heart. The substances which most readily excite the heart's action are strong coffee, tea, and alcohol, in the order named. Occasionally alcohol is allowed to patients who have used the beverage for years. Water and milk in moderate quantities are by far the best beverages. Sterilized cream and cocoa are especially beneficial, but chocolate should be avoided. It is important that the patient should avoid taking food sufficient to cause distention or to produce flatulence. These cause pressure upon the diaphragm and impair the mobility of the lungs and heart. As a general rule patients should be fed oftener than three times a day, since at no time should they be fed to repletion. New bread, freshly baked cakes, should be avoided. Toast, zwieback made without sugar, and the crust of rolls may be eaten. Vegetables that produce flatulence should be avoided, but other fresh and easily digestible vegetables are highly recommended. Fried bacon and ham are harmful; easily digested fruits are beneficial; iced drinks should not be used. Schott states that it is impossible to urge too strongly that sufferers from heart disease require a mixed diet. In his opinion tobacco should be tabooed. In the presence of fatty heart and plethora it is best not to drink at meal time, but in patients who should have plenty of food, there is no reason for prohibiting drinking during meals. [A.B.C.]

Poisoning from Theocin.—Theocin has been found an efficient diuretic when other means have failed. That its use is not unattended by danger, however, is shown by two cases of fatal poisoning reported by E. Allard.[1] The first patient succumbed to two doses of 0.3 gm. each, given with a 14-day interval; the second person had taken 1.5 gm. in two days. The chief symptoms of poisoning in both cases were sudden loss of consciousness and epileptiform convulsions. After death, among other findings, were noted hemorrhages into the gastric mucous membrane. In order to determine whether the drug was responsible for these phenomena, Allard conducted a number of experiments on animals. In all cases the symptoms were the same as in man, and the pathologic investigations revealed the same gastric changes, with cloudy swelling of various organs. [B.K.]

Treatment of Syphilis.—Jonathan Hutchinson[2] favors early treatment, instead of waiting for the appearance of secondary symptoms. He employs continuous and very prolonged courses of treatment in the following manner: The patient takes after meals a pill containing 0.066 gm. (1 gr.) each of gray powder and Dover's powder. If no diarrhea follows after a few days, the pill is taken four, five, or six times daily. All soups, fruit and green vegetables are peremptorily forbidden, and the patient told that the treatment and the precautions must be continued without intermission for at least one year. To guard against salivation, an alum mouth wash is ordered. The patient is allowed to continue his ordinary occupation, but is advised to spend as much time in bed as he can well manage. If there is debility, 6 cg. (1 gr.) of quinin is added to the pill. Under this plan the throat and skin are rarely involved. Treatment is never begun until the character of the sore is definite. [A.G.E.]

Moser's Serum in Scarlatina.—W. A. Samgin[3] reports very favorably on his personal experience with Moser's serum in scarlatina. He employed it in a grave case in a girl of 12. The serum was injected (200 cc.) during the height of the fever and rash, and the temperature fell in one and a half days to nearly normal. The local gangrenous inflammation was promptly checked, and the danger was over. Samgin hopes to see a more general use of this serum against scarlatina. [L.J.]

Caffein in the Treatment of Alcoholism.—Hall[4] is quoted as saying that the cardiovascular stimulation, with the effect of the caffein on the nerves and nerve centers favor a systemic refusal of the pernicious alcoholic craving. [T.H.E.]

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[1] Berliner klinische Wochenschrift, 1904, xli, 22, 577.
[2] University of California Publications. Physiology. Vol. i, pp. 175–197, July 10, 1904.
[3] The Lancet, July 16, 1904.

[1] Deut. Arch. für klin. Med., Bd. lxxx, p. 510.
[2] The Practitioner, August, 1904.
[3] Medizinskoe Obosrenie, lxi, No. 12.
[4] Rev. de Med. y Cir. de la Habana, July 25, 1904

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"Place aux Dames."—It is strange how slow men are to recognize that in all matters of practical hygiene the women are necessary. We shall never have clean cities until they undertake the job, nor shall we know how to be good national housekeepers until the private housekeepers of the nation extend their hereditary function to public needs and duties. Every time the women are given a chance to clean up a dirty city, carry on a crusade against public disgraces and immoralities, they are successful, and there is at once a new order of things. In one State the men, the eaters of meat and makers of laws, legally allowed the butchers to carry on their work in such a diseased and disgusting manner that the health and morals of the whole people were affected. One woman alone reformed and cleaned up the whole abuse and made the slaughter-houses of the State models of hygienic order and decency. Here is another instance: In a Michigan city, Kalamazoo, the women grew tired of filthy streets and disregard of law and they got permission to clean one street for awhile, on the same conditions as the contractor had *not* cleaned it. They did the work, enforced slumbering ordinances to wake up, demonstrated to the city that cleanliness is as easy and as cheap as filthiness, and now the men and politicians of Kalamazoo say they have learned their lesson and that they will carry out the reform in all the streets of the city. The movement was instituted by Mrs. Caroline Bartlett Crane, who also did such marvelous work in the Michigan slaughter-houses. There should be a "Women's Civic Club," or "City Improvement League" in every American city and town!

Where Life is the Most Healthful and Long.—In Grand Isle county, Vermont, there was in 1901 a population of 4,462, and the deaths from tuberculosis numbered 3. In 1902 the deaths from this cause were 6, and in 1903 only 2. We wonder if there is so low a deathrate from tuberculosis anywhere else in the civilized world, and under anything like similar conditions. In this county there are no villages except small ones, and not over 100 people in any village. The houses are all several rods from each other. The population is almost entirely farmers and fruit growers. The county is literally an island, and strong winds continually blow over the water surrounding it. That such exceptional conditions have an influence upon the mortality is plain from that of Franklin county lying next to Grand Isle, and not so sparsely settled, but otherwise similarly circumstanced, in which the deathrate from tuberculosis was in 1901, 0.179, as against 0.067 in Grand Isle. It might be a pity to raise the deathrate of the citizens, but what a place for a tuberculosis sanatorium! Perhaps the whole State of Vermont would get the prize in a State contest for a health prize. There has been a steady decrease in the deaths from tuberculosis from 1886, when they numbered over 700, to 1903, when they were only 439. In 1901 there were 415 dying of senile debility or general decay, and 145 of these were over 90 years of age, and 9 were over 100 years old.

Damage Suits against Dirty Cooks, Restaurants, Etc.—The possibility of enforcing cleanliness and hygienic precautions by means of the liability of restaurant keepers, hotels, etc., to be fined for unhygienic food and dirt, is suggested by the growing perfection scientific rules as to the cause of disease. It is illustrated by a suit which has been brought by a customer in Iowa against a restaurant proprietor. The plaintiff contends that the food served to him made him sick. At first one smiles, then he thinks over it more seriously. A milk dealer is under penalty if he sells adulterated milk, or cream, without a certain percentage of fat, and is surely liable for heavy damage, if wilfully ignoring the law, his milk contains the germs of infectious diseases. When is a plate "dirty?" The Iowa plaintiff contends that he was compelled to eat from plates which were not clean. If milk is served with a number of bacteria much greater than the limit set by the pediatrists, could not the hotel, restaurant, or boarding-house, be proceeded against by law on the part of the always martyrized boarder? It has been demonstrated that bed-bugs and flies may be the carriers of disease germs. The legal inference and suggestion is plain. If a guest is bitten by a mosquito, bearing the germs of malaria or yellow fever, may not the patient sue the hotel for the highest damages, because of failure to protect his windows, doors, and beds, with netting? Indeed, when is the end of responsibility? With science so sure, and the law so minded, could not every patient, seized with typhoid fever, or smallpox, sue the city or State for damages for neglect of the now universally admitted rules of hygiene as to infected water, compulsory vaccination, quarantine, etc.?

Physical Degeneration in England.—Certain writers in England have so persistently asserted that the race is undergoing a steady physical deterioration as to make the subject one of national importance. One principal ground for this allegation is the rejection for physical reasons of a large percentage of army recruits. So urgent did the question become that the government appointed a committee to inquire into the truthfulness of the assertions and decide on the advisability of creating a royal commission on the subject. The recent report of this committee does much to allay the fear of the populace in that they find no substantial evidence to support the claims of the socalled alarmists. The committee, however, makes numerous recommendations along hygienic lines in order to combat rigorously any real or fancied tendency toward physical decline. Among the more important is the fixing of a definite standard to prevent overcrowding, registry of cases of illness not limited to infectious diseases, an anthropometric survey, and, what seems of greatest potentiality, the formation of a council containing members appointed by medical corporations to receive reports and advise the government. These elaborate recommendations of the committee appear to possess two objects: (1) The collection of adequate data regarding the physical condition of the people in order that future deterioration or improvement may be determined with accuracy, and (2) the wholesale enforcement of modern hygienic and sanitary regulations. As the attainment of both these objects is eminently desirable, the agitation of the question, whether or not on a sound basis, gives promise of highly satisfactory results. Dr. Louis Parkes,[1] in commenting upon a much-discussed recent book on physical deterioration, says there is practically no available evidence on the subject for the reason that statistics on the physique of the present generation, as well as of past generations, are lacking. Comparisons based upon military rejections are fallacious because the class of men presenting varies according to the labor market, and there is no certainty as to the identity of the standards used for judging recruits at different times. A more reasonable argument is the oft-used one that urban population is increasing at the expense of the country, and that of the two, the city inhabitant is the less vigorous; against this must be placed the fact that the conditions obtaining in cities have during recent years constantly improved. Here, then, we lack a solid basis for argument, and until a vast amount of anthropometric and other data is secured for comparison, the question of whether the English race is deteriorating physically must remain one with debatable sides. At the present time it is earnestly to be hoped the agitation in England will result in the collection of statistics of far-reaching and permanent value.

Deaths in Battle.—The aim of inventors of death-dealing weapons, and the progress of military science, have consisted in making such instruments a thousand times more powerful and dangerous than formerly. Those unacquainted with military history, are therefore astonished at the number of deaths in battle in modern wars. It is, indeed, a terrible thing that as many as 30,000 men are killed in the battle of Liao Yang. But this is less than 10 percent of the total forces engaged; and, strange as it may seem, with all the explosives and ten-mile cannon, and a thousand improvements in firearms of all kinds, the proportion of those killed and wounded is steadily decreasing, as compared with conditions in the past. The farther back one goes the more terrible the slaughter. This is simply because there is very little or no hand-to-hand encounter in modern times. In ancient wars it was all hand-to-hand. The invention of the bow and arrow lessened it, and gunpowder, etc., has almost stopped it. Plutarch says that in the battle of Platea, the Persians, under Mardonius, lost 260,000 men killed out of an army of 300,000, while the Greeks, with their Spartan allies, lost but 1,360 men. In the battle of Silarus (70 B. C.) over 700,000 men were engaged. The Roman army, under Pompey, Lucullus, and Crassus, numbered 400,000, as against 300,000 insurgents under Spartacus. In the fight at Silarus, Spartacus lost 260,000 of his army slain on the field, and 6,000 were afterward crucified on the Appian Way. The Roman losses are not given. Plutarch tells us, too, of the battle at Issus, in which Alexander, with 38,000 men, faced Darius with a force of 550,000. Darius lost 110,000 men, or nearly three times as many soldiers as Alexander had in his army. Coming down to Cæsar's time, Plutarch tells us that in ten years' fighting in Gaul that general took 800 cities by assault, fought at different times forces aggregating 3,000,000 men, of whom he killed 1,000,000, and took another 1,000,000 prisoners. In the assault upon Alesia alone, Cæsar is reported to have killed nearly 300,000 men. In one fight in Africa, Cæsar faced the combined forces of Scipio Africanus, King Jupa, and Afrinius, killing 50,000, with a loss of but 50 of his own army. Marius and Catulus fought a battle on the plains of Vercellae against the Cimbri, killing 120,000 of them and taking 60,000 prisoners. Lucullus, with 10,000 men, is credited with having killed 100,000 men under Tigranes, including nearly 50,000 horsemen. In older times often more were probably killed by untreated wounds, starvation, and disease, than by the sword direct. The transportation and feeding of half a million men would drive modern quartermasters and engineers crazy, even with our steamships and railways. But the glory of modern civilization is that, with all its war shame, there is the Red Cross, the physician, the nurse, and the hospital, always at hand for the wounded and the sick.

Infection and Prophylaxis in Scarlet Fever.—Until the nature of the cause of scarlet fever be determined the mode of transmission of the disease will remain largely shrouded in obscurity, and efforts at prophylaxis must be based on clinical experience. In Great Britain this subject is receiving a great deal of attention, several articles on various phases of the question having appeared during the past year. One of the most suggestive was that of Lauder, who announced his belief that the contagion is not carried by the desquamating epithelium of the patient, but is conveyed by the mucus and other secretions of the upper respiratory and aural passages. The results of his series of experiments with 325 hospital cases certainly appear to support his views. In *Public Health* for August, 1904, are three special articles dealing with the incidence of scarlet fever and the influence upon the disease of hospital isolation; the particular point regarding the latter is the occurrence of "return" cases, those contracted from patients discharged from hospitals. In South Shields, Dr. Boyd finds the disease much more prevalent in the better class districts than in the poorer. Investigation shows this due partly to the fact that people in the very poorest districts are inherently less susceptible to the disease, but chiefly to the greater number of cases from these districts afforded hospital isolation. This expedient distinctly lessens the prevalence and spread of the disease when 50% or more of the total cases are thus handled. In Cardiff, Dr. Walford finds the hospital one of the factors, and not the least important, in the reduction of the incidence and fatality of scarlet fever. He believes many other factors also are at work in bringing about this result, and that the exact influence of hospitals cannot yet be stated statistically. From a lengthy consideration of protracted and recrudescent infection in diphtheria and scarlet fever, Dr. Arthur Newsholme reaches the conclusion that "return" cases are not essential hospital phenomena. Cases of protracted and recrudescent infection in scarlet fever are due to conditions in the patient himself and not to any conditions, whether hospitalism or other, external to the patient. A significant point is that these types of infection in both diseases are most often found associated with nasal and aural discharges. Newsholme says it is very difficult to unteach the public the erroneous view that the desquamating is the most infectious stage of scarlet fever, though we now know desquamating patients may, as a rule, safely be sent home in the sixth or even the fifth week of the attack if they possess no mucous complications. These recent contributors to the subject are thus unanimous in regarding hospital isolation as an efficient factor in the treatment and prevention of scarlet fever. As to the transmission of the disease, we believe we are correct in saying there is a growing tendency among our English confreres to regard the nasal and aural discharges as more infectious than the desquamating epithelium. Lauder's conclusions in this matter should by all means be confirmed or disproved by the concerted trial of many observers.

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[1] The Practitioner, August, 1904.

The Exceptional School Child.—The success of handling exceptional children depends largely upon a proper classification of their status and conditions. Heretofore the efforts of neurologists and specialists have been directed mainly toward grouping the lower strata of defectiveness and abnormality, while that very large group of children, who neither belong to the truly defective class, nor can be classed with the typical and normal child, has rarely received scientific attention. It is desirable to arrive at a clearer understanding of the latter cases. Dr. Maximilian P. E. Groszmann, of Plainfield, N. J., has made a most commendable effort to devise such a tentative classification, and suggests the following:

I.—CONGENITALLY ABNORMAL CHILDREN
(deviating from the standard of human nature.)
Idiots, feeble-minded, insane, criminals and moral perverts.

II.—CONGENITALLY DEFECTIVE CHILDREN
Epileptics, blind, deaf-and-dumb, etc.

III.—CHILDREN OF ARRESTED DEVELOPMENT
- (*a*) Submerged Classes
- (*b*) Pathologic Classes—born apparently normal, but having their development checked by:
  - (1) Hereditary Causes, manifesting themselves at certain developmental periods;
  - (2) Disease, fright, etc.

These classes approach the atypic character, but are less amenable to treatment than atypic children proper; however, unless taken hold of in time, these children may drift into true abnormality.

IV.—ATYPIC CHILDREN PROPER
(deviating from the average human type.)
- (*a*) Neurotic and Neurasthenic Children

Over-stimulation and precocity. Irritability. Perverse tendencies. Contrariness. Motor disturbances. Tic. Fears and obsessions. Vasomotor, sensory, and trophic disturbances. Defective Inhibition.
- (*b*) Children of Retarded Development

Physical Causes: Chronic catarrh, chronic difficulties of nutrition, serious visual and aural difficulties, etc. Impaired conceptual ability due to retarded brain development.

Atypic children are potentially abnormal; in other words, through neglect, they may become permanently defective, or mentally or morally perverse.

V.—PSEUDOATYPIC CHILDREN
- (*a*) Children whose Progress in School was Hindered by
  - (1) Temporary illness;
  - (2) Change of Schools;
  - (3) Slower rate of development;
  - (4) Physical difficulties, such as lameness and deformity, slightly impaired hearing or vision, adenoid vegetations, etc.
- (*b*) Children of Unusually Rapid Development, without genuine (pathologic) precocity.
- (*c*) Children who are Difficult of Management.
  Naughty, troublesome, spoiled children.

Pseudoatypic children are apt to become genuinely atypic, or even to degenerate into abnormality, unless redeemed in time.

There is, of course, no difficulty in distinguishing those to be placed in Classes I and II, and little in those of Class V. But it will frequently be found impossible or extremely difficult to say in which class or subgroup a certain child should be put in Classes III and IV. Part of this difficulty arises from the systemic effects of unperceived disease of special organs. Eyestrain, for example, results in a score or two of morbid conditions which require great skill and experience, both of teacher and physician, to trace out and overcome. This peculiar expertness will become more common and accurate with experience, and as teachers become more interested in one of the greatest problems of the age—the atypic child.

The Hog-pen Nuisance of Country Towns and Villages.—One of the good results of the enlargement of the powers of the local health officers, and of the *esprit de corps* which comes from their State organizations and meetings, is the encouragement of the members to wage war on old abuses which have come down from semibarbarous times. The loathsome hog-pen is only a hideous memory of most of us grown-ups, but the health officers of many American towns and villages have still their struggles with the horror. Mr. Morrow (not an M.D., be it noted), of Ada, Ohio, at a recent meeting of State health officers, told of his trials. He said that the only method of disposing of the garbage in his town of 3,200 people was by feeding it to the hogs kept in the place. He tried to abate the hog-pen nuisance:

> We have one progressive doctor on the board and he got up and made a motion that there be a resolution drafted for that purpose, immediately. Well, now, the other members of the board were not ready; they made a motion to send the health officer to find out what the opinion of the people was, whether for or against a prohibitory hog-pen law, so that they would not pass anything oppressive to the people (laughter), and it rested there at that meeting. Some say the health officer can keep the hog-pens clean, but he has an eternal fight all of the time. He goes to a man and tells him to clean his hog-pen or sell his hogs. "Attend to your business and I will attend to mine." Well, I have a very hard time to compel people to dispose of their hogs in thickly settled portions of the town, and people who are called and call themselves good citizens and Christians, neglect to do as they would wish to be done by—perpetuate the hog-pen nuisance. I offered a resolution that there should be no hogs kept within the city limits between the first day of June and the last day of October of each year, and then that no person should keep a hog without first obtaining permission from the Board of Health, and the board would not pass that even.
>
> Dr. Hopkins, Ashtabula—I got my Board of Health to pass a rule like this: That no person should keep a hog inside of the city limits without a permit from the Board of Health; I coaxed them into that; I could not get them to shut the thing off altogether. Those that wanted it had to come before the Board of Health and say that they would keep the hog-pen in good shape, keep it clean and wholesome. But we soon found promises were good for nothing, and that a nuisance existed just the same. I showed to my board that, although we had given a permit and the owner had given his promise that it should not offend his neighbor, that his hog-pen was foul and nasty and stinking. At last I got them to pass a rule that there should be no live hogs inside of the city limits over 24 hours, and all we have now is some two-legged hogs that want to keep four-legged.

The Nostrum Manufacturer Becomes the Quack Doctor.—An excellent method of getting direct knowledge of the methods of advertising specialists is for physicians to play the part of patient and write to the charlatan a series of letters in which his tricks and secrets shall be more or less clearly laid bare. With such documents the physician may make an exposition of the humbuggery and greed of these frauds to his fellow citizens, and especially to patients, or to their friends who are being cheated or are planning to be. Another tuberculosis cure device has come to our desk, in which a drug extensively advertised in the newspapers is the sole method of cure of the manufacturer turned quack. He sends out extensive circulars, blanks to be filled out, and letter after letter of warning and of assurances of cure, no matter what the stage of the disease. The winding up of each frantic appeal is the half price offer of the cure on trial. Probably there would be a good 100% or 500% profit at this awful reduction in price. There is page after page of this sort of stuff:

> It is now some time since we wrote offering to help you by making a reduction in the regular price of our treatment, yet we do not hear from you as we expected and we fear you are yet unable to get the medicine.
>
> Perhaps if we could help you still more, you would be able to begin at once; so I cannot give you up without one more effort to help you, and we have decided to bear a still larger part of your burden by asking you to pay only one-half of the regular price down ($5.00), and letting you wait until you are certain you are entirely cured before beginning to pay the balance. For when you are well and strong, it will surely be easier for you to get the money. I trust this great reduction (which can only be given to those in special need) will not only enable you to order immediately, but also show how great is our faith in the power of ——— to cure.
>
> Nor is our great faith to be wondered at, for we know that it has cured very desperate cases of Consumption—some when all other remedies tried had failed and change of climate was unable to check the progress of the disease. We have even had patients who wrote us that they were given up by friends and physicians alike, yet they became well and strong after taking our treatment. ——— has cured catarrh after forty years of constant suffering had been endured because all other remedies proved ineffectual; and we have had cases of bronchitis and asthma so severe that the patients told how they were obliged to be propped up with pillows all night before taking this famous cure. You have read of these cases in our booklets in the very words of the patients themselves, yet it does not appeal to you as strongly as to us, because you are not in receipt of their letters from week to week, and have not listened to their words of joy as they grew better from day to day. Of course these desperate cases are the exceptional ones, and you cannot be too sure of a cure even by this treatment, if you wait too long. This is why we are so anxious to have you begin without another day's delay. Remember, the sooner you begin, the more certain you are of cure, for every hour's delay gives your disease a stronger foothold.
>
> Now that we have made you this liberal concession, we trust you will be able to avail yourself of it immediately. I assure you no time will be lost in filling your order, for we fully appreciate the danger of delay. When you are well you can show your appreciation of our assistance by telling others what ——— did for you, and you can help us to save still other sufferers from this most fatal of all diseases.
>
> Do not wait, but send your order as soon as this reaches you.
>
> Yours with deepest sympathy,
>
> ——— ——— ———

All Crazy Within 700 Years.—A Chicago scientist has asserted that all human beings will have gone insane within 700 years. He gives as the causes of the increase in insanity, drink, over-indulgence in drugs, the mad rush for money, over-exertion, physically and mentally; the high nervous tension of life, and the present condition of woman as wage-earner and mother. He says: "The society woman and the working woman both live a strenuous life of constant exhaustion. The gay life of pleasure of the one woman and the drudgery of the other are continuously decreasing their nervous strength and energy, and when brain-fagged and physically exhausted they marry; they become the mothers of physical starvelings, who develop into men and women unfit for the burdens of life. These in their turn live in the manner of their parents, weaker, and even less able to stand the nervous tension of work and dissipation. These people are often predisposed to insanity and nervous diseases, while often the result is degeneration and imbecility. When men make it possible for women to return to their proper place of home and motherhood, and they can cease the pitiful struggle for existence, leaving the obtaining of a livelihood to the men of the family, then the conditions that produce insanity will diminish. Among the foreign laborers bad whisky and beer cause more insanity than does anything else. The reason is that the drink is 'doctored' with cocculus indicus, or 'fish-berry,' that is used by the Chinese in catching fish. In other words, drugs and whisky combined are a good combination upon which to build a lunatic."

AMERICAN NEWS AND NOTES

GENERAL.

Malaria Expert Visits the United States.—Major Ronald Ross, the wellknown English authority on the mosquito theory of malaria, has arrived in the United States to visit St. Louis, where he will lecture, and then go to Panama as a guest of the Canal Commission.

Eminent Japanese Physician Visits the United States.—Shibasaburo Kitasato, of Tokio, named by the imperial Japanese commission as Japan's leading bacteriologist, is visiting St. Louis and the International Congress of Arts and Sciences. As director of the imperial serum laboratory and of the imperial institute for the prevention of infectious diseases, Professor Kitasato won fame by the discovery and isolation of the bubonic plague germ.

Serum Treatment of Scarlet Fever.—Discussing this subject recently in a western city, Dr. Escherich described the researches which have been in progress during the last two years in Vienna to discover a cure for scarlet fever. Upon the results of more than a hundred experiments with serum taken from inoculated animals the Austrian scientist based his claims for the antitoxin treatment. "It is not absolutely proved," he said, "that a cure has yet been found. The results of experiments, however, have been striking, and it has been demonstrated beyond a doubt that the injection of inoculated serum in scarlet fever patients invariably checks the progress of the disease."

Miscellaneous.—Washington, D. C.: The new administration building of the Government Hospital for the Insane, at Washington, D. C., has been completed and will be occupied in a short time. Beside offices, it provides quarters for the hospital officers. The cost of the building is reported to have been $245,000.—**Los Angeles, Cal.**: The Los Angeles (Cal.) College Clinic Association has been organized to establish and conduct a hospital and dispensary, practically given up to nonpaying patients. A training school for nurses will be organized in connection with the hospital.—**Iowa**: Waverley, Iowa, has dedicated a new hospital which is largely the gift of Abraham Slimmer, a townsman, who gave his residence and grounds as the nucleus of the plant.—**Knoxville**: It is announced that the faculty of the Tennessee Medical College, at Knoxville, will build a $25,000 hospital with clinic features, opposite the new City Hospital.—**Baltimore**: By the will of Mrs. Anna M. Gill, of Paradise, Baltimore county, $4,000 accrues to the trustees of Johns Hopkins Hospital for "the benefit of the nurses of that institution."—**Cornell University Medical College**: Dr. Frederick Whiting has been appointed professor of otology vice Dr. Gorham Bacon, resigned. Dr. Adolf Meyer has been appointed professor of psychiatry, vice Dr. Allan McLane Hamilton, resigned. An increased number of students have registered for the opening of the medical college, September 28, and gratification has been expressed with the campaign carried out so vigorously in behalf of the medical press for better preliminary preparation, which is bearing fruit.—**The Outdoor Life** is the title of a monthly publication which is issued from the Adirondack Cottage Sanatorium, New York. Its aim is to be helpful to persons suffering from or threatened with pulmonary trouble. It disseminates knowledge of preventive measures, and publishes letters from different parts of the country giving valuable information to those seeking work in healthful climates.

NEW YORK.

Elevator Death Record.—In opening a case in litigation, Coroner Jackson said that since January 1 there have been 30 persons killed and a large number injured by faulty elevators, and that it was time that something was done to bring about a decrease in these accidents.

Rabies in Ithaca.—Health Officer Crum, of Ithaca, has asked help from the State Health Department to control the threatened epidemic of rabies which has been developing there for the last two weeks.

The Negro in New York.—*Charities* states that the study of the economic conditions under which negroes live in New York will be begun October 1 under a committee on social investigation. While nominally a committee of the association maintaining Greenwich House, the work outlined is in an entirely distinct field, and cannot be undertaken upon funds of the settlement. Thus far, but $250 has been subscribed toward the $600 fellowship necessary to forward the investigation which will be the work of Miss Mary Ovington, formerly head worker of the Greenpoint Settlement, Brooklyn. The field of inquiry will not be confined to any one neighborhood, and support must come from those in the city who, in one way or another have been deeply impressed with the unfortunate conditions of the negro quarters, with the lack of comprehensive knowledge as to the real situation, and with the dearth of adequate agencies for betterment.

PHILADELPHIA, PENNSYLVANIA, ETC.

Epidemic of Pink Eye.—An epidemic of pink eye prevails in the northwestern part of the city, especially among the school children. Many patients have been taken to the hospitals within the last week, and medical inspectors from the Bureau of Health are visiting the schools and expelling all afflicted children.

Reading Deals with the Tuberculosis Problem.—The Reading Medical Association held a meeting at the Auditorium September 16 for the purpose of organizing a society to establish a sanatorium for the outdoor treatment of the tuberculous poor in this vicinity. Addresses were made by prominent physicians and laymen.

Plush Changed for Rattan in Street Cars.—The Philadelphia Rapid Transit Company has recently put a number of renovated winter cars into service and as soon as possible many of the other old cars will be replaced by rebuilt or entirely new ones. The president of the company has stated that all of the plush-covered and carpet-covered seats now in use will be removed so soon as a new supply of rattan can be obtained. About 400 cars are still furnished with plush-covered seats, and orders have been given to retire all of them for repairs as expeditiously as possible.

Texas Fever Continues.—It is reported that Texas fever has been discovered among the cattle in Berks county, and 12 head have been lost by this contagious disease. United States Cattle Inspector Schaufler, of Philadelphia, has visited the county and examined a number of cows, and found them to be infected. Dr. Leonard Pearson, the State Veterinarian, has been notified, and it is expected that all cattle found infected will be quarantined until cold weather, which kills the tick causing the trouble. Cases are most numerous in the vicinity of Sinking Spring, Wernersville, and Lorah, this county. The cattle were brought here from Lancaster, having been shipped there from the South.

Work of the State Bacteriologic Laboratory.—According to Dr. Abbott, chief of the Bureau of Health, since 1897, when the laboratory was installed, 32,878 examinations of blood spots have been made, representing 28,375 cases of typhoid fever. Other statistics mentioned show that in 1894, when the use of antitoxin went into effect, 33.3% of the cases of diphtheria reported to the bureau died. Last year only 17.1% of the total number reported died. Since 1896 there have been 38,981 doses of antitoxin distributed. The milk report for July and August of this year is shown here:

Month.	No. Qts. Examined.	No. Qts. Condemned.	No. Qts. Infected.
July	15,447	8,679	5,958
August	194,581	6,400	3,449
Total	353,028	15,079	9,407

SOUTHERN STATES.

Husband's Life Worth $30,000.—Under instructions by the Court, a verdict was returned at McKinney, Tex., against the defendant in the $30,000 suit of Mrs. Hutchins against the St. Louis and Southwestern Railway Company. The plaintiff's husband was accidentally killed in the railroad yards at Wylie. This is the largest verdict for loss of life by a railroad accident ever returned in Texas.

Kissing Barred in Church.—News from Guadalajara, Mexico, states that Governor Pedro Arguelles, of the State of Tamaulipas, has issued an order prohibiting the practice of kissing sacred pictures and images in the churches of that State. The order is the result of investigations by the health authorities, who determined that contagious diseases were transmitted by people indulging in the practice.

Texas Opens Pasteur Institute for the Treatment of Rabies.—Texas is the first State in the Union to establish an institute for the treatment of rabies by the Pasteur method. There are five other institutions of this character, but they are all private enterprises. They are situated at New York, St. Louis, Chicago, Baltimore, and Atlanta. It is stated that a large percentage of the patients for these private hospitals come from Texas, and this fact, together with the apparent increase year by year of the number of persons afflicted with hydrophobia in this State, led the Legislature at its last session to make an appropriation for the erection and equipment of a hydrophobia hospital building. The institution is an adjunct of the State Insane Asylum at Austin. It will be completed and ready for opening about October 1. Free treatment will be given at the Texas State institution to those who are unable to pay, and in no case will the charges exceed $5 per week. This charge is insignificant compared with that of the private institutions, where the cost to each patient for treatment is from $150 to $250. In Texas and other Western States, rabid dogs are not the only source of inoculation of the terrible poison. It has frequently happened that an epidemic of rabies occurs among the wolves and coyotes of the western and southwestern parts of the State. —[*Boston Transcript.*]

WESTERN STATES.

Charity Chair in College.—For the purpose of providing courses of study and practical training in social and philanthropic work, the University of Chicago will open on October 1, at the Fine Arts Building a new department, to be called the Institute of Social Science and Arts. Professor Graham Taylor is to be the director. The department has been formed to meet the demand for trained men and women in charitable and reformatory institutions in organized movements for civic betterment, in social settlements, in the institutional work of churches, and in home and foreign mission work.

Dairy Inspection.—The Bulletin of Chicago's Health Department states: The dairy inspectors have inspected 659 dairies, 12,009 cows, representing the shipment of 2,486 eight-gallon cans of milk per day. Of these 659 dairies, 32 were in bad sanitary condition and 147 were feeding "wet malt." All of these were immediately notified that they could not ship milk to the city of Chicago and the dealers to whom they shipped were also notified that they could not receive and sell this milk in the city. The milk from 11 other dairies was also excluded from the city, because of bad sanitary conditions or diseased herds.

A Mammoth Skeleton Found.—Report has it that on a farm in Moorland township, Michigan, has been unearthed the skeleton of an extinct mammoth of enormous proportions, which probably inhabited this continent in prehistoric times. A gigantic tooth measured 7 inches long and 5 inches in thickness. The skull measured 3 feet 8 inches lengthwise and 2 feet 4 inches across the forehead. Projecting from one side was a tusk 9 feet long. A thigh bone, 3 feet long; 5 vertebras, 14 inches in lateral diameter by 1 foot perpendicular; 4 smaller vertebras, evidently from the root of the tail; 2 ribs and 2 bones, probably from a foreleg, were also found. The teeth in the skull are well preserved.

Utilitarian Work among Chicago's Crippled Children.—A plan evolved by the Chicago School Board is to teach the crippled children to put to account what powers they have. Instruction will be given to them in branches of manual training and basket weaving, and also in elementary bookkeeping and kindred subjects. The purpose is to find out what they are able to do with their limited power and physical resources. To this end a course to be taken by teachers desiring to serve in the schools for the crippled children will be added to the normal school extension work. Special preparation will be given in all the branches advisable to teach the cripples. The course will be opened early in October, when the normal school work will begin.

Mortality of Michigan during August, 1904.—There were 2,593 deaths in Michigan during the month of August, a slight increase over the number (2,510) registered during the previous month. The deathrate was 12.1 per 1,000 population. By ages there were 576 deaths of infants under 1 year of age, 199 deaths of children aged 1 to 4 years, and 677 deaths of persons aged 65 years and over. Important causes of death were as follows: Tuberculosis of lungs, 163; other forms of tuberculosis, 27; typhoid fever, 41; diphtheria and croup, 20; scarlet fever, 7; measles, 3; whoopingcough, 7; pneumonia, 56; diarrheal diseases, under 2 years, 331; meningitis, 29; cancer, 134; accidents and violence, 203. The mortality from typhoid fever and from diarrheal diseases showed the customary seasonal increase. There was one death from smallpox in Rives township, Jackson county.

Test for Formaldehyd in Milk.—The Bulletin of Chicago's Health Department states that during August the laboratory carried out a series of experiments to determine the nature of the reaction and the product involved in the formaldehyd test, known as "Hehner's test," commonly used in the laboratory for the detection of formaldehyd in milk. The following results have been obtained: The reaction is one involving the formaldehyd, the casein or albumin, and the sulfuric acid. The casein appears to be an essential in this test, for pure casein in water gives the reaction with formaldehyd and sulfuric acid much better than milk does. To determine if any other constituent of milk would give this reaction, butter fat and lactose mixed with formaldehyd and sulfuric acid were tried, but did not give the reaction. From this and other experiments it was found that the reaction involved some albuminous substance, such as casein or albumin, either from blood, or eggs, or milk, the formaldehyd, and the sulfuric acid. The test seems to be specific for formaldehyd, since it is not given by the addition of other aldehyds, alcohols, chloral, glycerin, boric acid, salicylic acid, or formic acid, when added to milk. Since milk containing formaldehyd always responds to Hehner's test and to the phenylhydrazin test, under proper conditions, and since other substances added to milk do not respond to these tests, we are forced to conclude that either of these tests is reliable, and doubly so when they supplement each other, as is always done in this laboratory.

CANADA.

Typhoid Continues in Winnipeg.—There are 150 typhoid fever patients in the Winnipeg general hospital, and many have been refused admittance on account of lack of room.

FOREIGN NEWS AND NOTES

GENERAL.

Elephants and the Plague.—Human beings are not alone in suffering from plague in India, says the *London Mail*. The disease has been so bad of late in the Mysore State, where it is reported, writes the Simla correspondent, that one of the palace elephants has succumbed after developing what seemed to be the typical plague swellings. A Mysore correspondent writes to a Bombay paper that elephants and deer are also dying in the Heggaddevankot forests of what is believed, locally, to be nothing else than the plague, which has been prevalent among the human inhabitants of some of the villages in the neighborhood.

German Graves 2,500 Years Old.—According to reports from Kostlach, in the district of Altkirch, interesting prehistoric graves have just been excavated on the Kastelberg, 640 meters above the level of the sea. Numerous persons thronged around while the excavations were being made. On the skeletons of the dead appearing, at the end of much assiduous digging, the conductor of the excavations turned to all those who were assembled around him, and addressed them as follows: "Gentlemen, we are standing here at the grave of three men, who, beyond all doubt, fell here more than 2,500 years ago while fighting for their most sacred possessions. Honor to the remains of these heroes! I request you all to take off your hats." Hereupon all present acquiesced in the director's request, a forester who was present fired a shot from his gun, and thus honor was duly paid to the remains of the discovered ancients.—[*London Standard.*]

The Transmutation of Elements.—Sir William Ramsay, the eminent English scientist is quoted with the following: "The transformation of one element into another as, for instance, the transformation of radium into helium, is in some cases quite certain. But often the new element produced appears in such infinitesimal quantities that it is impossible to measure or work with it. I don't want to specify the quantities so found, but they are frequently like one three-billionth of a milligram. The transformations are brought about by the application of radium to some other element. If we could only get enough radium—if we could get as much as a pound of it—we should be able to procure the reactions in more measurable quantities. It is also possible to bring about the same transformations by means of röngten rays, but this method is too slow. An illustration of the effect that radium produces may be seen when it is applied to glass. It thereupon appears to decompose or transform the glass into a matter like lead, a matter like actinium, and still something else."

OBITUARIES.

Augustus B. Castle, at his home in Los Angeles, July 29, aged 85; a graduate of Transylvania University, medical department, Lexington, Ky., in 1841; surgeon of the First Kentucky Volunteers in the Mexican war, and later he practised in Lexington, Ky., Kansas City, Mo., thereafter retiring from practice on account of ill-health. In 1898 he moved to Los Angeles.

Henry Ridgely, at his home in Dover, Del., September 17, aged 87; a graduate of the University of Pennsylvania in 1839. He studied for the navy and later retired from the practice of medicine, becoming president of the Farmer's Bank of the State of Delaware, which position he held for many years.

Felix E. Schilling, of Collins, Miss., at the Southern Mississippi Infirmary at Hattiesburg, September 12, aged 32; a graduate of Tulane University, medical department, New Orleans, in 1902. He had but lately located in Collins, and was stricken with typhoid fever which caused his death.

Jacob Chambers, at his home in Kingston, N. Y., September 14, aged 52; a graduate of the University of Buffalo in 1875, and one of the most prominent physicians of the Hudson Valley, being surgeon to the City of Kingston Hospital and the regular physician to Judge Parker and his family.

Albert G. Miner, of Niles, O., was struck by an express train in Warren, O., August 31, and instantly killed. He was 67 years of age; a graduate of Jefferson Medical College in 1873; member of the American Medical Association; surgeon in the Confederate service during the Civil war.

Henry F. Campbell, of Melrose, Mass., suddenly, in Boston, September 14, aged 60; a graduate of Harvard Medical School. He lived the greater part of his life in Boston, but three years ago removed to Melrose.

Francis Moreau, at his home in Warsaw, Ind., September 13. He was colonel of the Sixty-third Illinois Volunteer Infantry during the Civil war, having spent a fortune in recruiting troops for the Union cause.

George Newton Lantz, at his home in Brookfield, Mo., September 2, from Bright's disease; a graduate of the University of Louisville in 1890; a member of various local organizations in the State of Missouri.

John L. J. Gormly, at his home in Brooklyn, September 7; a graduate of Long Island College Hospital, Brooklyn, in 1897; visiting surgeon of St. Mary's Hospital, Brooklyn.

John H. Sharper, at his home in Herkimer, N. Y., September 3, aged 36; a graduate of the University of Michigan, department of medicine and surgery, Ann Arbor, 1891.

William H. Martin, at his home in New York City, from cancer of the stomach, September 3, aged 40; a graduate of the College of Physicians and Surgeons, city of New York.

John Robert Hamilton, at his home in Clinton, Ont., July 12, aged 56; a graduate of the College of Physicians and Surgeons of Ontario, Toronto, in 1872.

Joseph F. Wheeler, at his home in Marshall, Mo., September 6, from Bright's disease, aged 60; a graduate of the St. Louis Medical College in 1875.

Byron Lemly, at his home in Jackson, Miss., August 29, from apoplexy; a graduate of the Medical College of Virginia, Richmond, in 1865.

Charles Meyer, at his home in Macungie, Pa., September 2, from apoplexy, aged 77; a graduate of the University of Berlin, Germany, in 1848.

William McRee, at his home in Stephens, Ga., August 30, aged 76; a graduate of the Medical College of Georgia, Augusta, in 1859.

Leonard Henley, at his home in Williamsburg, Va., August 5, aged 83; a graduate of the University of Pennsylvania in 1847.

James M. Bowcock, recently, at his home in Clarksburg, W. Va., aged 75; a graduate of Jefferson Medical College in 1856.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 16, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Florida:	At large	Sept. 3-10	19	
Illinois:	Chicago	Sept. 3-10	1	
Indiana:	Kokomo	Sept. 3-10	1	
Louisiana:	New Orleans	Sept. 3-10	1	
Massachusetts:	Lowell	Sept. 3-10	1	
	North Adams	Sept. 3-10	5	1
Michigan:	Grand Rapids	Sept. 3-10	1	
	At 42 places	Aug. 27-Sept. 3	Present.	
Missouri:	St. Louis	Aug. 27-Sept. 10	5	2
Ohio:	Zanesville	Aug. 6-13	1	
Pennsylvania:	Philadelphia	Sept. 3-10	1	1
Tennessee:	Nashville	Sept. 8-10	2	
	SMALLPOX—FOREIGN.			
Austria-Hungary:	Prague	Aug. 20-27	1	
Brazil:	Bahia	July 31-Aug. 13	22	1
Canada:	Belleville	Aug. 29-Sept. 12	7	
	Winnipeg	Aug. 13-27	2	
China:	Shanghai	Aug. 4-11		1
France:	Paris	Aug. 20-27	7	
Great Britain:	Dublin	Aug. 20-27	1	
	Leeds	Aug. 20-27	1	
	Newcastle-on Tyne	Aug. 20-27	7	
	Nottingham	Aug. 20-27	2	
	West Hartlepool	Aug. 20-27	2	
India:	Bombay	Aug. 9-16		1
Italy:	Palermo	Aug. 20-27	14	8
Mexico:	City of Mexico	Aug. 21-28	1	4
Russia:	Moscow	Aug. 6-20	15	2
	St. Petersburg	Aug. 13-20	1	4
	Warsaw	July 31-Aug. 6		22
Turkey:	Alexandretta	Aug. 13-20		3
	YELLOW FEVER.			
Ecuador:	Guayaquil	Aug. 8-15		1
Mexico:	Coatzacoalcos	Aug. 27-Sept. 3	4	1
	Vera Cruz	Aug. 27-Sept. 3	14	
	CHOLERA.			
India:	Bombay	Aug. 9-16		33
	Calcutta	Aug. 6-13		4
	PLAGUE—FOREIGN.			
Africa:	Cape Colony	July 23-30	2	
Brazil:	Bahia	Aug. 5-18	17	7
Egypt:		Aug. 6-13	4	
		Three deaths at Alexandria		
India:	Bombay	Aug. 9-16		44
	Calcutta	Aug. 6-13		3
	Karachi	Aug. 7-14	8	2
Mauritius:		June 17-July 7	6	5
Peru:	Callao	Aug. 13	1	
	Colan	Aug. 17	Reported	
	La Sullana	Aug. 17	Reported	
Peru:	Lima	July 31-Aug. 6	11	5
	Salaverry	July 31-Aug. 6	2	1
	Sechura	Aug. 17	Reported	
	Payta	July 31-Aug. 6	4	2

Changes in the Medical Corps of the U. S. Army for the week ended September 17, 1904:

Before a G. C. M. which convened at Manila, P. I., and of which Major Daniel C. Pearson, Second Calvary, was president, and Captain George D. Moore, Twentieth Infantry, was judge advocate, was arraigned and tried: First Lieutenant Harry J. Collins, Twenty-eighth Infantry.

Charge.—"Conduct unbecoming an officer and gentleman, in violation of sixty-first article of war."

BAILEY, EDWARD B., contract surgeon, is granted leave for one month.

GRISWOLD, W. CHURCH, contract surgeon, is granted leave for one month.

The following-named assistant surgeons are relieved from duty at the posts designated and will repair to Washington, D. C., and report October 1 at the Army Medical Museum Building to Colonel Charles L. Heizmann, assistant surgeon-general, president of the faculty of the Army Medical School, for a course of instruction at the school: First Lieutenants William R. Davis, San Francisco, Cal.; Leartus J. Owen, Fort Myer; Stanley G. Zinke, Fort Riley; Robert M. Culler, Fort Jay; Frank W. Weed, Fort McHenry; William A. Wickline, Fort Ethan Allen; Henry L. Brown, Columbus Barracks; Howard H. Baily, Plattsburg Barracks; Harry G. Humphreys, Fort Totten; Paul L. Freeman, Fort Slocum.

THORNBURGH, First Lieutenant ROBERT M., assistant surgeon, now at Manassas, Va., will repair to Washington, D. C., and report at the U. S. Army General Hospital, Washington Barracks, for temporary duty.

JONES, JOHN F., contract surgeon, is granted leave for fifteen days.

COX, First Lieutenant WALTER, assistant surgeon, is granted leave for two months.

MARSHALL, JOHN S., examining and supervising dental surgeon, leave granted for twenty-one days is extended to one month.

Changes in the Medical Corps of the U. S. Navy for the week ended September 17, 1904.

GREEN, E. H., medical inspector, ordered to the Navy Yard, New York, N. Y.—September 9.

BERTOLETTE, D. N., medical inspector, detached from duty as a member of the Naval Retiring Board and of the Naval and Medical Examining Boards, Washington, D. C., and ordered to resume other duties—September 10.

PRICE, A. F., medical director, detached from the Navy Yard, New York, N. Y., October 1, and ordered to duty as a member of the Naval Retiring Board, Washington, D. C.—September 12.

BRECK, F. W., pharmacist, ordered to the Naval Hospital, New York, N. Y.—September 12.

Changes in the Public Health and Marine-Hospital Service for the seven days ended September 14, 1904:

PURVIANCE, GEORGE, assistant surgeon-general, granted extension of leave of absence for one month from September 1, 1904, on account of sickness October 1,—September 9, 1904.

VAUGHAN, G. T., assistant surgeon-general, detailed to represent the service at meeting of the Association of Military Surgeons, to be held at St. Louis, Missouri, October 10-15, 1904—September 7, 1904.

PECKHAM, C. T., surgeon, granted leave of absence for one month from October 8—September 10, 1904.

WERTENBAKER, C. P., surgeon, detailed to represent the service at the meeting of the Association of Military Surgeons, to be held at St. Louis, Missouri, October 10-15, 1904—September 7, 1904.

WICKES, H. W., passed assistant surgeon, directed to proceed to Wilmington, Delaware, for special temporary duty—September 8, 1904.

PARKER, H. B., passed assistant surgeon, granted leave of absence for one month from October 1—September 13, 1904.

ROBERTSON, H. McG., assistant surgeon, temporarily relieved from duty at Stapleton, N. Y., and directed to proceed to Washington, D. C., and report at the Bureau for temporary duty—September 10, 1904.

RUCKER, W. C., assistant surgeon, granted leave of absence for fourteen days from September 15—September 12, 1904.

GOLDSBOROUGH, B. W., acting assistant surgeon, granted leave of absence for three days from September 8—September 8, 1904.

HORSEY, J. L., acting assistant surgeon, granted leave of absence for fourteen days from September 10—September 10, 1904.

MASON, W. C., acting assistant surgeon, granted leave of absence for five days from September 19—September 9, 1904.

STEVENSON, J. W., acting assistant surgeon, granted leave of absence for seven days from September 3, 1904, on account of sickness—September 14, 1904.

TUTTLE, JAY, acting assistant surgeon, granted leave of absence for seven days from September 12—September 10, 1904.

GOODMAN, F. S., pharmacist, granted leave of absence for three days from September 3, 1904, under paragraph 210 of the regulations.

SCOTT, E. B., pharmacist, granted leave of absence for twenty-five days from September 19—September 12, 1904.

SLOUGH, CHAS pharmacist, department letter of August 3, 1904, granting Pharmacist Slough leave of absence for thirty days from August 10, amended to read nine days from August 17—September 12, 1904.

Resignation.

Pharmacist W. W. Kolb resigned to take effect September 1, 1904.

SOCIETY REPORTS

THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Seventeenth Annual Meeting, Held at St. Louis, Mo., September 13, 14, 15, and 16, 1904.

[Specially reported for *American Medicine.*]

An address of welcome, on behalf of the St. Louis Obstetrical and Gynecological Society, was delivered by LOUIS E. NEWMAN, whose remarks were followed by an interesting and instructive address by DAVID R. FRANCIS, President of the Louisiana Purchase Exposition. Mr. Francis said that the mere thought of having all the civilized countries on the globe meet in friendly competition in the pursuits of commerce and of peace was of itself an almost overwhelming reflection. An exposition of this character was the occasion of bringing together the best minds, the most representative men in every line of thought and of human endeavor. The exposition had so far surpassed all of the anticipations of its originators, and even the promises that were made concerning what the exposition would be, and what it would represent. The response to these addresses of welcome was made by L. H. DUNNING, of Indianapolis, Ind., and HERMAN E. HAYD, of Buffalo, N. Y. The meeting was very well attended. The papers were of a high scientific character, and the discussions on them full and spirited. Several gentlemen were elected Fellows of the Association. The Association held only one session a day, this being in the morning, thus giving the members and their guests an opportunity to visit the exposition in the afternoons and evenings.

Operative Treatment for Painful Menstruation in Young Virgins.—WM. A. B. SELLMAN (Baltimore, Md.) pointed out the great necessity of giving relief to young unmarried women who suffered from painful menstruation. The forms of dysmenorrhea that could be relieved by the operative means suggested were expatiated upon at length. These means should not be of a character to unsex the patient or prevent her from bearing children, or from fulfilling her marital relations. The operation should not be one which will endanger life or interfere with the woman's general good health. To illustrate the condition and demonstrate the manner in which patients could be operated upon without unsexing the individual, and giving absolute relief from the suffering experienced, the author related the following case, upon which he operated the early part of June, 1904: Miss H., aged 24, a brilliant vocalist with a register of three octaves, had been unable to use her voice with any satisfaction for a long period on account of the pain developed in the ovarian region when attacking the high notes. June 7, 1904, under ether anesthesia, the author cureted the endometrium, removing a quantity of congested tissue from the cavity of the uterus. He then made an abdominal incision in the median line, and found both ovaries hyperemic and distended. Upon the left side he opened three good-sized cysts, and upon the right side two medium-sized cysts. The graafian follicles in each ovary were distended. He enucleated these with a sharp spoon curet, and scraped the walls of the cysts, in order to destroy the germinal membrane. He then closed these openings with catgut sutures, and used the same material with which to close the opening in the abdominal wall. The patient made an uninterrupted and rapid convalescence, and had not had the slightest amount of pain in the ovarian region, and no pain during two menstruations which she had passed through, since the operation. He thought very many gynecologic surgeons would have removed both ovaries under these conditions, and the result would have been the unsexing of the patient and probably the loss of her voice, especially in the upper register. He had heard her sing and he was certain that her voice had not been impaired in the slightest degree. Two physicians present during the operation, when they saw the condition of the organs in the pelvis, expressed the opinion that no relief would follow the operation unless he performed the radical operation, and removed the appendages completely. Resection of the ovary was followed by such successful results that one was not justified in removing the organs unless the complications present gave no opportunity to perform the conservative operation. Lastly, the author spoke of that class of cases in which dysmenorrhea was due to a general systemic neuralgic condition. In these cases one at times secured great relief by the use of the various forms of electricity. It was doubtful in many of the cases whether removal of the appendages would accomplish anything more than to bring about a premature change of life, and the patient would remain just as nervous as before she was operated upon. The author exhibited three sizes of reamers devised by himself, which he had used for examinations for 10 years. In not a single instance, when handled properly, had he witnessed any injury inflicted by them, and he had a record of a large number of instances in which by the use of these instruments he had succeeded in overcoming the condition of stenosis or obstruction where every other means failed.

Discussion.—H. W. LONGYEAR (Detroit, Mich.) stated that in operating, if one could save an ovary or part of an ovary, he should do so. But sometimes one might have to operate again. In the majority of cases, one could conserve tissues there with perfect safety and with the result of allowing the woman to menstruate as she would in a normal condition. He would enter a protest against operating upon cases of dysmenorrhea that were of short duration in young persons. One should not subject any unmarried woman to an operation if it could be avoided. The minor cases of pain of short duration did not need operative measures. HERMAN E. HAYD (Buffalo, N. Y.) alluded to the importance of examination in these cases, and even after an examination was made one might find that the most distressing cases were the ones that practically had no evident pathology, which could be made out by such an examination. On a previous occasion the speaker read a paper on this subject in which he pointed out that retrodeviation of the uterus was responsible for much of the dysmenorrhea in unmarried women. If upon examination one should find a retroverted uterus, a prolapsed ovary, a tender sensitive tube, then there was a rational basis on which to work, but simply because a woman had a small os it did not follow that she was going to be the subject of dysmenorrhea, because in all probability most of these cases were simply due to an impoverished condition of the whole system. They were simply functional troubles, and had to be met accordingly. If, however, there was an obstructive dysmenorrhea, where there was a pinhole os, and usually these cases were associated with an atrophic condition of the uterus (congenital), the small undeveloped uterus, probably one could institute some operative measures, and the interference which had been most successful in his hands had been dilation and the wearing of a stem pessary. WILLIAM H. HUMISTON (Cleveland, O.) stated that dysmenorrhea was a common disturbance, and yet he had not been able to find a case that was not accompanied by an inflammatory condition of the mucosa. He had seen cases of narrow, conical os, with the patients menstruating without the least sign of distress, but the moment there was an inflammatory condition of the mucosa added to that, that moment the patients began to have painful menstruation. In cases of this kind he thoroughly dilated the uterine cavity, cureted, and had the patients wear an Etheridge pessary, closely watching them for several months, and if there was no accompanying disease of the appendages, the cure was decided and complete. But in these cases occasionally one would have a failure because of failure to recognize one condition of the ovary, an ovary which was smaller than normal, the cirrhotic ovary, which was hard to detect unless an examination was conducted under an anesthetic, and there was no relief afforded except the removal of these shrivelled, corrugated, smaller than normal ovaries. D. TOD GILLIAM (Columbus, Ohio) spoke of the undeveloped condition of the uterus as a cause of dysmenorrhea. A great many men had come to the conclusion that it was not a superficial condition; it was not produced by the condition of the mucosa, as a rule; it was not the result of stenosis of the internal os or of many of the other orifices of exit, but was due to the undeveloped, unripe condition of the uterine tissues. The uterine tissues were just like unripe fruit, and one of the functions of the uterus was to throw off this membrane at stated intervals, and in doing so there were certain physiologic processes that must work their way or be concerned therewith. Unripe fruit was hard to dislocate. If one tried to pick an apple from a tree before it was ripe it would not come away very easily. If one stripped the capsule from any fruit which was not ripe, it was not easily done, but when it was ripe it would come away almost of itself. It was the same way with regard to the uterus. The time for the casting off of this membrane was at the menstrual period, a time when this membrane would easily come away, but which could not be removed at any other time without more or less violence. Vessels permeated this dense structure; these vessels were undeveloped; they were unable to accommodate the amount of blood sent there during the menstrual molimen, and this induced distress. The membrane closely adhering to the uterine wall was not ready to be exfoliated, hence it was a source of distress. With regard to the instruments exhibited by the essayist, if it were not for the statements of the author, Gilliam would be afraid of stenosis following their use. He had had a great deal of experience with reference to stenosis following different operations. Electricity had been followed by complete stenosis for atresia of the canal and in one case it was necessary to operate for complete atresia. JOHN YOUNG BROWN (St. Louis) said that his experience in dealing with cases of painful menstruation was that unless there was a palpable pathologic condition present, it was better to leave these cases alone. He was opposed to indiscriminate treatment of conditions of this kind. In looking up the etiology of pelvic disease, he had found in a rather extensive operative experience that the majority of cases that came to operation were of gonorrheal infection, puerperal infection, and those cases that came as the result of infection following minor office gynecologic procedures. He did not feel that a young woman, who suffered from painful menstruation, should be subjected indiscriminately to operative treatment, or even to a gynecologic examination. L. H. DUNNING (Indianapolis, Ind.) said that one ought not to approach any case of dysmenorrhea without studying the surroundings very carefully. He should have a complete and thorough history of the case in order to be able to determine the character of the lesion which was present before undertaking the treatment of the case. He had been surprised in studying the collected histories of some 2,000 cases to find that in about 15% of them there was dysmenorrhea at the beginning of menstruation. This, he thought, would go to disprove one statement made by the essayist, that nearly all of the cases were due to inflammation, or that most of them were due to gonorrheal infection or some other kindred infection. In the majority of cases in which dysmenorrhea began with menstruation, he thought one would find some errors in the development of the organ or errors in the development of the nervous system which would lead to painful menstruation. Every case should be studied carefully upon its merits. Some would be found to be due to nervous conditions, others to hyperemia of the ovaries, and still others to venous congestion of the pelvic organs, including the uterus and ovaries. Obviously, all of these were not cases demanding operative procedures. Sellman, in closing the discussion, stated that the object of his paper was to prevent, if possible, this suffering to women, which came on about 13 times a year. He thought that if any member of the Association had to undergo or endure the pain from which some of these patients suffered, even for only six times a year, he would seek some means of relief. He did not use his instruments in all cases, but only in a certain class. He certainly would not use them in a case in which the dysmenorrhea was brought about by an inflammatory condition. It was only in those cases where a gristly condition existed.

Pseudomembranous Monocystic Tuberculous Peritonitis.—H. W. Longyear (Detroit, Mich.) said that pseudomembranous monocystic tuberculous peritonitis was that form of tuberculous peritonitis which was characterized by the formation of a thick, white, fibrinous, pseudomembrane on all of the tuberculous peritoneum, it being found covering the parietal peritoneum and cementing together and covering the intestinal coils in such a manner as to form a sac of greater or less capacity, according to the progress of the disease, which contained straw-colored fluid, with occasionally jelly-like masses and shreds floating therein. He reported three cases of this affection, and stated that the treatment consisted of abdominal section, with evacuation of fluid and the thorough washing out of all shreds and gelatinous masses with normal salt solution; thorough drainage by glass or rubber tubes, both abdominal and vaginal. This was to be followed by after-treatment consisting of frequent lavage, with a weak aqueous solution of iodin (tincture of iodin, 1 dr.; water, 01), until the pseudomembrane was disintegrated and the purulent discharge that followed had ceased. Internally, the rational treatment of tuberculosis, consisting of the use of creosote, cod-liver oil, etc., a supporting diet, and suitable hygienic surroundings. The prognosis was bad, although a few cases might recover, if not too far advanced, after months of constant drainage and careful nursing.

Discussion.—Rufus B. Hall (Cincinnati, Ohio) said he differed from some of the quoted writers in regard to the different varieties of tuberculous peritonitis. He was of the opinion that it was tuberculous peritonitis in different stages of development. In dealing with the operative treatment of tuberculous peritonitis, ultimate success depends largely upon the variety of the disease, the general condition of the patient, the previous history, the great prostration, etc. Very many of them were in such a condition that they could not withstand much trauma of any kind. His experience in dealing with that variety in which there was no accumulation of fluid had not been very satisfactory from a surgical standpoint. The greatest relief was to be afforded to those cases in which there was an accumulation of cysts, letting out the fluid and draining. Every one of them should be drained, in his experience. He had time and again made section when the patients were in a desperate condition, had put in a drain, and in six months or a year later the patients returned, when he removed one or two infected tubes, and cured them, whereas he thought that if he had done a prolonged operation at the outset, with the patients in a feeble condition, and unable to withstand trauma, they never would have rallied. Just now he had a patient convalescing whose case illustrated this beautifully. L. H. Dunning said there were two or three questions which ought to be settled in regard to the treatment of cases of encysted tuberculosis of the peritoneum. First, as to whether one ought to remove the Fallopian tubes in all instances. His belief was we should. He believed that in all cases of encysted dropsy, when the fluid accumulated in the pelvis as described by the essayist, were dependent upon infection of the tube, and it ought to be removed, or a fistula would persist indefinitely. It did not require much effort to remove such a tube. Another question was with reference to drainage. He was in most hearty accord with both the essayist and Hall that these cases ought to be drained through the abdominal wall. They need not be drained through the vagina if one could possibly drain them in the other direction. Should one in these cases attempt to break up the adhesions? A distinguished Fellow of the Association, Price, had insisted upon breaking up adhesions in all cases of tuberculosis of the intestines. The speaker's belief was that this pseudomembrane, which was an adventitious membrane thrown out was protective, was conservative on the part of nature, and that one ought not to attempt to separate adhesions. Another point was whether we were justified in attempting to shorten convalescence in these cases by curetment. In three of his own cases he had made bold to curet sinuses and pack with gauze to the bottom of the cavity, and had had three recoveries. In one instance there was a wide invasion in the abdominal wall and pelvis, and with a great deal of timidity he used the curet, but did it carefully, and packed, which was followed by healing of the fistula within a short time. Herman E. Hayd (Buffalo, N. Y.) said the question under discussion was not so easily disposed of as one might imagine. The previous speakers seemed to think that all that was necessary in cases of tuberculous peritonitis was to open the abdomen, put in a drain, and they would get well. He believed every one of them should be treated as a law unto itself. Some need to be drained, others not. Usually, those cases with simple effusion or dropsy, which were circumscribed, got well if opened and the opening immediately closed. One did not need to disengage bowel or disturb the adventitious membrane. Simply the entrance of air was an important factor in the cure of these cases. If there was pathology, such as had been pointed out by the essayist, it was necessary to drain. However, he did not agree with Hall that all cases of tuberculous peritonitis should be drained, as his own experience did not bear that out. J. Henry Carstens (Detroit, Mich.) thought that all that was necessary in ordinary, simple, encysted cases of this condition was to wash them out and let them alone. One should not try to break up adhesions in these cases, as serious complications might follow. In tuberculous peritonitis the patients should be let alone as much as possible, and nature given a chance. He said if he operated upon a case of tuberculous appendicitis and drained it, he would get into trouble, because along the track of his drainage-tube there would be tuberculous deposits, and he would have a fistula there for a long time. On the other hand, if he took out the appendix, closed up the opening with silkwormgut sutures *en masse*, tightly, he would have union without the formation of a fistula. D. Tod Gilliam did not believe in too much interference in cases of tuberculous peritonitis, or in such cases as had been described. He thought many of these patients would be better without operation if their cases were diagnosed accurately beforehand. In some cases of encysted tuberculosis he did not care whether the contents were merely washed out or not by one method or another, one was likely to have bad results. There were other forms of encysted tuberculosis, however, in which one did not have these bad results, and in such cases it was necessary to open up the cysts. He did not believe in breaking up adhesions and separating viscera. Dr. Longyear, closing the discussion, stated that he reported cases to illustrate a rather unusual form of tuberculous peritonitis. Take a case of simple tuberculous peritonitis, with a large cyst, the abdomen full of dropsical fluid, he did not believe it needed to be drained, but agreed with Dr. Hayd that all it was necessary to do was to open it, wash out the cavity, sew up the wound, and the patient would get well. Many of them, however, would have a reformation of the fluid.

Chronic Adhesive Peritoneal Sclerosis.—N. Stone Scott (Cleveland, Ohio) stated that among the rarer abnormal conditions found within the abdomen was one peculiar, interesting, and possibly more frequent than had heretofore been suspected. This condition was progressive, yet was characterized by an absence of active symptoms, including ascites. In the early stages, the peritoneum was rigid and contracted; later the connective tissue became excessively hypertrophied, with adhesions between the involved peritoneum and all viscera with which it came in contact. As soon as these adhesions interfered with the functions of any organ, symptoms referable to such interference supervened. When the involvement prevented some important organ from performing its necessary functions, death ensued. In an illustrative case cited by the author only a circumscribed portion of the peritoneum (the pelvis) was affected. The essayist covered the literature of this subject in a very exhaustive and thorough manner, giving brief histories of cases previously reported by other authors.

The Relative Value of the Means and Methods Employed in Accouchement Forcé.—E. Gustave Zinke (Cincinnati, Ohio), after epitomizing the various views gleaned from the literature of the subject, drew the following conclusions: 1. The graduated steel or vulcanite dilators and the ordinary branched or bladed dilators were mainly employed for the purpose of dilating the cervix or os preparatory to digital, manual and bag dilation. 2. The bag or hydrostatic dilators, of which the Champetier de Ribes balloon and its modifications were the most favored, should be employed only when time was not an important element in the case; when the cervix was thoroughly softened, partly or entirely effaced, and an easy introduction of the balloon possible. This form of hystereurysis was contraindicated in central placenta prævia, and in eclampsia, mild or severe. If, in these cases, it was determined to empty the uterus, deep cervical incisions, vaginal or abdominal hysterectomy, promised the best results for mother and child. To prevent continuation of the cervical incision, a suture might be placed in the upper angle of the wound. 3. The manual dilation of Harris and the bimanual (digital) dilation of Bonnaire and Edgar. A soft and partially obliterated cervix and dilatable os were absolute prerequisites for this variety of uterine dilation. It was to be preferred to hydrostatic hystereurysis when time constituted an important element. Under this method the life of the fetus was often lost and, unless great care was observed, sepsis, lacerations, hemorrhage, profound shock and sometimes even death of the mother might occur. 4. Deep cervical incisions and Duhrssen's vaginal hysterotomy were destined to play a permanent and important role in the management of forced labors in the future. Many of the cases now subjected to manual or balloon dilation would be treated by cervical incisions. It was the method in the presence of sepsis of the vagina, because the operation was short in duration and could be performed under a continuous flow of an antiseptic solution. An intact cervix, whether hard, elongated or not, was always an indication for cervical incision. Vaginal hysterotomy was indicated principally when the cervix was the site of malignancy or extensive cicatrization. If there were a palpable difference between passage and passenger, the conservative cesarean section should be the choice of operation. 5. The indications for the conservative cesarean section had been so well defined by himself here and in previous papers that it was needless to repeat them. Cervical incisions and Duhrssen's operation would, however, take its place in many instances, notably in cases of marked prematurity. 6. The Bossi and similar metal dilators, if they were not entirely needless, were certainly very dangerous instruments. From what had been said, it was safe to predict that rapid and complete metal dilation would never become a popular method; that sooner or later it would receive universal condemnation and thus reach its final and well-deserved destination—the lumber room of obstetric instruments.

Discussion.—HENRY SCHWARZ (St. Louis) was glad to hear the author's experience in reference to Duhrssen's vaginal cesarean section, because personally he had had no experience with that new method. Undoubtedly it was a valuable addition to obstetric armamentarium. He fully agreed with all that Zinke had said, except that he (Zinke) appeared to be too radical in some respects. He could conceive of exceptional cases of eclamptic convulsions or of placenta prævia in which cesarean section might be justifiable in proper hands and under proper surroundings. As a rule, in eclamptic convulsions Duhrssen's method should be the one of choice, and there could be very few exceptions where conservative cesarean section was indicated. No one would maintain in a case in which the placenta was eccentric, marginal, or low-seated with hemorrhage, that cesarean section should be resorted to. Whenever one made a diagnosis of central placenta prævia, the cervix was so far dilated that no one would think of doing anything except to deliver the child through the natural way. He thought Bossi's dilator had a limited sphere of usefulness. He would not condemn the instrument as others done, because he knew it had been used very successfully by some. JAMES F. W. ROSS (Toronto, Ontario) said he had done cesarean section three times, with the recovery of the mother in each case and the loss of the child in each case. He gave the reasons why the children were lost in these cases. The question between cesarean section and Porro operation had been pretty well settled, and the conclusion had been reached that the Porro operation, when cesarean section failed, enabled one to control hemorrhage. The last Porro operation he did was in a case reported to the society, where a woman delivered herself up through the vagina into the abdominal cavity and the fetus and placenta were forced through an enormous rent in the posterior vaginal culdesac. In this case he did a Porro operation to control hemorrhage. He had operated on two cases of rupture of the uterus with recovery, after having performed the Porro operation by gauze packing, and he thought this operation in these cases should not be adopted unless there was hemorrhage that could not be controlled. O. J. ELBRECHT (St. Louis, Mo.) spoke of Duhrssen's incisions, saying that he had had three or four of these cases, in which he had resorted to Duhrssen's incisions with good results. J. HENRY CARSTENS called attention to the point that many practitioners were too anxious to dilate the cervix in the class of cases under discussion. He had seen them use rubber dilators and dilators of all kinds in working around the uterus for two or three days at intervals, and then finally had to send for someone to help them out of difficulty, or they had to call in counsel. Such practitioners wanted to know whether they should do this or do that. In some cases, after he had been called in consultation, he had found that the women were not in labor at all. He thought many of the fellows had had similar experiences. It was a mistake to suppose that because a woman had a little pain at the approach of labor that she was actually in labor. EUGENE J. BROWN (Stanford, Ky.) said that in these days of aseptic surgery, with the results we were having with mechanical and manual dilation, cesarean section would become more popular, and evidently in selected cases more lives to both mother and child would be saved than by other methods. He had the pleasure of witnessing the operation by Deaver referred to in the paper of the essayist. It was performed on February 23 of this year. The simplicity and ease of the operation impressed him very deeply. The mother and baby got along without any trouble. M. W. MEYER (Columbia, Mo.) spoke of the use of the Bossi dilator. While he admitted there were many men who used this instrument, and recommended its use in cesarean section, those who were not radical in the matter had determined that it was not an instrument to be used in such cases. In fact, one had to go back to the old methods of delivery in cases of placenta prævia, namely, to resort to the use of tampons. One could accomplish more with them than he could in any other way. ZINKE, closing, thanked the members for the interest they had manifested in the reading of his paper. Whatever he may have said or written in the past on this subject, and presented today, came from a motive simply to do good in the future, and to get rid of a certain method of practice in obstetrics, which had been the means of rendering families unhappy, and because he honestly believed that there was great room for improvement in this practice, in spite of all that had been said against it.

Vaginal Cesarean Section in Grave Cases of Puerperal Eclampsia.—J. HENRY CARSTENS (Detroit, Mich.) said that mild cases of puerperal convulsions could be ordinarily controlled by the treatment generally advocated for this class of cases, but there was a serious grave form of puerperal eclampsia where one convulsion followed another in quick succession, and the patient finally died in spite of ordinary, and sometimes even heroic treatment used. This severe variety of eclampsia could generally be subdued by immediate delivery. This was accomplished generally by manual dilation, the use of powerful steel instruments, like that of Bossi, but what was better still was the operation called vaginal cesarean section, which enabled the obstetrican to deliver the woman in about five minutes with little or no danger. In conclusion he stated that (1) in grave puerperal eclampsia, as a rule, prompt delivery will save the patients; (2) that manual effort with the fingers and the hand was too slow; (3) powerful steel dilators were not always at hand, and often caused serious injury; (4) vaginal cesarean section enabled the obstetrician to quickly and safely deliver the woman.

An Unusual Case with Many of the Symptoms of Appendicitis.—MAGNUS A. TATE (Cincinnati, Ohio) related this case, which was of interest because (1) it presented an unusual history; (2) the symptoms and history of the case following scarlatinal nephritis led him and others to suppose that probably they were dealing with a case having appendicitis as a complication; (3) the patient urinated regularly, and at no time was there a dribbling of urine; (4) the presence of adhesions and the enlarged bladder, with its thick walls, had only problematic causes, not explained satisfactorily by the history of the case. The patient, a boy, aged 7, was attended by L. Linss, of Cincinnati, for an ordinary attack of scarlet fever from February 25 to March 18, 1904. March 21, Linss was called to see the boy on account of a swelling of feet and hands. On the morning of April 1, all edema had disappeared; urine highly colored, but normal in quantity, with no sugar, albumin, or casts. That afternoon the patient had a chill, vomited, and was suffering with a pain in the abdomen; temperature, 99.5°; pulse, 90. April 5, the patient had two more attacks of vomiting; pain in the abdomen was constant, and he had not slept for 24 hours; temperature, 102°; and pulse, 130. Wm. Johnson saw the case with Linss, and upon examination of the abdomen they found an uneven swelling which extended to the umbilicus, and over the right lumbar region. Upon palpation, exquisite tenderness over the appendix was elicited. A diagnosis of appendicitis was made, but further consultation was asked for. The next day, April 6, Tate was called. When he saw the patient, six days after the initial vomiting spell and chill, the child had been crying and moaning day and night, and could not sleep; temperature 102°; pulse 132; very irregular; abdomen swollen, especially on the right side, and such marked tenderness that the child screamed if the slightest pressure was made over the region of the appendix. Bowels constipated and the urine highly colored. The following day there was no improvement, the pulse even worse; temperature remained at 102°. Before placing the child on the operating table, a bed-pan was placed under him and he passed nearly a pint of urine. Chloroform was administered, and an incision was made on the right side two inches in length, over the most prominent portion of the swelling. It revealed a dark-colored sac and a number of adhesions. The incision was lengthened to three inches; some adhesions were broken down with the finger, but a few of them were so firm that they had to be cut. The enlarged opening gave a field of about two inches to work in, and the sac in appearance was not unlike that of a gangrenous bowel. They were at a loss to say exactly what it was, and as adhesions limited the field, gauze was packed about the opening, the child turned to the right side and a half inch cut was made into the sac. A dark green fluid spurted out, which had a strong heavy odor of stale urine. About two quarts of fluid was evacuated, and the finger introduced into the sac, which proved to be the bladder. The opening in the bladder was sewed up, adhesions binding the bladder on to the abdominal wall and on the right side to the large and small intestines were broken up, and the enlarged thick-walled bladder dropped back into the abdominal cavity. The appendix and appendiceal region, except for the presence of some adhesions, were normal. An opening was left in the abdomen for gauze drainage, and the rest of the wound closed up. The subsequent history was that the bladder was emptied by means of a retention catheter for 48 hours, after that catheterization night and morning for three days. There was a gradual decrease in pulse and temperature, and in seven days both were normal. On the third day a quantity of fluid drained out through the opening, but this gradually ceased, and on April 23, 16 days after operation, the abdominal wound had closed and the patient was now in good health.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

SOME POINTS ON SUPPURATIVE OTITIS MEDIA.[1]

BY
T. W. MOORE, M.D.,
of Huntington, W. Va.

It is not my object to present anything new, but to emphasize a few well-established facts in the treatment of suppurative otitis media, especially the acute form, which are too often neglected, with the sequels that neglect entails. The disease, as you are all aware, is caused by influenza, scarlet fever, measles, coryza, nasal douching, bathing in cold water, and above all, by the frequently recurring cases in children of adenoid tissue in the vault of the pharynx, etc. The patient comes with an intense pain in the ear, usually throbbing or boring in character, hearing as a rule is impaired, temperature varying, generally slightly elevated in adults, sometimes quite high in children. Examination shows the drum head to be pink or bluish-red and in intense cases the bony canal is congested and it is difficult or impossible to tell where the canal ends and the drum membrane begins.

My treatment has been to apply dry heat, usually in the form of a hot salt bag, or hot-water bag. Two or three leeches applied in front of the tragus and over the mastoid region is an excellent antiphlogistic measure. If this does not give early relief a free incision, about a sixth of an inch in length, should be made in the inflamed tympanic membrane in the posterior quadrant parallel to its attachment to the walls of the canal. In case a point of bulging is seen, this becomes the point for the incision, but the location mentioned insures against injuring the structures within. Simply perforating this membrane with the spear-pointed knife is no longer advocated, the opening thus made being too small to permit drainage. Before making the incision it is well to wash the external canal with a 1 to 3,000 mercuric chlorid solution, and in an adult after drying the canal with cotton, to instil a few drops of 10% solution of cocain; in a child it is better to administer an anesthetic, and be sure that you see what you are doing, for a stab at random may mean loss of life or permanent deafness.

The question which so frequently arises as to when to make the incision is best decided by the pain; if the leeches and dry heat do not give relief, I would not allow a patient to suffer over six hours. It has usually gone beyond this before you are consulted. If after using the measures advised the patient is relieved for a time but the symptoms recur within 24 or 48 hours, I make the incision as described. After this, unless the secretion is very thick and tenacious, the best treatment is simply to mop out the canal with some dry sterile gauze or cotton and leave a small wick therein, which should be frequently changed.

The majority of patients will recover without any other treatment, although it is well, perhaps, to wash out the ear gently with a 1 to 3,000 mercuric chlorid, a 1 to 300 carbolic acid, or a sterile saturated solution of boric acid every 24 hours; insufflations of all kinds are condemned in the early stages, as are inflations of the eustachian tube. I know that Politzer advises this in selected cases when the perforation is large and the secretion tenacious, but it requires the greatest skill to differentiate between the cases in which this should be done and in which it is not indicated. There is one thing more against which I desire to caution, and that is the use of hydrogen dioxid; valuable as it so often is in chronic suppurative otitis, its use in acute cases is always dangerous, and in conjunction with forcible syringing and delayed paracentesis of the membrana tympani it is responsible for innumerable cases of mastoiditis that demand operative interference. Burnett says, in this connection: "In acute otitis, after discharge sets in, after either spontaneous or artificial perforation of the membrane, the less treatment the ear receives the sooner it will get well." I may add, that the same very excellent authority claims never to have seen acute mastoiditis consecutive to acute otitis media in a case in which he had treated the primary otitis media from the outset. The teaching of today is contrary to this, for now we know that in every acute suppurative otitis media the mastoid cells are involved, but when free drainage is established and the natural process of repair is not interfered with they heal spontaneously as a rule. Therefore, if pain persists in a child for over six hours or in an adult over twelve hours, under the antiphlogistic treatment advised before, make a free incision through the membrane as directed, keep the concha and external meatus greased with 1 to 5,000 mercuric chlorid vaselin, and let the patient get well. This is the rule, but you will find cases, especially in scarlet fever and rarely in diphtheria, in which the destructive process is so virulent and rapid that the membrane and ossicles are destroyed and the pus sometimes breaks through the window of the labyrinth with its destruction, thereby insuring permanent deafness if death does not relieve the sufferer.

There is another etiologic factor which should be emphasized—this is adenoids. In the Ohio Valley with its sudden and severe changes of temperature, great humidity and awful dust, we very often find the lymphoid tissue hypertrophied sufficiently to become an obstructive body; the secretions stagnate because a sufficient current of air cannot pass over the mucous membrane for them to evaporate, they become a hotbed for the development of germs, and the pus here generated is absorbed and our little patients suffer from autointoxication in addition to the pernicious effects of mouth-breathing. It is easy to see how this pus bathing the mouths of the eustachian tubes extends to the middle-ear. These are the cases that heal and break out anew until a chronic otitis is established. The treatment in these cases should be prophylactic, *i. e.*, one should see that the adenoid tissue is removed as soon as the child begins sleeping with its mouth open. Think for a minute what this means: nasal obstruction causes the development of the deeply-arched palate and prevents the approximation of the teeth, rendering proper mastication of food impossible; the nostrils like all unused structures, which they are from this obstruction, fail to develop, and for this reason infantile noses are often seen on adult faces.

"It is asserted that more cases of pulmonary tuberculosis are due to entrance of the bacilli through the pharyngeal or faucial tonsils than to their invasion of the body by inhalation into the lungs, and that the tubercle bacillus penetrating the lymph-glands in childhood lies dormant until the usual time for the appearance of pulmonary tuberculosis. Dieulafoy produced tuberculosis seven times in guineapigs inoculated with portions of 35 extirpated pharyngeal tonsils." This statement is quoted from so wellknown an author as Prof. Jas. E. Newcomb, of New York.

Is not our duty imperative? Should not every mother be instructed to watch her child in this regard and be made acquainted with the greater susceptibility to diphtheria and scarlatina that the existence of this tissue in excessive quantity causes, and how much greater the constitutional effects of these dread diseases are likely to be from its absorbing qualities? In the cases that you do not see until after the ears are involved, either by suppurative otitis media, tubal catarrh, or deafness due to the mechanical obstruction of the tubes, of course the first step in the treatment is removal, without which nothing can be accomplished. I will not give a description of this operation which every textbook contains.

The existing local condition must receive proper care; if the otitis is chronic, thorough syringing, avoiding all force, with 1 to 5,000 warmed mercuric chlorid solution is beneficial; when there is much odor or pain hydrogen dioxid is frequently useful, 10 or 15 drops warmed in a test-tube and poured into the ear and allowed to remain there 10 minutes. A new claimant for favor as a cleansing agent is succinic dioxid. I have used this several times, and regard it as a very promising antiseptic. After thoroughly drying the ear, insufflations of small quantities of equal parts of powdered boric acid and iodosyl are useful. Silver vitellin in 50% solution is a valuable healing agent. Of course, before improvement can take place all cholesteatomatous masses and necrosed bone must be removed; it is for this reason that so frequently chronic suppurative otitis media demands the radical mastoid operation, when, instead of working in the dark you are treating an open wound.

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[1] Read before the Central Tri-State Medical Society, at Ashland, Ky., July 21, 1904.

SUMMARY.

1. In the acute cases make an early and free incision, after which be very sure that any further treatment is clearly indicated, for over-treatment is very dangerous.

2. Never introduce any fluids into the auditory canal unless they are warm.

3. Remove adenoid tissue from the pharyngeal vault and from between the pillars of the fauces as soon as it interferes with free respiration during sleep.

4. In chronic cases caution your patients that treatment must be faithfully carried out for a long time before cure can be effected.

5. Do not entrust the treatment of your suppurative ear cases to the family or friends; if a trained nurse is not available, treat them yourself.

6. In acute cases it is essential to keep the patients in bed.

CONTRACT PRACTICE.

BY

WILL B. DAVIS, M.D.,

of Guadalajara, Mexico.

To the Editor of American Medicine:—Your recent editorial, appealing to local medical societies throughout the country to take action against certain kinds of contract practice, sounds to me very much like the "irony of fate."

Contract practice in the United States has come to stay; first corporation contract practice, and then the mutual aid society contract practice, etc.

In September, 1900, I read a paper before the Pueblo (Colo.) County Medical Society, entitled "When is Contract Practice Unprofessional?" which was afterward published in one of the Denver journals, and partly reproduced by a number of other medical journals of the country, and also had published in the Denver Medical Times (September, 1901), a short paper entitled, "In What Does the Contract Doctor Differ from the Veterinary Surgeon?"

The main point which I made in the first article was in effect, that every member of the Pueblo County Medical Society who was doing contract practice was doing it in open violation of the constitution and by-laws of the society, for the society had unanimously adopted a minimum fee bill, to which every member had voluntarily subscribed, but which was being violated by every contract member, in that the average of their fees for such services was not more than half, and in the majority of cases did not amount to more than a quarter of what the fee bill stated should be the minimum scale of charges for professional services. The paper could not be answered, nor did any of the members attempt to do so. The attitude of the contract members consisted rather in an effort to justify their conduct, and finally in something like "suppose we are acting in bad faith, what are you going to do about it?"

In countenancing contract practice at all, the medical organizations of the country have simply admitted the wooden horse that will defy any limit to be put upon its ravages.

What medical society would claim the right to say that certain corporation contract practices were legal and others not—at least, upon what grounds could they?

Much may be said in favor of contract practice from a corporation standpoint, but from a medical one, nothing. It is blighting to everything that pertains to the better sentiments of legitimate medicine, and yet the profession itself has come to recognize, or at least tacitly admit it.

It is a vicious weed which is choking out the higher and better life of medicine in all walks of society, and although it may be barren itself, it is drawing—and will continue to draw, more and more—the nutritive elements of the common soil, until legitimate medicine will lose its essence, and the profession be reduced to the level of traffic, and common tradesmanship.

This is the sum of my opinion on the subject after years of unequal struggle against contract practice. It may be ultra-pessimistic, but it is more the result of actual observation and personal experience than mere theory.

AMERICAN MEDICAL SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS.

BY

T. D. CROTHERS, M.D.,

of Hartford, Conn.

To the Editor of American Medicine:—The American Medical Society for the Study of Alcohol and Other Narcotics, was organized June 8, 1904, by the union of the American Association for the Study of Inebriety, and the Medical Temperance Association. Both of these societies are composed of physicians interested in the study and treatment of inebriety and the physiologic nature and action of alcohol and narcotics in health and disease. The first society was organized in 1870, and has published five volumes of transactions and 27 yearly volumes of the "Quarterly Journal of Inebriety," the organ of its Association. The second society began in 1891, and has issued three volumes of transactions, and for seven years published a quarterly bulletin containing the papers read at its meetings. The special object of the union of the two societies is to create greater interest among physicians to study one of the greatest evils of modern times. Its plan of work is to encourage and promote more exact scientific studies of the nature and effects of alcohol in health and disease, particularly of its etiologic, physiologic, and therapeutic relations. Second, to secure more accurate investigations of the diseases associated with or following the use of alcohol and narcotics. Third, to correct the present empiric treatment of these diseases by secret drugs and socalled specifics, and to secure legislation prohibiting the sale of nostrums claiming to be absolute cures, containing dangerous poisons. Fourth, to encourage special legislation for the care, control, and medical treatment of spirit and drug takers. The alcoholic problem and the diseases which center and spring from it are becoming more prominent, and its medical and hygienic importance have assumed such proportions that physicians everywhere are called on for advice and counsel. Public sentiment is turning to medical men for authoritative facts and conclusions to enable a realization of the causes, means of prevention and cure of this evil. This new society comes to meet this want by enlisting medical men as members and stimulating new studies and researches from a broader and more scientific point of view. As a medical and hygienic topic the alcoholic problem has an intense personal interest, not only to every physician, but to the public generally in every town and city in the country. This interest demands concentrated efforts through the medium of a society to clear away the present confusion, educate public sentiment, and make medical men the final authority in the consideration of the remedial measures for the cure and prevention. For this purpose a most urgent appeal is made to all physicians to assist in making this society the medium and authority for the scientific study of the subject. The secretary, Dr. T. D. Crothers, of Hartford, Conn., will be pleased to give any further information.

The Future of Radium.—Sir William Ramsay, the famous English scientist, is quoted with the following statement: All previous calculations in science are likely to be upset by radium. We may soon be compelled to revise some of the theories of physics that are now regarded as cardinal. Nobody can tell. The future open to the diligent laboratory student is fraught with mysteries. One thing is certain—nobody is likely to discover a mine of radium. Some statements made about the quantity of that precious substance in existence are absurd. I do not suppose there is a tenth of an ounce of radium in the whole world. If you can imagine getting that amount of radium together it would supply more energy than 250 tons of dynamite. Few persons who talk about radium and its components realize the great scarcity of the raw material for yielding radium or the exceedingly minute particles used in experiments that have astounded the world. It is impossible to say where the future supply of the raw material is to come from. I believe that in America, carnotite looks promising as the basis for it. Cleavite, a mineral found in Norway, is also looked upon as a favorable source of supply.

ORIGINAL ARTICLES

TUBERCULOSIS OF THE ABDOMINAL LYMPH-GLANDS: ITS COMPLICATIONS, DIFFERENTIAL DIAGNOSIS, AND TREATMENT.

BY
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AND
WILLIAM G. ERVING, M.D.,
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INTRODUCTION.

For many years intraabdominal glandular tuberculosis has been recognized as a clinical entity, and much study has been expended in attempts to determine the methods of infection in these glands. It has not been noted, however, that disease of these structures could cause irritative symptoms in the spine in a manner similar to that in which lesions of the mediastinal glands not infrequently produce torticollis. Recent investigation is making it more and more manifest that there are several conditions in and about the spine not associated with a kyphos which give rise to many of the cardinal symptoms of vertebral tuberculosis. The purpose of this paper is to show that tuberculosis of the abdominal lymph-glands may give rise to spinal symptoms; to distinguish symptoms produced in this way from similar symptoms produced by other diseases, and to suggest, though the absolute proof is wanting, that in some cases vertebral tuberculosis is caused by a direct extension from tuberculous abdominal lymph-nodes.

ANATOMY AND PHYSIOLOGY.

The abdominal lymphatic glands may be divided into two chief groups, the mesenteric and the lumbar.

The former lie in the mesentery of the intestines, chiefly about its radix, intimately associated with the bloodvessels. Their chief purpose is to pick out and to carry off the fatty portion of all ingested food, and their ramifications extend into the walls of the entire small intestine and of the greater part of the large intestine. They serve also as filters of the large expanse of mesenteric peritoneum and their efferent canals form the intestinal trunk.

The lumbar glands lie close to the lateral and anterior aspects of the vertebral column from the bifurcation of the aorta to the point of origin of the superior mesenteric artery. Aside from tributaries from the stomach and rectum they have no connection with the digestive tract, but through the iliac, hypogastric, and sacral plexuses, which drain into them, and through their lesser tributaries, they serve as the final filters of lymph from the lower extremities, the bony and soft parts of the pelvis and lower part of the trunk, the pelvic and renal viscera, the peritoneal cavity, and the spinal canal. They maintain anastomotic connections with the thoracic glands, but most of their lymph is drained into two lumbar trunks. These, uniting with the intestinal trunk, form the socalled chylocyst, the dilation of the lower end of the thoracic duct.

PATHOLOGIC FINDINGS.

With such extensive ramifications and diverse functions, the abdominal lymph-glands are necessarily subject to a wide range of infection, and that by the tubercle bacillus is perhaps the most common. Although only occasionally diagnosed in life by careful examination or at operation, the postmortem records show tuberculous involvement of these glands in a surprisingly large proportion of cases. In general miliary tuberculosis, these glands, together with the other lymphatic groups, are almost invariably enlarged, soft, and undergoing beginning caseation. Bacilli can be obtained from smears, and histologic examination shows typical tuberculous foci. In more chronic or localized tuberculous disease they are also frequently found involved, either as fluctuating, caseating conglomerations, or as inactive calcified masses, from which all glandular appearances have disappeared. Less frequently they present the only tuberculous lesion to be found in the subject, as in five cases, of a series of 120 fatal cases in children, coming to autopsy, in which the mesenteric glands were alone involved.

In infants and young children, tuberculous infections are for the most part first manifested in the lymphatic glands. In these cases, the mesenteric and the bronchial glands show tuberculous foci in the majority of the fatal cases.

Such investigators as Simmonds, Batten, Colman and Carr found the bronchial glands involved in three-fourths of their cases, and the mesenteric in half, while Woodhead placed the latter as high as 80%. In adults, tuberculous infection more commonly occurs through the respiratory tract, and therefore involvement of the lymph-glands is not so frequently found in these cases.

Morf, in a series of 232 consecutive adult autopsies from the Rush Medical College, in which careful examination of the abdominal lymph-glands was carried out, found them involved by tuberculosis in nine cases, about 4%. König, in a similar series of 2,230 autopsies, found them involved in nearly 2%. The records of 1,000 consecutive autopsies at the Massachusetts General Hospital, examined by the authors, through the courtesy of Dr. J. H. Wright, showed tuberculous lesions in some portion of the body in 182 cases. Of these, 55 cases showed tuberculosis of the bronchial, and 41 of the abdominal lymph-glands. These cases, almost all of which were in adults, show the condition to be fairly common.

SOURCE OF INFECTION.

There are three chief sources of tuberculous infection of the abdominal lymph-glands: 1. Direct extension from adjoining diseased tissues. 2. Infection from the blood stream. 3. Infection through the lymphatics.

The first is uncommon and of minor importance. The second, or infection from the blood stream, is not infrequent. When small numbers of bacteria invade the glandular tissue they are, as a rule, promptly destroyed, without symptoms, and with little or no damage to the glands themselves. In severe infections the process is general in its nature; there is involvement in all the lymph-gland groups, and miliary involvement of the viscera. Here the course of disease is acute, and death follows shortly. The autopsy shows all the lesions, save the old primary focus, to be of an acute character. The third source of infection is through the lymphatics which carry the filtered bacteria to the glands and deposit them there. This is the usual picture presented in tuberculosis of the abdominal lymphatics, and is almost invariably the mode of infection in the more or less chronic and isolated gland lesions.

In young children the infection is usually from the alimentary tract, and the mesenteric glands are the groups most frequently involved.

That bacteria may pass through an intact intestinal membrane, leaving no lesion behind them, and thus enter the lymphatic system, seems to be definitely proved by careful postmortem investigations and animal experiments, while histologic examination shows that often the leukocytes which pierce the walls and follow the course of the lymph channels to the glands are the carriers. Infection, though possible under these normal adverse conditions, is doubtless more prone to occur when the intestinal resistance is lessened by a mild chronic catarrhal condition, so common in children, or by some other lesion.

The posterior lumbar groups are more frequently subject to infection from tuberculous pelvic organs or vertebral disease. This last source, though mentioned over 50 years ago by Bamberger, has been but little noted.

COURSE OF DISEASE.

A lymph-gland, in which a focus of tuberculosis is present, remains always a source of danger to the rest of the body. The gland, which no longer functions but has become a cystic conglomeration of tuberculous detritus, may undergo tuberculous calcification, and the focus be permanently walled up, but even in these cases the organisms may remain alive indefinitely. That this is a common termination, is shown in numerous cases by subsequent examination, either at operation or autopsy, when this unsuspected lesion has been revealed.

Frequently, however, the process finds soil more suitable for its growth; there is rapid involvement and enlargement of one gland after another by means of the connecting lymphatics, until the abdominal cavity is filled to a great extent with masses of glands which crowd the intestines into small compass, or involve them in a maze of adhesions. The process is often gradual in its onset. For months, or even years, there are but slight or occasional symptoms, chiefly dull pains persisting for long intervals, and deep localized tenderness. The symptoms gradually increase in frequency and severity. The abdomen becomes distended and ascites develops, due to pressure on the great vessels, or jaundice follows partial closure of the bile ducts. Marked cachexia results from interference with the function of the intestinal lymphatics, intestinal disturbances become more marked as a condition of chronic obstruction appears, and usually late in the disease large irregular masses in the abdomen are easily palpable. Such is the socalled tabes mesenterica, of which the termination is death from inanition and toxemia.

COMPLICATIONS.

Often the glandular involvement is more or less localized, and it is to complications that the fatal termination is due.

1. *Intestinal Obstruction.*—Complete intestinal obstruction, both chronic and acute, is not infrequent, following simple pressure on the intestinal wall from the glandular mass or as a result of stricture due to adhesions binding intestines and glands into an inextricable mass. Much less frequently occlusion follows secondary involvement of the wall of the intestine itself.

2. *Peritonitis.*—The glandular cyst-like masses may reach enormous size, and here the danger of rupture presents itself, the sac evacuating its contents in the line of least resistance. If this be through the peritoneum, a local or general peritonitis follows, the latter quite frequently, and usually terminating fatally. Cases in the literature show direct rupture into the cavity and the presence of varying amounts of tuberculous pus to have been the cause of the resulting peritonitis, though theoretically there may possibly occur a back flow in the lymph channels between the glands and the peritoneum, bringing about a similar result.

3. *Formation of Abscesses Progressing Outward.*—Frequently the encysted collection of tuberculous detritus, instead of rupturing into the peritoneum, follows the general course of the psoas abscess of Pott's disease, and points either in the loin or in the thigh below Poupart's ligament, when it ruptures spontaneously. There may be no rise of temperature, but pain or limitation of motion in one or both hips may follow pressure upon the psoas muscle or the hip-joint. Pain in the thighs or calves due to pressure upon the posterior nerve roots is also not infrequent.

This condition is well illustrated by Case VI.

The above case shows the existence of large tuberculous abscesses within the abdominal cavity unassociated with any evidence of disease in the vertebras. That an extension of the psoas to the vertebral column is possible in secondary osseous involvements is indicated by the following case, and Case VIII:

> The first case was that of a young man who had symptoms of spinal rigidity, with referred pain in the thighs, a condition which suggests an osteoarthritic process, and for which a leather jacket was applied. This he wore nearly a year, and upon his return at the end of that time, he had an enormous abscess of the right abdomen and thigh, which was evacuated, and 10 days later he died of intestinal obstruction from the pressure of glands upon certain coils of the intestines. The oldest tuberculous lesions were those in the caseating abdominal lymph-nodes, and though the pathologist reports that the tuberculous disease in the vertebras directly opposite these glands was apparently central in origin, it seems more than probable that it was due directly to an extension from the glands to the vertebral column, possibly through the lymph stream draining that region. There was no kyphos.

DIFFERENTIAL DIAGNOSIS.

Pathologic conditions in the abdomen simulating tuberculosis of the mesenteric glands have been too fully described to need further mention, coming, as they do, in the field of the abdominal rather than the orthopedic surgeon.

Among cases with spinal symptoms, mesenteric tuberculosis must be differentiated from Pott's disease, aneurysm of the abdominal aorta, malignant disease, especially cancer, osteoarthritis, osteomyelitis, and other inflammatory diseases in or about the spine.

1. *Vertebral Tuberculosis.*—The presence of a definite vertebral kyphos is ordinarily pathognomonic of Pott's disease, though the two conditions may be coexistent. In children and young adults the appearance of a kyphos almost always reveals the true diagnosis very early in the process. In the adult, however, sufficient symptoms occur prior to the deformity to lead the patient to seek advice, and in such cases the following points aid materially in distinguishing between the glandular and the osseous types of disease:

The rigidity of the spine in cases of true osseous involvement is much more sharply defined than in cases due to pressure from outside. The restriction in vertebral tuberculosis is uniform in all directions and is evidently spasmodic and in no way mechanical, as in other conditions. Limitation of motion is most evident in flexion. Lateral bending is less markedly but symmetrically impaired. The abscess accompanying vertebral disease is usually a definitely sausage-shaped tumor conforming to the shape and direction of the psoas muscle, in the sheath of which it lies. The glandular abscesses lie anterior to the psoas, and in consequence, point very infrequently in the back. Irritation and contraction of the psoas, though common in the glandular abscesses, result only from direct pressure of the abscess upon the muscle. Glandular abscesses also tend to close much earlier than do those from an osseous focus, because single glands or small groups of glands oftentimes break down without carrying with them the entire lymphatic chain of that region. Here, too, pain and discomfort are much less than in the cases of osseous disease, as a rule, and it is not until extension takes place to the bone that pain becomes pronounced. The night pain of bone tuberculosis is a conspicuous feature, which is absent in the glandular cases; in the latter, pain is frequently referred to the thighs, most commonly to both. The constitutional impairment of the type of glandular tuberculosis giving rise to spinal symptoms, as distinguished from that produced by the true tabes mesenterica, is generally not so grave as is ordinarily caused by an osseous vertebral tuberculosis. The final test to be applied is that of a good röntgen ray, which should, in those cases in which the disease is below the eleventh or twelfth dorsal vertebra, show evidence of a positive character, either as regards the osseous or the glandular process. In the paper presented earlier in this session by Dr. Osgood the points in the differential of the osseous from the non-osseous processes have been well brought out, and I need only briefly refer to this in passing.

2. *Aneurysm.*—As has been intimated, anything causing pressure upon the vertebra may give rise to pain, to limitation in motion, and to deformity. In this category comes abdominal aneurysm. A recent case served forcibly to impress upon the writers the difficulties in diagnosis.

A man of 48, came to the clinic complaining of pain referred to the lumbar spine, the buttocks, and down the left thigh. There was some lateral deflection of the trunk on standing, and his spinal motions were restricted, especially to the right and in flexion. He had been wearing a plaster jacket on the supposition that the trouble was osteoarthritis, but had not improved; his pain was constant and very severe. Jackets carried low to give more perfect fixation were ineffectual, and seemed rather to increase his discomfort. During an extremely severe attack of pain he collapsed, and a pulsating tumor mass suddenly appeared in the left loin. The diagnosis of abdominal aneurysm was made by Dr. Munro and immediate laparotomy was performed, which revealed a large dissecting aneurysm of the abdominal aorta at the point of origin of the celiac axis. The aorta was tied, and death followed.

This is the only fatal case the authors have known, although there was one other in a younger man who died after leaving the hospital, of what was said to be an aneurysm. Three or four others have been seen and recognized by the authors. The general condition of these patients is fairly good, provided they have not been exhausted by long-continued pain, as was the case in the patient cited. Spinal mobility is restricted when the aneurysmal sac lies in contact with the vertebral column and erosion has begun. Limitation of spinal motion varies with the point of pressure, and is unlike that of Pott's disease which is usually asymmetric. Theoretically, it seems possible that a knuckle could develop from the erosion of an aneurysm, though this has never been observed by us. The extreme and unremitting pain and its failure to be relieved by adequate fixation, together with the possibility of palpation of a pulsating tumor deep in the abdomen are the principal points in diagnosis. Middle age, atheroma, and the causes which tend to produce aneurysm in the adult are suggestive. All the cases seen by the authors have been in males. Pain referred to the legs is not so constant as in some other conditions of intraabdominal pressure.

3. *Neoplasm.*—Malignant disease of the spine in the adult is usually carcinoma, and is rarely, if ever, primary in the vertebras. The primary focus is usually in the breast or in the intestine. A few cases have been observed in which the diagnosis was made provisionally and positively confirmed by autopsy. The chief difficulty lies in the differentiation from an osteoarthritic process, since the clinical picture of asymmetric spinal limitation, with the absence of kyphos and of abdominal signs, is strongly suggestive of both diseases. In one case, that of a young woman, this doubt was removed when it became known that a breast had previously been amputated for cancer, and furthermore, a röntgen ray of the spine showed the malignant character of the process. The second case was in an elderly physician, whose excruciating pain was not relieved by fixation; he progressively lost ground, became more and more cachectic and emaciated, and finally succumbed. The primary focus was found at autopsy to be situated in the head of the cecum. Pain in vertebral carcinoma is deep-seated, and does not usually radiate. It is little relieved by fixation; is attended with progressive emaciation and cachexia, and usually occurs in elderly people. Sometimes a slight anteroposterior deformity occurs. Numbness and prickling in the feet and legs is occasionally noted. Sensory peripheral disturbances are more marked than motor.

4. *Osteomyelitis.*—Osteomyelitis of the spine is a comparatively rare condition. There should be no difficulty in differentiating it from tuberculous abdominal lymph-glands, if seen in the acute stage of the process, and the history should establish the diagnosis at once in chronic cases. The general condition of the patient with acute osteomyelitis is very striking. The picture is that of a more or less profound septicemia with a rapid onset, high temperature, acute pain, early and rapid abscess formation, rarely any kyphosis, rigidity of spine to all motion, due to muscle spasm. The character of the abscess is that of an acute pyogenic infection, with redness, heat, bogginess and great tenderness. The abscess may point posteriorly, or appear in the pelvis, suggesting an appendicular abscess, as in one case seen in the hospital. In this case, operation showed it to be subperiosteal, and it was drained through a lumbar incision.

5. *Osteoarthritis.*—The hypertrophic form of arthritis occurring so frequently in the spine has many features in common with mesenteric glandular tuberculosis. The patient's general health is seldom if ever impaired. Spinal motions are restricted, and there is no localized kyphos, but a permanent anteroposterior or lateral curve of the entire column may be present. Restriction of motion is asymmetric, and varies in character at different levels of the column. Pain is rarely very severe, and if the spinal limitation is in the lumbar region, unilateral leg pain is common. This is more commonly referred to the back of the thigh and calf. Atrophy of the gluteal region, and of the thigh and calf on the affected side is very common, and is not an atrophy of the muscles, but of the skin and subcutaneous tissue. There is no abscess formation in this disease. Adequate fixation gives prompt relief. If the disease is above the lumbar region, restriction of respiratory excursion is common.

6. *Infectious Arthritis.*—The infectious processes which attack the other articulations of the body may involve those of the vertebral column with similar results. Usually only the supporting ligaments are involved, but in some cases erosion of cartilage or even destruction of bone may occur, with resulting ankylosis. In the milder infections, when no erosion occurs, the spinal ligaments and the capsule of the intervertebral articulations become infiltrated and the whole column becomes rigid. As the acute process subsides, motion returns in varying degree. The clinical picture of this disease is distinct from that of any of the other processes which cause partial or complete rigidity of the spine. The entire column is usually involved, and a rounded total kyphosis is common. No motion is permitted in any direction. The onset is commonly acute, and one or more large joints is usually involved.

7. *Spinal Rigidity from Intraabdominal Inflammatory Conditions.*—Among the intraabdominal inflammatory conditions which may produce rigidity of the vertebral column are appendicitis, inflammations of the gallbladder, subdiaphragmatic, nephritic, and perinephritic abscesses. Mild cases of inflammation of the appendix may be confused with retroperitoneal glandular tuberculosis. In both cases there is a varying amount of rigidity of the abdominal wall, and although tuberculous glandular involvement is usually accompanied by little elevation of temperature, the same condition is often present in chronic appendicitis, even when considerable tissue destruction has occurred.

The presence of the abscess formation resulting from either chronic or tuberculous glandular involvement, when situated in the right hypochondrium (the location in the majority of our cases), usually causes rigidity of the right rectus, and impairment of spinal motions, especially toward the left. One must bear in mind, therefore, the possibility that an appendicular abscess may cause spinal limitation in addition to the symptoms which are wont to be regarded as pathognomonic of the condition. Similarly, inflammations of the gallbladder may be the cause of spinal rigidity, resistance to pressure on the right side of the abdomen, and of a mass palpable in a region not inconsistent with the distribution of the retroperitoneal glands. It is, however, rare that the distinguishing symptoms of either appendicitis or gallbladder inflammation are not present in addition to those mentioned, and they must be carefully searched for, before arriving at a positive diagnosis. Inflammations of the upper abdomen or of the pleural cavity which penetrate to that section of the abdomen immediately beneath the diaphragm are also capable of producing spinal rigidity, abdominal rigidity, and palpable tumor masses in the upper abdomen. Therefore one may occasionally have to exclude the cases of subdiaphragmatic abscesses in his differential diagnosis.

The writers have previously referred to the necessity for differentiating spinal inflammation from inflammation of the kidney substance, and it is not infrequently the case that large perinephritic or nephritic abscesses may occur, the pressure of which so irritates the muscles having their origin or insertion in the vertebral column that they draw it toward the seat of inflammation, which is outside of the column itself. The evidence of nephritic abscesses must then be sought for, that one may not fall into the error of overlooking this condition when spinal symptoms seem to be the conspicuous feature.

TREATMENT.

The treatment of inflammations of the abdominal lymph-glands may be divided into three parts:

1. *General.*—As in all tuberculous processes, the general constitutional treatment is perhaps the most important, and all the factors which contribute toward the building up of the general system, enabling the patient to counteract the effects of the tuberculous infection, are to be encouraged. Outdoor life, freedom from labor, extra diet, and such drugs as contribute toward the stimulating of the appetite and the regulating of all bodily functions are to be resorted to. Aside from this, medicinal remedies are of no particular value.

2. *Mechanical Treatment.*—Many conditions which do not directly involve the spine nevertheless require fixation of that structure in order to give relief from pain. This undoubtedly is due to the flexibility of the vertebral column and the fact that the retroperitoneal glands are frequently intimately associated with the vertebral column itself or its immediate coverings. Free motion of the spine may easily act as a constant irritant to such diseased glands. Therefore, patients with peritoneal glandular disease in whom there has been no evidence of osseous process are usually sufficiently benefited by the application of jackets or the wearing of spinal supports of a less rigorous character to make it worth while to have them adjusted. The relief, of course, is not as marked as in the cases in which involvement of the spinal column itself has been present. On the other hand, the painful symptoms of mesenteric tuberculosis are conspicuously less permanent than they are in the tuberculosis of the column itself.

3. *Operative Treatment.*—Ordinarily a portion of the abscesses which result from inflammation of the abdominal lymph-glands become absorbed and give no further symptoms. In certain cases a small portion of the total number of glands which have become involved break down. These may discharge through the abdominal wall or point in the thigh or at Poupart's ligament, the discharging sinus usually closing much sooner than when associated with an osseous process, as one would naturally expect. In the early stages of the involvement of these lymph-glands they are discrete, but as the process continues they become matted together, and the products of inflammation fuse large areas of glandular tissue into solid masses. If aggregations of glands thus matted together break down, the course of the abscess may simulate in its duration the course of abscesses derived from osseous foci. Much the same rules hold good for the treatment of abscesses derived from broken-down lymph-glands as obtain in the treatment of abscesses from tuberculous bone lesions. It is very important to prevent them from becoming secondarily infected, and therefore incision should be delayed as long as possible. Aspiration, when they are so situated that this may be done without danger of puncturing overlying or neighboring viscera, is preferable to open incision. If any positive or even strongly presumptive evidence can be adduced to indicate that the glands are isolated and small in number, it is possible to resect them through an open incision. This, however, is rarely done, principally because, as a rule, the number of glands is greatly in excess of what might be anticipated, and too extensive a section of mesentery and intestine would be necessary, and partly because of the astonishing capacity for the absorption of these glands which is possessed by the human organism. The writers have observed at operation an abdomen filled with glands in all stages of the process, but for the most part so broken down and matted together that resection was impossible, and the abdomen was closed without any attempt at removal of the mass. In the course of two years the patient was again seen, at which time there was absolutely no evidence from external examination of a pathologic condition of his abdomen. There were no nodules to be felt, no spinal or abdominal rigidity, and the sinuses had been closed for a long time. Several other cases have been reported by Petersen, in which equally good results followed a simple celiotomy in similar conditions. In numerous other cases simple incision and drainage have been performed with varying results.

PROGNOSIS.

The prognosis of inflammations of the abdominal lymph-glands is good as compared with that of vertebral tuberculosis in the same class of patients. The most serious features of the disease are extension to and involvement of the vertebral column, rupture into the peritoneal cavity, and intestinal obstruction, in consequence of the pressure upon coils of intestine or the matting up of such coils in the products of inflammation. Aside from the gravity of these three complications, the outlook for a patient with enlargement of the abdominal lymph-glands is comparatively good. Much can be done to favor the prognosis, according to the extent to which it is possible to provide efficient treatment, and according to the degree to which the patient can be made to appreciate that he has to contend with a tuberculous lesion, which requires patience and perseverance second only to that required in the treatment of vertebral tuberculosis.

Case I.—February 9, 1904. W. H. P., a male, aged 32; printer. In the middle of November, 1903, he began to have pain in the small of the back with an elevation of temperature (101°). There were no gastrointestinal symptoms except constipation. Rest in bed for three weeks relieved the pain, but five weeks later it reappeared, and had steadily increased until this time. It was referred to small of the back, not radiating down the legs, and it was worse at night, waking the patient from sleep, and frequently requiring opiates. It was better in the morning, and seldom occurred during the day. Examination showed the abdomen somewhat resistant to palpation, but not tender. Spine was stiff in all motions, especially in forward bending. Patient walked with "military" attitude, carefully guarding all motions of spine, and stepping gingerly.

The red blood count was high and there was no leukocytosis. Röntgen ray showed no evidence of bony change or thickening about the lower spine. Pain was very severe the night of February 10, 1904, and was not relieved by codein and morphin, .02 gm. (¼ gr.). A plaster jacket was applied which gave prompt and marked relief. He was discharged February 19, with all symptoms greatly relieved.

Case II.—July 8, 1903. M. C., female, aged 38; dressmaker. Patient had been previously operated upon for uterine retroversion, and for one and a half years had been treated for osteoarthritis with plaster and leather jackets and brace, with some improvement of symptoms. Eighteen months ago she noticed stiffness of the right leg. For the past eight months she had walked lame, and of late there had been a marked increase in pain about the hip. Her appetite was poor, she slept poorly, and had a cough. Upon examination there was found in the right iliac fossa near the median line a deep resistance, firm, the size of an orange, and tender on palpation. There was slight permanent flexion of the left hip, but no shortening nor atrophy of the leg. Hyperextension of the left hip was limited, and all the motions guarded. Reflexes present anteroposteriorly. Motion was limited throughout, and the same was true of lateral bending in the lumbar region. Flexion was accompanied by rotation to the left. On passive motion the spine was found rigid from muscular spasm. She was admitted to the House, where an operation was performed July 10. An incision 3 cm. long was made above Poupart's ligament 3 cm. inside the anterior superior spine. An abscess cavity was found in the deep fascia beneath the muscle layers from which a half pint of green pus was evacuated. The abscess cavity lay anterior to the psoas muscle and some distance from the spine. Drainage was continued some time. On August 23 she was discharged from the hospital. There was normal motion in the hip. Anteroposterior motions of the spine were unchanged, but the lateral motion was much improved and the lateral twisting had improved.

Case III.—December 2, 1901. C. C., male, aged 22, employed in a shoe factory. Three years ago an abscess formed just above the right buttock, which was opened and drained at the Carney Hospital, May 13, 1900. He was discharged on June 13 with his condition much improved. The discharge, however, persisted.

When examined in December, 1901, the motion of the left leg was perfectly normal. The right leg was permanently flexed at 45° with much limitation of motion in flexion and extension from muscle spasm. There was also slight atrophy of the right leg. There was a transverse cicatrix in the left inguinal region resulting from old broken-down caseous glands, and an abscess had recently appeared on the upper and outer aspect of the right thigh just below the trochanter. There was slight restriction of motion in the lower lumbar spine, and a swelling in the right lower lumbar region. The patient's general condition was good. Patient was admitted to the House, and an abscess in the thigh was incised, curetted, and swabbed out with iodin. Free drainage and irrigation were continued for some time, and the patient was discharged improved to the Out-patient Department. He was then lost sight of, but reappeared for examination on March 6, 1904. At this time he had been perfectly well for two years. The sinuses about the thigh and lumbar region were all closed and the abdomen was soft on palpation. The motions of the spine and hips were free except in extreme hyperextension, and a deep cord-like thickening persisted near the median abdominal line. A röntgen ray taken of the lumbar spine at this time showed a perfectly normal condition of the vertebras, but on either side were small white indefinite patches, most suggestive of old calcified retroperitoneal glands.

Case IV.—July, 1901. J. C., male, aged 32; machinist. Three years previous, patient had undergone an operation at the Boston City Hospital, when an abscess in the right lower back was incised and a considerable amount of pus was evacuated. The wound closed and there were no further symptoms until three weeks ago, when a swelling appeared in the site of the previous operation. The patient was a tall slim man in fairly good general condition. Above the crest of the right ilium outside the posterior superior iliac spine in the lumbar region was an old cicatrix, bulging from the distention of a deep abscess. There was muscular spasm in the spine on bending to the right, but the other spinal motions were fairly free. There was no bony deformity of the spine. Patient was fitted to a back brace. A few days later operation was performed for the evacuation of this recent accumulation of pus. An incision was made through the old cicatrix, which was tuberculous in character. A deep abscess occupying the right hypochondriac region and communicating with another abscess cavity behind the peritoneum was opened and about two ounces of thick pus was drained off. The wound closed in a short time and remained so, and the patient returned to his work. He made routine visits to the Out-patient Department, and then was lost sight of for some time, and returned the next year in much poorer condition. There was an abscess in the site of the former one, which was easily palpable through the abdominal wall. He had a hacking cough and other signs of pulmonary tuberculosis. At a third operation a large amount of pus was evacuated. The discharge persisted. Pulmonary signs increased. There was progressive increasing emaciation, with the appearance of lumbar kyphosis, and six months later the patient died of tuberculosis, April 25, 1902. There was no autopsy.

Case V.—June 24, 1903. A. J. S., male, aged 18, blacksmith. For two years the patient had been unable to use his back. Normal motion of the back had been more or less restricted without pain. Two months ago swelling appeared in the lower right lumbar region, which continued tender to palpation. There were no intestinal disturbances. The thoracic examination was negative. Axillary and inguinal glands slightly enlarged. In the right lumbar region was a fluctuating swelling six inches in diameter, extending parallel to and outside the spinous processes in the lower six vertebras and the sacrum and reaching over the crest of the ilium. The spine was rigid in all directions, evidently from muscle spasm, and hyperextension of the right thigh was limited. In the right iliac fossa there was an area of deep resistance. The patient was admitted to the House and an operation was performed July 27. Incision was made in the right lumbar region just above Poupart's ligament, and about a quart of greenish-yellow pus was evacuated, much of which was obtained by pressure in the right iliac fossa. On exploration the abscess was found to communicate with a deep cavity by means of a sinus running along the spinal border of the erector spinæ muscle. This cavity was just above and 3 cm. to 4 cm. posterior to the right anterior superior spine. The wound was drained, and on August 6 the patient was discharged, wearing a jacket. The spinal motions were at this time guarded, but much freer above the lumbar region. On September 14, 1903, he reentered the hospital with the history of the formation of a similar tumor to the left of the vertebral column, where a fluctuating swelling the size of an orange was palpable. Abdominal palpation was unsatisfactory on account of the marked muscular rigidity. The old sinus in the right lumbar region was still discharging. On September 18 an operation similar to the first was performed in the left lumbar region, and one and a half pints of pus was evacuated, much of which escaped upon deep abdominal pressure. A similar deep connection was found in this case also. He was discharged on September 23, his general condition much improved, and wearing a leather jacket. Following this operation his general condition improved gradually, and he gained 22 pounds in weight. On March 6, 1904, he appeared for examination. Six weeks previously there had been an acute damming up of the left lumbar abscess, accompanied by a severe chill and fever, continuing for three or four days, the temperature reaching 104°. No vomiting or other intestinal symptoms. Appetite was fair. Since then marked pain in the legs and in the left hip near the sciatic notch had persisted without localized tenderness on palpation. He had recently lost several pounds in weight. When examined he stood with considerable lordosis and slight lateral deviation to the right in the lumbar region. The lumbar spine was very rigid, especially in flexion. His spinal motions were all very guarded; there was no kyphos, and his color was fairly good. Abdominal examination showed marked rigidity, especially over the lower epigastrium and in both hypochondriac regions. The abdomen was also somewhat distended and tympanitic. A röntgen ray taken at this time showed no bony lesion in the lumbar region, but several nodular areas, strongly suggestive of old calcified lymph-glands.

When seen May 20, 1904, there was no kyphosis. A very large abscess was developing in the left thigh and the old sinuses were discharging very slightly. General condition, in spite of the suppuration, was improving.

Case VI.—June 11, 1903, M. T. O'B., a male, aged 27, dairyman. Six months ago he first noticed weakness in the back. There was pain especially on moving, but it was not worse at night. There had been no previous trauma. Symptoms increased gradually, and in April he stopped work. He was seen at the Massachusetts General Hospital, and a plaster jacket was applied. Six months later another jacket was applied at the Carney Hospital. Two months ago he first noticed a swelling in the right groin. No history of abdominal pain or tenderness, vomiting, or diarrhea.

Patient was a well-built and well-nourished man. The thoracic examination was negative, as was the abdominal, save for the right iliac fossa. Here there was a palpable tumor chiefly above Poupart's ligament, the size of a large orange, oval in shape, and extending upward into the lumbar region. It was not tender to pressure. The spine showed no deformity, but was quite rigid. On active motion there was no forward, but slight lateral bending was possible above the seventh dorsal vertebra. Hyperextension of the right thigh was not allowed. The spinal spasm was marked. There were no signs of paralysis in the extremities. Right leg was 1.5 cm. shorter than the left. He was admitted to the House, and an operation was performed June 15. Through an incision in the joint parallel to Poupart's ligament, 4 cm. long, an abscess was located beneath the fascia under the internal oblique. On opening this 20 ounces of cream-like pus was evacuated. The cavity on exploration was found to extend behind the peritoneal wall up into the lumbar region. The wound was drained, and on July 8 the patient was discharged from the hospital. At that time there was a slight discharge from the wound. There was an infiltrated mass the size of a dove's egg about the sinus. The motions of the spine were free, laterally, but rigid anteriorly and posteriorly. On March 6, 1904, the patient appeared for examination. His general condition was excellent. He suffered no pain, but his back was still somewhat weak. He stood erect with the iliac curve obliterated. There was no lateral deviation of the spine and no kyphosis. The motions of the lumbar spine were restricted in all directions, but especially in forward bending. The sinus in the right groin, which closed three weeks after the operation, had not reopened. On abdominal examination, the recti muscles were found to be quite rigid, and in the upper half of the abdomen was to be felt a deep resistance, which was entirely absent in the lower portion above Poupart's ligament. This resistance suggested a nodular swelling in the right hypochondrium. A röntgen ray taken at this time showed a destructive process in the last lumbar vertebras, with no signs of calcified retroperitoneal glands in the lumbar region. Patient had been wearing a jacket continuously.

Case VII.—March 17, 1899. C. L., a male, aged 19. Two years ago he had pain in the lumbar region, which disappeared with no recurrence of the symptoms until six months ago, when swelling appeared in the upper right lumbar region a little below the ribs. This was incised and an abscess drained at the Boston City Hospital in February, and again in April, 1899. The discharge persisted. Full extension of the right leg was impossible, and the patient was obliged to use crutches. A jacket was applied with no improvement. He was sent to the

Carney Hospital and laparotomy in the midabdominal line was performed by Dr. Conant. Careful abdominal exploration showed the entire lower cavity to be filled with glands which forced the intestine into the upper portion. Some of these glands were as large as pullet's eggs, and a number were matted together, suppurating and discharging into a sinus in the right lumbar region. A few small caseous glands were removed for examination, but nothing further was done, and the wound was closed. The discharging sinus was enlarged and a secondary opening was made into the abscess formation above Poupart's ligament. The patient was sent home, and was visited at intervals for several weeks. The discharge from the two sinuses persisted. Psoas contraction developed, first on one side and then on the other. Both legs became permanently flexed to a right angle, and a secondary sinus appeared in the groin spontaneously. There was marked progressive emaciation, septic temperature, vomiting, etc., and the patient was lost sight of. In 1903, patient appeared for examination. His weight had increased from below 100 pounds to 180 pounds. The sinuses had been closed for several months. Examination showed a perfectly normal abdomen. No psoas spasm. Hyperextension at the hip perfectly free; no kyphos, and no limitation of the spinal motions. Patient has since been lost sight of.

CASE VIII.—May 13, 1902, M. L., a male, aged 25. One and a half years ago he had pain in the back and leg for a short time, but was not confined to his bed. Three months ago a swelling appeared in the thigh. One year ago he was seen in the Carney Out-Patient Department. At that time he had stiffness of the spine, but no deformity. The lungs were negative on examination. A diagnosis of probable hypertrophic arthritis of the spine was made at that time. He was treated first with a plaster jacket, followed by a leather jacket, and returned to his home in Nova Scotia, where he remained until recently.

Present Examination.—He returned to the Carney in May, 1902 with an abscess in the right thigh. The circumference of the thigh at the level of the perineum was, right, 24 inches; left, 19 inches. The spinal condition remained unchanged. There was no apparent knuckle, and no limitation of the hip motion not to be accounted for by the mechanical obstruction. A fluctuating mass extended from the thigh into the pelvis.

On May 14, 1902, the abscess was incised, and between five and six quarts of thin tuberculous pus was evacuated. Drainage was continued. There were daily dressings. The discharge was profuse. Microscopic examination of the granulation tissue of the abscess wall showed it to be tuberculous in character. Nine days later tenderness increased over the trochanter and above the ilium. Pain was very great and an opiate became necessary. Temperature had risen to 105° F. and the pulse to 120. This condition persisted with occasional vomiting but no irregularity of the bowels, until May 31, when the temperature dropped to 99°, the pulse remaining high. The vomiting, diarrhea, and abdominal tenderness increased and the discharge from the wound became thicker in character. He grew rapidly worse and died June 2.

At autopsy, June 4, the great omentum was found adherent to the pelvic wall at several points. The mesenteric lymph-nodes were somewhat enlarged, and upon section presented numerous opaque yellow areas. Two meters above the ileocecal valve was a marked puckering of the mesoileum, and in the midst of scar tissue several enlarged and caseous lymph-nodes. The left lung showed a small puckered scar on the apex. The liver was normal save for several irregularly shaped yellow-brown patches on the upper surface of the right lobe. The right psoas muscle had undergone fatty degeneration to a great extent and was extensively occupied by a cavity 3 cm. in diameter, which extended from opposite the first lumbar vertebra to the pelvic brim and contained greenish-yellow pus. This cavity was continuous with a retroperitoneal sinus leading toward the right hip-joint. The psoas muscle contained also several similar abscesses. The bodies of the upper lumbar vertebras on section showed rough-walled cavities, 1 cm. to 2 cm. in diameter, filled with yellow pus. In places these approached the surface of the bone, but there was no direct connection between them and the diseased mesenteric nodes. The disease of the nodes was apparently of longer duration. Microscopic examination of the bone abscesses showed the trabecular walls to be thin and poorly staining. The areas where these had disappeared were filled with leukocytes, epithelioid and small round cells, granular detritus, and giant cells of the tuberculous type.

Pathologic Diagnosis.—Serous abscesses. Tuberculosis of upper lumbar vertebras. Tabes mesenterica, with constriction of the ileum. Obsolete focus of tuberculosis in the lung.

CASE IX.—W. B., a male, aged 18. History good. A year and a half ago he had pneumonia, which was tardy in resolving. In April, 1902, he had considerable pain, which kept him in bed two weeks. This was referred to the lower part of the back and the groin. He then went to work, but his back pained more or less constantly during the succeeding year. For the past three months he has had considerable pain referred to the perineum, which led to a diagnosis of tuberculosis being made at the Massachusetts General Hospital. He has had no trouble with his back for the past two or three months. Motions of the spine are somewhat limited and it has been difficult for him to put on his shoes. Of late he has been having considerable pain in the right groin and down the right leg. This is worse when standing; in fact, except very recently he has had no pain at night when recumbent.

Examination.—The patient is a slender, poorly developed boy, with straight spine; motions limited, both in flexion and lateral bending; side bending is more free to passive motion than active. No abdominal resistance or tenderness; hip and knee motions free. Condition suggests at this time (September 23, 1903) a retroperitoneal glandular tuberculosis, or an osteoarthritis. Leather jacket fitted and worn until May 29, 1904. He has been out of doors practically all winter. General condition has much improved. Four months ago he began to have trouble with the left ankle; pain; limp. There have been one or two remissions, but at present the condition is worse than at any time previous. Spinal condition practically the same as at last note, motion being restricted in about four of the low dorsal and lumbar vertebras. In the right iliac fossa is an extensive tumor mass, either broken-down glands or a psoas abscess. This extends up along the side of the iliac bone and not toward the median line. Ankle is much swollen and motions are restricted in all directions by muscular spasm. Röntgen ray of the ankle shows extensive tuberculous disease of the astragalus; röntgen ray of the spine shows that the vertebras are entirely clear, and gives evidence of masses of lymph-nodes on either side of the vertebral column.

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CONCERNING THE SYNDROME OF CONUS MEDULLARIS AND CAUDA EQUINA.

BY

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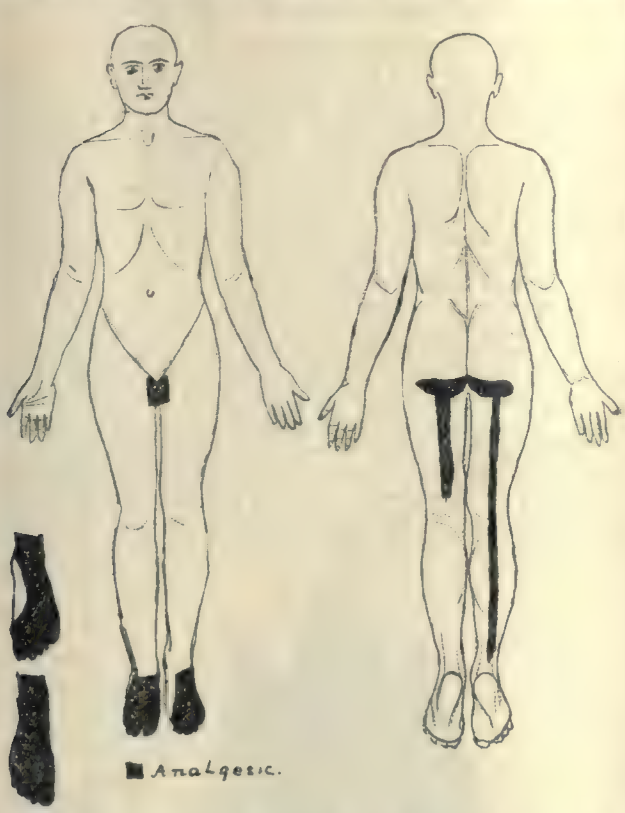
It is a common observation that a lesion of the spinal cord at any level is very frequently followed by disturbances of the functions of the bladder and rectum, of erection and sometimes of ejaculation, beside localized motor and sensory disturbances.

The history of myelitis (traumatic or other) is the best illustration of it. On the other hand it has always been known that these disturbances were observed also in cerebral affections. Goltz and Ewald[1] have shown in their experiments that dogs deprived artificially of their spinal cords could after a certain time regain the normal functions of their pelvic organs. Similar experiments were conducted by Müller,[2] who has shown that the functions of the bladder and the acts of defecation, erection and ejaculation are restored after a certain time. It is therefore evident that the centers of those functions may also lie outside of the cord. From the researches of Oppenheim, Sarbo, Müller, Van Gehuchten, Raymond and others, based upon pathologic, experimental and clinical data it follows that the brain, spinal cord and perhaps the sympathetic system—are all able to control to a certain extent the functions of the pelvic organs. That the cortical centers have their inhibitory effect on the center of the cord and through the latter upon the sympathetic centers, can be seen from the fact that we are able to interfere voluntarily with the acts of micturition and defecation, and to a lesser degree with that of erection and ejaculation. In diseases of the cord this cerebral influence is suspended and the disturbed functions mentioned make their appearance; only later in the course of the disease the affected organs regain their primary functional independence.



It is proved beyond doubt that the lower portion of the spinal cord, namely the conus medullaris, contains special and independent centers for micturition, defecation, erection, ejaculation and for the anal reflex. The study of this important portion of the cord is comparatively recent. Its anatomy has been a subject of discussion, as up to the present time the limits of the conus medullaris have not been well defined. The conus itself is completely surrounded by bundles of nerve fibers coming from lumbar and sacral segments (cauda equina), which may, and indeed very frequently do, suffer in diseases of the conus. In view of the anatomic arrangement a difficulty always arises in attributing the various symptoms observed to their respective origin. In order to avoid confusion we must always speak of a disease of both conus and cauda equina, unless the pathologic process is limited to that portion of the cauda which surrounds only the filum terminale. As we will see later, this has a certain bearing upon therapeutic measures. The following case is presented to emphasize this view:

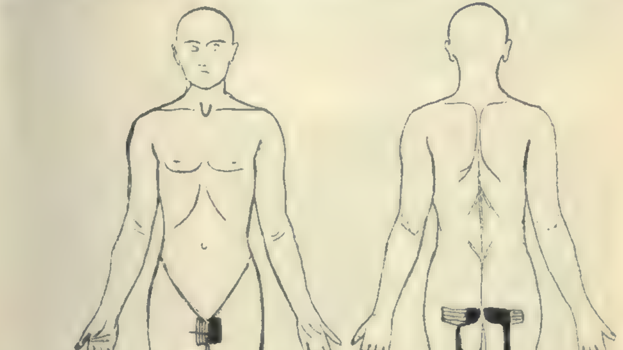
E. W., aged 26, entered the Jefferson Hospital in Prof. W. W. Keen's service, with the following history: Two years ago he fell from a bridge 33 feet in height and landed upon his feet. An immediate loss of power and sensations below the point of the injury, which was above the sacrum, retention of urine and incontinence of feces followed. The right heel was bruised, suppuration set in promptly and never healed. For three months he had to be catheterized. The retention of urine gradually disappeared and gave place to incontinence; also the incontinence of feces became replaced by constipation. Only three months after the accident he began to regain some power in the lower limbs and could walk with crutches. For six months he walked supported with a cane. Since then no improvement was noticed in his condition.

Present Condition.—Patient has difficulty in raising his feet from the floor; no difficulty in flexing the thighs on the pelvis and legs on thighs while in bed, but he does it with difficulty, when standing. It is extremely difficult for him to rise from a seat or go upstairs. The gait is slightly spastic; the spasticity is marked only in the left leg. Romberg's sign is present. The knee-jerk is slightly exaggerated on the right, but markedly increased on the left. No ankle-clonus, no Babinski on either side. As to the latter there is no flexion or extension upon irritation of the sole. The cremasteric reflex is preserved. The left foot is in the position of equino varus. On the right side there is flat-foot. The toes of both feet are in a claw-like form.

Trophic and Vasomotor Disturbances.—Ulcerations are found on the right heel, right buttock and at the level of the sacrum. The right leg and foot are covered with perspiration. The majority of the affected muscles show distinct atrophy with fibrillary twitching. The electric reactions were not taken.

Sensory Disturbances.—At no time since the accident did the patient experience pain in the lower extremities or in the back. There is a numbness in both feet; when on the floor the ground does not feel solid, but as if he were standing on cotton. The test for objective sensory symptoms gave the following results:

Pain.—Anus, perineum, scrotum, and penis are totally analgesic. From the perineum sideways on the internal aspect of both thighs there is a large area of analgesia. The same loss of pain sense, also total anesthesia, are traced on both gluteal surfaces; this loss of sensation extends down on the posterior surfaces of thighs (in the middle portion only) to the popliteal space on the left and to the ankle on the right. The right foot is totally analgesic, while on the left only the posterior half of the inner border has preserved the sense of pain. The plantar surfaces of both feet are analgesic.

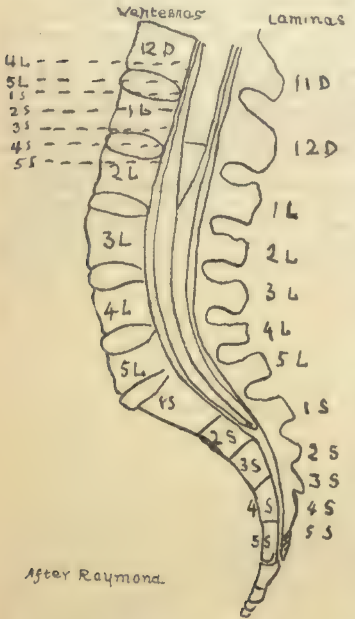


Temperature.—Anus is anesthetic for heat and cold. On the perineum heat is not felt, while cold is taken for heat. On the right side of the scrotum heat is taken for cold, while cold is not felt at all; the left side is anesthetic to both temperatures. On the dorsum of the penis heat is taken for cold, while for cold there is anesthesia; on the posterior surface cold is felt normally, while heat is taken for cold. From the perineum laterally on the internal aspect of the right thigh at a distance of four fingers' breadth, heat is taken for cold, and vice versa; on the left, at a distance of two fingers' breadth, cold is not recognized at all, while the heat sense is normal. From the anus, laterally on the buttocks, at an area of three fingers' breadth, heat and cold are not recognized at all. On the remaining portions of the buttocks, at an area of three fingers' breadth from the previous limit, heat is taken for cold, but cold is not recognized at all. The posterior aspect of the thighs presents the same sensory disturbances as for the pain sense (see foregoing). The right foot is thermoanesthetic on the dorsal surface; along the inner border heat is taken for cold, but cold is not recognized at all. Left foot presents the same disturbances as the right, except its inner border, which is normal. The sole of the right foot is thermoanesthetic, on the left heat alone is perceived.

The sense of touch is preserved in the affected portion of the body, with the exception mentioned. Further examination revealed a prominence of the second, third and fourth lumbar vertebras, but this is more marked at the level of the second than of the others.

The condition of the sphincters of bladder and rectum is now the same as described before. A finger introduced in the anus does not feel any contraction of the sphincter. A catheter introduced in the urethra shows complete anesthesia of the latter. Patient also complains of involuntary ejaculations, which are also often slow.

The previous personal and the family history present nothing unusual. He had always been in good health. An analysis of the motor symptoms leads to the following deductions:



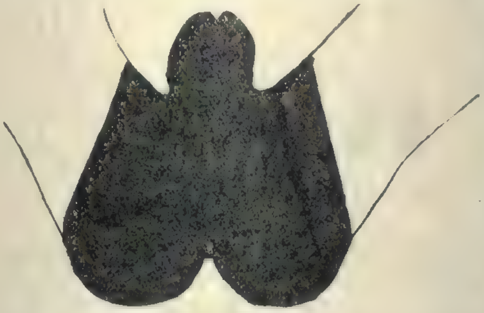
Patient has the greatest difficulty in rising from a seat and in going upstairs; the gluteus maximus is therefore involved (small sciatic nerve). The other gluteal muscles are apparently not involved, as abduction and circumduction of the thighs are preserved (the gluteal nerves, therefore, are not involved). As flexion of the hip-joints is possible, the psoas and iliacus muscles are not involved; the lumbar nerves for the first and the anterior crural nerve for the second are consequently not touched. Crossing of the legs is possible; the pectineus, all adductor muscles (the obturator nerve and the great sciatic nerve for the adductor magnus) are therefore not involved. The extensors of the knee (vasti and rectus muscles) and the anterior crural nerve are not involved.

Although the patient can flex his knees while in bed, he cannot do it easily while walking; his legs are dragged. In bed the flexion of the thighs (which is not disturbed) is sufficient to permit the weight of the foot to flex the knee. The flexors of the knee (biceps, semitendinosus and semimembranosus) and consequently the great sciatic nerve are therefore involved to a considerable extent. The gastrocnemius and soleus (internal popliteal nerve) are involved, especially on the left side; the foot on the left side is in the position of equino varus; standing on tiptoe is impossible. As flat-foot was present on the right and equino varus on the left, I conclude that the tibialis anticus and consequently the anterior tibial nerve are involved on both sides (the action of the peroneus longus is antagonistic to that of the tibialis anticus); and as paralysis of the peroneus brevis leads also to talipes varus, it is supposed that the musculocutaneous nerve is also partly involved. The condition of the toes finds its explanation in the paralysis of the extensor longus digitorum, and of the extensor longus pollicis.

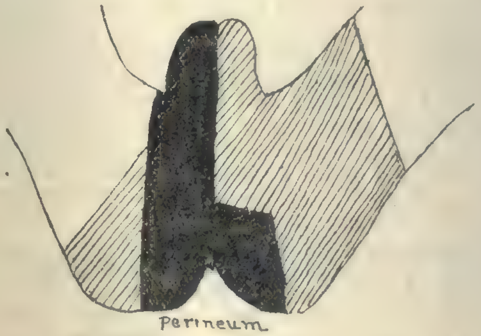
This detailed analysis of the condition of the muscles of the lower extremities shows that the following nerves are disturbed in their function: Small sciatic (gluteus maximus muscle), great sciatic nerve (flexor muscles of the knee) and various branches of the latter unequally disturbed on both legs and feet. The motor disturbances are therefore in the domain of the sacral plexus, which is formed by the fifth lumbar and fourth sacral nerves.

If we turn our attention to the sensory disturbances, we notice that the perineum, penis, a part of the scrotum, and the mucous membrane of the urethra, are all anesthetic, a condition which is indicative of an involvement of the pudic nerve, which again is a branch of the sacral plexus. The condition of the bladder, rectum, and anus shows an involvement of the accelerator urinæ, compressor urethræ, external sphincter and levator ani; these muscles are all supplied by the muscular branches of the pudic nerve. The patient also states that his sexual power has considerably diminished since the onset of the disease, and that ejaculation is involuntary, and not felt by him. The erector penis is supplied by the pudic nerve. The sensory disturbances of the lower extremities (see Fig.) are also disturbed over the domain of the sacral plexus.

To sum up, we have here a case of sensorimotor disturbances distributed over the area of innervation of the sacral plexus with the exception of the testicles, which are partly supplied by the lumbar plexus and partly by the sacral. The branches of the lumbar plexus are the ilioinguinal, which takes its origin from the first lumbar nerve; and the genital branch of the genitocrural nerve, which arises from the first and second lumbar nerves. That these branches are implicated in the pathologic process there can be no doubt, as the branches of the sacral plexus, which supply the scrotum, innervate only one portion of the latter; in our case the whole scrotum on all its aspects presented sensory disturbances.



■ Anesthetic to touch, pain, and temperature.



■ Thermoanesthetic
▨ Reversed Temperature Sense.

If we attempt to localize the lesion, we must take into consideration the anatomic arrangement of the origin of the sacral plexus and its relation to the spinal cord itself. The sacral plexus is formed by the fifth lumbar and the first four sacral nerves. A glance at the diagram will show that the origin of these nerves corresponds to a portion of the cord, which is situated between the lower portion of the twelfth thoracic and the lower border of the first lumbar vertebras. The very lowest portion of this segment is called conus medullaris. The upper, as well as the lower limit of the latter, is still a matter of discussion. The majority, however, follow Raymond's view, and, as the diagram shows, the point at which the filum terminale begins, lies at the level of the upper border or the middle of the second lumbar vertebra. The conus comprises the last three sacral segments and the coccygeal segment. The cauda equina is the bundle of nerves which surrounds completely the lower portion of the cord. It is evident that a lesion affecting the cauda at the level of the conus will inevitably involve also the cord itself, and this is the reason why in such cases the symptomatology is complex. A lesion must be in that portion of the cauda which lies below the lower end of the conus, as for example, in tumors, if a clear case of disease of the cauda is to be made out. A disease of the cauda above that point presents almost always symptoms of a mixed character; those of sacral and lumbar plexuses and of the spinal cord. The present case illustrates this view. A careful analysis of symptoms in any given case will enable one to localize a lesion and determine the level at which the pathologic process is present.

The differential diagnostic points of diseases of the conus medullaris and of the cauda equina, as laid down by various authors, are not convincing. A careful reading of the records taken by very careful observers will show that the majority of symptoms referred to the function of the cauda itself are met also in cases described in diseases of the conus.

In our case there is a distinct history of trauma of the lumbar region; a prominence of the second, third and fourth lumbar vertebras is noticed. We find here a symptomatology similar to that of tumors of the portion of the cauda which lies below the lower end of the conus. Still, we have here also symptoms of disturbed function of the cauda and of the cord.

The element, pain, which is so often pointed out as a differential sign and which is frequently present in diseases of the cauda was never present in our case, even immediately after the trauma. The rapidity with which the motor and sensory symptoms developed speaks in favor of a lesion of the conus. So it is with the involvement of the anus, the center of which is proved to be in the conus. The decubitus is also more a symptom of nuclear than of radicular origin. The present case resembles in many respects those of Müller, of Thorburn, and of a number of others. All of them show clinically, some of them pathologically, that whenever the lesion is not strictly limited to that portion of the cauda which surrounds the filum terminale, but extends to its upper portion, namely, to that which surrounds the conus and lower part of the lumbar enlargement, the diseased process affects the cauda as well as the cord. In my judgment, this view is of some importance from a therapeutic standpoint. These few considerations lead me to the conclusion that cauda equina should be spoken of as a bundle of fibers which surrounds only the filum terminale. The histories of tumors situated in the neighborhood of the latter and verified on operating or postmortem tables show distinctly, that if their symptomatology resembles considerably that of the conus (motor as well as sensory symptoms), it is nevertheless free from symptoms of the lumbar plexus. This fact, together with the seat of the trauma and deformities or displacement of laminas, if present, will enable us to determine whether the lesion in the cauda is below the point of the conus (second lumbar vertebra) or above.

As the advisability of an operation depends upon whether the cord is involved in the pathologic process or not, the suggestions mentioned concerning the cauda equina are of some practical value.

In conclusion, I wish again to emphasize the view that cases similar to the one described should be spoken of as examples of disease of both the conus medullaris and cauda equina.

As to the nature of the disease in our case, it is in all probability a hemorrhage in the conus (hematomyelia) with a secondary involvement of the cauda equina around the conus and extending slightly upward to those nerve bundles of the cauda which lie immediately above the arbitrary level of the conus.

I am indebted to Prof. W. W. Keen for the privilege of reporting this interesting case.

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[1] Virchow's Archiv, Bd. lxiii, 1896.
[2] Deut. Ztschr. f. Nerv., Bd. xxi, 1901.

CASE OF CONGENITAL SUPRACOTYLOID DISLOCATION OF THE HIPS WITH CROSS-LEGGED PROGRESSION.[1]

BY

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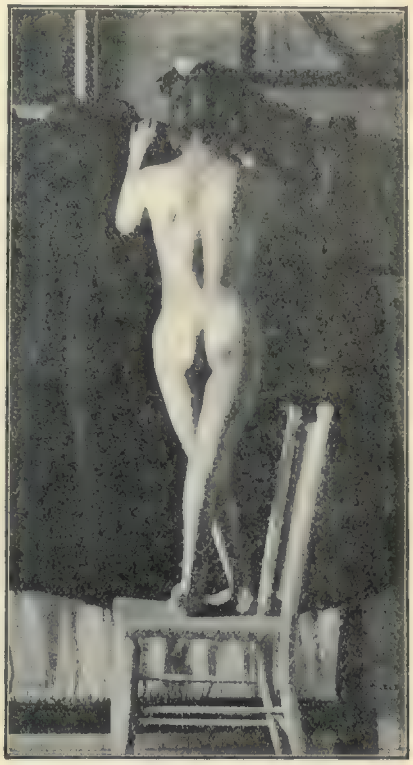
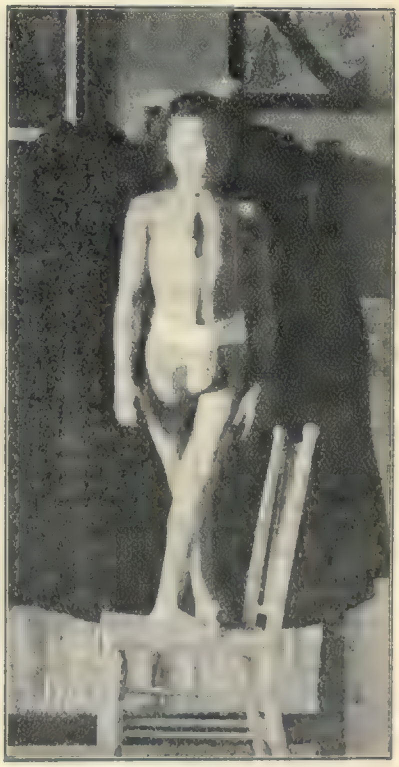


A girl of 12 was referred to me last winter by Dr. William Stevens, on account of persistent cross-legged progression. She was very active and energetic and walked two miles to school and back again daily, and this in spite of congenital deformities of both feet. The condition is shown in cuts Nos. 1 and 2.

Examination showed the femoral heads over the acetabulums just below and behind the anterior superior iliac spines, and the trochanters one and a half inches above Nélaton's line. Both legs were extremely everted. When standing, walking and lying down, the left leg was crossed in front of the right knee, though when lying the legs could be brought side by side, and even abducted a few degrees.

The right foot showed a severe, stiff, untreated varus, with a large bursa on the dorsum over the cuboid, where the weight was borne, and the left foot a stiff but less extreme valgus. There was also knock-knee on both sides, worse on the left, with looseness and hyperextension.



As both hips held firmly without sliding in their dislocated position, it was thought best to correct the eversion and adduction by an osteotomy below the trochanter minor. The right foot was first corrected by a Phelps' operation with a plantar flap, as recommended by Jonas; considerable force was necessary to overcome the deformity after section of all soft parts; the valgus was corrected at the same time by manipulation after division of the peronei. Subsequently osteotomies were performed first on the left, and later on the right femur, and the thighs moderately abducted and inverted. The thighs could be brought parallel, but not crossed after the correction. The left knock-knee being considerable it was forcibly corrected.

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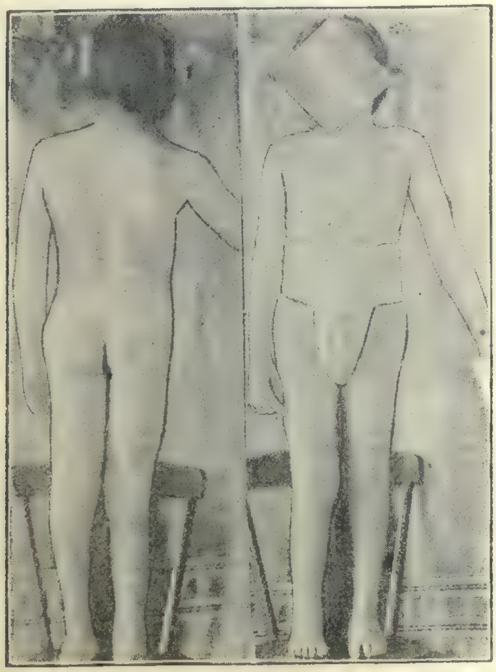
[1] Read before the meeting of the American Orthopedic Association, Atlantic City, May, 1904.

In spite of an attack of scarlet fever, which prolonged the detention in bed a month or more after the last operation, her condition at her discharge was good, as shown by Figures 3 and 4. All the deformities were corrected, she was walking short distances very well, and was improving daily. The angle of greatest abduction between the two thighs was about 50°.

Cases of congenital upward dislocation are not very common, and the association with congenital foot deformities is not usual, but the principal interest of the case lies in the wellmarked and effective cross-legged progression, which is exceedingly rare in congenital hip cases.



In this case it was no doubt due to the great amount of adduction, but possibly in part, to more favorable use of the deformed feet when crossed.

NERVE BLOCKING TO PREVENT AMPUTATION SHOCK; ILLUSTRATIVE REPORTS OF TWO THIGH AMPUTATIONS.

BY

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In the September, 1902, issue of the *Annals of Surgery* appeared a paper by Dr. Harvey Cushing, of Baltimore, on the "Avoidance of Shock in Major Amputations by Cocainization of Large Nerve Trunks Preliminary to Their Division, with Observations on Blood-pressure Changes in Surgical Cases." In this instructive paper the matter of amputation shock was dealt with at some length. Cases were narrated in which nerve section in the course of amputation was followed immediately by extreme depression; others in which, as the result of the nerve-blocking effect of cocain, this depression was avoided. In the paper referred to, Cushing makes mention of the pioneer work of George Crile, of Cleveland, O., along this line, and gives him ample credit for his thorough, exhaustive, and richly fruitful work of research on shock.[1]

I believe that I can with advantage quote the following statement of principles by Cushing:

> 1. By common usage the term shock has come to represent a peculiar state of depression of the normal activities of the central nervous system. Such a condition is ordinarily brought about by traumatism, of one sort or another, to peripheral afferent nerves. In order to produce shock, the impulse resulting from this traumatism must have acted reflexly upon the vasomotor mechanism in the medulla in such a way as to occasion a marked fall in blood-pressure. This diminution of arterial tension is the most characteristic symptom of shock.
>
> 2. Under ordinary circumstances, injuries of only moderate severity to peripheral nerves cause a rise in blood-pressure. If, on the other hand, these injuries are extensive or frequently repeated, or if they are complicated by certain primary or secondary anemias, they are commonly productive of a fall in blood-pressure, indicating a state of shock. Consequently, shock need not be occasioned even in most extensive surgical procedures on the extremities, provided due regard is given to perfect hemostasis. In operations of considerable magnitude, however, during which the division of many large nerve trunks becomes necessary, or in operating upon such traumatic cases as have been already complicated by extensive injury to peripheral sensory nerves, socalled operative shock is rarely avoided. When, therefore, any condition is existent which predisposes to shock, such as loss of blood, prolonged anesthesia, etc., or when a certain degree of shock is already present before operation, especial risk is attendant upon the division of important sensory nerve trunks.
>
> 3. Cocain injected into a trunk effectually blocks the transmission of all centripetal or sensory impulses. Cocainization, therefore, of main trunks of nerves central to the proposed site of their division in a major amputation prevents the conduction of those impulses resulting from the traumatic insult which otherwise, by acting reflexly through the medullary centers, might become the chief factors in the production of shock.

Having occasion recently to amputate a thigh, and retaining a vivid impression of my last amputation at this site, which ended fatally through shock, I determined to apply the nerve-blocking method.

Following are the details of the case:

E. D., a colored male, aged 23, a laborer, from Purvis, Miss., was admitted to Ward I, Charity Hospital, New Orleans, June 24, 1904. A diagnosis was made of tuberculosis of the right knee-joint and femur, with partial ankylosis.

The circulatory organs were normal, with the exception of a slight hypertrophy of the left ventricle. Respiratory organs and liver normal. The urine contained, July 4, bladder epithelium, hyaline and finely granular casts, urates, lime oxalate, bacteria, mucus; reaction acid, specific gravity 1,026.

The history given was of temperate habits, with some little cigaret smoking; measles, mumps, and whoopingcough in early youth. Several attacks of malaria. No history of venereal disease. Family history good.

Three years ago the patient was thrown from a horse, striking his right knee against a post. But little pain was suffered, and he was able to walk at once. Within a month the knee had begun to swell and was painful; a purulent discharge soon made its appearance, which continued to the time of admission.

The neighborhood of the right knee was found to be riddled with sinuses; there was induration and pigmentation about the sinus openings. The knee was kept flexed at an angle of 45°; it could be flexed further, but extension beyond this angle could not be effected.

Operation was undertaken July 7, under chloroform administered by W. B. Chamberlin, R.S. The knee-joint was opened by the curved transverse anterior incision of Textor and the soft parts dissected so as to permit thorough inspection. The involvement of the joint was extensive; the femoral condyles were deeply eroded and the femur for several inches above the condyles was affected with osteomyelitis.

Our experience with conservatism in this class of cases at this age (after the second decade) having proved highly unsatisfactory, amputation was determined on—his permission had been obtained before operation. A long anterior and short posterior flap amputation was done at the middle of the thigh, a rubber constrictor securing prophylaxis of hemorrhage. When the posterior flap was being fashioned through the muscles after preliminary outlining through the skin care was taken to identify the great sciatic nerve. This was edematized with 1.54 cc. (25 m.) of a 2% solution of cocain hydrochlorate, then divided at the edematized level. The amputation having been done, the great sciatic and the internal saphenous nerves were edematized with the same solution on being drawn out for shortening, 1.54 cc. and .6 cc. (25 m. and 10 m.) being used respectively. The pulse, which had been 80 while the patient was in the ward, was found to be 75 at this time; by the end of the operation it had fallen to 62; its character was excellent throughout.

Stimulation during the operation was limited to 2 mg. ($\frac{1}{30}$ gr.) of strychnin sulfate, given hypodermically by the anesthetist just before the first nerve section.

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[1] See Problems Relating to Surgical Operations, by Geo. Crile, M.D., Philadelphia, 1901, p. 157.

The usual care was taken to preserve the body heat by covering the trunk snugly with a blanket. The stump was sutured in layers; kumol catgut No. 1 was used for the deeper layers, silkwormgut for the skin. Healing was primary. All sutures were removed from the skin on July 16, nine days after the operation.

COMMENT.

One swallow does not make a summer, nor does one case of any kind establish a principle. It may be that our patient, without the nerve-blocking, would have fared as well. But the complete absence of shock in an operation of this severity makes me credit the method described with a large share in the good result observed. I feel encouraged to employ the method again, and shall certainly feel it my duty to do so whenever, in similar cases, shock is specially to be feared.

It will be observed that over 1 gr. of cocain (60 m. of 2% sol., 1.2 gr.) was used for nerve blocking. I believe that we may fairly count on a waste of the odd fifth, and assume that but 1 gr. was used.

Of the grain, a large fraction must have been lost from the edematized nerve tissue when it was divided. Possibly a smaller quantity of the same solution, or the same quantity of a 1% solution, would have the same effect, with much less danger of cocain toxis.

Since writing the foregoing, I have had the opportunity of applying the same method in the following case:

B. R., colored male, aged 15, a farmhand, from Hulda, Concordia Parish, La., was admitted to Ward I, Charity Hospital, New Orleans, August 18, 1904. Diagnosis: Chondrosarcoma, right tibia, upper extremity.

Patient was anemic-looking; the circulatory organs were normal, but pulse was 120. Incipient tuberculosis was found at the apex of the right lung; liver, normal; urine showed, August 19, specific gravity 1,014, reaction acid, leukocytes, bladder epithelium, casts, bacteria, mucus.

The history given was of temperate habits. No history of venereal disease. He had suffered from chills and fever, measles, whoopingcough. Family history good, except as to mother, who is troubled with asthma, at the age of 50.

The patient has had a swelling about his right knee since January; occasional pain has been felt. Since June he has not done any work. Early in July a physician made an incision on the inner side of the knee, evacuating blood only; in two or three days, under poulticing, pus began to flow, which ran for some time, the opening finally healing.

Examination showed a smooth swelling on the inner side of the right knee, extending from the patella down for 8 inches; transverse measurement of tumor 8 inches; circumference of limb at largest point 16½ inches as compared with 11½ inches on the other side. The scar of a small incision was visible. On the external side of the knee there was some fulness, with fluctuation just beyond the patella; the joint appeared to contain fluid.

Operation was fixed for August 23, after stimulation with strych. sulf. 1 mg. ($\frac{1}{60}$ gr.) every four hours, for three days before operation, 2 mg. ($\frac{1}{30}$ gr.) every four hours during the night preceding it. Anesthesia was induced with chloroform by interne P. B. Salatich. Incision into the swelling showed a newgrowth, probably sarcoma, involving the upper extremity of the tibia on the inner side. (Examination of the specimen by the pathologic department of the hospital has since shown it to be a chondrosarcoma.) Having obtained the patient's consent before operation, I proceeded to amputate through the thigh, after applying the constrictor, making the bone section a little below the middle of the limb. The long anterior and short posterior flap method was employed. Cocain was used to block the great sciatic before division, the same nerve and the internal saphenous before shortening—in all 4.67 cc. (75 m.) of a 1% solution. The operation was begun at 10.10 a.m., with a pulse of 100; 10.18, pulse 110; 10.25, pulse 105, section of nerves made; 10.28, pulse 103. The operation was completed at 11.10, pulse 110. No difference in the quality of the pulse could be appreciated as the result of the amputation. The deeper planes were sutured with kumol catgut, the skin with silkwormgut. The usual dressings were applied, with a pelvofemoral cardboard splint.

On the following morning, August 24, the patient was found looking and feeling perfectly well; in fact he was complacently sucking an orange. His pulse, however, was 128; this caused him to be put on hypodermic stimulation with strychnin sulfate 1.6 mg. ($\frac{1}{40}$ gr.), tincture digitalis .18 cc. (3 m.) every four hours.

August 24, p. m., pulse 136; same stimulation, with exception of increase of tincture digitalis; dose .3 cc. (5 m.). August 25, a. m., pulse still 136; hypodermic stimulation discontinued on account of complaints of pain by patient; 3.75 cc. (1 fl. dr.) of s. & d. (Charity Hospital), containing 2 mg. ($\frac{1}{30}$ gr.) strychnin sulfate, and .3 cc. (5 m.), tincture digitalis was given by mouth every four hours. August 25, p. m., pulse 120. August 26, a. m., pulse 102. August 27, a. m., pulse 90, full and strong. The temperature was highest in the evening of the first day, 100° F. Fever, therefore, did not account for the pulse-rate. Healing primary.

COMMENT.

In this case I was able to obtain a good immediate result as to prevention of shock by the use of a 1% solution of cocain. The later rise in pulse I cannot explain except by the use of the expression "delayed shock," if indeed that be an explanation, and not simply the application of a name to a condition. At any rate, considering the rapidity and character of the patient's pulse before operation, I feel that the blocking method was of distinct advantage in enabling us to get through the operation in safety.

In neither case did any evil result follow the blocking. I feel, therefore, justified in recommending the method as one well worthy of further trial, promising much that is good, and so far, appearing to be attended with no disadvantage, not even that of prolonging the operation, as five minutes would more than cover the time necessary to do the blocking.

Thanks are due the interne of my hospital service, Mr. W. E. Sistrunk, for valuable assistance in the management of these patients, as well as for the notes on which the reports are based.

A CASE OF RUPTURED TUBAL PREGNANCY; OPERATION; FOLLOWED BY SAPREMIA, SEPTICEMIA, ERYSIPELAS: RECOVERY.*

BY
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AND
MOSES BEHREND, A.M., M.D.,
of Philadelphia.

In all the cases of ruptured tubal pregnancy reviewed since 1880 one is struck by the occurrence of a constant symptom, which may be designated with propriety a pathognomonic sign. The striking feature is the suddenness of the onset of the pain in an apparently healthy woman. This alone should make us think of a ruptured extrauterine pregnancy, and especially when accompanied by symptoms of shock. The patient is usually doing something trivial when the symptoms arise.

J. M. Baldy[1] reports a case of Thomas, in which rupture took place while the patient was walking on the street. J. M. Johnson[2] reports two cases of rupture with recovery. Both patients were engaged in doing light household duties.

The history of previous inflammatory symptoms referable to the generative organs was found in a few of the reported cases. Our patient said she was treated years ago for "inflammation of the womb." It is surprising how many patients get well without operation. T. S. Thomas[3] reports cases to substantiate this claim. Thomas is also supported by Leopold. In the same paper Thomas reports two cases of rupture in which death occurred, and two cases in which the patients recovered, one without operative interference.

The absence of complications in most of the cases reported is to be wondered at, when the life of the patient depends on the rapidity of preparation and operation. In these operations it is of necessity impossible to prepare the patient in a thoroughly aseptic manner. To this fact can be attributed the sequels following the primary operation in our case.

C. A. Kirkley[4] reports a case in which rupture occurred in January, 1884. The patient was an invalid for many months. In September of the same year she was operated upon but died. The rupture may occur at various stages of the pregnancy. Most occur in the early months, though there are exceptions.

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* Read in abstract before the Pathologic Society, January 4, 1904. Read in full before the Association of Residents and ex-Residents of the Jewish Hospital, May 2, 1904.

J. B. Hillier[5] operated in a case of ruptured tubal pregnancy at midterm. The peculiarity was a dead fetus eight inches long free in the abdominal cavity. The placenta was found attached to the side of the uterus. This patient made a good recovery. J. M. Elder[6] reports a case of rupture within four months of delivery. Recovery followed. W. L. Estes[7] reports a case of ruptured tubal pregnancy at term with a living child loose in the abdomen. The patient died from exhaustion. E. P. Davis,[8] Wyder,[9] Miatlowski,[10] Henrotin and Herzog,[11] J. M. Johnson[12] and Scudder[13] report cases of rupture in the early months.

The paramount question in this class of cases is that of operation. No patient unless practically moribund should remain without operation. All modern observers are of one opinion on this point.

Illustrative of the good results obtained from immediate operations in cases of rupture, the 21 patients operated upon by Lawson Tait[14] with as many recoveries speaks for itself.

CASE.—Mrs. P. S., aged 35; American.

Family History.—Father died of appendicitis. Her mother is living, though not in the best health. Four sisters and two brothers are living and well.

Previous history is important, especially that relating to the menstrual function. She has had five children, two of whom were born at the eighth month. The last child was born 19 months ago. All the pregnancies and labors were full of complications. Since the last labor she menstruated regularly up to November 11, 1903. She consulted me (Behrend) for the delayed function and implored me to help her because she feared a repetition of the complications of the previous pregnancies and labors. She was warned not to do anything, but instead took hot vaginal douches. Following these she had colicky pains referred to the right iliac region. A vaginal examination showed nothing abnormal. A few days later the supposed menstruation appeared.

Present history dates from December 14, 1903. While the patient was preparing breakfast she was suddenly seized with intense pain which was referred to the right iliac region. I (Behrend) arrived an hour later and found the patient sitting up in bed apparently in great agony. She was deathly pale, extremities were cold, pulse was rapid and thready, and at intervals she would be seized with severe pains which prostrated her. These seizures added to the gravity of the case. She felt that she was dying and prayed that something might be done to relieve her. Abdominal palpation showed some distention with tenderness in the right iliac region. The immediate indication was an early operation.

Dr. Wm. H. Teller saw the patient in consultation. We decided that a rupture of either the appendix or tube had occurred, and advised immediate operation. The patient was in a state of profound collapse, and removal from home was out of the question. We, accordingly, prepared the patient and bedroom for the operation. Everything was done hurriedly, and strict aseptic precautions were not possible under the circumstances. The bedroom was small and the light was poor. No anesthetic was given because of its added dangers. The patient was placed on a kitchen table in a condition of shock. An incision was made to the right of the rectus muscle. On opening the peritoneum a large volume of blood, both clotted and liquid, gushed out. This immediately settled the diagnosis. The right tube and ovary were ligated first, because all the pain was referred to this side. Notwithstanding this, the blood still poured out. Then we delivered the left tube and ovary. A friable sac as large as a hazel-nut was found ruptured, and from this blood was pouring. This side was then ligated, after which the hemorrhage ceased. Both tubes, the right ovary and part of the left were removed.

The abdomen was filled with normal salt solution and the abdomen was closed with through-and-through silkwormgut sutures. Hypodermoclysis was done and oxygen administered. She reacted well and the pulse gained remarkable volume after the loss of so much blood.

The change in the general condition, after the left tube and ovary were ligated, was very noticeable. Sensation seemed to return and the stitches were felt, as noticed by the expression of the patient's face.

Morphin sulfate, 8 mg. ($\frac{1}{8}$ gr.) was given hypodermically for the restlessness which immediately followed the operation. A hypodermic tablet was given every two hours. Camphor in olive oil was given hypodermically at frequent intervals. The temperature at 9 p.m. was 101°. Liquid in small quantities was given, but almost all was vomited. December 15, 1903. Calomel, 6 mg. ($\frac{1}{10}$ gr.) was given for 10 doses, followed by a glycerin magnesia sulfate enema. It was effectual. December 16. Patient passed a very comfortable night. The bowels moved several times during the day. Kumiss and champagne were freely taken and retained. In the last 24 hours considerable urine was passed. December 17. Restlessness was quite marked. December 18. Patient took considerable nourishment. Bowels moved and a fair quantity of urine was passed. December 19. Patient had a very comfortable day. Sweating marked. December 20. Patient felt chilly. Cold clammy sweat at intervals. Intense pain in voiding urine. December 21. Dressings were removed for the first time since the operation and a badly infected wound was found. The walls were lined with a tenacious membrane of a foul-smelling character. The stitches were removed and the wound was dressed twice a day.

December 24. Patient seemed to enjoy the food given her notwithstanding her temperature ranged from 99° to 103°, and her pulse from 90 to 140.

On account of the toxemic condition which existed, the patient was purposely well fed on a solid and liquid diet. Patient rested well. December 25. She had a poor night. Voided urine frequently with pain. Pain was experienced on right side while turning on left. She was catheterized, but very little urine obtained. On vaginal examination a small hard mass was found in Douglas' sac. An ice-bag was placed on the abdomen. December 26. A slight bloody discharge was noticed coming from the vagina. She vomited quite a little. Whenever flatus was passed or the bowels moved considerable pain was felt. December 27. Pain was experienced in the abdomen. Daily high rectal enemas of saline solution were begun and continued twice a day for almost two months. With few exceptions these were all retained. Their effect on the kidneys was very noticeable. December 28. Belching considerable gas, distention of the abdomen. Turpentine stupes were applied and considerable flatus passed. December 31. During the past few days the patient had symptoms of pelvic peritonitis. The mass in the pelvis was increasing in size. Her eyes were glassy, she had an anxious expression, a rapid pulse and high temperature. Without anesthesia an incision was made in Douglas' sac. A few clots were evacuated and drainage was used.

January 3, 1904. The latter procedure seemed to do good. Her appetite increased, and the general condition improved. January 5. With good drainage of the abdominal wound and of the posterior culdesac, and with the temperature and pulse still keeping up, it was evident that something apart from the wound was responsible for the septic state. An examination of the abdomen showed a well-defined mass coming up from the pelvis. It was hard, resistant, and slightly tender. During this time enormous doses of strychnin were given, and large quantities of whisky consumed. Milk, eggs, and easily digested food were given in abundance. The saline enemas were also continued. It was very evident that conditions were growing worse. A vaginal examination was made, and a mass as large as a child's head was found. It showed that our first incision in the posterior culdesac was inefficient. It was decided to open the latter again. This was accordingly done on the next day.

January 6. The patient was only in fair condition when operated on, but it was very evident that if we did not interfere, the case would terminate fatally. Ether was given, and the old incision in Douglas' sac was enlarged, and considerable foul-smelling disintegrated blood was exuded. The mass was round, semisolid, with very firm walls. It reached to the abdominal wound, encircled the uterus, and extended from one side of the pelvis to the other. It was broken up in all directions, and a large gauze drain was inserted. The patient was taken from the table in fairly good condition. Discharge from the vagina was profuse, and the outside gauze had to be removed several times.

January 7. The after-treatment consisted of the ordinary routine usually followed after operation. The most prominent symptom was pain on passing flatus. The temperature and pulse still remained high, and the patient continued for a few days in a very serious condition. January 8. The packing was removed. It was saturated with a discharge of penetrating odor. The site of the operation was then irrigated, using mercuric chlorid, potassium permanganate, and formalin at various times. The latter seemed to give the best results. January 10. During the past week the temperature hovered around 103° to 104°. She was given strychnin, 2 mg. ($\frac{1}{30}$ gr.), every two hours with digitalis in large doses; whisky every two hours and saline enemas every four or six hours. The wounds were dressed daily; the discharge lessened, and the odor diminished.

January 18. Although the temperature and pulse were still high at times, the general condition of the patient was better. The patient's face was a little swollen today, with some slight discoloration. The reddish hue became more intense. It proved to be an attack of erysipelas. Ichthyol ointment was applied with a good result. The borders of the eruption were painted with iodin.

January 21. Luckily the erysipelas was of short duration, although it spread over the whole face. It produced a rise in temperature and pulse, but affected the general condition very little.

January 26. The patient received most of the medication hypodermically. One abscess resulted from this. An abscess also appeared at the site of the hypodermoclysis puncture.

January 29. On vaginal examination the uterus was found bound down by adhesions and standing in a perpendicular position. A well-defined sausage-shaped mass was found on the left side. On the right side induration remains. The wound in the posterior culdesac is entirely healed. February 3. The patient sat up in bed for the first time. From the taking of the last note up to the present time she has been passing through a slow convalescence.

The main points gleaned from this case are:

1. The remarkable fortitude displayed by our patient in first operation performed without a general anesthetic. She says she experienced very little pain after the abdomen was opened. The stitches were painful.
2. The occurrence of a badly infected wound, followed by a sapremic condition.
3. The appearance of a pelvic mass two weeks after the first operation, with the signs of peritonitis.
4. The opening of Douglas' sac without anesthesia and the introduction of drainage.
5. The reappearance of the pelvic mass with symptoms of septicemia.
6. Operation under ether, in which the mass was broken up and kept drained for a long time.
7. The putrid character of the discharge which continued to come from the vagina for two weeks.
8. The almost entire disappearance of the pelvic mass.
9. The great tolerance to strychnin and whisky.
10. The occurrence of erysipelas of the face, which led us to believe that possibly we were dealing all along with a streptococcic infection.
11. We believe recovery in this case was due to the enormous quantities of liquids ingested and the physical endurance of the patient.

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GARLIC: A NEW CURE FOR TUBERCULOSIS AND LUPUS.

BY

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The recent attempt to introduce the use of garlic into professional practice, as a remedy for the ravages of the tubercle bacillus, offers an interesting example of a therapeutic agent whose virtues had long been discounted by orthodox science, while their memory remained green in popular tradition. In the "Botanologia Universalis Hibernica," of Joh. K'Eogh, chaplain to the Rt. Hon. the Lord Kingston (Cork, 1735), is found the following paragraph:

> Garlick manured, Hibernian, *Carlioge* or *Gairleoge;* Latin, *Allium Sativum.* It is a great Alexipharmic, Stomatic, and Pulmonic. It is of a hot and dry nature, a clove of it taken in the morning fasting defends the body from such Distempers, which proceed from the malignity of the Air. It is also an Antidote against Poyson, therefore Galen, the Prince of Physicians, called it the Poor Man's Treacle. It is good for a cold waterish Stomach, expelling wind out of it, also for Astmas, Coughs, Chollicks, and Dropsys, for it strengthens the Bowels wonderfully, pounded with Vinegar it eases the Odontalgia, Cephalalgia, and dissolves Oedemas. It is a very good Alexipharmic, as appears by these verses:
>
> Allia qui mane jejuno sumpserit ore,
> Hunc ignotarum non lædit potus aquarum,
> Nec diversorum mutatio facta locorum.
>
> Take a handful of it and boil it in two quarts of Spring Water to the consumption of a quart, then strain it, and put a quart of *Honey* to it, of which make a Syrup, take a spoonful of this at a time, and it will Infallibly Cure any Cough, Asthma, Shortness of Breath, &c.

Rev. Joh. K'Eogh, B.A., was a western Irishman, and, accordingly, a fellow countryman of Oliver Goldsmith and Thomas Heazle Parke, two of the most cosmopolitan of the names of the illustrious dead who have been connected with the Irish school of medicine. In that part of the world, and in the more remote districts of Ireland generally, the traditional reputation of garlic has been continuously preserved; and there is an appropriate fitness in its resuscitation by an eminent (Midland) Irish practitioner, Dr. Minchin, of Kells. This gentleman has reported excellent results in the treatment of pulmonary tuberculosis, and promising ones in lupus.

Under such circumstances, it must interest inquiring physicians to ascertain something of the old time reputation of garlic. The following extracts are from the great "English Herbal" of William Salmon (London, 1710); and, accordingly, represent its therapeutics in the eighteenth century:

> It is called by the Arabians, *Chaum* and *Cairin;* in Greek, *Σκόρεδον;* in Latin, *Allium;* and in English, *Garlick.*

The various therapeutic actions of the plant are thus summarized:

> *The Qualities.*—It is hot and dry in the fourth Degree; Aperitive, Abstersive, Attractive, Carminative, Digestive, Discussive, Anodyn, and Suppurative. It is Stomatick, Pectoral, Nephritick and Arthritick; Ptarmick, Emmenagogick, Sudorifick, and Alexipharmick.

Among the numerous preparations of this extensively employed item of the therapeutic armamentarium of the older centuries, the following are mentioned with apparently special emphasis:

> *The Essence.*—It has all the Virtues of the Liquid Juice, besides which, it provokes Urine and the Terms in Women; and being given to two or three Spoonfuls in a Glass of Wine, or some of its own Distilled Water, it prevails against the bitings of Mad Dogs, Rattle Snakes, Vipers, Spiders, the Stinging of Scorpions, &c., fortifying the Heart against the Poyson, and expelling it by Sweating. It expels gross, raw, tough and viscous Humors out of the Stomach, Lungs, Bowels, and other Viscera. It expels Wind, opens all Obstructions of Lungs, Liver, Spleen, Womb and Reins; provokes Urine powerfully, helps against the Strangury, carries off the Watery Humors which cause them. It expels Poyson which has been taken inwardly in Meat, Drink, or Wine, for its own nature, it resists all manner of Poysons. It clears the Voice, takes away Hoarseness, Cures an old Cough, and is of excellent use against Asthmas, shortness of Breath, difficulty of breathing, causing an expectoration of the Morbifick Matter. Held in the Mouth, it is good against the Toothache, dropt into the Ears, it helps against Deafness, and difficulty of hearing. It is good against the Plague or Pestilence, Spotted, and all other Malign or Pestilential Diseases; Facilitates the delivery of Women in Childbirth, forces away the Dead Child, and draws forth the Afterbirth.
>
> *The Cataplasm made of the Green Root.*—Being immediately applied to the biting of a Mad Dog, or of a Rattle Snake, Viper, Glow Worm, or other Serpent, the stinging of Scorpions, or of any Venemous Creature, it infallibly attracts to, and draws forth all the Poyson or Venom; and this it does so powerfully by reason of its Vehement attractive force, that it perfectly frees the Patient from all manner of Danger. But this will be the more effectually done, if at the same time the Patient being laid in his Bed takes also a large Dose of the Juice or Essence: and so Sweats upon it. Laid upon a Gout or Sciatica, from what Cause soever, and often renewed, as occasion requires, it draws forth the whole Morbifick Cause and Essence of the Disease; in which Distempers it performs more than most other Vegetables, reputed the most efficacious; it not only eases the Pain at present, but if it has made any steps to the Stomach, or has indeed affected it, it recalls back the Humor, and draws it forth through the Pores of the Skin. Applied to any place in which there is any Prick, Splinter, Thorn, Bullet, Shot, bits of broken Bones, it powerfully loosens them, attracts and draws them forth. Being applied to any Plague Sore, Bubo, Phlegmon, or other Tumor which is possible to come to Suppuration, it adds Heat, bringing on the Maturation to Admiration; and after it is broken, being yet applied, it draws forth all the Malignity and Poyson of the Plague in a Pestilential Bubo, and in other Apostems, the putrid and other offending Matter which repleats them.
>
> *The Acid Tincture.*—This is more powerfully against the

> Plague and all pestilential and contagious Distempers than any of the former internal Preparations; for this destroys the Essence of the Poyson and Malignity in its Root; and is of great Force and Efficacy against the Bitings of Serpents, mad Dogs, and other venomous Creatures. Dose: 60 Drops at a time, two or three times a day, in any proper Vehicle.
>
> *The Saline Tincture.*—It is good against Worms in the Skin, Lentils, Freckles, Pimples, and other Breakings out; it kills Lice and Nits in the Head and Hair; and is singular against Tetters, Ringworms, Herpes, Scabbiness, Scurff, Morphew, Black and Blewness of the Skin left after Contusions, the Leprosy, running Ulcers of the Head, commonly called a Scald Head, and all other Manginess whatsoever, the parts affected being well bathed therewith twice a day.

The providential mode of the revelation to suffering humanity of the antiputrefactive (and accordingly antidotal) action of scordium is an item of therapeutic history, which has descended to us from classic times. Thus we are informed by the famous herbalist, John Parkinson,[1] that:

> Galen (which Matthiolus and others, also set downe) recordeth that it was found written by sundry faithfull and discreet men, that in the warre of the Bondmen, where the bodies of the slaine had lien upon Scordium any long time, before they were buried, they were found to be lesse putrified than others, that had not fallen thereupon, especially those parts that were next the herbe; which observation bred a perswasion of the vertue thereof to bee effectuall, as well against the poison of venemous creatures, as the venome of poisonfull herbes or medicines. It is a speciall ingredient both in Mithridate and Treakle, as a counterpoison against all poisons, and infections either of the plague of pestilentiall or other Epidemicall Diseases, as the small pockes, measels, faint spots, or purples: and the Electuary made thereof, named Diascordium, is effectuall for all the said purposes; and besides is often given, and with good successe before the fits of agues, to divert or hinder the accesse, and thereby to drive them away. It is often taken also as a Cordiall to comfort and strengthen the heart. It is a most certaine and knowne common remedy to kill the wormes, either in the stomacke or belly, to take a little of the juyce thereof, or the powder in drinke fasting. The decoction of the dryed hearbe with two or three rootes of Tormentill sliced, and given to those that are troubled with the bloody flixe, is a safe and sure remedy for them. The juyce of the hearbe alone taken, or a Syrupe made thereof is profitable for many of the forenamed griefes. The dryed hearbe being used with a little honey cleanseth foule ulcers, and bringeth them to cicatrizing, as also closeth fresh wounds: the dryed hearbe made into a cerate or pultis, and applyed to excrescences in the flesh, as wens and such like, helpeth both to constraine the matter from further breeding of them, as also to discusse and disperse them being growne. It being used also with Vineger or Water, and applyed to the gowt, easeth the pains thereof. The greene hearbe bruised and laid or bound to any wound, healeth it, be it never so great.

The same encyclopedic authority thus describes "The Vertues" with those of its cousins, the onion and the leek:

> Onions are flatulent or windy, yet doe they somewhat provoke the appetite, encrease thirst and ease the belly and bowells, provoke urine and women's courses, helpe the biting of a mad Dog, and of other venemous creatures, to be used with a little Hony and Rue, and encrease Sperme, especially the seede: they also kill the wormes in children if they drinke the water fasting wherein they have beene steeped all night; being roasted under the Embers, and eaten with Hony or Sugar and Oyle, they much conduce to helpe an inveterate Cough, by cutting the tough flegme and causing it the easier to bee expectorate: the juice being snuffed up into the Nostrills, purgeth the Head, and helpeth the Lethargie, yet the often eating of them is said to procure pains in the Head: it hath beene held with divers country people a good preservative against infection to eat Onions fasting with bread and salt, as also to make a great Onion hollow, filling the place with good Treakle, and after to roast it well under Embers, which after taking away of the most outermost skinnes thereof, being beaten together is a soveraigne salve for eyther Plague sore, or any other putred Ulcer: the juice of Onions is good for scalding or burning by fire, water or Gunpouther, and used with Vineger taketh away all blemishes, spots, and markes in the skinne, and dropped into the eares easeth the paines and noyse in them: applied also with Figges beaten together helpeth to ripen and breake Impostumes and other sores. Leekes are much about the same propertie that Onions be, yet not altogether so effectuall; they are a remedy against a Surfet of Moshromes being baked under the Embers and taken, and helpeth the Piles boyled and applyed warme; to avoid tautologie I referre you to what hath beene said before of Onions. Garlicke the garden kinds as the best, and the other as meaner are hotter then Onions or Leekes, and is more effectuall to all the purposes aforesaid, being anciently accounted the poore man's Treakle, for that it is a remedy for all diseases or hurts, for besides the properties whereunto Onions are conducible, it hath a speciall qualitie to discusse the inconveniences by corrupt agues or minerall vapours, or by drinking corrupt and stinking waters as also by taking off Woolfes bane, Henbane, Hemlocke, or other poisonfull or dangerous herbes: it is held good also in hydropick diseases, the Iaundise, Falling Sicknesse, Crampes, Convulsions, the Piles or hemorrhoides and other cold diseases: but to alter the strong scent thereof and cause it to be less offensive, divers have set downe divers things, as some to eate Rue, or herbe Grace, some to eate a raw Beane after it, others to take of a Beete roote roasted under the Embers and others say by eating a few Parsley leaves.

In tracing the germs of modern medical knowledge backward to their earliest sources, we find that the reputation of garlic was prominently maintained in the Middle Ages. Convincing evidence of this fact is supplied by the triple occurrence of its name in the verses of the famous *Regimen Sanitatis Salernitanum*, which was addressed A. D. 1100, by the heads of the oldest European medical schools, to Robert of Normandy, son of William the Conqueror. An old (anonymous) English version presents the first reference in the following lines:

> Six things that heere in order shall insue,
> Against all poysons have a secret poure
> Peares, Garlick, Reddish-roots, Nuts, Rape, and Rew,
> But Garlicke chief, for they that it deuoure,
> May drink, and care not who their drink do brew
> May walk in ayres infected euery houre:
> Sith Garlicke then hath poure to saue from death,
> Beare with it though it make unsauoury breath:
> And scorne not Garlicke like to some, that think
> It onely makes men winke, and drinke, and stink.

Similar views regarding the powers of garlic were enunciated by Avicenna, whose "Canon" actually functioned as the Medical "Bible" of Western Europe for nearly five centuries. All such, however, represent but the slavish acceptance of "authority," which formed the characteristic feature of the science of those unprogressive centuries.

Well and truly did the illustrious author of the "Religio Medici" write of the great scientific encyclopedia compiled by the elder Pliny:

> There is scare a popular errour passant in our dayes, which is not either directly expressed,or deductively contained,in this worke, which, being in the hands of most men, hath proved a powerfull accesion of their propagation, wherein, notwithstanding the credulitie of the reader is more condemnable then the curiositie of the authour.

And his colossal work hardly presents a more striking example of the truth of Sir Thomas Browne's opinion than that offered by his account of garlic. Indeed his account of the therapeutic properties of this plant, although somewhat lengthy, can hardly fail to interest every reader who is interested in the growth of human knowledge.

> As touching Garlicke, it is singular good and of great force for those that change aire and come to strange waters. The very scent thereof chaseth serpents and scorpions away. And as some have reported in their writings, it healeth all bitings and stings of venemous beasts, either eaten as meat, taken in drinke, or annointed as a liniment; but principally it hath a special property against the Serpents called Hemorrhoids, namely, if it be first eaten, and then cast up again by vomit and wine. Also, it is soueraigne against the poisonous biting of the mouse called a Shrew: and no marvell, for why, it is of power to dull and kill the force of the Venemous herb Aconitum, *i.* Libard bane, which by another name men cal Pardalianches, because it strangleth or choketh Leopards, yea it conquereth the soporiferous & deadly quality of Henbane: the bitings also of a mad dog it healeth, if it be applied upon the hurt or wounded place with him. As for the sting of serpents verily, Garlick is exceedingly effectuall, if it be taken in drink: but withal you must not forget to make a liniment of it, the hairy strings or beard growing to the head, the skins also or tails and all, whereby it is bunched, tempered all together with oile, & laid upon the grieved place: and thus also will it help any part of the body fretted or galled, yea, though it were risen up to blisters. Hippocrates moreover was of this opinion, that a suffumigation made therewith, fetcheth downe the afterbirth of women newly delivered and brought to bed: who used also with the ashes of them burnt and reduced together with oile into the forme of a liniment, to annoint the running skalls of the head, and thereby cured and healed them up. Some give it boiled, others raw, to them that be short-winded. Diocles

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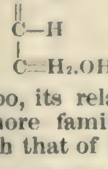
[1] Theatrum Botanicum, 1640.

prescribeth it with Centaurie to them who are in a dropsie, he giveth it also to purge the belly between, or in two figs. But green Garlick taken in good wine, together with Coriander, doth the deed more effectually. Some are wont to minister it to those that draw their wind short, being stamped and put into milke. Praxagoras the Physitian ordained to drinke it with wine, against the Iaundise: also against the Iliac passion, in oile and thick gruel. And in that sort he used to annoint the swelling kernels called the King's evill. In old time the maner was to give raw garlick to such as were bestraught or out of their wits. But Diocles appointed, that it should be boiled for phrentick persons. Certes, if it be bruised and so laid to the throat or otherwise gargled with some convenient liquor, it will do much good to them that have the squinancie. Take three heads or cloves of Garlick, beat them well, and together with vinegre apply them to the teeth, they will mightily asswage the paine. Or do but make a collution with the broth wherein they were boiled, and hold it in your mouth, and afterwards put some of the Garlicke it selfe within the hollow teeth, you shall see much ease insue thereupon. The iuice of Garlicke together with goos-grease, is passing good to be dropped into the ears, asswage their pain, and bring the hearing again. Being taken in drink, it clenseth the head from dandruffe, and killeth lice: so doth it also, if it be stamped and applied to the place with vineger and nitre. Seeth it in milke, or do but stamp it and mingle it with soft fresh cheese, and so eat it, you shall see how it will represse and stay Catarrhes and Rheumes: after which manner it will make them speake cleare that be hoarse, and have a rusty voice. But let a man who hath the Phthisicke, and is far gone into a Consumption of the lungs, drink it in bean broth ordinarily, he shall recover or find great ease. Generally, Garlicke is better, boiled or rosted, than raw: and yet of the twain, it is not so good rosted as sodden: for in that order must it be taken for to help the voice and make a cleare breast. . . . . . .

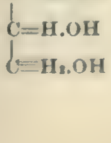
And so the catalogue of curative properties is drawn out till the only remaining wonder is why sickness or death still remained—in presence of garlic! But the odor was always the most effective opponent to the general use of garlic among the refined inhabitants of the land of Pliny; a fact to which equally emphatic testimony is borne by Horace in his relegation of its use to the owners of the "rigid guts of reapers," and by Shakespeare in the loathing scorn which he makes the aristocratic Coriolanus express toward the seditious crowd of "garlic-eaters."

Modern science, woefully disillusionising as it so often is, and destructive as it has inevitably proved with regard to most of the weird properties attributed to garlic in olden times, has nevertheless confirmed some of its traditional therapeutic powers, and shows that it has been allowed to fall into unmerited neglect. Some of the highest European authorities have admitted that the very objectionable odor which it gives the breath has been the principal cause of its neglect—especially among the fastidious inhabitants of "the sunny land of France." Still, Raspail has conferred on it the medicinal epithet of "camphor of the poor," and Koch gave it a scientific dignity by showing that the presence of a small percentage of allyl alcohol successfully inhibits the development of *Bacillus anthracis*. In order to make the latter allusion more clear to the uninitiated in the mysteries of chemistry, it is necessary to point out that the "essential oil" of garlic, to which its specific properties appear to be entirely due, is almost wholly composed of allyl sulfid, C_3H_5S; the corresponding alcohol being C_3H_5OH. This essential oil of garlic is an intense rubefacient; its effect may even go on to vesication. The atomic orientation and reciprocal relationship within a molecule of allyl alcohol are fully shown by the constitutional formula:



$$\begin{array}{l} C{=}H_2 \\ \| \\ C{-}H \\ | \\ C{=}H_2.OH \end{array}$$

by a glance at which, too, its relationship with the tri-atomic alcohol—our more familiar—glycerin, will be seen on comparison with that of the latter:



$$\begin{array}{l} C{=}H_2.OH \\ | \\ C{=}H.OH \\ | \\ C{=}H_2.OH \end{array}$$

In Ireland, we have recognized the merits of garlic more liberally than our transatlantic contemporaries; and favorable reports have been issued in connection with its administration in serious bronchial affections. In this connection it may be of interest to note the experiment of Dr. Carazzani.[1] This author believes that a sufficiently generous use of garlic in tuberculosis will produce immunity against infection. Of a group of guineapigs kept in an atmosphere charged with tubercle bacilli, those whose daily diet had contained 1 gm. of garlic were found at the end of three months to be free from tuberculosis, while the others were all badly infected. The amount of garlic which would be required to produce immunity in the human body has apparently not been computed. The views of Dr. Carazzani include a hint at an explanation for the comparatively low death-rate from pulmonary tuberculosis among the Italians, both in their own country and in America.

Accordingly, I sincerely hope that its uses in the great "white plague" may be thoroughly investigated. There can be no question, I believe, that its influence on the respiratory mucous membrane is due to the fact that the allyl compounds are so largely eliminated thereby; a fact which accounts for its effects on the odor of the expired air. And, being demonstrably bactericidal, and presumably stimulating, there are reasonable grounds for hoping that the traditional powers of garlic may be at least partially realized.

INSOMNIA OF THE AGED.

BY

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of Cleveland, O.

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The degenerative causes of insomnia are those due to changes which are regarded as senile. Senile insomnia is a painfully well-recognized fact. Let us ever remember that senility is a relative term, and while one man begins to age at 35, there are others whose senility only shows at 70. That a man is no older than his arteries is a saying no more hackneyed than true. The wakefulness which begins to manifest itself in the later years of man's life is too often an indubitable sign that his cerebral arteries have lost the elastic reactions of health, and are the seat of atheromatous deposits and fibrinous thickenings; they have become hardened tubes rather than the delicately balanced, contractile and expansile blood channels of a functionating, youthful brain. Here again we are to consider the very common condition of arterial sclerosis as one of the degenerative causes of insomnia. Syphilitic deposits appear as a degenerative cause of insomnia in practically early life. Syphilis is often the cause of early senility. The syphilitic brain is ill-prepared to withstand the assaults of time. It seems that the circulation of the brain has certain normal changes in volume and in pressure which are nicely regulated in health, but which may, by the least intracranial disturbance, become so completely unbalanced as to interfere with the possibility of normal sleep. There is an intrinsic insomnia of hale old age that at times is most trying. It deserves thought and consideration. "It's hard to be old, but harder to be sick, but hardest of all to lie sleepless through the long, silent hours of the night." This was the eloquent complaint made to me by a man in the "seventies," who suffered much from the insomnia of the aged.

What was the character of his insomnia? What was his condition? What was the cause of his sleeplessness? How was he relieved?

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[1] The Lancet, January 9, 1904.

This quartet of questions furnishes the natural divisions of a short discussion upon this common and most distressing accompaniment of old age.

The aged frequently exaggerate, and surprise their near friends by solemn assurances that they do not sleep, notwithstanding the certainty of those about them that they are sound sleepers. I have been at a loss to explain this fact. But the wakefulness of the patient quoted was actual, and of a kind and variety that seemed to be the result of energetic and uncontrollable cerebration. To quote the poetic words of another sufferer: "A thousand pleasant phantoms troop before my memory's eye, and bow their well-remembered heads, and I so happy in the pleasant past, though unwilling, forget to seek the sleep that my old body sorely needs." This does not describe the insomnia of the student or business man, unable to free the mind from the cares and interests of the day. The aged sufferer had no cares or business interests to worry him. His circumstances and surroundings were those of comfort and contentment. Providence had heaped his measure brimming full, and old age had found him jesting with his infirmities. He was strong and full of vigor. His digestion seemed to be equal to a hearty and well-regulated appetite. The kidneys as well as the bowels were as active as the needs of a decaying economy required. His pulse was strong and full, the tension high, and yet upon the other side, how soft and full and slow his sluggish veins returned the blood to the heart grown overstrong in striving to force the vital current through the obsolescing capillaries which lie between the two great blood systems. His blood volume was diminished and the quality poor. His atrophied gastrointestinal glands and shrunken organs could no longer elaborate the blood anew. His withered capillaries no more carried their toll of nutrition to the tissues condensed within the grasp of time. In vain did his senile, hypertrophied heart beat at the narrowed capillary wall. It succeeded in filling only the larger arteries in the framework of the organs and vessels on the capsules of the atrophied and starving glands. High up in his brain were a million hungry cells striving one with another to keep the loutish body in search for food on which they might feed and rest. Why should the body rest when they were starving? The narrowed capillaries and the impoverished blood ill-supplied their wants. Age had robbed his brain of fat and left him water there instead. The character of his insomnia was purely senile. His condition was due to fibrous deposits throughout his glandular, vascular and organic systems. His tissues were indeed condensed within the fibrous mesh of senility. His sleeplessness was due to more or less starvation of the brain cells.

This condition can be relieved by diffusible stimulants and some hot and easily digestible and agreeable food, taken at bedtime, and repeated during the night if necessary. The pleasant and sure effect of stimulants in the relief of the sleeplessness of the old must have given rise to the old saw, "Wine is the milk of the aged." Some of the rich fruity California wines are well borne, and better in these cases than the higher priced foreign importations. A cup of hot milk, beef tea, or malted milk is often of the greatest service. Malted milk is especially pleasant and effective. When these measures fail, as they rarely will, then opium is the best of all remedies for the sleeplessness of the aged.

Fake Insomnia.—Behm calls attention to certain patients who, when they awake, with a sense of fatigue, declare that they have not slept during the whole night. These are often dyspeptics and neurasthenics, or both combined. The author directs the abandonment of all true hypnotics. The bromids are the only drugs to be used as nervous sedatives. Hot douches act well. The alimentary tract should receive careful attention. A slight laxative every morning is excellent if there is a tendency to constipation. Finally, all physical or mental overwork should be stopped.

BUTTON IN THE EAR 27 YEARS. DEAFNESS CURED BY ITS REMOVAL.

BY

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While the position of the ear does not invite the entrance and lodgment of foreign bodies in the external auditory canal, they not infrequently occur—especially in childhood. Their presence is usually discovered and they are removed without in any way jeopardizing the function of the organ unless they are tightly wedged against the walls of the canal or rudely press upon the membrana tympani.

Recently I was consulted by a man of 32, for deafness in his right ear. The hearing had been impaired more or less since he was a child. It was attributed to hypersecretion and retention of cerumen which had been removed many times, he states, by the usual method of irrigation, but hearing was never completely restored by these operations. At the time of examination the hearing was 0/36 and bone conduction with the tuning fork was best. A large mass of impacted cerumen was found and removed. In drying the ear with absorbent cotton I observed a small white spot against the posterior wall of the bony canal of the meatus just external to the drum. It imparted to the probe a grating sensation and appeared to be a spicula of necrosed bone. I was able with small alligator forceps to grasp and remove it. To the patient's and my own amazement it proved to be a pearl button covered with a layer of desquamated epithelium. The patient's mother recognized the button as the kind she used on his clothes before he was five years of age, and it had been imbedded in the ear at least 27 years. There was marked vertigo for several minutes after removal of the foreign body. The membrana tympani was displaced inward and somewhat atrophied, but otherwise in a good condition. A few inflations by the Politzer method restored it to its normal position and functional activity. There was complete recovery of the patient's hearing.

Railway Accidents.—In giving the details of the Interstate Commerce Commission report of railway accidents for 1903 the *Railway Age* says: The total number of casualties to persons on the railways for the year ending June 30, 1903, was 86,393, of which 9,840 represented the number of persons killed and 76,553 the number injured. Casualties occurred among three general classes of railway employes, as follows: Trainmen, 2,070 killed and 25,676 injured; switch tenders, crossing tenders, and watchmen, 283 killed, 2,352 injured; other employes, 1,253 killed, 32,453 injured. The casualties to employes coupling and uncoupling cars were: Employes killed, 281; injured, 3,551. For the year 1902 the corresponding figures were: Killed, 167; injured, 2,864. The casualties connected with coupling and uncoupling cars are assigned as follows: Trainmen killed, 211; injured, 3,023; switch tenders, crossing tenders, and watchmen killed, 57; injured, 416; other employes killed, 13; injured, 112. The casualties due to falling from trains, locomotives or cars in motion were: Trainmen killed, 440; injured, 4,191; switch tenders, crossing tenders, and watchmen killed, 39; injured, 461; other employes killed, 72; injured, 536. The casualties due to jumping on or off trains, locomotives or cars in motion were: Trainmen killed, 101; injured, 3,133; switch tenders, crossing tenders, and watchmen killed, 15; injured, 279; other employes killed, 82; injured, 508. The casualties to the same three classes of employes in consequence of collisions and derailments were: Trainmen killed, 648; injured, 4,526; switch tenders, crossing tenders, and watchmen killed, 17; injured, 137; other employes killed, 128; injured, 743. The number of passengers killed in the course of the year 1903 was 355, and the number injured 8,231. In the previous year 345 passengers were killed and 6,683 injured. There were 173 passengers killed and 4,584 injured because of collisions and derailments. The total number of persons other than employes and passengers killed was 5,879; injured, 7,841. These figures include the casualties to persons classed as trespassing, of whom 5,600 were killed and 5,079 were injured. The total number of casualties to persons other than employes from being struck by trains, locomotives or cars were 4,534 killed and 4,029 injured. The casualties of this class were as follows: At highway crossings, passengers killed, 3; injured, 7; other persons killed, 895; injured, 1,474; at stations, passengers killed, 24; injured, 108; other persons killed, 390: injured, 501; at other points along track, passengers killed, 8; injured, 14; other persons killed, 3,214; injured, 1,925. The ratio of casualties indicates that 1 employe in every 364 was killed, and 1 employe in every 22 was injured. With regard to trainmen—that is, enginemen, firemen, conductors, and other trainmen—it appears that 1 trainman was killed for every 123 employed, and 1 was injured for every 10 employed. One passenger was killed for every 1,957,441 carried, and 1 injured for every 84,424 carried.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 17, 1904. [Vol. XLIII, No. 12.]

1. Remarks on Advances in Gynecology during the Last Year; Senile Endometritis: Chairman's Address, Section on Obstetrics and Diseases of Women. L. H. Dunning.
2. Arteriosclerosis Due to Lead. Frank S. Billings.
3. The Relation of Alcohol to Arteriosclerosis. Richard C. Cabot.
4. Angina Pectoris and Arteriosclerosis. William Osler.
5. The Treatment of Arteriosclerosis. J. M. Anders.
6. The Relation of Chest Contour to Lung Capacity. Francis Frederick Malone.
7. Mathematic Relations of Certain Chest Measurements. Winfield S. Hall.
8. A Case of Cortical Hemorrhage following Scarlet Fever. E. E. Southard and F. R. Sims.
9. The Starvation Operation for Malignancy in the External Carotid Area: Its Failures and Successes. Robert H. M. Dawbarn.
10. The Influence of Adipose Tissue with Regard to the Pathology of the Knee-joint. A. Hoffa.
11. Twine in Lieu of the Elastic Ligature for Performing Gastroenterostomy J. W. Draper Maury.
12. The Defects of the Murphy Button, with Suggestions of Improvements in the Operation of Gastroenterostomy. Robert F. Weir.
13. Excision of the Ulcer-bearing Area in Gastric Ulcer. William L. Rodman.
14. Boric Acid Poisoning: Report of a Fatal Case with Autopsy. Charles L. Best.
15. A Method of Dispensing with Rubber Gloves and the Adhesive Rubber Dam: Second Communication. John B. Murphy.
16. The United States Public Health and Marine-Hospital Service. Part II. The Service as it Today. (Concluded.)
17. Travel Notes. IX. A Winter Semester. Llewellys F. Barker. (Continued.)

1.—See *American Medicine*, Vol. VII, No. 24, p. 923.

2, 3, 4.—See *American Medicine*, Vol. VII, No. 25, p. 968.

5.—See *American Medicine*, Vol. VII, No. 26, p. 1005.

6, 7.—See *American Medicine*, Vol. VII, No. 24, p. 927.

8.—See *American Medicine*, Vol. VII, No. 26, p. 1010.

9.—See *American Medicine*, Vol. VII, No. 24, p. 923.

10.—See *American Medicine* (Editorial), Vol. VII, No. 21, p. 835.

11, 12.—See *American Medicine*, Vol. VII, No. 25, p. 968.

13.—See *American Medicine*, Vol. VII, No. 25, p. 969.

14.—Boric Acid Poisoning.—C. L. Best reviews the literature of the subject. Five cases of severe intoxication and four deaths have been recorded in addition to the case which he now reports. These all resulted from prolonged irrigation with saturated solutions or packing large cavities with the dry powder. Summarizing these he finds that nausea and uncontrollable vomiting were present except in Welch's patients, all of which recovered, and in which the application was made to the vaginal mucosa; from this we may assume some difference in the absorption between the latter and ordinary raw surfaces. The same is true of the papular erythema of the face, neck and chest, with one additional exception. Nervous depression and muscular weakness are constant. The temperature was subnormal in the two cases in which it was taken, a clammy perspiration was present in half the cases. The pulse was feeble, but of normal frequency, gradually increasing before death. Inflammation of pharynx, larynx and nares occurred chiefly after irrigation of the pleura. Delirium was present in one case before death. The histologic findings were those of acute intoxication. The onset varied from 12 hours to 7 days. [H.M.]

15.—A Substitute for Gloves.—J. B. Murphy reports experiments showing the comparative advantages of rubber gloves and a solution of guttapercha in benzine. These prove that the solution, while not so perfect a protection as intact gloves, is infinitely superior to the bare hands, and is equal, or superior, to the gloves, considering the chances of puncture. The coating is slightly permeated by perspiration, but this is not septic, while epithelium and secretion from the hair follicles are. In the experiments the 4% rubber solution in benzine was poured on and allowed to dry without friction. After operation on noninfected cases, one surgeon using gloves and the other the solution, each washed his hands in one liter of controlled sterile water. Agar plates were then made and the colonies counted in 48 to 72 hours. He gives the method and cost of preparing the solution. One application on the hands and forearms is sufficient for the entire day, while the fingers after cleansing must be redipped after each operation. The skin is not shriveled as after wearing gloves. [H.M.]

Boston Medical and Surgical Journal.

September 15, 1904. [Vol. CLI, No. 11.]

1. Obstructive Renal Retention with Anuria, and Its Treatment. Francis S. Watson.
2. Remarks upon the General Principles of Management of Pulmonary Tuberculosis. S. G. Bonney.
3. The Gynecologic Aspect of Mental Overstrain at Puberty, and Its Influence on Development. Wm. Edgar Darnall.

1.—Obstructive Renal Retention with Anuria.—Francis Watson says if obstruction has lasted a few hours, urinary secretion in the affected kidney is suppressed; owing to this, hydronephrosis of a high degree is seldom seen in complete obstruction, the enlargement of the organ being due to congestion. The longer the obstruction lasts the greater is the injury to the kidney. Destructive changes in the kidney substance begin within a few hours after the establishment of obstruction, and progress more rapidly when the kidney is infected; contrary to the generally accepted belief, obstruction in one kidney may by reflex action produce suppression of urinary secretion in the other. This suggests a possible chance of reestablishing urinary flow by nephrotomy upon the unobstructed kidney when a nephrotomy upon the obstructed one has not relieved the condition within 24 hours. Watson, in addition to his own two cases, has collected and analyzed some 200 from literature. The most striking feature of obstructive annuria is the length of time it may persist without giving rise to uremic symptoms. Of 110 patients treated expectantly, there were 30 recoveries and 80 deaths. Among the recovery patients, anuria persisted for periods varying from 1 to 15 days, the greater number lasting from 5 to 7 days; among the fatal cases the period was from 4 to 23 days, the greater number lasting from 5 to 8 days. Theoretically, the internal secretion of the kidney, carried to the system byway of the renal vein, antagonizes the toxins which ordinarily produce uremia, and thus in these cases establishes a relative immunity. If the obstructed kidney is already hydronephrotic, the life of the patient and the period of tolerance are prolonged. The treatment is either: (1) Expectant, or (2) operative. Of the 205 cases here analyzed, 110 were treated expectantly, with a mortality of 72.7%; and 95 were treated surgically, with a mortality of 46.3%. It was noticed that the longer operation was postponed after anuria developed the higher the mortality rate became. [A.B.C.]

2.—Management of Pulmonary Tuberculosis.—S. G. Bonney refers to the distinctive methods of treatment which seem unalterably opposed to each other. Each has much of merit according to the individual conditions. Success is obtained by grouping all favorable influences pertaining to the case. There must be critical analysis of all phases of each case —historic, physical, temperamental, financial, domestic, social, recreative, industrial, etc. If outdoor treatment is desirable at home, why is it not better in such localities as permit its more complete fulfilment? There is a psychic element also in the change. He classifies those groups for whom change of climate is indicated. A closed sanatorium is best for some and prejudicial to others. [H.M.]

3.—See *American Medicine*, Vol. VIII, No. 3, p. 101.

Medical Record.

September 17, 1904. [Vol. 66, No. 12.]

1. Malignant Disease of the Larynx. D. Bryson Delavan.
2. Posttyphoid Perichondritis of the Larynx. Emil Mayer.
3. The Treatment of Pulmonary Hemorrhage. W. B. McLaughlin.
4. Nonoperative Treatment of Trachoma. Frank Judson Parker.
5. Malaria. R. Cadwallader.
6. Practical Hygiene in the Public Schools. Roswell S. Wilcox.

1.—Malignant Disease of the Larynx.—Delavan says extrinsic laryngeal carcinoma is practically incurable by operation, and the best hope lies in the röntgen rays. Various methods of treating laryngeal cancer are considered at length. Surgery offers practically the only hope. Epithelioma of the interior of the larynx is practically a superficial growth, and should respond to radiant energy, but thus far the results have not been encouraging. With improved technic, better selection of cases, and earlier resort to operation, the mortality in the surgical treatment of laryngeal cancer has been much reduced. Before 1881, the mortality for 41 total laryngectomies was 60%; that for 10 partial laryngectomies was 40%; the average for both operations being 50%. Glück, in 1900, reported 34 cases of total laryngectomy for malignant disease, with 31 recoveries, a mortality from operation of 8.5%. Kocher, in 12 operations for laryngeal cancer, had a mortality of 8.3%; those cured for over 3 years, 16.6%; those free from recurrence less than three years, 33.3%. The diminution in the deathrate for the operation of laryngectomy from 1889 to 1900 was from 44% to 8.5%. The increase in those remaining cured over 3 years has been from 7% to 15% or 16% during the same period of time; while the increase in those remaining free from recurrences for less than 3 years has increased from 13% or 14% to 33%. [A.B.C.]

2.—Posttyphoid Perichondritis of the Larynx.—Mayer reports that a woman of 28 was discharged cured of typhoid fever December 13, 1902; slowly increasing dyspnea required tracheotomy exactly a month later. March 11, 1903, dilation by Schrotter's tubes; April 20, intubated with the O'Dwyer tube under chloroform. The tube was worn six weeks, when it was removed for eight days when intubation was again done. The tube in this instance was worn steadily for three months, when it was removed September 1, 1903. Dyspnea again required intubation, the swelling requiring a smaller tube—the largest children's size was employed. This latter tube was removed several times for a few days at a time, until it was finally permanently removed September 22, 1903. The patient's voice is now somewhat husky, but otherwise not abnormal. The special points of interest are: 1. The unusual nature of its origin. 2. The length of time the tube was worn. 3. The ease of deglutition, after intubation. 4. The use of the child's size toward the last for a short time. 5. It is the first case of this affection cured by intubation. [A.B.C.]

4.—Nonoperative Treatment of Trachoma.—Parker describes the acute or inflammatory and the chronic or noninflammatory forms. In both of these ultimately we find numerous soft elevations. These are found on one or both lids and sometimes on the ocular conjunctiva. Later there is coalescence and general hypertrophy of the palpebral conjunctiva. These conditions lead to pannus. In the last stage scar tissue causes contraction of the lids and incurving of the lashes. Operation is contraindicated when there are any hard follicles, as it causes extensive destruction of the conjunctiva. Vascular keratitis following operation seems to prove that this is due to roughened lids rather than extension of infection. In treatment, hygienic surroundings are important. To prevent contagion the writer has prepared printed instructions which he gives to each patient. In the soft follicular variety, he rubs in by means of a hard cotton applicator a 1 to 500 solution of bichlorid after cocainizing three times weekly, the patient using some organic silver solution at home. When the conjunctiva is smooth this is followed by tannic acid, 40 gr., in glycerin, 1 oz. Copper sulfate crystal is best for the hard follicles, but with this cocainizing is futile. In cicatricial contraction he rubs the conjunctiva with oleum vicini, making superficial linear scarifications with the knife. For pannus he uses hot applications and atropin. The larger vessels may be divided at the corneal margin by the cautery. [H.M.]

5.—Malaria.—R. Cadwallader bases his paper on 300 cases of tertian occurring this year, in 251 of which he made blood-examinations. It is written to advance the theory that hydremia is a prerequisite to infection. The warning of folklore against watermelons was due to the susceptibility arising from increased water consumption. The drenching sweats and diarrheas of malaria indicate the line of treatment. The number of cases follow inversely the water excretion of the people as regulated by weather changes. All drugs of value favor this excretion. During paroxysms the amount of urine passed increases. Malaria is uncommon with typhoid during the diarrheal stage. Germs will exist in the blood a long time without causing symptoms, until bodily health is lowered by some other cause. Many summer diarrheas are in reality malaria and will get well under quinin. Free drinking of water, as shown by the author's experiments, favors infection. Harvesters sleeping out are free while working and sweating. Old and dried-up persons escape also, even though newcomers to the district. Many cases require only purgation to end in recovery. Hydremia occurs in pregnancy and just after, and liability to infection is increased in the puerperium. To a developed case of malaria, the writer gives 4 grains of quinin every three hours, followed by the same of sodium bromid, to allay the head and ear symptoms. Quinin unaided by catharsis is largely wasted. [H.M.]

New York Medical Journal.

September 10, 1904. [Vol. LXXX, No. 11.]

1. The Treatment following the Bloodless Reduction of Congenital Hip Dislocation. DEXTER D. ASHLEY and FREDERICH MUELLER.
2. The Present Condition of Tenontoplasty. PROF. VULPIUS.
3. The Treatment of Mucomembranous Colitis by Colostomy. JOHN M. ELDER.
4. What Can be Done to Check the Progress of the Age Degenerations? BRADLEY C. LOVELAND.
5. Influenza or Acute Articular Rheumatism? Their Diagnosis, with a Report of My Own Illness. MAX TALMEY.
6. The Treatment of Status Epilepticus, with Report of Two Cases. ANNIE M. TREMAINE.
7. Immediate Repair of Injuries of the Pelvic Floor. H. C. COE.
8. A Case Presenting Unusual Difficulties in Diagnosis. WALTER G. ELMER.
9. Large Fibroid of the Uterus Complicating Pregnancy; Porro Operation. WILLIAM C. WOOD.

1.—Congenital Hip Dislocation.—D. D. Ashley and Frederick Mueller, in their third article, take up the abnormal positions of the head and bilateral luxations. The first position mentioned is that in which the head is located on the horizontal portion of the pubic bone. In case it should be absolutely impossible to find any kind of fixation in the region of the acetabulum, the anterior part of the capsule is stretched and distended, by means of the femoral head, to such an extent that the head slides up on the pubic bone. This position completely excludes a sliding backward of the head, and it is fixed in this position by a cast, which remains for six months. In this way they do not accomplish a reposition in a strict sense, but they secure a preparatory step for reposition by having removed the muscular and capsular resistance. The unintentional variety of suprapubic dislocation may frequently be seen after removing the first cast, if the anterior part of the capsule was unusually spacious, or if during the operation it was stretched too far, and if upon the application of the cast extreme abduction with superextension was adopted. This abnormal position invariably calls for the reposition of the head within the acetabulum, and for fixation by means of a second cast. The second position discussed is that in which the head is located above the acetabulum, underneath the anterior superior spine. The cause of the nonretention of the head within the acetabulum lies either with the unfavorable anatomic conditions or with shortcomings in the applied technic. The third position discussed is that in which the head is located outside of the acetabulum on the lateral or posterior aspect of the ilium. [C.A.O.]

3.—Colostomy for Mucomembranous Colitis.—J. M. Elder cites several similar cases in the literature, and reports one of his own, which is of interest by reason of its long duration and the apparently complete cure obtained as the result of a right-sided inguinal colostomy. The patient, a man of 22, was five years ago taken with frequent painless stools, watery, sometimes containing blood, but no mucus. Four months later the stools became more frequent, were accompanied by pain, tenesmus, mucus, and more blood. While in a hospital frequent examinations failed to reveal any *Amœbæ coli*, and a careful search for tubercle bacilli was also negative. Later, he frequently passed large mucous casts of the bowel. A right-sided inguinal colostomy was done and the cecum brought up and sutured to the parietal opening. On the eleventh day after operation the intestine was opened, and by the fecal fistula thus formed the colon was kept at rest for 45 days, and during this time the patient was allowed up and about, and was kept on a full diet. Dating from two weeks after operation there was a steady improvement. At the end of six weeks the colostomy wound was closed in the usual manner. [C.A.O.]

4.—Age Degenerations.—The degenerations to which B. C. Loveland refers are those changes in the arteries and smaller arterioles or capillaries incident to advancing years and imperfect elimination or the gouty habit, in which the walls become thickened, stiffened, harder than normal, and later pass through the calcareous or atheromatous degeneration. He believes that the condition can to a large extent be remedied by a rational treatment, the causes and pathologic conditions being well borne in mind. The etiology of arteriosclerosis may be narrowed down to one of poisoning and the elimination of toxic material. The three cases reported point to the fact not only that there was a limiting of the process, but from the relief of certain symptoms, a certain amount of restoration in the diseased territory. Two of the cases reported were disease involving the cerebral circulation, and one the recurrent cardiac circulation. [C.A.O.]

6.—Status Epilepticus.—A. M. Tremaine reports two cases in detail. She is of the opinion that in intravenous saline injections we have a valuable remedy in the treatment of status epilepticus. A point of value lies in their early use. Active measures of sedation must not be neglected as they very frequently are of great benefit. [C.A.O.]

7.—Injuries of the Pelvic Floor.—H. C. Coe emphasizes his belief that by careful attention to these lesions immediately after labor, the patient can be spared the necessity of subsequent operations for pelvic floor laceration, prolapsus, etc. He says that it pays to devote such careful attention to recent lacerations has been proved so many times in his experience that a patient must be in a serious condition when he would be content hastily to close a lacerated pelvic floor. In laceration through the sphincter, he believes that a successful result from an immediate operation should be the rule, and not the exception. The bruised condition of the tissues often renders immediate repair difficult, but with a little patience the parts can be brought in exact apposition; provided that the ends of the muscle have been brought together with a nonabsorbable suture, that the after-treatment is intelligent (especially as regards securing a loose movement of the bowels on the third or fourth day), and above all, the asepsis is perfect, he sees no reason to look for anything but perfect success. In conclusion he says that the modern accoucheur must be a thoroughly trained gynecic surgeon. [C.A.O.]

8.—A case of difficult diagnosis is reported by W. G. Elmer. The patient, a woman of 30, was seized with sudden intense abdominal pain. Vomiting was frequent and continued. Temperature 103.6° F., pulse 130, small and weak. Respiration somewhat accelerated, abdomen moderately distended, rather tympanitic, the muscles—especially those of the right side—on guard and showing some rigidity. A mass was distinctly palpable in the right side a little below the level of the umbilicus, which was exquisitely tender. The liver extended about an inch below the costal margin. In percussing downward over the liver the dulness passed into tympany, and the note again became dull when the tumor was reached. The patient had never been jaundiced. The history, symptoms, and physical examination all pointed with practically positive evidence to a sudden and virulent attack of perforative appendicitis—the tip of the appendix apparently being turned upward toward the umbilicus—with localized peritonitis and circumscribed abscess. Upon opening the abdomen the tumor was immediately exposed and found to be a much dilated gallbladder—tense almost to the point of rupure. A gallstone could be palpated blocking the cystic duct. The appendix and pelvic organs were normal. The stone was removed and recovery followed. [C.A.O.]

9.—Uterine Fibroid and Pregnancy.—W. C. Wood reports such a case in a woman of 30, who had been in labor for several hours. A large fibroid filled up the pelvis, and the uterus lay above and behind it. It was impossible to deliver the child through the vagina, and the only hope of saving either mother or child lay in an operation. The uterus could not be opened anteriorly on account of the tumor, which was found to be six inches in diameter. The broad ligaments were then clamped and the uterus removed. The uterus was then opened and the child delivered alive, the singular anomaly being presented of a child being born in one room while its mother was in another. The mother died at the end of 52 hours, apparently from postoperative pneumonia. The child was strong and healthy, and three months after the operation was living. [C.A.O.]

Medical News.

September 17, 1904. [Vol. 85, No. 12.]

1. Polyuria in Typhoid Fever. M. H. FUSSELL, H. S. CARMANY and H. HUDSON.
2. Treatment of Acute Middle-ear Disease. JOHN A. DONOVAN.
3. The Value of Early Incision of the Membrana Tympani in the Treatment of Acute Suppuration of the Middle-ear. FRANCIS R. PACKARD.
4. Contributions to the Pathology and Treatment of Acute Gonorrhea. (Continued.) LUDWIG WEISS.
5. The Diagnosis of Incipient Pulmonary Tuberculosis. GEORGE WILLIAM NORRIS.
6. Diagnosis of Advanced Tuberculosis. FRANK A. CRAIG.
7. Differential Diagnosis between Pulmonary Tuberculosis and Conditions Resembling It. H. R. M. LANDIS.
8. History-Taking in Cases of Pulmonary Tuberculosis. CHARLES J. HATFIELD.

1.—Polyuria in Typhoid Fever.—M. H. Fussell, H. S. Carmany, and H. Hudson review the literature of the subject and report a case in which elimination reached as high as 7,200 cc. in a day at the height of the fever, the amount decreasing as the temperature lessened. The specific gravity at the height was 1,002; no sugar, albumin, acetone, nor diacetic acid; urea was not far from normal. He is now in perfect health. This case is unique in the time of onset and decline. The polyuria of other authors occurred just before or during convalescence. Salol had been administered, but was stopped on the second day of the polyuria, which continued a month longer. The patient was nervous, but when passing the greatest amount of urine was less so than when voiding half as much. He received 11 sponges before the trouble developed and the condition continued 11 days after they were stopped. The urine during typhoid is usually of high specific gravity and in amount below 1,500 cc. In convalescence, in a small percentage of cases it may rise to 2,000 cc., or even 10,000 cc., in 24 hours. In very rare cases there may be from 3,000 cc. to 8,000 cc. during the entire course of the disease. [H.M.]

2.—Treatment of Acute Otitis Media.—Donovan quotes Vail, who asserts that measles cause 4% and scarlet fever 19% of all cases of deafness. Diphtheria and influenza are not infrequently accompanied or followed by otitis. Donovan's conclusions are: 1. In all diseases affecting the nasopharynx, always use reasonable precautions to avoid tubal infections. 2. Adenoid tissue, in any amount, and tonsils producing any pathologic symptoms, should always be removed. 3. With the first symptoms of earache, use heat and dehydrating remedies; this not producing beneficial results in a few hours, treat surgically. 4. When possible, with a catheter use mild continuous stream of hot air early, and repeat in eight or ten hours. 5. If symptoms are not relieved by these methods within 10 to 24 hours, make free incision through the entire drum, or extend into upper canal wall if necessary. Use aseptic gauze drainage and outside pad for absorption. 6. Never allow the patient to suffer tortures for more than 48 hours and remain exposed to the risks of complications. [A.B.C.]

3.—Early Incision in Acute Suppurative Otitis Media.—Francis Packard makes a report concerning 12 cases to which he gave personal attention. It has been noted in many cases that spontaneous rupture occurs early in the course of the disease. In seven instances, among Packard's patients, in which spontaneous rupture occurred, the patient suffered much pain in the affected ear for many days after the rupture, and the discharge continued from 10 days to 5 weeks. In three instances in which early incision was practised there was immediate relief from pain, and in no case did the discharge continue longer than five days. The same line of treatment was followed after the drum was opened, whether by spontaneous rupture or by incision. It consisted in a thorough cleansing of the ear once daily by mopping out with peroxid of hydrogen, full strength, followed when the discharge was very profuse by injecting a few small syringes full of mercuric chlorid 1 to 4,000. After thoroughly drying, a wick of iodoform gauze was introduced throughout the whole length of the canal, and left in position until the next day, the nurse or patient being given instructions to remove it if there were any evidence of it damming up the pus. When the pain was very great at the time that the dressing was done, an anesthetic mixture consisting of five parts of a 10% solution of cocain, combined with 50 parts of anilin oil and 50 parts of 5% of alcohol was instilled. This was allowed to remain for a few moments. Important points are: (1) The great value of early incision of the membrana tympani; (2) the many advantages possessed by the socalled dry treatment, and by practising efficient gauze drainage. Douching out the ear by the patient or nurse is distinctly contraindicated from the fact that no one but a skilled aurist can properly dry the ear after such procedures. [A.B.C.]

4.—Pathology and Treatment of Acute Gonorrhea.—Weiss in the present number completes a comprehensive and elaborate paper viewed both from the clinical and literary point of view. The paper covers such a wide field and discusses so many interrelated questions that a summary cannot be presented in brief abstract. Of the newer silver preparations used in the treatment of this troublesome condition he prefers and employs protargol. His method of treatment taken in the various stages of the disease is elaborated in detail. The article should be read in full by all interested in this subject [A.B.C.]

5.—Diagnosis of Incipient Pulmonary Tuberculosis.—G. W. Norris endeavors to emphasize facts not adequately recognized. The most common symptoms are loss of weight and strength and appetite with a tendency to become easily fatigued. It is safe to assume tuberculosis after hemoptysis or after bronchitis which, without evident cause, lasts more than six or seven weeks. A fairly common mode of onset is with pain and stiffness of the joints. Peripheral neuritis is common as are also a slight pain in shoulders and back and vague discomfort in the thorax. Slight fever, trivial night sweats, transient erythema are suggestive. Prolonged hoarseness should always be investigated. All attacks of pleurisy should be treated as "suspects." A supposed second attack of typhoid or protracted influenza often marks the beginning. The writer discusses the physical signs in detail. These in the early stages are not glaring. Restricted movement slightly prolonged or roughened, expiration, indistinct respiratory murmur, fine crepitant rales may be present. Cog wheel respiration may occur from irregular contraction of muscles in excited patients. As a rule there is no expectoration. When there is, demonstration of bacilli may be abetted by centrifugalizatian or inoscopy. The tuberculin reaction is a useful adjuvant. The diseases from which it must be differentiated are syphilis, influenza, mitral disease, healed tuberculous lesions, simple streptococcic infections of the lungs and nontuberculous fibrosis. The diagnosis should be within the power of every physician. Until the profession at large is able to recognize incipient cases the crusade against it will be a failure. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

Intestinal Hemorrhage in Uremia.—Hemorrhage is not an uncommon phenomenon in uremia, and epistaxis particularly, as well as hemoptysis and purpura, have been observed in many instances. Intestinal hemorrhage is perhaps less frequently encountered, to which Fédon has recently called attention in his thesis (Toulouse, 1901). These hemorrhages are met with in various forms. In long-standing cases of Bright's disease, subject to diarrhea, bloody mucous dejections may occur, accompanied by colic and tenesmus. In some instances, although infrequent, a true hemorrhage from the intestinal mucosa takes place. The blood voided is not pure, but is mixed with certain matters, which give it the color of tomato sauce or beef juice. It does not generally assume the tar-colored stool, because it comes from the colon and thus escapes the action of the gastric secretions. Melena has, however, been observed, in which case the hemorrhage arises in the small intestine. The amount of blood lost varies; in some cases the stools are simply tinted with blood, while in others the hemorrhage is quite considerable. Arising from either an excessive hyperemia of the mucosa or from multiple deep ulcerations in the gut; they may be very severe. When deep ulcers are present, large vessels may be opened, from which arises the possibility of the occurrence of fulminating hemorrhage. On the other hand, ulceration, even extensive, may exist and still no blood is voided, because the hemorrhage remains latent and the patient presents a slight abdominal distention, cold extremities, a small, rapid pulse, and finally, syncope. The temperature at first drops, and then goes up. When intestinal hemorrhages occur during the early part of the affection they exercise a favorable influence on the general health of the patient, as a depletant, while frequent and severe enterorrhagia at the later stage of the malady depresses the patient and produces a rapid cachexia. These cases do not represent a purely gastrointestinal uremia, and in reality are instances of nervous or respiratory forms of the disease. An examination of the various functions, particularly those of the kidney, will show the presence of various uremic symptoms. Generally, the intestinal hemorrhage occurs during the course of a gastrointestinal uremia, that is to say, in the form of the affection accompanied by diarrhea, but it is well to recollect that the hemorrhage may exceptionally appear as an isolated intestinal symptom, arising with nervous or respiratory phenomena, and it is under these circumstances that the diagnosis becomes difficult. The treatment is the same as for intestinal hemorrhage from other causes. In patients who are weakened, purgatives are to be avoided, especially if one suspects the existence of intestinal ulcerations. When much blood is lost, subcutaneous infusions of normal salt solution are indicated.

REVIEW OF LITERATURE

Further Facts in Favor of An Infective Element in Gout.—Chalmers Watson,[1] in the *British Medical Journal* of January 9, 1904, recorded results in the postmortem examination of a fatal case of gout in a cock. The record indicated that he had to deal with an acute general infective process. In the present paper he recounts some of the old accepted theories in reference to gout, and summarizes his own particular views, Garrod's view, published in 1876, may be summed up as follows: 1. It has long been known that changes in and around the joints occasionally take place in gout, owing to the deposition of a chalk-like material, principally sodium urate. 2. The other morbid appearances seen in joints affected with gout are comparatively unimportant, being similar to those observed after other forms of inflammation, as redness, thickening, and dryness of the synovial membrane, and occasional effused blood. 3. The establishment of the fact that gouty inflammation is invariably accompanied by the deposition of a peculiar salt, is of the highest importance, inasmuch as it proves the inflammation to have a specific character, and to differ entirely from other morbid affections of the joints. 4. The belief is expressed that not only is the deposit of sodium urate constantly found in gouty inflammations, but that it stands to it in the relation of cause rather than effect; that is, the deposition of the salt first takes place in the synovial membranes, cartilages and tendinous structures of the joint, and by its presence gives rise to inflammation. Watson gives a number of microscopic illustrations in support of his contention, and concludes as follows: 1 A study of the clinical features of an acute paroxysm of gout—the manner of onset, temperature chart, local appearance, liability to relapses, etc.—suggest an acute infective disorder; the paramount importance of the bone marrow in all acute infections is universally recognized. 2. In the previous publication referred to, he recorded a striking change in the histologic appearance of the blood (leukocytosis) in acute gout. While the interpretation of these changes was not clear, their presence confirmed the belief in the existence of an infective element, causing a strain on the bone marrow function. In a later paper by Bain, a similar appearance of the blood was described. 3. In the course of an investigation of the comparative pathology of chronic articular disease, involving the examination of over 200 subjects, the gross changes in the bone marrow exceeded in severity the lesions in the articulations. [A.B.C.]

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[1] British Medical Journal, July 16, 1904.

Prevention of Lead-poisoning.—In as much as all protective measures employed thus far have been found insufficient to prevent lead-poisoning, the use of lead colors has been forbidden in a number of instances lately. In Germany a petition[1] to bring about this result has been addressed to the Reichstag by the combined unions of the painters, oilers, sign-painters, and whitewashers. They call attention to the fact that all technical conditions are as well fulfilled by the employment of the innocuous zinc white instead of the lead white. The Paris Society of Social Medicine and Hygiene has performed experiments to prove that if surfaces painted with the two varieties of white are exposed to the same atmospheric conditions for a matter of one year, no differences are noted at all between them. [E.L.]

Ozena (Atrophic Fetid Rhinitis), A Cause of Gastritis.—Adolph Bronner[2] states that one of the most characteristic symptoms of ozena, apart from the offensive odor, is the peculiar pale, ashy complexion of the patient. The bad taste in the mouth and occasional vomiting with loss of appetite, are due to the passing of offensive nasal discharge, full of bacilli, into the stomach. These bacilli frequently invade the mucous membrane of the stomach and set up extensive inflammation, which causes fatty degeneration of the glands and consequent incurable indigestion. It is not surprising that under such circumstances the stomach contents are in an active state of fermentation and decomposition, and that the mucous membrane is chronically inflamed. Gastric lavage in these cases will bring from the stomach an astonishing amount of offensive material. In many cases of ozena one or more of the auxiliary cavities of the nose are affected, and until these are opened up and treated, cure is not effected. In the various local applications, Bronner has found that formalin used as a spray or douche is by far the most efficient. It prevents the formation of crusts and removes the offensive odor better than any other remedy that he has tried. Mention is made of a patient treated for a considerable length of time for chronic gastric trouble, which was promptly relieved once the atrophic rhinitis was controlled. [A.B.C.]

Causes and Treatment of Constipation.—D. Riesman[3] finds constipation the single complaint most frequently made by patients, and to illustrate the length of time, which may elapse between bowel movements, mentions the case of a girl who had her bowels moved only once a month and at her menstrual period; the girl's mother would usually go two weeks without a movement. The cases of prolonged constipation, even without giving trouble, are not rare. He divides the causes of constipation into functional and organic. The former include lack of attention to the bowels. Reading at stool is a bad habit; lack of exercise, the eating of too nourishing food to the exclusion of other foods, lack of water, especially in infants, psychic influences, such as the depressive forms of mental diseases, fevers, insufficient ingestion of food in cases of carcinoma of the stomach or esophagus, lead-poisoning, obstruction of the biliary passages and cancer of the head of the pancreas, obesity, horseback riding, the abuse of purgatives, enemas and suppositories. The organic causes are of two varieties: Factors without and within the intestines. The extrinsic are compression of the intestines by tumors, the pregnant or retroverted uterus, exudates, constricting peritoneal bands, weak abdominal walls, peritonitis, appendicitis, laceration of the perineum, hyperchlorhydria, ulcer and cancer of the stomach, diseases of the heart, lungs, liver and kidneys especially when associated with passive congestion of the intestines. The intrinsic causes are tumors of the intestines, displacement and malformation of the intestines, chronic catarrhal enteritis, lesions of rectum and of anus, rectal crises of locomotor ataxia, foreign bodies, chronic intussusception, and strictures following dysentery, typhoid fever and tuberculosis. The treatment, which he employs, consists of the following: He demands regularity in attempts of defecation, tentative and experimental discontinuance of all purgatives, appropriate diet, consisting chiefly of vegetables, cereals, fruits and fats; each patient's condition must be studied for his suitable diet; plenty of water, and cold water in preference to hot water; outdoor exercise, calisthenics, massage of the abdomen, in the direction of the colon. Oil injections are a splendid means to combat the condition; from two to four ounces of warm oil are injected before retiring and retained all night; a bowel movement usually occurs in the morning. The ether spray on the bare abdomen has cured patients who have resisted the oil injections; they are repeated every two or three days; the ice-pack may be used as a substitute. If the abdomen is pendulous a properly made abdominal binder will cure the condition. Of drugs he prefers the cascara preparations and eserin salicylate. Sometimes operations are indicated and some authorities claim much for electricity. [E.L.]

Poisoning by Mussels.—R. Rolfe[1] reports that two sailors, aged 57 and 70 respectively, gathered mussels from water polluted by sewage. The mussels were carefully washed and cooked thoroughly in several changes of water. They were then eaten and about four hours later the men were seized with giddiness, their legs became unsteady, they soon were unable to stand and the youngest patient vomited freely. In both cases there was mild excitement and the condition resembled closely the early stages of alcoholism. Quite suddenly the youngest patient developed syncope and died. The other, after thorough purgation and stimulation, recovered. The pronounced features of the cases were: 1. The difficulty in eliminating the poison from the stomach, as neither flatus nor feces were passed even under the influence of purgation, the gut appearing to be paralyzed. 2. The tendency of syncope if the patient attempted to sit up. 3. The afebrile course—in neither case did the temperature rise above normal. 4. The comparative infrequency of the pulse which never rose above 80, even when syncope threatened. 5. The marked beneficial effect of coffee on the pulse and on the general condition of the patient. It was noticeable that the first-named patient was 13 years younger than the second; he vomited freely comparatively soon after eating the mussels, had presumably healthy kidneys and yet succumbed to the toxins which the other, though with diseased kidneys, resisted. Both men had eaten about the same amount. [A.B.C.]

Lumbar Puncture for Cephalalgia of Bright's Disease.—Seegelken, Brasch and Noelke[2] have obtained amelioration by lumbar puncture in saturnine encephalopathies. Pierre Marie and Guillain have likewise produced marked amelioration of the headache of Bright's disease by lumbar puncture. The extraction of 6 cc. (1.5 dr.) of liquid has caused a rapid disappearance of the headache. Le Gendre has noted a similar result in uremia. Again, Quincke, Fürbringer, Lichtheim and Leyden have obtained only negative results, while Legrain and Guiard report favorable results, even without hypertension of the cerebrospinal liquid. It is seen that lumbar puncture in Bright's disease is an intervention which, up to this time, has not given the results which were promised for it by its introducers. Some slight success and many failures are the rule. [L.F.A.]

Medical Treatment of Deep-seated Hemorrhage.—Francis Hare[3] states that in hemorrhage depending upon blood-pressure the indications for medical treatment consist in reducing the localized pressure. Such we may hope to achieve (1) by permitting vasoconstriction of the arteries supplying the bleeding area, or (2) by permitting lowering of blood-pressure through wide-spread vasodilation. The first of these is commonly employed, and often without good result. He has tried the second with success, using amyl nitrite by inhalation for this purpose, and he reports four cases in detail in which he used this method with satisfactory results. He says in the first of the cited cases the proximate factor of the hemoptysis was in all probability a sudden rise of blood-pressure in the pulmonary circulation, secondary to increased resistance in the aortic outflow dependent on wide-spread vasoconstriction of the skin from chill. In the remaining three the proximate factor was probably some extension of the tuberculous process by septic ulceration, but in all, the rationale of the treatment was identical, namely the rapid reduction of blood-pressure at the bleeding area. To sum up, five consecutive attacks of hemoptysis occurring in four patients were all stopped instantaneously by amyl nitrite inhalation; there has been no instance of even comparative failure. [A.B.C.]

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[1] Sociale Praxis, January 21, 1904.
[2] British Medical Journal, July 16, 1904.
[3] The Therapeutic Review, 1901, i, 41, No. 2.

[1] The Lancet, August 27, 1904.
[2] Journal des Praticiens, Vol. xviii, No. 14, 1904, p. 216.
[3] The Lancet, August 20, 1904.

Toxic Alimentary Dyspnea and the Chlorids.—H. Huchard and Ch. Fiessinger[1] review the causes of dyspnea complicating interstitial nephritis and arteriocardiac disease. Patients submitted to a milk diet were greatly relieved; when given meat or bouillon, the dyspnea reappeared. From this it was seen that certain toxic substances contained in meat provoked dyspnea, which was relieved when meat was stopped and milk given. According to the researches of M. Achard and M. Widal on the retention and elimination of the chlorids, the retention of sodium chlorid in the tissues favored dropsical conditions, of which pulmonary, cerebral, and cutaneous edema were the clinical signs. The suppression of the alimentary chlorids tended to relieve these conditions. In place of milk, which contains a low percentage of chlorids, Widal proposed two methods of feeding: (1) Allowing vegetables, eggs, and other foods constituting a milk-vegetable diet but without salt; (2) the possibility of giving meats, meat jellies, or bouillons without salt. The milk-vegetable diet is not harmful in the majority of cases. This diet without salt is seldom indicated, except in one instance, when there is marked permanent edema of the integument. The use of meats and bouillons without salt is tolerated in some cases and not in others. The authors believe that certain toxic factors enter into their action. Nencki and Pawlow have demonstrated that meat without salt becomes violently toxic in certain conditions. In order to tolerate meats without salt, it is often necessary to use condiments. These are contraindicated in many cases because of their action on the liver, which is often diseased. [L.F.A.]

Preventive Work in the Tropics.—W. J. R. Simpson[2] states that in India, in 1902, 20% of the admissions to the European military hospitals, and 38% of the admissions to the native military hospitals, were for malaria. He holds that that which obtains in India exists to even a greater degree in other tropical British colonies, and urges a campaign for the prevention of malaria and against the mosquito. That not only have Americans completely stamped out yellow fever in Havana, where for 150 years it had been the scourge, but Major Ross reported in 1903 that, according to the report of the chief health officer of Havana, in 1900, the year before the mosquito work was begun, there were 325 deaths in Havana from malaria; in 1901, the first year of the work, 157 deaths; and in 1902, 77 deaths; and in the five months of 1903, 21 deaths from malaria, and the hope was expressed by the chief officer that malaria could be stamped out entirely in Havana. Simpson says this success should be an incentive to the local administration of English colonies to do likewise. In reference to preventive inoculations of other tropical diseases, he says people who are ill do not mind being treated by hypodermic injections, but when they are well and it is to protect them from some prospective illness, few will undergo the operation. This applies to all prophylactic inoculations, whether for cholera, typhoid fever, or plague. After an experience of 10 years, he is convinced that prophylactic inoculation by a hypodermic syringe, though invaluable, is not likely to be adopted for general application. [A.B.C.]

Vaccine from a Laboratory Standpoint.—W. F. Elgin[3] considers vaccine from a popular rather than scientific standpoint. There are two practical points regarding its nature; whatever it may be it is alive and subject to the laws of life and death, and it cannot be grown in the way that disease germs are. Its life varies under different circumstances and the date of supposed activity placed on each package is only of relative value. If the plan adopted in Europe, dating the vaccine when issued with the request that it be used as soon as possible after its receipt, were feasible in the United States much better results would be obtained. During the past winter, Elgin obtained 100% good results from animal inoculation with two vaccines from 70 to 80 days old; 75% from 8 samples between 80 and 90 days; 50% from 14 samples between 90 and 116 days. Experiments with summer vaccine are not yet complete, but warrant the statement that vaccine prepared in the summer and shipped during the summer heat must be used in a very short time after removal from the animal to insure successful results. Vaccines kept below the freezing-point for four years were active on removal and continued so for at least two months. The lessons to be learned from these facts are: Do not keep vaccine in a hot place and do not vaccinate in the summer season except in the presence of smallpox. [A.G.E.]

Hemorrhagic Smallpox.—Charles Fraser[1] states that of 1,200 cases of smallpox treated at Daggenham Hospital during the epidemic of 1902, 36 (3%) were of the hemorrhagic variety. It is convenient to recognize three types of this condition, viz: 1. Characterized by the appearance during the initial stage of the disease of hemorrhagic changes in the skin and visible mucous membranes resulting from petechias and ecchymosis, the patient almost invariably dying before the characteristic smallpox eruption has time to declare itself. There were 5 cases belonging to this variety, the average age being 37—the youngest 15 and the oldest 72; 4 were women, but none were pregnant nor in the puerperium. 2. Including all cases in which the hemorrhagic element involves not only the region of the pock, but areas free from eruption. There were 21 cases belonging to this variety. It is said to occur mostly in the debilitated and alcoholic. Fourteen were men, who had previously enjoyed good health and led regular lives; 14 had been vaccinated in infancy, 9 having been "well vaccinated"; all failed to be revaccinated, and the 2 youngest patients (3 and 6 years) had never been vaccinated. All died, the average duration being $6\frac{7}{10}$ days. 3. Those cases in which the area of the pock alone is involved. There were 10 cases of this variety; the average was $26\frac{8}{10}$ years, and the condition was quickly distributed among the sinuses. In all three types, in addition to the production of petechias, the hemorrhages may assume the form of epistaxis, hemoptysis, hematuria, hematemesis, or malena. [A.B.C.]

Olive Oil in Spasm of the Pylorus.—Conheim[2] recommends the use of olive oil in the dose of from 100 gm. to 150 gm. (3 oz. to 5 oz.) daily in the treatment of gastrectasis with spasm of the pylorus, as a result of an ulcer or fissure in this region. This should be taken before each meal. If the taste is disagreeable it may be mixed with oil of sweet almonds. If it is still badly borne, it should be given through a sound. Employed in this condition, the oil allays the spasm by diminishing the irritation caused by the food in contact with the gastric walls, and it also facilitates the progression of the chyme. It diminishes the pain and distress which come on some time after eating in these cases, and allows the gastric walls to contract gradually to their normal condition. [L.F.A.]

Electrocution on the Railway.—Thomas Oliver[3] states that in England within a short time on a certain railway having the "live rail" system, several people have met death and he reports a case in detail where a workman of 37, in crossing the line, tripped and fell, striking the current rail. He was immediately rendered insensible and thrown into convulsions. He gradually recovered from the shock of the contact but had an extensive slough come away from the plantar surface of the heel and from the great toe and the adjacent toe. A month after the contact the ulcers were deep and surrounded by very unhealthy tissues and there was no sign of healing. Oliver calls attention to the danger of these live rails and insists that local measures should be taken to enforce their protection and thus prevent people and animals coming in contact with them. [A.B.C.]

The Nature of Autointoxication.—Heinrich Stern[4] concludes a long article on autointoxication and its treatment, with a summary of 28 paragraphs that are with difficulty epitomized. He believes that differential diagnosis between autointoxication from intestinal origin and that from katabolic or intracellular changes cannot be made from the clinical picture alone. The condition arising on the basis of "acid intoxication" is not due to specific toxicity of the acids, but to faulty alkali supply. The toxicity of uric acid is a still unproved factor. A number of autotoxic states are explainable on the basis of altered physical conditions in the body fluids. The anomalous osmotic conditions in the blood are often associated with impaired electric conductivity of the serum. The narcoleptic and some forms of the epileptic attack, stupor, and the terminal coma of carcinoma, diabetes mellitus and uremia (notwithstanding the discrepant manifestations of the various comatose states), are expressions of diminished electric conductivity of the blood-serum. [A.G.E.]

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[1] Journal des Praticiens, Vol. xviii, No. 14, 1904, p. 211.
[2] The Lancet, August 27, 1904.
[3] Sanitation, July, 1904.

[1] The Lancet, August 27, 1904.
[2] Bulletin Général de Thérapeutique, Vol. cxlviii, No. 1, 1904, p. 28.
[3] The Lancet, August 20, 1904.
[4] Medical Standard, August, 1904.

Fatal Occlusion and Invagination of the Intestines, Due to Ascarides.—A Porot[1] reports the case of an infant, who was suddenly seized with incomplete occlusion of the bowel, accompanied by meteorism, colicky pains, active peristaltic movements, without peritoneal reaction. The patient died on the thirteenth day with signs of bronchopneumonia. At autopsy 26 worms (*Ascaris lumbricoides*) were found clumped together in the small intestine, while 40% of the duodenum was invaginated. Cases of grave intestinal symptoms, produced by these worms, are quite rare. They may be classified as follow: 1. True intestinal obstruction. 2. Appendicitis caused by the worms. 3. Intestinal perforations. 4. Cases simulating typhoid fever. [B.K.]

The Communicability of Pneumonia by Contact.—Leonard Weber[2] summarizes clinical observations regarding the spread of pneumonia by contact infection. It is the usual observation that neither the members of the family nursing the patient nor those around him in the sick room contract the disease by contact; this is the experience of Weber. It appears to make no difference whether the case ends by crisis or lysis, whether there is a small amount of clear, bloody, or viscid sputum, or if there is a large amount of mucopurulent expectoration for a week or longer. There are, however, reports of cases where the wife followed husband or brother followed sister with pneumonia. To determine the true connection of such cases, very many points need to be investigated to prove the second case due to actual contact with the first and the difficulties therewith are not easily overcome. The reports of small epidemics in prisons and garrisons have a bearing upon personal susceptibility of a number of people exposed to the same virus, but nothing whatever upon the question of contact infection. The occurrence of house and district epidemics being admitted, it is evident that disinfection of infected localities will be a wise sanitary measure. Further, as the sputum contains the infectious agent, it will be prudent to conduct the nursing and handling of a case of pneumonia along the same lines as are adopted in typhoid fever. [A.G.E.]

The Action of Endofaradism and Endogalvanism upon the Secretion, Motility and Sensibility of the Stomach.—Andrea Borri[3] from his investigations finds that neither faradism nor galvanism upon the stomach produces an increase in the hydrochloric acid, pepsin nor in the motility of the organ but galvanism has a decided effect upon the sensibility. With this treatment, patients who have suffered from pain and uneasiness in the epigastrium are in the course of a comparatively short time greatly relieved. He says one might infer that in neuropathic and neurasthenic individuals the good results obtained were due to suggestion, but Borri contends that if such were the case faradism which in many cases increases the pain and in no instance relieves it should have the same effect as galvanism. Then too when he withdrew the current unknown to the patient before the time limit, the pain would not cease and would return the next day. Galvanism is also of value in cardiospasm which is dependent upon some lesion of the mucous membrane. He applies 30 M. A. for 15 minutes some time daily at other time every other day. [J.F.]

Factors in the Destruction of Primitive Man.—F. A. Cook[4] says climate is not, except in its influence upon disease germs, a very important factor in the downfall of aboriginal man. It is not heat or cold which kills, but local disease tendencies. Like most observers, he was inclined to ascribe their downfall to alcohol and altered conditions of life, but his field work as surgeon to Arctic and Antarctic expeditions has not borne this out. His studies include the Eskimo, subarctic Indians, Fuegians and Patagonians. The influence of measles, whoopingcough, mumps, scarlet fever and allied diseases in the destruction of primitive man is surprising; investigation of epidemics reported as smallpox usually shows them to be chickenpox or measles, but the symptoms and fatal results justify the first supposition of smallpox. Cook divides the downfall of the Indian into three stages: 1. By infectious diseases, mostly exanthemas early introduced by explorers and missionaries. 2. By alcohol and venereal diseases. 3. Destruction of savage ambition and altered conditions of life, introducing bodily degeneration that has led to tuberculosis. Cook emphasizes the need of careful medical studies among primitive peoples before the inroads of civilization have altered their natural environment; this is a branch of scientific research that has been much neglected by explorers. Conversely, it seems clear that civilization brings a moderating influence upon infectious diseases not possessed by the savage and the nature of this immunity should be more accurately determined. [A.G.E.]

The Serum Treatment of Exophthalmic Goiter.—George R. Murray[1] states that the evidence at present tends to show that the symptoms of exophthalmic goiter are due to a morbid condition of the thyroid gland, and are the results of an excessive formation and absorption of thyroid secretion. We may regard the symptoms as being due to a toxemia, the source of which is the diseased thyroid gland, just as the toxemia of diphtheria or tetanus is due to the production of toxins in the infected area. Believing that serum treatment would be beneficial in this affection, he carried out a series of experiments, and in so doing endeavored, if possible, to obtain an antitoxic serum in as simple a manner as possible, for the purpose of practical treatment, and so made use of rabbits, feeding them with thyroid extract by the mouth. He afterward killed them, collecting the blood under aseptic precautions and thus obtaining the serum. He reports in detail the treatment of two patients suffering from exophthalmic goiter, in which the serum was used. In both there was some improvement, but he is of opinion that it was not more than is commonly observed in these cases after rest in bed and ordinary medical treatment. He admits that no very definite results were obtained. It is quite possible that if larger animals were employed and larger doses of the thyroid extract were given, a serum might be obtained that could be used in hypodermic injection in acute cases, or if administered by the mouth in chronic cases. [A.B.C.]

Cancer of the Pancreas and Glycosuria.—R. M. Pearce[2] has made a study to determine what relation, if any, the islands of Langerhans may have to the glycosuria occasionally seen in connection with cancer of the pancreas. The material consisted of 30 cases of cancer of the pancreas, in 3 of which glycosuria was present. The 30 cancers were classified as: Primary in the head of the pancreas, 5; in other portions of the organ, 4; secondary to gallbladder or ducts, 5; to stomach 8; to breast, 1; to uterus, 1. Two of the glycosuric cases belonged to the first group. Pearce concludes there is a definite basis for ascribing a certain portion of the cases of diabetes to lesions of the pancreas and ultimately to lesions of the islands of Langerhans. As a result of the present study we can include the permanent diabetes of cancer of the pancreas in this group. Further observations must be made before intermittent glycosuria can be attributed to destruction of large numbers of islands. The absence of diabetes in cases of extensive involvement of the pancreas would appear to be due to the survival of small fragments of pancreas, including a number of islands sufficient to carry on their peculiar function. The persistence of the islands under the adverse conditions described supports the observations heretofore made concerning their anatomic independence, while their enlargement, suggesting as it does a compensatory hypertrophy, is corroborative of the theory that they have an independent special function. [A.G.E.]

Diagnosis and Therapy of Tabes.—Coester[3] begins his article attempting to impress the reader with the fact that this condition is not recognized early enough, which, if accomplished, would be followed by better results in the treatment of the condition. Most of the cases he bases his paper on were sent to him, but the diagnosis of tabes had not been made prior to the time that he saw them, and yet in nearly all of these cases the disease had existed some time. The lightning pains are in the great majority of cases the first manifestation of the disease; they are often taken for rheumatism and may begin in almost any part of the body, but principally in the lower extremities. Paresthesia of any part of the body must be looked upon as a suspicious sign of tabes; this condition may occur in any part of the body. Under paresthesia are to be classed the creepy sensations, the numbness, the coldness, and the tingling of a part. There may also be hyperesthesia and hypesthesia. The last two named he regards as very important early signs. Then, too, there is disturbance of the muscle sensibility, disturbances in the bones and joints. Coester is convinced that by instituting antisyphilitic treatment, even to well-advanced cases of tabes, the disease in many is at least checked, but if the same treatment is given to the cases in the early stages of the disease the results are far more gratifying. [J.F.]

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[1] Lyon Médical, August 14, 1904.
[2] Postgraduate, September, 1904.
[3] Berliner klin. Wochschrf., 1904, No. 26.
[4] Brooklyn Medical Journal, September, 1904.

[1] The Lancet, August 27, 1904.
[2] American Journal of the Medical Sciences, September, 1904.
[3] Berliner klin. Wochenschrift, 1904, No. 27.

Uncinariasis.—A. J. Smith[1] describes in detail the anatomy of the uncinaria, and compares the two species. The location of the socalled esophageal gland and the occurrence of bleeding after the parasite has left a wound, suggested the presence of some secretion preventing or retarding the coagulation of the blood. Recent experiments by Smith and Loeb upon the uncinaria of the dog, have shown the existence of a coagulation-inhibiting action of extracts made from the front part of the worm (containing the esophageal and cervical glands). No actual hemolysis was shown in any of the experiments; this and other facts speak against the idea of blood-destroying toxin being passed into the tissues by the parasite. The mode of entrance of the parasite is not fully determined. The possibility of entrance through the skin has been proved, and this method has a number of features to recommend it; it by no means, however, excludes the older idea of ingestive infection. Smith believes the symptoms of uncinariasis are identical in the two forms of parasitism, though *U. duodenalis* is the more actively dangerous parasite, and produces severer symptoms with fewer worms. Smith calls attention to a relation he believes to exist between uncinariasis and chronic malaria, at least in this country. The existence of uncinariasis in an individual who is also the host of malarial parasites, apparently has some real influence in causing the malaria to be more persistent than usual in spite of ordinary or earnest antimalarial medication. For treatment, Smith employs 6 gm. (90 gr.) of thymol in three doses. [A.G.E.]

Relations of the Nitrogen Contained in the Sweat and Urine in Rheumatic Affections.—F. Kisch, Jr.,[2] finds that the application of sweating processes by means of the electric glow bath in chronic articular rheumatism produces an increase in the rapidity and amount of nitrogenous excretion through the sweat glands. After a certain time, however, this diminishes below normal, until the nitrogenous balance is again obtained in the organism. There seems to be no antagonism between the nitrogenous excretion in the urine and sweat in rheumatism. [B.K.]

Meningeal Infection by the Diplococcus of Pneumonia, Simulating Infective Cerebrospinal Meningitis.—W. G. Barras[3] reports that a boy of five years of age, previously in good health, complained of severe headache, accompanied by persistent vomiting. These symptoms became worse; the head was drawn back, pupils became dilated, tremor was noted in the muscles of the arms, there was marked orthotonos of the neck and upper dorsal region, unconsciousness gradually deepened, and the patient died about 60 hours after the onset of the attack. Necropsy showed the dura normal, but the pia throughout was deeply congested and there was very little serous exudation on the surface of the brain. Through almost the whole convexity and base of the brain offensive pus was noted. The spinal cord was not specially examined, but the part removed with the brain was deeply injected. There was no trace of tubercle. Cover-glass specimens prepared from the meningeal exudate showed in every instance large numbers of capsulated and intracellular diplococci. These were readily stained with the ordinary anilin dyes, as well as by Gram's method. The diplococci were also well seen in smear preparations in the brain tissue. The conclusion was arrived at that the illness was a meningitis, the result of infection by *Diplococcus pneumoniæ*. There was no previous pneumonia and the case is recorded as a primary meningeal pneumococcic infection. [A.B.C.]

Serum Treatment of Hay-fever.—A. Lueppert and C. Praussnitz[1] conclude from observations published concerning Dunbar's pollen toxin, that hay-fever, etiologically considered, is a disease of but one cause, the toxin isolated by Dunbar. The autumnal catarrh of North America is an exception insofar that it is caused by the pollen of solidago, ambrosia and other late flowering plants, instead of early grasses; but its relationship to hay-fever is proven by Dunbar's antitoxin influencing it favorably. They discuss the results gained with the employment of Dunbar's antitoxin hay-fever serum (pollantin) in cases of hay-fever and autumnal catrrrh. The serum, after being tested for its sterility, is preserved with ½% carbolic acid solution. They found that it could not be employed by subcutaneous injection, on account of the local disturbances it produces; to act as a constant prophylactic it must be used in intervals of about 24 hours, as the passive immunity, which it gives, lasts at the longest several days. In the case of the nose it is best used in the form of a snuff, as in this form it is easier absorbed by the nasal mucous membrane, and does not decompose, for application to the eyes, the serum is the better. Certain other precautions which they mention should be observed to get the best results. Their statistics include 222 cases of hay-fever, and 63 of autumnal catarrh. Of the former, 57% were cured, 32% improved, and 11% not influenced; the latter include patients who did not use the agent sufficiently often; who did not snuff it into the nose at all, and in whom the mucous membranes were so swollen, as not to permit absorption, in some few cases the cause for failure could not be determined. Of the autumnal catarrh cases 70% were cured, 19% improved, and 11% not influenced. A number of interesting cases are related in detail. [E.L.]

The Proteid Bodies of the Urine in Renal Disease and in Health.—According to the investigations of A. Calvo,[2] every albuminous urine will precipitate a proteid body, if properly diluted and treated with acetic acid. In some urines that contain considerable albumin, the acetic acid reaction may be weak. In most cases the precipitate thus obtained consists principally of euglobulin (and fibrinoglobulin), also serum albumin and pseudoglobulin. The amount of serum albumin does not vary in the various forms of albuminuria, but the euglobulin and fibrinoglobulin do. The latter are very abundant in febrile albuminuria, and may be found only in traces in interstitial nephritis. On the other hand, pseudoglobulin is very scanty in febrile albuminuria, and is often abundant in severe forms of chronic nephritis. After dialysis, every normal nonalbuminous urine will yield a precipitate on the addition of acetic acid, this precipitate consisting principally of euglobulin and fibrinoglobulin. [B.K.]

Health Conditions of Americans in the Philippines.—W. DeWitt[3] says those living in the islands are learning every day that the effects of climatic conditions have much less to do with their health than the observance of a few simple sanitary laws. Those who can afford it spend a month each year in Northern China or Japan. Of the many parasitic skin diseases, tinea circinata and tinea versicolor are the most prevalent among Americans, and are exceedingly stubborn to the action of ordinary remedies. Early change of climate when attacked by dysentery is advisable, as by far the greater number of cases remaining show a tendency to chronicity. Typhoid fever, except from infection on shipboard, is almost unknown, and yellow fever does not exist. Dengue is highly infectious, and occurs in epidemics. Pulmonary tuberculosis is common among the natives, and is of no little danger to Americans. The siesta in the middle of the day is advisable but not absolutely necessary. Regarding diet, it is the custom of those who have lived for years in the country, and enjoyed good health, to eat precisely the same food, if they can get it, as they were accustomed to in the home country. Clothing should be cool; the wearing of a flannel abdominal band to protect against intestinal disorders does no good in that way, and is a damage in others. The Philippine Islands are by no means a healthful country, but by the exercise of a few precautions, the average American can live there for an indefinite period and enjoy good health. [A.G.E.]

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[1] International Clinics, Vol. ii, Fourteenth Series, 1904.
[2] Zeit. für Heilkunde, Bd. xxv, 1904, Heft. 8, p. 241.
[3] The Lancet, August 27, 1904.

[1] Berliner klinische Wochenschrift, 1904, xli, pp. 273 and 301, Nos. 11 and 12.
[2] Zeit. für klin. Med., Bd. li, p. 502.
[3] Yale Medical Journal, August, 1904.

GENERAL SURGERY

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EDITORIAL COMMENT

The Diagnosis of Ulcerating Tertiary Syphilids of the Tongue.—Among those lesions which may be mistaken for ulcerating tertiary lesions of the tongue there are three in particular whose characters should be closely studied by every physician. These are: Glossitis of dental origin, tuberculous ulcer, and carcinoma. Dental glossitis originates from some sharp or rough tooth which produces an induration in the form of a circumscribed mass, absolutely simulating an ulcerated tertiary syphiloma. There are, however, two signs which allow one to make a differential diagnosis. The first of these is the localization of the affection to a distinctly limited portion of the tongue; the second is the presence of a rough and decayed tooth coming in contact with that part of the tongue where the lesion developed. All that remains is to remove the offending tooth and the lesion will disappear. The diagnosis of tuberculous ulcer often presents serious difficulties. The characters upon which one may base his diagnosis are as follows: In the first place the lesion is painful and the contact of food causes suffering to the patient, which in syphilis is exceptional. On the other hand the process is refractory to all methods of treatment and with very few exceptions, shows no improvement under any local or general treatment. Then, again, it nearly always coincides with more or less advanced lesions in the lungs and in only a very few cases is it an early lesion of tuberculous infection. The only pathognomonic characters are the yellow points and the results of bacteriologic examination. The yellow points, which represent foci of tuberculosis, are not constant in every case, and as for the research for the specific bacillus, which would be of great importance were it not for the fact that positive results are not common, so that repeated negative examinations do not allow one to come to any precise conclusion. Dental glossitis and tuberculous ulceration are in reality very difficult to diagnosticate, but it is more especially in the case of cancroid that the difficulty is great and it is usually in these cases that much confusion exists. There are, however, some differential traits which should always be looked for in order to establish a distinction. A cancerous process is composed of an ulceration seated in an elevated neoplastic mass, but in some instances a sufficiently characteristic elevation does not exist because it has become destroyed by the process of ulceration and then one only finds a sort of cavity which varies in depth. The base is indurated, a most constant character of lingual cancroid. The ulceration has a bad aspect, irregular, sanious and with everted edges, but although all these characters have no great distinctness and are of value only in combination, there is one of highest importance which may be termed oozing. If one lightly presses the lesion and then wipes off the surface, a little oozing of a light pink colored fluid will be seen to occur. A syphilitic ulceration does not bleed and this differential diagnostic point is of the greatest value. One should also remember that the functional symptoms are much more marked in cancroid, which is painful, especially under the influence of mastication or the contact of alcohol. A more or less abundant salivation is apt to be present and also pain in the ears, symptoms which would hardly arise in syphilis, unless the lesion was extensive. The involvement of the lymph-nodes and the rather rapid cachexia are also important elements to which may be added a remark relative to the localization of the lesion, namely, that syphilis never occurs under the tongue while carcinoma develops there frequently. There is still one other sign that may have its utility in some cases and this is the possible multiplicity of syphilitic lesions, while in the case of carcinoma the lesion is nearly always single, a lingual carcinoma developing in two different points of the organ being an absolute rarity. One might be led to believe that, with all these diagnostic signs, mistakes would be infrequent, but in reality it is often difficult to make a diagnosis, so that a histologic examination must frequently be resorted to or the effect of antisyphilitic treatment tried. In cancer the microscopic examination is quite certain although it requires an expert pathologist, and even then there are causes for mistakes that even the most competent do not avoid. As to the therapeutic test it may render great service. Potassium iodid and mercury, especially the latter, should be given, and Fournier advises injections of calomel as this salt appears to possess a real specific action on lingual syphilitic lesions.

Primary Cancer of the Urethra.—The urethra is so rarely the seat of primary cancer that the clinical fact of the occasional occurrence of the original seat of the disease in this position has but recently been recognized. The great French surgeon Demarquay published, in 1877, a work bearing the title of *Les maladies chirurgicales dupênis*, which he meant to be exhaustive, and was undoubtedly the most complete that had appeared on the subject; this volume contains no reference at all to primary carcinoma of the urethra. The first surgical observer who placed a case on record appears to have been Thiaudiére, who in 1834, published in the *Bulletin Général de Thérapeutique*, a case of primary "tumeur carcinomateuse" of this canal. Thiersch, Hutchinson, Albert, Goncet, Guyon, Guiard, etc., afterward added their contributions to the record of this disease; and in 1889, Griffiths expressed the opinion that possibly the disease was not so rare as the classic authorities would lead their readers to believe. About the same date Kaufmann published a short memoir on the subject in Germany, and Witzenhausen another soon after. At the Congrès de chirurgie in 1894, Albarran communicated a case of "emasculation totale" performed for a primary epithelioma of the urethra. He was able to collect notices of but eight cases. Carcy collected 17 observations (Paris, 1895); and soon after Wassermann succeeded in bringing together 20 cases of primary epithelioma of the male urethra—including, however, three of Cowper's gland, and 24 of the female. Bosse made the subject the text of his thesis (Göttingen, 1898), in which he reduces the number to 17—rejecting the records which were not corroborated by skilled microscopic examination; he added, however three new cases. Oberlænder added another specimen, in 1900, to the annals of this lesion; and the subject has recently been discussed with great lucidity by M. Paul Sonbeyran[1] of Montpellier, who adds a case of his own to the reliable records of his predecessors, thereby bringing up the number to 24. The extreme infrequency of the lesion is well shown by the figures of the hospital statistics of Vienna,[2] in which 101,401 cases were tabulated. Of that vast number of patients, 16,687 bore tumors; and, in that enormous list of tumors, the urethra figured but 16 times. The lesion usually appears about the sixtieth year; but a case has occurred at 25, and another at 22. Traumatism appears to afford a starting point in some instances. The only treatment is, of course, excision; and the prognosis is most grave. The peculiar relationship of cancer of the penis to the urethra has been noted by all the best observers; it never (or hardly ever) affects the urethral canal so far as to cause retention of urine.

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[1] Gazette des Hôpitaux, October 17, 1903.
[2] Arch de Langenbeck, Vol xxv.

REVIEW OF LITERATURE

Results in Abdominal Suture.—Charles Davidson[1] some time ago proposed the fastening of a longitudinal silkwormgut suture in the fascia of the abdominal wall by firm bowknots, leaving the end of the suture protruding from the wound, the knots to be untied by traction on the exposed ends and the suture removed at the completion of the process of healing. At that time a series of 41 consecutive cases in which this treatment was used was reported. In the present paper he reports additional cases and states that the prime requisites demanded in abdominal wounds are that: (1) There shall be sterile healing; (2) there shall be accurate union of the strong fascia, and (3) no postoperative ventral hernias. In regard to sterility he states that Able's analysis of 280 cases in the Leipsic Gynecologic Clinic, in which closure was effected with catgut fascia suture, showed 52 infections, or 18%, while the author in 178 cases had 7 infections, or 4%. As to approximation of the fascia, he states that in one of his cases a secondary laparotomy was required when it was found that healing by his method of approximation was complete in every detail when viewed microscopically. As to hernia, Able's table gives 224 clean cases followed by 20 hernias, or 8.9%; 52 infected cases followed by 16 hernias, 31%; a total of 276 cases of fascial catgut suture followed by 36 hernias, or 13%. Of the writer's 178 cases of removable silkwormgut suture, 131 have been followed. One case of spontaneous epigastric hernia, operated upon by Mayo's method showed recurrence—⅔ of 1% postoperative ventral hernia. [A.B.C.]

The Treatment of Syphilis.—F. J. Lambkin,[2] of the Royal Army Medical Corps, reviews the various methods of administering mercury to syphilitics and states that since 1890 he has treated all cases by the intermuscular method, using the metallic mercury in the form of a cream as recommended by Lang, of Vienna, in 1888. Lambkin's slightly modified cream of mercury is made as follows: Hydrarg., 1 dr.; lanolin, pure, 2 dr.; parolene carbol. 1%, 4 dr.; of this 5 m. are given by injection once a week. The advantages claimed for it are: 1. It is much less painful than other preparations, an important factor. 2. Its effect on the symptoms and on the ultimate cure of syphilis are far more marked than those following the use of other forms of mercury. Why this latter should be so is probably due to the fact that the mercury is more slowly absorbed than when administered otherwise. In regard to pus formation he states that after 10,000 injections he has noticed only one abscess. His mode of procedure in treatment is as follows: 1. The patient's weight is taken and carefully recorded, this being done at intervals while treatment is being continued. 2. The gums are looked to and teeth examined, any old stumps being extracted. 3. The patient is cautioned to wash his teeth off after each meal and to use frequently a strong mouth wash of lead and alum while under treatment. 4. Plenty of open air and moderate exercise are allowed. 5. Spirits are forbidden entirely, but wine and beer are allowed, together with a liberal diet. 6. The patient attends once a week when he receives an intermuscular injection of 5 m. of the cream as described. The regularity of the weekly injection is not absolute, but depends somewhat upon the patient's condition. After the treatment of many hundreds of cases in this manner, Lambkin is entirely satisfied with the method. [A.B.C.]

Freyer's Prostatectomy.—E. Loumeau[3] reports the case of a man of 80, who had suffered with incontinence for 10 years, and had already been operated upon three times by the suprapubic method for vesical calculus; he was again suffering with the symptoms of calculous cystitis, and this had produced a fistula along the operative cicatrix, through which all the urine escaped. The prostate, the size of an orange, could be felt through the rectal wall, and no catheter could be introduced through the urethra. As perineal prostatectomy is often followed by such unpleasant conditions as incontinence and impotence, he performed a suprapubic prostatectomy, according to Freyer's method. The patient was placed in the Trendelenburg position, and a suprapubic incision made, the bladder was opened along its entire length. After removing a large calculus, the floor of the bladder was incised over the bulging mass of the prostate, and an incision 4 cm. long made over the left lobe, the index finger was inserted between bladder and prostate, and the latter loosened and removed in three fragments; the right lobe was incised similarly, and removed in two fragments. The urethra was not injured. The mass weighed 140 gm. The patient recovered. He now has complete urinary control and retains his sexual vigor in spite of his advanced age. [E.L.]

Gangrene of the Hollow Viscera.—Vertuer Kenerson[1] reports three cases. In the first a robust man, a moderate alcoholic, suddenly developed severe abdominal pain, operation was refused by the patient until he was practically moribund. Laparotomy showed a portion of the small intestine was practically gangrenous; eight inches of the gut was resected and end-to-end anastomosis done, but the patient died a few hours after operation. It was noted that the mesentery supplying the gangrenous portion of the intestine was swollen, hard and filled with nodules. The second patent was a man of 45 with a previous history of syphilis. He developed intraabdominal pain which was supposed to be gastric ulcer or acute pancreatitis. Laparotomy revealed a segment of gangrenous intestine, the abdomen was closed, but the man died on the following day. In this case also the mesentery supplying the gangrenous intestine was hardened into many nodules which filled the width of the mesentery, which latter was edematous. The third case was that of a boy of nine years. He developed mysterious abdominal pain insomuch that laparotomy was done, when 18 inches of the small intestine was found blackened and nephritic. The boy later confessed that two other boys had kicked him brutally in the abdomen which thus accounted for the condition. Kenerson believes that the gangrene in the first and second cases was caused by thrombosis of the mesenteric artery; he believes that there are many cases in which death is caused by gangrene of the intestine following thrombosis or embolism in the mesenteric artery caused by an alcoholic or syphilitic sclerosis coupled with slight injury or gastritis. [A.B.C.]

Respiratory and Cardiac Reflexes Induced by Peripheral Impression on the Pudic Nerve during Anesthesia.—Alexander Wilson[2] refers to the familiar spasm of the glottis produced during anesthesia, by forcible dilation of the sphincter ani or irritation of the parts supplied by the pudic nerves. He states that in these circumstances this spasm is part, often the only surviving part, of an explosive effort to be seen when a spasm of the glottis arises as the consequence of peripheral irritation. Its mechanism appears to be as follows: Sudden acute pain in the *conscious* subject is made by an involuntary deep inspiration, followed by closure of the glottis and fixation of the chest preparatory to an exclamation. What occurs in conscious subjects tends equally to occur in the *unconscious* or semiconscious individual, but a number of centers being paralyzed the action is not complete or properly coordinated, hence the stertor. The circulation is intimately associated with and dependent upon respiratory movements. It is interesting, he states, to know that forcible dilation of the sphincter ani has been suggested as a remedy in chloroform accidents, the object being to stimulate respiration. In a conscious subject the explosive effort is preceded by a deep inspiration, but in a state of narcosis sufficiently profound to induce respiratory paralysis this would not take place. It is questionable if at any stage of narcosis, other than a very slight one, this almost involuntary preliminary respiration could be elicited by dilation of the sphincter ani. [A.B.C.]

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[1] Annals of Surgery, September, 1904.
[2] The Journal of the Royal Army Medical Corps, September, 1904.
[3] Ann. des Maladies des Organs Genitourinaires, 1904, xxii, 126.

[1] Annals of Surgery, September, 1904.
[2] The Lancet, August 20, 1904.

The Piezometer, an Instrument for Measuring Resistances.—Howard A. Kelly[1] describes an instrument intended to register varying degrees of resistance. A slender rod works in a fenestrated cylinder containing a spring. The projecting end of the rod terminates in a button and on the rod which, with the fenestrated cylinder, is graduated, slides freely a little wheel. To outline an abdominal tumor a given pressure is made over the tumor and the distance to which the button sinks below the wheel is noted; the same pressure is then made over other points and the rod will be found to sink further. The pressure thus made can be demonstrated to bystanders whereas if the resistance was determined by palpation alone no satisfactory expression of the resistance could be made. The instrument can also be used in estimating the degree of rigidity in the right iliac fossa in cases of appendicitis, the rigidity of the right and left muscles being compared. By the use of the instrument no allowance need be made for difference in tactual sense. In may also be used as an algesimeter to determine how much pressure is necessary to elicit tenderness over the appendix. Kelly emphasizes the fact that the instrument is not to replace the method of palpation, but to supplement or confirm the results obtained by it. [A.G.E.]

The Technic of Posterior Gastroenterostomy.—Charles L. Scudder[2] reviews briefly the various methods of performing gastroenterostomy and details the method which he himself follows. Briefly, it consists in making an ample incision through the middle of the belly of the right rectus muscle; the great omentum and transverse colon are lifted completely out of the abdomen at the upper angle of the wound. While the left hand grasps the transverse colon and omentum, the fingers of the same hand push the posterior wall of the stomach in its pyloric portion firmly against the mesocolon; the right hand incises with a knife the transverse mesocolon, thus exposing the posterior wall of the stomach. By tearing, this aperture is made some four or five inches long; the posterior wall of the stomach is picked up by two pairs of dissecting forceps, thus freeing it from the anterior wall and the stomach clamp, as suggested by Littlewood, is applied, avoiding so far as possible the large vessels. The clamp is placed obliquely. The jejunum is now picked up by two pairs of toothed forceps, placed opposite the mesenteric attachment, and another clamp is placed longitudinally opposite to the mesenteric border; the two clamps are now placed upward and anastomosis is effected by first running a peritoneal suture, which unites the stomach and jejunum; then each viscus is opened for a distance of two to two and a half inches, the pouching mucous membrane trimmed away with scissors, and a separate suture unites through the entire periphery the borders of the two openings; the peritoneal suture is now continued entirely around the anastomosing wound and anastomosis is thus effected. Various details are given, which cannot be mentioned in abstract, and excellent illustrations accompany the article. [A.B.C.]

The Posterior Incision in Certain Appendicitis Operations.—John G. Sheldon[2] states that in this manner the appendix may be reached through Petit's triangle. A vertical incision is made along the outer border of the latissimus dorsi and extends from the crest of the ileum upward. This exposes the outer border of the quadratus lumborum and the lumbar fascia and aponeurosis of the transversalis. A second incision is made transversely close to the crest of the ileum through the lumbar fascia and transversalis, exposing the peritoneum directly over the ascending colon and cecum. This method is especially advantageous in treating an inflamed appendix or its most frequent complication, a localized abscess. In cases with pus formation the pus is more quickly and more easily reached, and with less danger treated through a posterior incision, than any other route. In chronic cases with many firm adhesions, Sheldon has found the operation here mentioned easier and more rapid than when the incision is made in the ordinary location. He has operated by this method in 58 cases and found no disadvantages. In clean cases it has no special advantages, though in pus cases it is the quicker operation and least liable to eventuate in hernia; it is followed by less shock and less abdominal distress than a laparotomy by the anterior incision. [A.B.C.]

The Etiology of the Socalled Acute Catarrhal Suppurations of the Joints.—Walter v. Brunn[1] reports two such cases. In the first, the condition began five days before he saw the patient with swelling of the knee and fever, tenderness, edema of the skin and slight flexion contractures. By aspiration, 40 cc. of greenish mucopurulent pus was obtained; 10 cc. of iodoform-glycerin was injected into the joint and the leg placed upon a Volkmann splint. The temperature soon fell, and in 12 days the patient left the hospital cured. In the pus, Brunn found the pneumococcus and the proteus. He examined the patient four months after leaving the hospital and found no impediment to joint motion. At this time the mother first told him the child had an attack of catarrhal pneumonia five days before the swelling of the knee began. In the second case the pneumococcus was found in pure culture. It was while undergoing treatment for a burn of the leg received about a year before, and which refused to heal, that the condition of the knee developed. The onset of the symptoms was similar to that in the first case, but instead of immediate recovery this patient developed an osteomyelitis of the right femur two weeks after the evacuation of the pus from the knee. Upon opening the bone and withdrawing the infectious material, this patient, too, made a speedy recovery. [J.F.]

The Use of Electricity in Skin-grafting.—John D. Rushmore[2] reviews the various methods of skin-grafting and rehearses the method advocated by J. Sherman Wight, which is as follows: Render the granulating surface sterile, prepare it to receive the grafts by cureting thoroughly, and while still oozing, place the grafts of any form desired in position on the surface bathed in blood, apply the high-frequency discharge from a pointed electrode at about a quarter inch distance over the entire surface until clotting is formed and the grafts are fixed in a dry surface. Serum that is squeezed out in the process of clotting should be sponged off. The dressing consists of 3% carbolized vaselin and plain sterile gauze; it is renewed at the end of the third day. The repair follows in the usual way, but takes a shorter course. Six cases previously reported by Wight are detailed, together with a seventh reported by Rushmore. In the last case out of 32 small Reverdin grafts, 28 "took" (87.5%). Rushmore says in our attempts at healing old granulating surfaces with small grafts we have in the use of the electric method a more exact and more successful way than heretofore employed for fixing the growths on the granulating surface. [A.B.C.]

Gunshot Wound of Liver, Aorta, and Spine.—B. Poulton[3] reports this case in order to record the protracted survival of the patient after a rifle wound of the abdominal aorta, 33 days. The subject was shot at close range by a Winchester .22 rifle, the bullet entering slightly above and to the left of the tip of the xiphoid cartilage. Operation was not performed, and he died suddenly on the thirty-third day. Postmortem showed perforation of the left lobe of the liver, the abdominal aorta, and the first lumbar vertebra, the bullet lying in the cauda equina. The wound of entry in the aorta was sealed by adhesions and difficult to find; the posterior wall contained a circular aperture 0.6 cm. (¼ in.) in diameter. Behind the aorta and connecting with this aperture was a cavity bounded in front by the aorta and part of spleen, behind by the vertebral column and the left kidney. It communicated with the left pleural cavity, which contained a massive blood clot. [A.G.E.]

Accidents and Complications of Gastric Ulcer.—G. R. Anderson[4] urges immediate operation in these cases, and states that from his own experience he recommends six cardinal points essential in performing the operation: 1. The site of junction, namely the posterior aspect of the stomach as opposed to the anterior nerve; in but few cases is it impossible to effect a posterior junction. 2. Shortness of the loop of bowel as measured from the duodenojejunal angle. 3. The obliquity of the angle into the stomach—namely, from below upward. 4. Proximation as near as possible to the greater curvature. 5. Removal of superfluous gastric and intestinal mucous membrane. 6. Immediate suture with fine silk by an inner and outer layer, together with the use of clamps during the process of suturing. In his early cases regurgitant vomiting was seen, but since following the points above numerated, not one of his patients has had regurgitant vomiting. Emphasis is placed upon shortening the loop. In after-treatment importance is placed upon pillowing the patient up in a semirecumbent position so soon as the anesthetic sickness has passed. Of seven reported cases of perforated gastric ulcer, four recovered and three died; ten cases are later reported illustrating the complications of chronic gastric ulcer. [A.B.C.]

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[1] Johns Hopkins Hospital Bulletin, September, 1904.
[2] Annals of Surgery, September, 1904.

[1] Berliner klin. Wochschrf., 1904, No. 27.
[2] Annals of Surgery, September, 1904.
[3] Australasian Medical Gazette, July 20, 1904.
[4] The Lancet, August 27, 1904.

Ankylosis of Lower Jaw Cured by Wedge-shaped Excision from the Left Ramus.—F. Koenig[1] reports a case of ankylosis of the lower jaw following osteomyelitis, and associated with calcification of the masseter muscle. Several operations had already been performed, but without permanent success. By means of the electromotor gimlet he made a number of openings into the hardened ramus (five on each side of the triangle) and removed the bone between the openings with the chisel. The triangular piece, with its base downward, was removed and the opening of the jaw forced with Roser's dilator. The mouth movements are perfectly parallel and have been improving ever since the operation. [E.L.]

Gastrotomy for Removal of a Hat-pin.—Arthur F. Holding[2] reports that a child of 20 months swallowed a long hat-pin. For three days following the temperature was slightly above normal, and there were symptoms of bronchopneumonia, later blood was passed by the bowel. A skiagraph taken showed the head of the pin downward to the left of the spinal column, opposite the intervertebral cartilage between the second and third lumbar vertebras, and the point upward to the right of the spinal column, on a level with the second dorsal vertebra. This was 15 days after the pin was swallowed. No alarming symptoms had been produced. Under ether the head of the pin could be palpated through the abdominal wall, midway between the ribs and the pelvis on the left side. A low, vertical incision was made through the rectus, the stomach was opened, and the head of the pin found firmly pressed against the posterior wall of the stomach. It was grasped with forceps and easily withdrawn; the wound was closed, and the child recovered. [A.B.C.]

Complications of Aortic Aneurysm.—W. F. Reishoff[3] reports an interesting case of aortic aneurysm complicated by thrombosis of the chief arterial trunks at their origin from the aortic arch. The diagnosis was confirmed by autopsy. The interest of the case lies in the striking absence of serious disturbances, due to thrombosis of the large arterial trunks. One might expect severe cerebral manifestations after blocking of the carotid and subclavian arteries, but in the author's case such symptoms were entirely missing. Other reports of a similar kind are to be found in literature. The blocking of the aneurysms and the subclavians often lead to no marked trophic disturbance of the upper extremity, and in the author's case only coldness of the hands and some collapse of the veins could be noted. All this shows the adaptability of the collateral circulation and the resisting power of the tissues. [L.J.]

Pathology and Treatment of Hernia in Children.—Edred M. Corner[4] states that childhood is the time when operation has the best chance of curing a hernia, as then only is the surgeon's skill aided by nature in the subsequent growth of the subject. He states that a congenital sac may exist without hernia and again frequently we find on operation, sacs of acquired or recent origin that are not connected with the tunica vaginalis. These facts have led him to believe that the chief factor in the production of hernia in children is gastrointestinal fermentation and the production of gas which causes intraabdominal pressure, thus tending to force the viscera through the abdominal wall at points of least resistance. Not only in inguinal hernia, but in ventral and umbilical hernia, he believes this is the chief causative factor. Contrary to the general belief he is of opinion that phimosis bears no causative relation to hernia. The truss commonly applied to a young child, made of a skein of wool is inefficient, though it sometimes effects a cure. His chief objection to the application of the ordinary truss is that considerable evil may result to the individual on account of its interference with the blood supply to the delicate tissue of the testis. Furthermore, he believes that a truss rarely or never cures a hernia if the sac is congenital, and the cures which are observed are those in which the sac is acquired. Under treatment he says: 1. Treat with dieting, rest in bed, if necessary a light truss, all hernias up to the age of four or five years. The selection at this time is arbitrary and the proper age limit must be selected for each individual subject; female children are naturally treated more effectively with trusses than male children. The treatment outlined has exceptions in the following cases: (*a*) Large or uncontrollable hernias; (*b*) irreducible or incarcerated hernias; (*c*) strangulated hernias. 2. At the age of 4, or thereabouts, all hernias of children should be submitted to operation, unless there are special circumstances. Particular mention may be made of (*a*) those with a congenital sac (the operation is now performed at the age of election); (*b*) those with an imperfectly descended testis; (*c*) those which have been and apparently will be persistent in character. [A.B.C.]

Decapsulation of the Kidney.—Thelemann[1] reports extensive researches with rabbits and dogs. He performed Edebohl's operation and found that the new capsule forms from the relics of the old capsule, the septums penetrating the kidney parenchyma and the fat capsule. The vascularization of the new capsule is probably no richer than the old. Decapsulation has no unfavorable action on the renal tissue, but it is doubtful whether it has produced more than a transient improvement, and this is only due to a temporary relief of pressure. Within 14 days the former anatomic conditions were reproduced, and as the increased formation of many new bloodvessels is doubtful, the procedure can never be of permanent benefit to man. The clinical results published to date are not free from objections. Of Edebohl's 51 cases the grave ones died, the milder cases improved, and some few of them have even recovered. It is a question whether they would not have recovered without operation. The narcosis is also a certain injury to the patient, whether it is chloroform or ether. It must always be taken into consideration. [E.L.]

Cure of Ascites in Hypertrophic Cirrhosis of the Liver.—Paul Courmant[2] reports the case of a man of 61, an old alcoholic, who came under observation with a marked ascites. Puncture was necessary at once and 13 quarts of yellowish liquid was withdrawn. The liquid reformed and a second puncture was necessary one month later, when 13 quarts of liquid was again withdrawn. Following this, the abdominal liquid and edema disappeared permanently. The patient took no medicine, but, following the second operation, the chlorids were reduced from his diet. Up to this time, he had been given modified milk diet containing about 14 gm. (3½ dr.) of sodium chlorid. After the second operation, he was given two quarts of milk containing about 4 gm. (1 dr.) of sodium chlorid. This resulted in a great increase in the quantity of urine voided. The ascites did not recur and the edema of the limbs disappeared. [L.F.A.]

Adenoma of the Mucous Glands of the Lip a Cause of Macrocheilia.—Daniel Eisendrath[3] states that macrocheilia may occur from one of two causes: (1) Inflammatory affections of the lip, and (2) the presence of genuine neoplasms; the former is most frequent. It consists in an enormous thickening of either lip, or both, and occurs especially in scrofulous children; it is very apt to relapse and is often chronic in character. Microscopically, it consists of an hypertrophy of the mucous glands, with an increase of all the tissues constituting the lip, that is, the connective tissue, bloodvessels, etc. He reports a case occurring in a youth of 16, who, since the age of 10, had suffered a gradual increase in the size of both lips. The protrusion of the upper lip was more marked than that of the lower, the lip was soft, not painful, and divided by a deep furrow in the middle. A diagnosis of lymphangioma was made, and operation for excision was undertaken. Upon incising the lip it was found to be exceedingly vascular, and the greater portion of the thickening was due to many little tumors, from the size of a bird shot to that of a pea, most of which were arranged in group-like clusters. It was believed that these were little lipomas, but a microscopic examination showed that they consisted uniformly of glandular tissue, resembling in type normal mucous glands of the lip; hence, macrocheilia in this case was ascribed to adenoma of the mucous glands of the lip. A similar case has been reported by Fränkel. [A.B.C.]

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[1] Deutsche medicinische Wochenschrift, 1904, xxx, 529, No. 15.
[2] Annals of Surgery, September, 1904.
[3] Medizinskoe Obosrenie, lxii, No. 13.
[4] The Lancet, August 20, 1904.

[1] Deutsche medicinische Wochenschrift, 1904, xxx, 538, No. 15.
[2] Bulletin Général de Thérapeutique, Vol. cxlviii, No. 1, 1904, p. 21.
[3] Annals of Surgery, September, 1904.

Lithotomy versus Litholapaxy.—C. B. Shuttleworth[1] thus summarizes the choice of operation for stone in the bladder: 1. Litholapaxy is certainly the choice of operation in all simple cases of stone in the urinary bladder. 2. When the stone cannot be crushed or removed by the lateral method, the suprapubic route, or perhaps better, perineal lithotrity, should be adopted. 3. When the stone is encysted or associated with a tumor of the bladder, choose the suprapubic route. 4. When there is a deep, tight urethral stricture, especially with fistulas, do the suprapubic or median perineal operation. 5. In ankylosis of one or both hip-joints do suprapubic lithotomy. 6. In the presence of foreign bodies in the bladder, which may form the nucleus of a calculus and resist the lithotrite, perform one of the perineal methods. 7. Although litholapaxy applied to children is very successful in the hands of experts, for the present, lateral lithotomy is the safer operation for the general surgeon. 8. Litholapaxy should be carried out, whenever possible, when senile degenerations exist or when there are morbid changes in the genitourinary apparatus; necessary treatment must be afforded the complication either before or after litholapaxy. [A.G.E.]

Erysipelas of the Face.—Albert Robin[2] states that the mortality of this disease is about 2%. It becomes more grave in patients suffering from cardiac disease and grip. It is especially grave in old people, the mortality being from 70% to 75%. External antisepsis is the most efficacious treatment. This is best accomplished by spraying the diseased area with Van Swieten's solution every three hours, night and day. Each application lasts for from 20 to 30 minutes, the spray being held at a distance of about 20 inches. The healthy portions of the body and the eyes should be protected by some impermeable covering. After the fourth day, the applications are diminished in number; one every six hours, then one every twelve hours. By this means the author has reduced the mortality to nil. The internal treatment consists in the administration of quinin and alcohol. If delirium is marked, cold baths should be employed. Spartein or digitalis should be given if the pulse weakens. A milk diet must be maintained throughout the disease, the ordinary diet being allowed only during convalescence. The mucous membrane of the mouth and nose should be rendered antiseptic by appropriate gargles or antiseptic solutions. The use of antistreptococcic serum has given no good result, the mortality being the same with it as without it. [L.F.A.]

The Surgery of Neurofibroma of the Acoustic Nerve.—Joseph Fränkel and Ramsay Hunt[3] review the literature on this subject, having collected some six reported cases, and they report a case in full. In the latter the patient was operated upon, and a neurofibroma of the acoustic nerve, which occupied the triangular space formed by the pons, medulla, and cerebellum, was removed, but the patient died. Their conclusions are as follows: 1. The acoustic tumor syndrome is well defined, and the diagnosis can be made out with practical certainty. This presupposes not only the diagnosis of the location of the tumor, but its nature and comparative size. 2. The slow and essentially benign nature of the growth, its noninfiltrating character and enucleability would all favor surgical interference. 3. The deep situation at the base of the brain in immediate proximity to vital centers affords very serious obstacles. 4. From personal observation we believe that surgical technic should be perfected along the following lines: (*a*) The avoidance of undue concussion in the removal of the bone and enlargement of trephine opening; (*b*) a method of extirpation by which the tumor could be removed without undue manipulation of the surrounding parts; (*c*) the division into stages as recommended by Horsley, and celerity of execution. 5. The study of the literature of this subject is unsatisfactory because most of the cases are recorded under the heading of cerebellar tumor. [A.B.C.]

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[1] Canada Lancet, August, 1904.
[2] Journal des Praticiens, Vol. xviii, No. 14, 1904, p. 215.
[3] Annals of Surgery, September, 1904.

Experiences with Appendicitis.—From his experience in the treatment of appendicitis, K. G. Lennander[1] makes several deductions. He finds that an inflammatory process may run a latent course in the appendix, and cites a case in illustration. Another deduction is, that appendicitis may be the starting point of an infectious lymphangitis and lymphadenitis that may give rise to a limited or progressive peritonitis, without ulceration or perforation of the appendix. Further, an acute infectious enteritis or colitis is an important etiologic factor in appendicitis. The author believes that the pains in the middle or left side of the abdomen, which frequently begin an attack of appendicitis, are often due to a lymphangitis arising from the appendix, cecum or ileum. In some cases such pains may be due to the much more serious condition of a ruptured appendiceal abscess, with passage of infective matter to the left side of the abdomen, causing a progressive peritonitis in that locality. In regard to treatment, the author employs the expectant plan, withholding all food and drink. He operates, if this method does not produce improvement, or so soon as suppuration is demonstrated. He does not depend on the behavior of the leukocytes as an indication for operation. After recovery from a first attack without operation, he advises a careful regulation of the mode of life. Where this is not possible, he advises the interval operation. If a second attack occurs, he operates immediately. In all operated cases he removes the appendix, if it is at all possible to do so. [B.K.]

The Treatment of Erysipelas.—W. J. Subbotin[2] describes his method of dealing with erysipelas as follows: The remedies are ichthyol and mercury, and their mode of application is the new feature of treatment. At first the affected area is covered with a 10% ointment of ichthyol. Then blue mercurial ointment is applied all around the inflamed region in order to check the spread of the process. The blue salve is lightly rubbed in for two to three minutes, and the entire area is then covered with absorbent cotton, held in place by a bandage. Internally, after clearing out the bowels, a mixture of sodium salicylate is given in tablespoonful doses every two hours. At night a half grain of codein is allowed, if necessary. When the heart is feeble, caffein is given three to four times daily in doses. of 1½ grains. The results have been extremely satisfactory [L.J.]

Foreign Body in the Bronchus Removed by Electromagnet.—Andrew J. Hosmer[3] reports that a baby 16 months old had a shingle nail in its mouth and was seen to suddenly strangle, cough severely, and the nail disappear. No immediate symptom other than the coughing was noticed, but in a few days the child developed a severe bronchitis; it became worse and a skiagraph was taken of the bared chest. It showed plainly the head of the nail reaching down to the upper border of the seventh rib on the left side and the point reaching upward diagonally to the upper border of the fourth rib on the right side. As the symptoms were not particularly urgent, Hosmer experimented on a dog before operating on the child. He did a tracheotomy on the animal, put a shingle nail into the bronchus, and attempted to remove it by instruments. This failed and the dog died. He turned to the magnet and by the aid of an electric engineer an electromagnet was produced. This was of sufficient power to attract strongly a shingle nail at a distance of two inches. The child, 13 days after the original accident, was anesthetized, a low tracheotomy done and the projecting tip of the magnet carried down the trachea and the current turned on. A click was heard, the instrument was withdrawn bringing the nail successfully from its position. The wound was closed and the child made a good recovery. [A.B.C.]

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[1] Mitth. a. d. Grenzgeb. d. Med. und Chirurg., Bd. xiii, Heft 3, p. 303.
[2] Russki Vratch, July 31, 1904.
[3] Annals of Surgery, September, 1904.

Lingual Goiter.—Henry R. Storrs[1] considers this question from the standpoint of etiology, discusses the location of the parathyroids, and mentions 32 cases reported in literature, giving a brief abstract of each. A number of illustrations accompany the article. His conclusions are: (1) Lingual goiter is a tumor at the base of the tongue, arising from an accessory thyroid gland, which may be found in the course of the development of the thyroglossal duct; (2) it has all the characteristics of ordinary goiter; (3) it occurs almost exclusively in women between the ages of 15 and 40, it grows slowly and may exist for years without causing any inconvenience until some unknown cause stimulates its growth and produces symptoms; these are functional and not constitutional, and consist in difficulty in swallowing, breathing, and speaking, accompanied by frequent hemorrhages; (4) the tumor is round or ovoid, elastic, and covered with a very vascular mucous membrane, and is almost never ulcerated; (5) dermoid cysts offer the only difficulty in differential diagnosis, but this is generally yellow, grows rapidly, pits on pressure, and has not the vascularity of goiter; (6) operation is the only cure. There are two ways of reaching the tumor, namely, through the mouth, and through an incision in the upper hyoid region, the former being best; (7) the prognosis is good. [A.B.C.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

The Treatment of Postoperative Intestinal Paralysis by Physostigmin.—Pankow,[2] in order to determine the relative value of the substance, first observed the results on a series of cases treated in the following manner: Whether flatulence was present or not, every patient received an enema on the second evening after the operation. Internal medicines were never given until the expulsion of flatus had begun. If considerable tympany was present before the second night after the operation, a rectal tube was then introduced. This series consisted of 119 laparotomies, 63 vaginal cases, and 28 Alexander-Adams operations. During the first four hours after the laparotomies and the Alexander-Adams operations flatulence did not occur, while after the vaginal operations it occurred in 2 cases during the first 4 hours and in 3 cases between the fourth and the twelfth hours. He then carried out a series of observations upon cases which had undergone similar operations, but into which he injected 0.001 gm. of eserin sulfate immediately after the operation. During the first 4 hours one of the 17 laparotomies, with and without intestinal adhesions, developed flatulence; none of the 10 Alexander-Adams operations developed the condition; in one of the 8 vaginal operations flatulence developed. His next series consisted of 20 laparotomies, 2 Alexander-Adams operations, and 7 vaginal operations; into each case comprising this series he injected 0.00125 gm. of the eserin immediately after the operation. Not one of these cases developed flatulence during the first 12 hours. The next series consisted of 11 cases of laparotomy, 4 Alexander-Adams operations, and 5 vaginal operations; into these cases he injected 0.001 gm. of eserin salicylate immediately after the operations; during the first 4 hours none of them developed flatulence. He then injected the second dose between the twelfth and twenty-fourth hours into these same patients, and then 2 of the laparotomies and 1 case of the Alexander-Adams operation developed flatulence. Pankow is not favorably impressed with the action of eserin upon the intestinal tract. [J.F.]

Postpartum Hemorrhage.—J. W. Grosvenor[3] places the causes of postpartum hemorrhage under these heads: Uterine atony, mechanical obstruction, meddlesome midwifery, systemic derangement, and trauma. The first is the most common cause. Under the term meddlesome midwifery is placed the action of the physician who seeks to hurry the third stage of labor. Grosvenor believes nature should be allowed to express the placenta in all cases in which she is equal to the task; two or three hours may elapse before sufficient contractile power is regained. He considers anesthesia a factor in increasing hemorrhage after labor. His experience justifies the statement that if the anesthetic is pushed to the extent of doing effective service, more than the physiologic amount of blood is lost; if the anesthesia is profound, is surgical or approaches near to the surgical condition, there is danger of genuine postpartum hemorrhage. Grosvenor discusses the various methods of treatment and says his two favorite remedies are the pouring of cold water from a height upon the abdominal wall and passing the closed hand, made as aseptic as practicable, into the uterine cavity and using it as a compress. Both these expedients are quickly used, which is a great item in the cases under consideration, and have been employed by him with gratifying success. [A.G.E.]

Hebotomy.—Van de Velde,[1] in the *Wiener klin. Wochschrf.*, 1903, No. 29, describes in detail the technic of this operation with the results in two cases. He now adds three more to the list; of the first of these, he says, the previously symmetric pelvis is now asymmetric, this condition being due to an increase of 2 cm. (⅘ in.) in one diameter. The callus, which a short time before could be felt distinctly, is now greatly diminished. In the second case the distance between the crests after hebotomy was increased 2 cm. (⅘ in.), the right iliopubic diameter, 1.5 cm. (⅗ in.) and the transverse diameter of the outlet, 1 cm. (⅖ in.). These measurements were taken after union at the point of hebotomy had been completed for some little time. With breech presentation, either spontaneous or artificial, he does hebotomy on the side of the pelvis toward which the back of the child points and extracts by grasping the forward leg, but if for any reason it is advantageous, hebotomy is performed on the other side, then the child is extracted by grasping the posterior leg. As a rule, however, either late in gestation or early in labor he attempts version by external manipulation in order to determine whether the head will not enter the inlet during strong pains. From his third case he learned that the operation can be done under a local anesthetic. Narcosis was avoided because of prolapse of the cord and suffocation of the child. The child was saved by the operation. [J.F.]

Vaginal Hysterectomy for Cancer of the Cervix during Pregnancy.—R. and A. Condamin[2] claim that surgical intervention is called for in cases of operable cancer of the cervix discovered during pregnancy. The chance of saving the mother by total hysterectomy at this time is considerable, the records showing 22% of apparent cures after an interval of four years; while the prospects of saving the fetus by allowing the case to go to term are very slight. If the broad ligaments or the wall of the bladder are involved, however, the mother is doomed, and efforts should be directed toward saving the child. If the cancer is in its very first stages during the sixth or seventh month of pregnancy, the surgeon may wait a month or two, if he thinks it safe. The operation of choice is vaginal hysterectomy. If the operation is done after the period of viability is passed, it should be preceded by an abdominal cesarean section, in order to save the child, if possible. [B.K.]

Spontaneous Ventral Fixation of the Uterus a Cause of Complication after Labor.—Two hours postpartum Fuchs[3] was called to see a case of bleeding, which had ceased when he arrived. By expression he obtained a good contracting uterus, but so soon as he attempted to apply Credé method, the organ became relaxed. He then found that the posterior wall and the fundus of the uterus contracted, but the anterior wall failed to do so. Bleeding now became so severe that he introduced his hand into the vagina, but the cervix would admit part of his hand so that after dissecting off as much as possible he was forced to pull out the placenta, after which the bleeding stopped. He was then able to introduce his hand into the uterus, but found no adherent pieces, although he determined the interesting fact that the right cornu of the uterus was much higher than the left, and that the right half of the uterus was better developed than the left. Fuchs attributes cause of the hemorrhage to the adhesions between the anterior wall of the uterus and the anterior wall of the abdomen; the adhesions involved the greater portion of the left half of the uterus. He explains the lack of such a complication at a previous labor by the fact that the placenta was not adherent to the anterior wall of the uterus. [J.F.]

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[1] Annals of Surgery, September, 1904.
[2] Centralblatt f. Gynäkol., 1904, No. 31.
[3] Buffalo Medical Journal, September, 1904.

[1] Centralblatt f. Gynäkol., 1904, No. 30.
[2] Lyon Médical, August 7, 1904.
[3] Centralblatt f. Gynäkol., 1904, No. 29.

Treatment of Puerperal Sepsis.—C. E. Taft[1] says rigid surgical asepsis is the most vital factor in the prevention of puerperal fever, and prophylaxis will be improved by avoiding vaginal examination whenever possible. With our present knowledge we must rely on clinical aspects rather than bacteriologic examination to determine proper treatment. Medical treatment should consist of drugs to promote phagocytosis, inunction of Credé's ointment, and hypodermoclysis. No antistreptococcus serum of proved value has been discovered. The course of a pure, uncomplicated streptococcus infection of severe type is not in the least influenced by any surgical procedure whatever. Vaginal drainage, either alone or combined with abdominal drainage, is indicated as soon as it becomes apparent that the peritoneum is involved. Hysterectomy has a limited, but not very clearly defined field in a few cases. [A.G.E.]

Myxoma Chorii.—T. A. Sokollow[2] reports a case of myxoma chorii which ended in abortion during the third month. The treatment consisted in a very cautious curetment, and the author asserts that the danger of perforating the uterus in this condition has been considerably exaggerated. After the uterus has been emptied of large masses and has somewhat contracted, he would employ the sharp curet, by means of which the scraping can be done thoroughly, the hemorrhage controlled, and the danger of a future malignant growth minimized. Even in the absence of such malignancy, myxoma chorii is a serious complication of pregnancy. The usual symptoms are: Bleeding, disproportionate size of the uterus, and the discovery of vesicles. To this another sign may be added, namely, the extreme flabbiness and doughy softness of the uterus. [L.J.]

The Use and Abuse of Midwifery Forceps.—J. A. C. Kynoch[3] says it is almost impossible to lay down a hard-and-fast rule as to the indications and counterindications for forceps; each case is a law unto itself, and individual judgment must be used. There can be little doubt that it is one of the truest maxims in midwifery, that as long as the membranes are intact and the liquor amnii present, no danger will accrue to mother or child, by the continuation of labor, except, perhaps, by the occurrence of convulsions and hemorrhage. In malpositions of the head as presented by face cases, expectancy is the best treatment, as the labor terminates naturally. Should natural rotation of the chin be unduly delayed forceps is legitimate. In cases of persistent mentoposterior, where immediate traction is indicated, forceps should be used. In brow presentations forceps are of use only when the head is impacted in the pelvis, or when it is too late to convert it into a more favorable position. The application of forceps to the after-coming head should be reserved for cases in which jaw traction is impossible, from the mouth being inaccessible, or in which the occiput is behind the chin, directed to the pubis. In case of prolapse of the cord, ordinary methods of reposition failing, the best chances for the child in multiparous patients, lie in delivery with forceps. In primiparous cases he deems version preferable. In reference to the frequency of mortality, he finds by taking the practice of ten continental maternity hospitals, the average frequency of forceps cases is 3.6%. [A.B.C.]

Vesicovaginal Fistula following Hysterectomy for Cancer of the Cervix.—J. A. Sampson[4] says the anatomic relation of the cervix and bladder is such that cancer of the former soon invades the bladder wall. The surgeon who attempts to separate an adherent carcinomatous cervix from the bladder usually leaves cancer tissue behind or injures the bladder wall so a fistula forms or the injured portion is unable to resist infection, and severe cystitis results. Therefore, if the cervix is adherent to the bladder, that portion of the bladder wall should be excised in order to avoid the above sequels. Postoperative fistulas frequently close spontaneously. When they do not, operative closure is demanded, but this should never be done until the tissue has had time to regain its natural blood supply. One should probably wait at least two months. The radical operations for cancer of the uterus so diminish the sensibility of the vagina and bladder to pain that a postoperative fistula may be closed without the aid of a general or local anesthetic. As a suture for this closure, Sampson finds fine silver wire fastened by perforated shot a very satisfactory material. If a piece of rubber tubing is placed between the shot and the vaginal mucosa, a most efficient splinting suture is formed, which maintains accurate approximation without strangulation. [A.G.E.]

A Simple Method of Catheter Sterilization.—Gusseff[1] for this purpose utilizes a nickel tube 12 mm. ($\frac{12}{25}$ in.) in diameter and 21 cm. (8.4 in.) in length. Near the one end of the tube two wires run transversely and at right angles to each other; these wires act as a support to the cotton plug which occludes the lumen of that end of the tube; the plug is introduced from the opposite opening. He uses nickel catheters instead of the glass, because of the fragility of the latter. The catheters are placed into the tubes and then the other opening of each tube is closed with another piece of cotton; after this is done, the tubes with the contained catheters are placed in the autoclave and sterilized under pressure, or they may be sterilized by means of dry heat. When sterile, the tubes with their contents are put away until wanted. In this way 10 or 12 sterile catheters may be kept on hand. After they have been used the catheters are washed, replaced in the tube and resterilized. [J.F.]

Effect upon Pregnancy of Operations for Uterine Displacement.—H. P. Ritchie[2] reviews the 154 operations performed by McLaren. Pregnancy has occurred 25 times in 21 cases; there were 6 miscarriages, but in only 2 of the cases could the operative procedure be held responsible. One of the patients could never have gone to term without the second operation, which permitted such termination of pregnancy; the other did so the second time, after the band was stretched by the first pregnancy. Ritchie ably discusses the various operations and evolves these conclusions: 1. Fixation by broad attachment of the uterus to the abdominal wall in a woman of child-bearing age is contraindicated unless accessory procedure prevents pregnancy; if pregnancy is not to be considered, it is the operation of choice. 2. The objection to suspension operations lies in the difficulty of obtaining a surgical result that is nonobstructive to uterine growth. 3. The use of the round ligaments in any way suggested offers no obstruction to enlargements of the uterus and discussion on their use must be limited to the methods best suited to support the uterus. 4. The uterus will by its own weight pull away from an artificial ligament attached anteriorly to the face of the fundus and it will also pull away from the round ligament so attached. 5. Thus far, the round ligament sewed to the posterior wall of the uterus, although the cases are few, seems to meet the requirements. [A.G.E.]

Method of Hysterectomy.—John O'Conner[3] describes a method which, while not new, is yet very practical. Under anesthesia the patient is placed in the laparotomy position, two Sim's speculums are introduced, and the cervix is grasped with forceps; with curved scissors the vaginal mucous membrane surrounding the cervix is severed through the entire circumference; the forceps remain, but the speculums are withdrawn and the patient placed in the supine position. The abdomen is opened in the usual way, intestines packed off with gauze, and a nurse is directed to place a hand between the thighs, and grasping the forceps left on the cervix, she pushes strongly upward. The result is practically to render the operation of hysterectomy a superficial one, and obviates the necessity for the Trendelenburg position, which latter, O'Connor deems a dangerous posture if continued for any length of time. The vesical peritoneal reflexion is divided transversely, and the bladder is separated from the uterus in the usual manner. The uterus is then pulled forward and the peritoneum on the posterior aspect divided transversely. The ovarian and round ligaments are ligated and divided, the broad ligament severed, forceps grasping the uterine arteries as they are divided, and the uterus is removed. If the cervix has previously appeared healthy, the vagina is closed by continuous catgut suture; if not, or if oozing continues, the vaginal suture is omitted and the peritoneal flaps are sutured. The abdomen is closed in the usual manner. [A.B.C.]

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[1] Yale Medical Journal, August, 1904.
[2] Medizinskoe Obosrenie, lxii, No. 13.
[3] British Medical Journal, July 23, 1904.
[4] Johns Hopkins Hospital Bulletin, September, 1904.

[1] Centralblatt f. Gynäkol., 1904, No. 29.
[2] St. Paul Medical Journal, August, 1904.
[3] The Lancet, August 27, 1904.

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

MILK DIET IN TYPHOID FEVER.

To the Editor of American Medicine:—It was with great interest that I read Dr. Hoag's timely article in *American Medicine* for August 13 on a milk diet in infantile summer diarrhea. There seems to be an unaccountable prejudice in favor of a milk diet not only in this, but in many other diseases, where it would seem to be equally reprehensible.

There is no food so generally used in typhoid fever and yet, apart from the danger of infected and adulterated milk, no one can say when tough, insoluble curds may form, which are worse than almost any solid food.

During the recent epidemic, after discarding milk and treating the patient by fasting the first week on a strictly fluid diet, including beef juice, broths, gelatin, coffee, cocoa, and white of egg, I had no relapses or no particularly severe symptoms after the first three or four days.

There are logical reasons for not using milk in typhoid, and if there are any for using it, I would be glad to learn them.

The mere statement, by however good an authority, that it is the best diet, is not convincing to anybody able to think and reason.

JESSIE W. SMITH.
Glenville, Ohio.

It is true, that in cases of summer diarrhea, and especially the diarrhea of infants, milk diet is highly objectionable. It is not true that milk diet is objectionable in typhoid fever. On the contrary, it is the best possible diet, provided precautions are taken to prepare the milk properly. In the first place, due care should be taken to obtain noninfected milk. In the second place, should there be the least doubt as to the purity of the supply, the milk should be boiled. In the third place, pancreatic powder, sodium bicarbonate, and water should be added to the milk in correct proportion, just before it is given to the patient to drink. In my own wards, and in my private practice, this plan of giving "pancreatized milk" has been followed for 20 years with complete satisfaction. It is quite probable that the administration of milk in excessive quantity and in such a way as to permit the formation of tough and indigestible curds is responsible for the occurrence of hemorrhage in some cases of typhoid fever. Should hemorrhage occur, it is my practice to stop giving even pancreatized milk and to administer only recently prepared beef juice. [S.S.C.]

REVIEW OF LITERATURE

The Action of Strophanthus.—G. Guenther's[1] experiments have led to the following results: Strophanthus is a pure poison for the cardiac muscle, killing warm-blooded animals by stopping the heart during diastole. The process of poisoning produces characteristic changes in the pulse and blood-pressure, which differ from those produced by digitalis chiefly through the absence of vagus irritation. Strophanthus possesses a vasoconstrictor action, which, weaker than that of digitalis, influences the picture of the poisoning process but little. Strophanthus possesses a specific influence on the vomiting center. The only antidote known for it is artificial respiration; the employment of stimulants and excitants is of no more influence than are the agents claimed to be antidotes by some French authors—morphin and chloral. [E.L.]

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[1] Therapeutische Monatshefte, 1904, xviii, 285, No. 6.

Potassium Permanganate as Antidote to Morphin.—As but little has been written lately concerning the antidotal powers of potassium permanganate against morphin, A. Kraemer[1] considers himself justified in reporting the case of a student, who took 1.5 gm. (22 gr.) of morphin nitrate in solution during an attack of psychic depression. The symptoms began to develop within half an hour, but it was not for 3½ hours that a physician was called. At that time the student was generally cyanosed, his pupils were fixed and contracted to a pinpoint, his breathing irregular, slow and stertorous, pulse rapid and threadlike, and his mind clouded. He rapidly went into collapse. He was at once given 1.5 gm. (22 gr.) of potassium permanganate in solution by mouth, and vomiting a brown colored fluid after some little time, he was given another .5 gm. (7½ gr). His general condition improved gradually; his breathing became deeper and more regular, the cyanosis gave way to a hyperemia, the mind became clearer and the patient began to know what was going on around him. From then on he was given cognac to improve the cardiac activity and potassium permanganate, 0.1 gm. (1½ gr.) every half hour to neutralize the morphin, which was being excreted into the stomach constantly. The patient recovered. In treating morphin poisoning it is necessary to give at once a dose of potassium permanganate corresponding exactly to the amount of morphin taken; if it cannot be taken by mouth, a 1% solution may be injected at different parts of the body; after the first vomiting 0.1 gm. should be given by mouth every half hour. As adjuvants to the treatment may be employed artificial respiration, ice-bag, hot foot-baths, stimulants, etc. The chemic action is an oxidation of the morphin by the potassium permanganate into a pseudomorphin and even toxic doses of morphin in an empty stomach can be made perfectly innocuous by this substance, as proved by Moor's experiments on himself. [E.L]

Calcium Sulfid Medication.—Abogado[2] states that this salt is good in (1) Relapsing erysipelas; (2) erysipelas with respiratory complications; (3) sore throat, or granular angina; (4) relapsing herpetic angina; (5) diphtheric angina; the medication to be continued after the illness is cured in prophylactic doses of 0.12 gm. daily. [T.H.E.]

Lysoform Poisoning.—Mode[3] reports the case of a woman who drank a tablespoonful of undiluted lysoform instead of some innocuous remedy left for her. The only symptoms she complained of were nausea and slight burning along the esophagus; there was no vomiting. She was asked to partake of large quantities of milk and rice, and recovered without other untoward symptoms. Pulse and temperature were never affected, and she continued her pregnancy to the end. This is a proof that lysoform, although it contains formalin in olive oil, is not poisonous in the dose of a tablespoonful. [E.L.]

Constipation in Children.[4]—One to two dessertspoonfuls of the following in a glass of hot milk is recommended as a laxative for children:

Manna, in tears		25.0 gm. (6 dr.)
Sublimed sulfur Calcined magnesia	of each	50.0 gm. (12 dr.)
White honey		200.0 gm. (6½ oz.)

[L.F.A.]

Successes of Cinnamic Acid in Pulmonary Tuberculosis.—R. Blum[5] takes the part of Landerer's hetol treatment in cases of incipient pulmonary tuberculosis; he says that not only is the diseased process stayed almost at once, but after a time it undergoes retrogression. The treatment can be carried on successfully in the office of the physician, and does not need a sanatorium, thus keeping the patient at his work at the same time while he is being cured. He made his injections intravenously, employing 10 mg. to 15 mg. of hetol at the first injection and increasing it .5 mg. until the maximum dose was reached. The injections were practised every two hours. He reports the details of 12 cases, all of which improved materially. [E.L.]

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[1] St. Petersburger medicinische Wochenschrift, 1904, xxix, No 23.
[2] Crónica Médica Mexicana, July 1, 1904.
[3] Therapeutische Monatshefte, 1904, xviii, 320, No. 6.
[4] Bulletin Général de Thérapeutique, Vol. cxlviii, No. 1, 1904, p. 31.
[5] Therapeutische Monatshefte, 1904, xviii, 288, No. 6.

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Japanese Methods of Physical Culture.—Japan is the only nation of the world in which the whole people have learned practical cleanliness of body, perfect ventilation and cleanliness of the house. Europe and America have not yet found out that the national wealth consists of health, and that national supremacy depends entirely upon medical and hygienic righteousness. We know but do not practise the evident truth that the tuberculosis problem entirely, and those of most other diseases partly, depend upon ventilation and household cleanliness. While we allow the antivaccination foolishness its criminal vogue in England, France, and America, Japan has compulsory vaccination, and no smallpox. The world belongs to the physically strong and the governments which spend their incomes on anything and everything except the one thing most necessary will surely go down before the armies of those nations that are more careful of the laws of preventive medicine. Mr. Kennan, in *The Outlook*, describes the physical culture exercises carried on at the Japanese naval academy. There were no gymnasiums, football or baseball clubs, no racing crews. The three principal kinds of exercises were *jujutsu*, *keujutsu*, and *botori*. The first is a peculiar kind of wrestling in which skill, quickness, and knowledge of anatomy take the place of, or at least supplement purely physical strength. Keujutsu is sword play, similar to our own, and botori is a sort of pole-scrimmage, in which the two bands into which the students are divided try to pull down a pole eight feet high set upright upon the ground. Kennan thinks the training of the Japanese students results in as perfect physical forms as those gained by our methods. He emphasizes the fact that while furious vigor and even roughness are permitted it is all governed by self-control and by the most perfect courtesy and dignity of manner.

The International Congress of Arts and Science, held at St. Louis last week, under the auspices of the Universal Exposition, was a great and unique event. The idea of the Congress grew out of the thought that the subdivision and multiplication of specialties in science had reached a stage at which investigators and scholars might derive both inspiration and profit from a general survey of the various fields of learning, planned with a view of bringing the scattered sciences into closer mutual relations. The central purpose was the unification of knowledge, an effort toward which was most appropriate on an occasion when the nations brought together an exhibit of their arts and industries. An assemblage was therefore convened at which leading representatives of theoretic and applied sciences should set forth those general principles and fundamental conceptions which connect groups of sciences, review the historic development of special sciences, show their mutual relations and discuss their present problems. After the opening of the Congress on Monday afternoon, September 19, there followed, on Tuesday forenoon, addresses on main divisions of science and its applications, the general theme being the unification of each of the fields treated. There were then two addresses on each of the 24 great departments of knowledge. The theme of one address in each case was the fundamental conceptions and methods, while the other set forth the progress during the last century. The preceding addresses were delivered by Americans, making the work of the first two days the contribution of American scholars. On the third day, with the opening of the sections, the international work began. About 128 sectional meetings were held on the four remaining days of the Congress, at each of which two papers were read, the theme of one being suggested by the relations of the special branch treated, to other branches; the other by its present problems. Three hours were devoted to each sectional meeting, thus enabling each hearer to attend eight such meetings, if he so desired. The program was so arranged that related subjects were treated, so far as possible, at different times. The length of the principal addresses was limited to 45 minutes each; there remained at least an hour for brief communications in each section. The addresses in each department will be collected and published in a special volume.

The Utilitarian Sciences at the Congress of Arts and Science were classified as Department 17. The first of the utilitarian sciences was medicine; technology and economics being the other two. The general speaker for the division of utilitarian sciences was admirably chosen, as none could have been better fitted, either by endowment or experience, than President Jordan to show the interrelations of pure and applied science and the essential unity which pervades medicine, engineering, agriculture, the financial sciences and works. It was gratifying to find Dr. Jordan a believer in the unity of pure and applied science in contradiction of a view which had unfortunately been expressed by the president of the Congress the day before:

> The sole line which sets off utilitarian science lies in the limitation of human strength and of human life. The single life must be given to a narrow field, to a single strand of truth, following it wherever it may lead. Some must teach, some must investigate, some must adapt to human uses. It is not often that these functions can be united in the same individual. It is not necessary that they should be united; for art is long, though life is short, and for the next thousand years science will be still in its infancy. We stand on the threshold of a new century; a century of science; a century whose discoveries of reality shall far outweigh those of all centuries which have preceded it; a century whose glories even the most conservative of scientific men dare not try to forecast. And this twentieth century is but one—the least, most likely—of the many centuries crowding to take their place in the line of human development. In each century we shall see a great widening of the horizon of human thought, a great increase of precision in each branch of human knowledge, a great improvement in the conditions of human life, as enlightenment and precision come to be controlling factors in human action.

As to medicine, Dr. Jordan brought out clearly the great truth of the interdependence of the sanitary and medical sciences and of engineering. The hygienist and physician have too long ignored the powerful help in the cause of the public health to be gained from the sanitary engineer, and, on the other hand, the engineer, of whatever kind, must henceforth be an expert in sanitary laws and conditions, and in his field can never forget the ideal of human health and well-being.

Medicine at the Congress was represented by the following speakers:

GENERAL MEDICINE.

Dr. William T. Councilman, Harvard University.
Dr. Frank R. Billings, University of Chicago.

PUBLIC HEALTH.

Professor William T. Sedgwick, Massachusetts Institute of Technology.
Dr. Ernst J. Lederle, Former Commissioner of Health, New York City.

PREVENTIVE MEDICINE.

Professor Ronald Ross, F.R.S., School of Tropical Medicine, University College, Liverpool.

PATHOLOGY.

Professor Ludwig Hektoen, University of Chicago.
Professor Johannes Orth, University of Berlin.

THERAPEUTICS AND PHARMACOLOGY.

Sir Lauder Brunton, F.R.S., London.
Professor Oscar Liebreich, University of Berlin.

INTERNAL MEDICINE.

Professor T. Clifford Allbutt, F.R.S., University of Cambridge.
Professor William S. Thayer, Johns Hopkins University.

NEUROLOGY.

Professor Shibasaburo Kitasato, University of Tokio.
Professor James J. Putnam, Harvard University.

PSYCHIATRY.

Dr. Charles L. Dana, Cornell University, New York.
Dr. Edward Cowles, Boston.

SURGERY.

Dr. Frederic S. Dennis, F.R.C.S., Cornell Medical College, New York City.

GYNECOLOGY.

Professor Howard A. Kelly, Johns Hopkins University.
Professor John C. Webster, Rush Medical College, Chicago.

OPHTHALMOLOGY.

Dr. Edward Jackson, Denver, Col.
Dr. George M. Gould, Philadelphia, Pa.

OTOLOGY AND LARYNGOLOGY.

Sir Felix Semon, C.V.O., Physician Extraordinary to His Majesty, the King, London.
Dr. J. Solis-Cohen, Jefferson Medical College.

PEDIATRICS.

Professor Thomas M. Rotch, Harvard University.
Professor Theodore Escherich, University of Vienna.
Professor Abraham Jacobi, Columbia University.

Our readers will be pleased to learn that nearly all these eminent medical men have chosen *American Medicine* as the journal for presenting their papers to the scientific world. This makes needless the unsatisfactory method of abstracting and epitomizing them. Their importance and value make the full presentation especially necessary. Publication will begin so soon as the articles can be put in type.

The (Alcoholic) Child is Father to the (Alcoholic) Man.—A correspondent of *The Lancet* gives some startling statistics concerning the use of alcoholic drinks by the school children at Schöneberg, a suburb of Berlin. The investigation was made by Dr. Goldfeld, a medical officer of the public schools. The tables given in his paper show that of 470 boys, 264, or 56.2%, daily drank beer, and 139, or 30%, were casual drinkers. In one of the classes 96.2% were regular drinkers and in another only 33⅓%. Spirits were taken by from 17.7% to 60.4%. The figures relating to girls, though sufficiently serious, showed a less prevalent consumption of alcohol. In all, 51.3% of the children, girls and boys, drank more or less. From one to two glasses a day was the average. Malt beer was preferred by the majority, while some drank lager beer, or the socalled white beer, a special Berlin beverage containing a great quantity of carbonic acid and a relatively small quantity of alcohol. As to the other liquors Dr. Goldfeld states that rum, kümmel, cognac, or even a combination of several spirits was taken. The teachers informed Dr. Goldfeld that children accustomed to the use of spirits were especially lazy, absent-minded, and inclined to tell lies. Dr. Goldfeld undertook to warn the children against the danger of alcoholism, but without any success, the children continuing to drink. Although his endeavor was supported by the teachers, the parents were not to be persuaded and the influence exerted by the school was checked by that of the parents. Dr. Goldfeld proposes that eventually addresses should be read on the subject before a meeting of parents of children attending individual schools and that, moreover, they should be provided on behalf of the school authorities with a short essay dealing with the dangers of alcoholism. In all probability the children of most other German communities are as much addicted to alcohol as those of Berlin. To what extent is this pernicious custom allowed in our country? An investigation here would be of use. Temperance reformers might wisely devote some of their energies to this important subject. What do our school children buy with their pennies? The appetite of alcoholism established thus early in life must be much harder to conquer, and the morbid results more certain to follow.

Trachoma and Favus in Immigrants.—The law demands the exclusion of immigrants with loathsome or dangerous contagious diseases, and it is noteworthy that of the total number of cases of such diseases found in immigrants to our country, about 87% are due to trachoma and 10% to favus. The fact shows the pitiable condition of the people whence we draw so many of our immigrants, because these diseases are easily prevented, and the other moral and intellectual conditions of the people who allow such diseases to become so common must be of the poorest. We do well, therefore, to deport them. The people who fail to prevent such easily preventable diseases can hardly make good American citizens. The indications are shown in this table of the ratio in which trachoma was found in the immigrants of 1902:

Race.	Ratio of cases of trachoma to number immigrants landed.
Syrian	1 to 66
Armenian	1 to 192
Lithuanian	1 to 375
Finn	1 to 496
Hebrew	1 to 539
Greek	1 to 667
Slav	1 to 758
German	1 to 772
Scotch	1 to 1,216
Magyar	1 to 1,243
Italians	1 to 2,066
Scandinavians	1 to 3,486
English	1 to 3,623
Irish	1 to 4,173

Both diseases are, of course, contagious, and if we do not allow immigrants suffering from them to land we may easily not only prevent the increase but ultimately stamp these "loathsome" affections out entirely. The great danger to vision from trachoma makes the wisdom of the quarantine law manifest, and its rigid execution the more demanded. Especially "the Mediterranean races" need most careful looking after at the ship-landings.

Progress in Medical Ethics.—In an excellent address before the Warren County Medical Society,[1] Dr. M. V. Ball, of Warren, Pa., asks the question, *Is the profession growing less ethical?* The answer consists in the statement of facts as regards the actual condition of professional ethics at typical historic periods, and in our own times. Dr. Ball demonstrates the general progress from classic times on. Galen denounced the Roman physicians as "thieves, poisoners, ignoramuses, charlatans." The Hippocratic oath was of course sworn by few and the great mass of socalled medical men pursued their way regardless of such considerations. So it was with the most noble prayer of Maimonides. Such seekings and glimpses of the higher life were individual, ideals of the few. Our own "code" of ethics was due to a large degree to Dr. Percival, of Manchester, England, and shows a more concerted straining after better conditions than were exemplified by the great body of physicians of his day. But there is a steady progress, certain and noteworthy, in the ratio of those with a better ethical practice, and the scamps, or even those not positively bad, but only floating and indifferent. Despite the admitted and evident evils of today, the truth remains that whereas during Roman and even medieval times there was perhaps one self-respecting physician to a thousand quacks and scapegraces, the proportion is now enormously higher, almost reversed one might hazard, in some places. As to present desideratums, Dr. Ball wisely says:

> There may be commercialism sprouting out here and there, specialists in large cities may adopt a few of the business man's methods. The medical journal may have lost its independence and serves its masters, the drughouse or the book publisher more faithfully than it was wont to, medical schools and hospitals may employ lobbies to influence State officials in their favor, yet notwithstanding all this, we cannot look backward to any golden age for our ethics. The gentleman of the old school was not always a model gentleman, as measured by our idea of a gentleman. There is room for improvement, and this will come as the profession becomes closer organized. We must cry down the effort to bring business methods into our work. We belong to a liberal profession and must be guided by the ethics of science. We cannot give our services according to measure, but to every one who needs us must give of the very best we have, pay or no pay; to do less would be criminal. We must work more than we have been working to prevent disease, and even though it be against our own interests, we must strive to protect the public first, the individual second.

The Country Practitioner.—There are two conditions that have grown up in recent years which profoundly influence the life and practice of the physician living in small places or country districts—the increased number of the well-to-do, and the cheap and quick journeys to the city made possible by railway and trolley. It was only a little while ago that the country practitioner had all the practice of his neighborhood, with all of the honor and profit that resulted from this position of monopoly and trust. He now has to compete not only with the traveling charlatan, the nostrum seller and the drug store of his own town, but those of his patients who are able go to the city or they call in the city practitioner, who, either in consultation or independently, comes down to them. The fact is of the greatest importance and influence upon the local physician's professional life and standing, and bound up with it are many evils and as many compensating benefits—if not to the physician, at least to the community. The chief of the benefits, perhaps, is connected with the growth and blessing of specialism. The general physician in the present state of medical science cannot know or treat skilfully certain diseases. He is, in fact, destined, if he has not already become, as much a specialist as any other. It is only very simple diseases of the throat, eyes, ears, of surgery, etc., that he may safely undertake to treat. On the other hand, he has too willingly given up his patients to the general physician and diagnostician of the city. He is, indeed, better fitted to treat his own patients than the city neurologist. As a whole, he is doing noble work, and too thanklessly, and we should all seek to compensate him as much as possible for the evil days upon which he has fallen—at least we should not seek to take away from him that which is justly his. In his able address Dr Ball says:

> The average country practitioner is working hard, and honestly making use of his experience for the help of his fellowmen, striving in every way to keep abreast of his time, exposing himself to all kinds of weather, at all hours of the day and night, foregoing social pleasure, estranging himself from his

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[1] Medical Fortnightly, August 10, 1904.

own family. He must always be required to dress well, and keep up appearances. He is criticised for every death that occurs, in danger of being sued for malpractice in every operation that he undertakes, expected to perform the miracles claimed by the charlatan and impostor, and deserted by his most intelligent patients, on the advent of every magnetic vitopathic, spiritualistic or other pseudoreligious mysticist, with whose blatant and preposterous pretentions he is supposed to compete. He must perform at least a third of his work gratuitously, and must expect to be cheated out of another portion. And the charity he gives is unheralded, even though it brings fame to hospitals and makes their existence possible. And all this anxiety and struggle for an earning not equal to an average salesman's wages. In our county, at least, $1,500 is a fair return for a year's work in medicine.

"The Bracer" is the name popularly given to a socalled patent, that is, not patent, but very secret concoction, sold at "soda water" fountains by the nostrum drug stores. In some towns or small cities, and in some parts of our country, it is said that practically every one has this form of the drug habit, for such it is. Narcomania is being extended by this means to an extent that is frightful. "Clerks and office men are hardly able to go to their work until they have had four or five glasses of these secret drugs, and the laboring population is almost as bad." The attention of the Womens' Christian Temperance Union (which thinks the medical profession responsible for alcoholism and drug habits) is respectfully called to this atrocious abuse. Saloons also help in the degrading horror by drugging the already wretched quality of the liquors sold. All true temperance people will unite with the medical profession to check this abuse. Women's civic improvement clubs and leagues might well devote some of their energies to getting good laws passed and to getting bad men to execute them. If they would set about it, the women could out-root this and many similar evils. Possibly no new laws are needed, and that only scientific analyses of these drugged drinks should be made in a thoroughgoing way, followed by prosecutions of the criminal manufacturers and sellers, followed by jailing the wretches who thus defy every demand of law, medicine, and health.

Wounds Produced by the Japanese Rifle.—Some years ago when the proposal to adopt the Meiji rifle for the Japanese army was under consideration, Dr. Kikuchi reported strongly in favor of it on the ground that its bullet would have greater stopping power, though the wounds it would make would heal quickly. The rifle has the smallest caliber of all existing military rifles, and its trajectory is very flat. Dr. Kikuchi, who, is a staff surgeon in the medical department of the Japanese army, has now written a report claiming that the experience gained during the earlier stages of the present war has fully confirmed his conclusion. The stopping power of the bullet he attributes to its cutting clean through arteries and veins, causing a large loss of blood and consequent weakness and faintness, so that the man is unable to proceed. In the wounded Russians who fell into the hands of the Japanese after the battle of Yalu, healing occurred with great rapidity, and at the date of Dr. Kikuchi's report, 40 days after the battle, even the most severely wounded were convalescent. One of these patients had been shot through the lungs, and must have lost a large quantity of blood, estimated at as much as a pint and a half or a quart. Another patient who recovered was shot in the stomach. These statements are confirmed by a Central News telegram from Vladivostok, which states that in the cases of about 100 officers and 6,000 men treated in the Russian Military and Red Cross Hospitals for bullet wounds, healing took place rapidly. Even in cases in which the chest or liver were penetrated recovery took place, as also in one instance of a bullet wound traversing the head. Cases of this kind were, we believe, not infrequent during the Boer war, in the case of wounds produced both by the Mauser and the Lee-Metford rifles.—[*British Medical Journal.*]

BOOK REVIEWS

A Textbook of Pathology, for Practitioners and Students.—By JOSEPH MCFARLAND, M.D. With 350 illustrations, a number in colors. Philadelphia: W. B. Saunders & Co., 1904.

The impression first imparted by this latest addition to the list of textbooks on pathology is that an enormous amount of material has been crowded into its 800 pages, and this impression deepens as the examination is made more thorough. We feel confident in saying no other recent treatise, not encyclopedic in character on any subject, contains so much direct and correlated information on the branch with which it deals. This is one of the two principal features of the book on which its claims for recognition may be based, the other being that the author's experience in teaching has enabled him to present this information in a manner easily grasped by students. The completeness of the book is well shown by the way in which the pathology of typhoid fever is set forth. First is given the bacteriology with the full cultural characters of *B. typhosus*, its pathogenesis and serum reaction; then follow the morbid anatomy and histology of the intestinal lesions of typhoid; finally are considered accidents, metastases, relapse and associated infections of typhoid fever. Discussion of theories has rightly been omitted, the author stating the work has been written particularly for students who need to acquire the principles of pathology, rather than to busy themselves with the evolution of the subject or to enter into the consideration of its controversial points. Hence the student will find the book "chuck full" of things he ought to know; the practitioner, while possibly not finding it to meet his needs quite so thoroughly, will not be disappointed when he turns to it as a reference. We cannot here review in detail the entire book. Its contents are about equally divided between general and special pathology, 10 chapters being devoted to each. Various subjects are well spaced according to their importance, and the topics are happily chosen. The chapter on Tumors is very satisfactory; the statement in the definition that they are *functionless* newgrowths would bear qualification. Adami's embryologic classification is given with the comment that it is extremely convenient, but its present use by teachers would be confusing. The chapters on Parasitism and Immunity are excellent. While we would prefer, with the author, to regard the flagellum of the trypanosoma as terminating the posterior end, it should have been stated that this is almost universally denominated the anterior end of the parasite. The pathology of the blood is very thoroughly considered; two tables furnish in compact form a great deal of information regarding the liquor sanguinis and the corpuscles. The illustrations are from Cabot. Retrojection of bile as a cause of pancreatitis, should have been mentioned under diseases of the pancreas. In considering the pathology of croupous pneumonia, we find Dr. McFarland very sceptical as to the correctness of describing it under the three generally accepted stages; he employs this method, however, saying it affords opportunity difficult to secure in any other way. As a whole, we have only praise for the contents of the book. Some minor points, a few of which we have mentioned, need consideration in subsequent editions. The opening sentence of the last paragraph on page 34 is queerly jumbled, but in general the proof reading has been very thorough. We were surprised to find on page 317 the old preantiseptic term, "laudable pus." The illustrations answer very well their intended purpose, but are not a distinct advance over those in other works upon the subject. We hesitate to mention a point at variance with the usually excellent work of Saunders, but unless the copy furnished the reviewer is an exception, the binding of this edition is not so substantial as the book demands. The author laments the necessity, even after liberally pruning his manuscript, of putting the less important parts of the text in small type in order to keep the size of the book within bounds. The use of two sizes of type would not be so objectionable were it not from the fact that both are too small for a textbook of this kind; in these days of preventive medicine the eyes of students of that science surely deserve the greatest consideration. We appreciate thoroughly the position of the author, dealing as he is with this most comprehensive branch of medicine, but believe he should have avoided one or both of the above alternatives by using his blue pencil still more mercilessly or by increasing the number of pages, preferably the former. In this connection it is pertinent to refer to instances of repetition of ideas which are not particularly infrequent. In the section on typhoid fever we read: "Typhoid fever is an acute infectious disease, caused by *B. typhosus* of Koch and Gaffky," and three sentences below: "Typhoid fever seems to be caused by *B. typhosus* of Koch and Gaffky;" regarding the intestinal lesion, we are told: "About the end of the third week the destructive processes end;" and five lines further on: "In ordinary cases the destructive process is entirely over with the end of the third week." These points need attention, even if the question of space were not important. Again, space could in many places be gained by eliminating superfluous paragraphs. For instance, the consideration of fat necrosis of the pancreas, occupying a running space of little more than two and a half inches, is put in six paragraphs, the last four containing only one sentence each. These points are not mentioned in a spirit of captious criticism, for the book deserves no such treatment at our hands; they suggest how the author might have avoided choosing what seems to us the least satisfactory horn of a dilemma.

Modern Ophthalmology. A Practical Treatise on the Anatomy, Physiology, and Diseases of the Eye.—By JAMES MOORES BALL, M.D. F. A. Davis Company, Philadelphia.

This is the latest and most comprehensive single volume textbook on Diseases of the Eye. From an artistic standpoint it is seldom the pleasure of the reviewer to commend such a striking production. The mechanical perfection of the work is especially worthy of mention. The typography leaves little to be desired and the illustrations are of a high order of excellence. Although most microphotographs and colored plates are in a measure unsatisfactory, Dr. Ball's plates are far beyond the average, and in some cases reach the high standard of the small Jaeger Atlas. It is the announced purpose of the author to meet the wants of the medical student and practitioner as well as those of the ophthalmologist, and it is but fair to say that he has been quite successful in this difficult task. However, the book is primarily for the specialist, and by him it will be appreciated as a conscientious effort to cover the modern science of ophthalmology in a concise, thorough, and up-to-date manner. Of the 25 chapters, Dr. Ball has written 19. The remaining six have been contributed as follows: W. T. Shoemaker, on "Diseases of the Orbit;" Wm. Zentmayer, on "Diseases of the Muscles of the Eyes;" J. T. Krall, on "Refraction;" J. C. Knipe, on "Ocular Symptoms of Nervous Diseases;" H. G. Goldberg, on "Hygiene of the Eyes" (all of Philadelphia); W. E. Fischer, of St. Louis, on "Microscopic Examination of Diseased Eyes."

Studies from the Rockefeller Institute for Medical Research.—Reprints Vol. i, 1904.

This volume contains 27 reprints of articles published by workers in various laboratories who conducted investigations under grants from the Institute. The volume furnishes in convenient form many very valuable papers, most of which have received attention in our columns. Several are devoted to the question of dysentery and its etiology, but a wide range of topics is included. The book is neater and more uniform than is usual with aggregated reprints.

Theorie und Praxis der Augenglaser.—By Dr. E. H. OPPENHEIMER, Berlin. August Hirschwald. 1904.

This is a monograph on the manufacture and fitting of lenses. The optical industry is discussed in all its phases. The manufacture of glass, the grinding of lenses, the making of lens frames, and the varieties and fitting of monocles, eyeglasses, and spectacles are described. The text is profusely illustrated by nearly 200 cuts and diagrams, some of which are seldom seen in English or American works. While of greatest value to the optician, this work will be useful to all physicians interested in ophthalmology.

AMERICAN NEWS AND NOTES

GENERAL.

Bequests to Charity.—By the will of **Francis White**, of Baltimore, the sum of $2,000 has been left to the Baltimore Eye, Ear, Nose and Throat Hospital, and a like sum to the Nursery and Children's Hospital, and similarly to the Home for Incurables, in Baltimore.

Hospital Superintendents.—The National Association of Hospital Superintendents at the recent session in Atlantic City elected the following officers: President, Dr. G. H. M. Rowe, Boston; first vice-president, Dr. Charles O'Reilly, Toronto, Canada; second vice-president, Dr. George E. Ricker, Minneapolis, Minn.; third vice-president, Dr. J. R. Coddington, New Haven, Conn.; secretary, Mrs. A. M. Lawson, New York City; treasurer, Dr. Reuben O'Brien, Paterson, N. J.

Waste in Hospitals.—At the recent convention of Hospital Superintendents of the United States and Canada, held at Atlantic City, N. J., Dr. Daniel C. Test, of the Pennsylvania Hospital, criticised the extravagances which are creeping into hospital management. He observed that there seemed to be an utter disregard for economy in the use of supplies, and he believed that there was economy in paying good wages for good employes, as cheapness in pay resulted in unintelligent waste.

Miscellaneous.—Philadelphia: The annual report of the Chief Resident Physician of the **Municipal Hospital** to the Mayor of the city for the year 1903, has been issued. It shows that 832 diphtheria patients were admitted, showing a mortality of 19.23%; of scarlet fever cases treated there were 1,040, with a mortality of 10.57%; of smallpox patients there were 1,527, showing a mortality of 19.83%. The total number of patients admitted during the year was 3,204, number discharged 2,464, and the mortality of 17.20%. Chief Resident Physician Dr. B. Franklin Royer, in his report asked particularly for the installation of a new telephone system connecting the main office with the various hospital wards.—Dr. W. L. Rodman has **removed** his residence and office from 1626 Spruce street to 1904 Chestnut street.—**Jefferson Medical College** held the eightieth annual opening exercises on Monday, September 26. Introductory address was delivered by Hon. William Potter. Two distinguished scientists present at the opening exercises were Sir Lauder Brunton, physician to St. Bartholomew's Hospital, London, and Dr. Liebreich, professor of pharmacology at the Berlin University. Over 700 students were enrolled.—The **Medico-Chirurgical College** held opening exercises for the session of 1904–1905 on Wednesday evening, September 28. The address was delivered by Dr. Daland.—**Georgia**: Announcement has been made that *Southern Medicine* and *Gaillard's Medical Journal* have been consolidated into one journal to be known as *Southern Medicine and Gaillard's Medical Journal*, with Dr. William Edwards Fitch, formerly editor of *Southern Medicine*, as editor of the consolidated journal.

EASTERN STATES.

Boston's Mortality.—The *Boston Transcript* of September 17 says: The total number of deaths reported to the Board of Health for the week is 212 as against 215 the corresponding week last year, showing a decrease of 3 deaths, and making the deathrate for the week 18.

NEW YORK.

Many Physicians in New York City.—The *Medical Directory of the City of New York*, in the edition for 1904, just issued, contains the names of 5,909 practitioners in Greater New York. These are distributed as follows: Manhattan and the Bronx, 4,211; Brooklyn, 1,519; Queens, 121; Richmond, 58.

To Investigate the Cause of Pneumonia.—Health Commissioner Darlington has received acceptance from the physicians whom he invited to meet in New York for the purpose of considering as experts the alarming increase of pneumonia, and determining, if possible, whether it is contagious, and to devise a plan for dealing with the disease.

Boats for Patients Suffering from Contagious Diseases.—The mayor has approved the measure authorizing an issue of $67,000 of corporate stock to defray the cost of constructing a new steamboat for the department of health. The new boat is for the transportation of patients suffering with contagious diseases. It is to replace the Franklin Edson, which has performed the service for many years, and is now in bad condition.

Memorial Resolutions.—At a recent meeting of a committee representing the Department of Public Health of the city of New York, the following resolutions relating to the recent death of Dr. Victor Steinberger were adopted:

WHEREAS, We feel that in the untimely demise of our esteemed co-worker, Dr. Victor Steinberger, we have lost a genial companion, an arduous worker, a progressive physician, and an earnest and sincere colleague; therefore, be it

Resolved, That we, the medical inspectors and trained nurses of the Department of Health of the City of New York, Borough of Manhattan, at a special meeting held on July 23, 1904, extend to his widow and to his family, our heartfelt sympathy in the hour of their bereavement.

May the remembrance of his affable personality, his conscientiousness in his duties, his devotion to his beloved ones, and his uprightness of character serve to lighten their grief, to strengthen them in their affliction, and be a blessed memory in the future; and be it furthermore

Resolved, That these resolutions, suitably engrossed, be presented to his widow, and that a copy be published in the city medical journals.

[Signed] COMMITTEE.

PHILADELPHIA, PENNSYLVANIA, ETC.

Smallpox Hospital Closed.—The smallpox building of the Municipal Hospital is now closed, for the first time in five years. There have been no new cases of smallpox for four weeks.

Diphtheria in Lancaster.—An epidemic of diphtheria has broken out at Weaverland, and the school boards, acting as a Board of Health, has closed the schools and quarantined a number of scholars.

Epidemic among Children.—Measles and whooping-cough are very prevalent among children, Director Martin says. He is preparing a circular letter to physicians advocating thorough disinfection of premises where these diseases exist.

Adulterators of Milk Convicted.—On September 21 there were eight convictions and one acquittal in court, of dealers charged by the Food Department with selling adulterated milk. Six of those found guilty were fined and sentenced to serve short terms in prison. In two other cases there were extenuating circumstances, and the Judge suspended sentence.

Pittsburg Milk Dealers Fined.—Forty milk dealers from country districts in Allegheny county have been arrested by H. L. Banzhoff, pure food agent, and were tried before Alderman Groetzinger. Chemist Aschman testified that formaldehyd was present in 61 of 737 samples of milk gathered in dangerous quantities. The milk dealers were each fined $50 and costs, or $67.

Impure Water and Typhoid in Bucks County.—A member of the State Board of Health has visited Doylestown to investigate the possible contagion of typhoid fever from the dairies now shipping milk to Philadelphia. He found 20 cases of typhoid fever in the neighborhood of Line Lexington, in Hilton and New Britain townships, nearly all traced to drinking water from a well.

Would Enforce the Law against Adulterating Foods.—News from Pottsville states that the Pottsville Merchants' Association has decided to cooperate with the Philadelphia Retail Grocers' Association in enforcing the State food laws. The State Pure Food Department is arresting hundreds of retail merchants, who are fined for selling, innocently, impure articles of food. It is now proposed to make the manufacturers who furnish such articles pay the penalty.

For Purity of Drugs.—Attorney-General Carson has given the State Pharmaceutical Examining Board an opinion in which he says that it is proper for that body to bring suit against manufacturers and venders in order to prevent the adulteration, alteration, and substitution of drugs and medical preparations. The board recently discovered that certain druggists were selling "doctored" Jamaica ginger, and acting under the Attorney-General's opinion, will bring suit against them.

SOUTHERN STATES.

Mortality and Morbidity in Baltimore.—News from Baltimore, under date of September 25, states that the report of the Health Department for last week shows a total of 181 deaths, as compared with 171 the corresponding week of last year, 173 in 1902 and 134 in 1901. The deathrate per thousand of population was: White, 15.25; colored, 24.14; whole, 16.63.

WESTERN STATES.

Test for Sewage Contamination.—The Bulletin of Chicago's Health Department states that a number of experiments have been made with a view of determining the accuracy of the chemic tests used for the detection of sewage contamination in the water-supply. It was found that the addition of a single drop of one of the constant constituents of sewage to five gallons of water gave a marked reaction that could be immediately detected with absolute certainty.

At the Denver meeting of the American Academy of Ophthalmology and Otolaryngology, held on August 24, 25 and 26, 1904, the following officers were elected: President, Dr. H. W. Loeb, of St. Louis, Mo.; first vice-president, Dr. V. T. Vail, of Cincinnati, O.; second vice-president, Dr. Robt. Levy, of Denver, Colo.; third vice-president, Dr. Eugene Smith, of Detroit, Mich.: secretary, Dr. Geo. F. Suker, of Akron, O.; treasurer, Dr. Otto J. Stein, of Chicago. Council: Dr. H. W. Loeb, Edw. Jackson, W. L. Ballenger, Casey A. Wood, J. M. Ray, of Louisville. The next place of meeting has not been announced.

FOREIGN NEWS AND NOTES

GENERAL.

Cholera Reported in Port Arthur.—Advice from Tsingtau, China, states that there are 15,000 sick and wounded in Port Arthur, and that cholera has broken out in the city.

Röntgen Ray Congress.—A congress to discuss the Röntgen methods will meet in Berlin, April 30, 1905. Professor Röntgen will be the guest of honor of the congress, which will mark the tenth anniversary of the publication of his discovery.

Neglect of Precautions against Smallpox in Russia.—It is reported from Vilyouisk, Russia, that a hospital, which has been built there after a long agitation is totally useless for want of medical men, and the *Vostotch noe Obosrenie* adds that in consequence of this lack of medical men the people are dying rapidly in the surrounding district from smallpox. The dead are not even buried and so they contribute to the further dissemination of the disease which is also raging in other parts of the country without any medical assistance being provided for the victims.

Plague Conditions in Peru.—According to the Public Health and Marine-Hospital reports, during the week ended August 6, 1904, there were 11 new cases of plague in Lima, with 5 deaths. Twelve patients were discharged cured, 28 remaining under treatment. Dead rats were found in several places in Lima. No cases are reported in Callao. Fourteen places were disinfected in Lima, 79 rats and 3,050 mice were trapped and killed, and numerous rat holes were filled with cement. Partial reports from Salaverry give 2 new cases and 1 death for the week; incomplete reports from Payta give 4 new cases and 2 deaths.

Mortality and Morbidity in Rio de Janeiro.—During the week ended September 7 there were in all 360 deaths. Of this number there were none due to yellow fever, and there were no new cases of this disease, and at the close of the week there were no cases even in São Sebastião Hospital. Plague caused 4 deaths with 5 new cases, and at the end of the week there were 14 patients ill, and under observation, 1 in the Paulo Candido Hospital. Smallpox caused 118 deaths, with 282 new cases reported, and at the end of the week there were 337 cases of this disease in the Hospital São Sebastião. No deaths were caused by scarlet fever, choleraic diseases of children, or leprosy.—[*Public Health and Marine-Hospital Reports.*]

A Congress on Milk Supply.—The second international congress on milk supply will be held in Paris in connection with the International Milk Exposition in the third week of October 1905. The following is the program: 1. Production of milk: (*a*) Breeds of cows, feeding, milking, etc.; (*b*) hygiene of the cow house. 2. Technology of milk supply: (*a*) Milk in its natural state, its preservation, transport, sale, etc.; (*b*) butter; (*c*) cheese; (*d*) derivatives and by-products. 3. Hygiene: (*a*) General hygiene of the milk supply; (*b*) public assistance and maternity. 4. Chemistry of milk: (*a*) Scientific researches, analytic methods; (*b*) adulterations (milk, butter, etc.). 5. Legislation, etc.: (*a*) Insurance; (*b*) education of the public, communications to the press, pamphlets, etc.—[*British Medical Journal.*]

Encouraging Women's Medical Education in Russia; A Question of Preference.—Touching the enlarged scope of the Women's Medical Institute in St. Petersburg the *Novoe Vremya* exclaims the first shall be last and the last first, for two professorships of midwifery and gynecology are to be allocated to that institute, beside separate chairs for (1) bacteriology, (2) rhinology and laryngology, and (3) epizootiology. Of the three last named there is not a chair in the medical faculties of the universities, and of midwifery and gynecology there is but one. The *Russki Vratch* says, in relation thereto, it must be hoped that the universities will be similarly treated for in the contrary case it would be a clear injustice to establish for women a medical education superior to that provided for men.—[*The Lancet.*]

The Diploma in Tropical Medicine.—The first examination for the diploma in tropical medicine and hygiene by the University of Cambridge was held last August, and the papers, with a list of those who passed, have now been published by the University Press. The examination consisted of three written papers: One in pathology, including bacteriology and parasitology; one in medicine and surgery; and the third in hygiene and sanitation. Practical and oral examinations were also held on the same subjects, the laboratory parts at Cambridge, the clinical at the Seamen's Hospital, Albert Docks, London. A study of the different papers contained in the pamphlet shows that the examination has been searching and thorough, and that a candidate, in order to be successful, must, in addition to theoretic knowledge, have also possessed practical skill in the methods of laboratory research now specially taught in the schools of tropical medicine. This is as it should be, and the diploma, with its high standard, should be eagerly sought after by those practising in tropical colonies.—[*British Medical Journal.*]

The Ambulance in Civil Life.—Mr. Reginald Harrison has very opportunely issued a sixth edition of his pamphlet on "The Ambulance in Civil Life." It contains an account of the introduction of the horse ambulance into Liverpool, and of the work of the Metropolitan Street Ambulance Association, formed at the instance of Dr. Arthur James in January last. Mr. Harrison points out that neither in the lay nor medical press has a hostile or antagonistic criticism been provoked, but that, on the contrary, the views and actions of the Metropolitan Street Ambulance Association have been throughout received with a unanimity of approval rarely found in connection with public questions. The *Westminster Gazette* drew attention to the backwardness of London in this respect, and contrasted it with the admirable ambulance arrangements in most cities of the United States. Mr. Harrison adds to his pamphlet an illustrated description of the motor ambulance employed in New York, but Mr. Ludlam, the superintendent, states that it has not been found altogether satisfactory, and that the Roosevelt Hospital has returned to the horse vehicle. From another communication from Mr. Ludlam it appears that during 1899 the number of calls received by the New York Hospital and its emergency branch was 5,538.—[*British Medical Journal.*]

OBITUARIES.

Thomas H. Williams, at his home in Cambridge, Md., September 22, from apoplexy, aged 82; a graduate of the medical department of the University of Maryland in 1848. He was appointed assistant surgeon in the United States army soon after graduating, and remained in that capacity for a number of years. At the breaking out of the Civil war he was appointed surgeon in the Confederate service, in which capacity he served with distinction, having organized the Confederate medical corps of brigade and division surgeons, and supervising the erection of many hospitals. After the war he returned to Maryland, where he lived up to the time of his death.

J. B. Scott, of Gettysburg, Pa., committed suicide at the Friend's Asylum, in Frankford, Philadelphia, September 23. He had been an inmate of the institution for some six weeks suffering from melancholia. He was born in Gettysburg 58 years ago, and was graduated from the medical department of the University of Pennsylvania in 1881.

Edward Payson Buffett, at his home in Jersey City, September 9, from heart disease, aged 70; a graduate of the College of Physicians and Surgeons, New York City, in 1857. He was for many years surgeon to Christ's Hospital and the City Hospital of Jersey City.

Charles M. Baker, of Henry, Ill., at the Illinois Western Hospital for the Insane, Watertown, of which he had been an inmate for several years, September 3, aged 82; a graduate of Transylvania University, medical department, Lexington, Ky., in 1843.

James McCortney, one of the oldest physicians of Davenport, Ia., at the home of his daughter in Chicago, September 8, aged 79; a graduate of the Cleveland Medical College in 1853; an army surgeon in the Federal service during the Civil war.

Alexander Treat Clark, at his home in South Boston, Va., September 10, aged 62; a graduate of the Medical College of Virginia, Richmond, in 1869. He was one time a member of the State Board of Examiners.

J. W. Brown, at his home in Camden, Ark., September 22. He was one of the most prominent men of the State, being engaged largely in the building of railways and other enterprises requiring extensive capital.

John J. Mackey, at his home at Bergen Beach, New York, September 19. He was born in Dublin and studied medicine at the Dublin Catholic University, and graduated from the Bellevue Medical College in 1882.

Martin S. Kittinger, at his home in Lockport, N. Y., September 11, aged 77; a graduate of the College of Physicians and Surgeons, New York, in 1853; surgeon in the Federal services during the Civil war.

J. M. Steck, at his home in Smithsburg, Pa., September 23, from meningitis, aged 50; a graduate of Jefferson Medical College. He was prominent in Masonic fraternities and other organizations.

George M. Kellogg, at his home in Pasadena, Cal., August 8, aged 73; a graduate of the Medical College of Ohio, Cincinnati, in 1852; formerly lecturer in the Keokuk (Ia.) Medical College.

James R. Kelch, at his home in Tarlton, O., September 4, aged 70; a graduate of Starling Medical College, Columbus, O., in 1864; surgeon of the Federal service during the Civil war.

Charles Hinkle, at his home in Hinkleville, Ky., September 18, aged 66; a graduate of the University of Louisville in 1861; a surgeon in the Confederate service during the Civil war.

William M. Gough, at his home in Los Angeles, Cal., September 7, aged 79; a graduate of the University of Louisville in 1849; surgeon of the Confederate service during the Civil war.

Wm. L. Buechner, of Youngstown, O., was killed in a runaway accident, September 11, aged 73; a graduate of the University of Giessen, Germany, in 1853.

Christine Anderson, at her home in Detroit, Mich., August 29, aged 40; a graduate of the University of Michigan, medical department, Ann Arbor, in 1888.

Harvey C. Chappelear, at his home in Mount Sterling, O., September 14, from asthma; a graduate of the Cincinnati College of Medicine and Surgery in 1871.

David Hardie, at his home in Wilmington, Del., September 21 from Bright's disease; a graduate of Hahnemann Medical College, Philadelphia, in 1900.

J. Maude George, a medical missionary to China, at her station in Macao, September 4; a graduate of the Woman's Medical College, Philadelphia.

Samuel Martin Heilman, at his home in Rock Bridge county, Va., September 21, aged 66. He was graduated from the University of Virginia.

Richard J. Ough, at his home in Chicago, September 10, aged 65; a graduate of the University of Queen's College, Coburg, Ont., in 1869.

A. W. Butler, at his home in Nashville, Tenn., September 6, aged 24; a graduate of the University of Tennessee, Nashville, in 1903.

George S. Conant, at his home in New York City, September 23; a graduate of Bellevue Hospital Medical College in 1877.

John Percell, of New York City, at the home of his daughter in Larchmont, September 26, aged 86.

Foreign.—Professor Niels Finsen, discoverer of the Finsen rays for the treatment of lupus, and head of the Finsen Ray Institute at Copenhagen, where there are many American and British patients, is dead. Born in Iceland in 1860, he received his early education in a little school on one of the Faroe Islands, and finished his medical education at the University of Copenhagen in 1890, and found himself broken in health, and since then had never been well. The poor of Denmark, as well as the rich, have received treatment at the institution at Rosenoaenget, each paying as he was able, and Finsen receiving a pittance of $1,200 a year from the Government to aid his world-wide work. Professor Finsen was preceptor of anatomy at the University of Copenhagen from 1890 to 1893, and it was at this time that he evolved his theory of the power of the rays of light. His first step was the discovery that red rays are beneficial and blue rays harmful to life, and his first great discovery was with the red ray, when he found that a patient suffering from smallpox would not be so severely pitted if the red ray were applied to the skin. In December, 1903, the Nobel medical prize was awarded to him by the Norwegian Parliament.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 23, 1904:

SMALLPOX—UNITED STATES.

			Cases	Deaths
Illinois:	Chicago	Sept. 10-17	14	2
Louisiana:	New Orleans	Sept. 10-17	1 Imported	
Massachusetts:	Lawrence	Sept. 10-17	1	
	North Adams	Sept. 10-17	9	
Michigan:	At 41 places	Sept. 3-10	Present.	
Minnesota:	Morrison County	Sept. 6-13	1	
Missouri:	St. Louis	Sept. 10-17	11	
New York:	New York	Sept. 10-17	2	
Pennsylvania:	Philadelphia	Sept. 10-17	1	1
Rhode Island:	Providence	Sept. 10-17	1	
Tennessee:	Memphis	Sept. 10-17	1	
	Nashville	Sept. 10-17	2	
Wisconsin:	Milwaukee	Aug. 27-Sept. 17	6	

SMALLPOX—FOREIGN.

			Cases	Deaths
Belgium:	Antwerp	Aug. 27-Sept. 3	1	
Borneo:	Brunai	Aug. 8	Epidemic	
Brazil:	Pernambuco	Aug. 17-31		28
China:	Hongkong	July 30-Aug. 6	2	
France:	Paris	Aug. 27-Sept. 3	29	1
Great Britain:	Bradford	July 31-Aug. 27	9	
	Bristol	Aug. 27-Sept. 3	1	
	Glasgow	Sept. 2-9	2	1
	Leeds	Sept. 3-10	1	
	London	Aug. 27-Sept. 3	2	
	Manchester	Aug. 27-Sept. 3	2	
	Newcastle-on-Tyne	Aug. 27-Sept. 3	8	
	West Hartlepool	Aug. 27-Sept. 3	2	
India:	Bombay	Aug. 16-23		1
Italy:	Palermo	Aug. 27-Sept. 3	9	2
Russia:	Moscow	Aug. 16-23	7	2
	Odessa	Aug. 13-Sept. 3	7	
	St. Petersburg	Aug. 20-27	2	4
Turkey:	Beirut	Aug. 20-Sept. 3	Present	
	Constantinople	Aug. 28-Sept. 4		6

Yellow Fever.

Mexico:	Coatzacoalcos	Sept. 3-10	7	2
	Merida	Sept. 4-10	1	
	Tehuantepec	Sept 4-10		1
	Vera Cruz	Aug. 27-Sept. 10	16	
Panama:	Panama	Sept. 5-12	1	1

Cholera.

Borneo:	Kudat	Aug. 19	Present	
India:	Bombay	Aug. 16-23		12
Turkey:	Bagdad and vicin.	July 23-Aug. 6	844	1,023

Plague—Foreign.

China:	Hongkong	July 31-Aug. 6	13	12
Egypt:		Aug. 13-20	10	7
India:	Bombay	Aug. 16-23		50
	Karachi	Aug. 14-21	4	2
Formosa:	Formosa	July 23-Aug. 6	21	27
Turkey:	Smyrna	Sept. 8	Present	

Changes in the Medical Corps of the U. S. Army for the week ended September 24, 1904:

The following-named officers are detailed to represent the medical department of the Army at the thirteenth annual meeting of the Association of Military Surgeons of the United States, to be held at St. Louis, Mo., October 10 to 15: Major Jefferson R. Kean, surgeon; Major Ogden Rafferty, surgeon.

Church, Captain James R., assistant surgeon, is relieved from duty at Fort Brown, to take effect upon the expiration of his present sick leave, and will then proceed to Fort Robinson for duty.

Shellenberger, James E., contract surgeon, is granted leave for one month and fifteen days, to take effect upon the return to Jackson Barracks, La., of First Lieutenant John J. Reilly, assistant surgeon.

Treuholtz, C. A., contract surgeon, is granted leave for two months from November 5.

Stark, Captain Alexander N., assistant surgeon, is granted leave for three months on surgeon's certificate.

Smart, Colonel Charles, assistant surgeon-general, will proceed from San Francisco, Cal., to Hot Springs, Ark., and report at the Army General Hospital for treatment.

Appel, Lieutenant-Colonel Daniel M., deputy surgeon-general, leave granted July 1, is extended to include October 30.

Williamson, Captain Llewellyn P., assistant surgeon, is relieved from further duty as medical director, Philippine Government Board, Louisiana Purchase Exposition, St. Louis, Mo., and in addition to his duties as attending surgeon, headquarters, Northern Division, he will perform the duties of examiner of recruits, St. Louis, Mo.

Buck, First Lieutenant Carroll D., assistant surgeon, in addition to his present duties will perform temporarily the duties of medical director, Philippine Government Board, Louisiana Purchase Exposition, St. Louis, Mo.

Steer, Captain Samuel L., assistant surgeon, is granted leave for one month, from about October 9.

Lyster, First Lieutenant William J. L., assistant surgeon, leave granted August 3, is extended one month.

Thornburgh, First Lieutenant Robert M., assistant surgeon, is relieved from further temporary duty at the U. S. Army General Hospital, Washington Barracks, and will return to his proper station, Fort Warren.

Boak, S. Davis, contract dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Hancock for duty.

Sorber, Ord M., contract dental surgeon, is relieved from duty in the Department of Texas, and will proceed to San Francisco, Cal., and report for transportation to Manila, P. I., where he will report for assignment to duty.

Tignor, Edwin P., contract dental surgeon, is relieved from further duty in the Department of the Missouri, and will proceed to San Francisco, Cal., and report for transportation to Manila, P. I., where he will report for assignment to duty.

Voorhies, Hugh G., contract dental surgeon, is relieved from further duty in the department of the East, and upon the expiration of his present leave will proceed to San Francisco, Cal., and report for transportation to Manila, P. I., where he will report for assignment to duty.

Wing, Franklin F., contract dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Riley for duty.

Mason, George L., contract dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort McPherson for duty.

Chambers, William H., contract dental surgeon, is relieved from duty in the Department of the Gulf and will proceed to San Francisco, Cal., and report for transportation to Manila, P. I.

Flagg, Captain Charles E. B., assistant surgeon, is relieved from duty at Fort Piket, Mindanao, and will report to the commanding general, Department of Luzon, for assignment to duty.

Snoddy, First Lieutenant Cary A., assistant surgeon, recently arrived on the transport Sherman, will report to the commanding general, Department of Luzon, for assignment to duty.

Hanner, First Lieutenant John W., assistant surgeon, is relieved from duty at Cuartel de Meisic, Manila, and will report to the commanding general, Department of Mindanao, for assignment to duty.

Stephenson, Major William, surgeon, is granted leave for thirty days, from about September 15, with permission to apply for an extension of twenty days.

Owen, Major William O., surgeon, is relieved from duty in the Philippines Division, and will proceed from the Presidio, San Francisco, Cal., to Fort Logan for duty.

Lauderdale, Clarence E., contract dental surgeon, having reported his arrival at San Francisco, Cal., will proceed to Fort Sam Houston for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended September 24, 1904.

Curl, H. C., passed assistant surgeon, detached from the Boston and ordered to duty in connection with the Isthmian Canal Commission—September 16.

McDonell, W. N., acting assistant surgeon, detached from the Naval Recruiting Station, Baltimore, Md., and ordered home to wait orders—September 16.

Rodman, S. S., passed assistant surgeon, detached from the Pensacola and ordered to the Boston—September 17.

Wilson, H. D., passed assistant surgeon, ordered to additional duty on the Southery, September 28—September 17.

The following-named assistant surgeons are detached from the stations indicated and ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., September 30: R. G. Heiner, Southery; R. B. Chapman, Navy Yard, Washington, D. C.; R. E. Stoops, Naval Hospital, Norfolk, Va.; F. E. Porter, Naval Hospital, Norfolk, Va.; H. F. Hull, Naval Hospital, Newport, R. I.; W. D. Owens, Naval Hospital, Newport, R. I.; J. L. Belknap, Naval Hospital, N. Y.; D. C. Cather, Naval Hospital, New York, N. Y.; N .T. McLean, Naval Hospital. New York, N. Y.; G. L. Wickes, Naval Hospital, Philadelphia, Pa.; W. J. Zalesky, Naval Hospital, Philadelphia, Pa.; O. J. Mink, Naval Hospital, Philadelphia; H. A. May, U. S. R. S. Franklin; G. T. Grayson, Naval Hospital, Washington, D. C.; W. A. Angwin, Naval Hospital, Mare Island, Cal.; W. G. Farwell, recruiting duty, Portland and Bangor, Me.—September 17.

Braisted, W. C., surgeon, detached from the Pensacola and ordered to the Ohio—September 20.

McCullough, F. E., passed assistant surgeon, ordered to the Pensacola and to duty at the Naval Training Station, San Francisco, Cal.—September 20.

Kennedy, R. M., surgeon, detached from the Dixie and ordered to the Missouri—September 22.

Lovering, P. A., surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., October 3—September 22.

Ferebee, N. McP., medical director, sick leave extended three months from September 20—September 19.

Changes in the Public Health and Marine-Hospital Service for the week ended September 21, 1904:

Gassaway, J. M., surgeon, detailed to represent the service at the meeting of the Association of Military Surgeons at St. Louis, Mo., October 10-15—September 15, 1904.

Carmichael, D. A., surgeon, granted leave of absence for one month from October 18—September 21, 1904.

White, J. H., surgeon, granted leave of absence for six days from September 19—September 17, 1904.

McIntosh, W. P., surgeon, to proceed to Stonington, Me., for special temporary duty—September 15, 1904.

Woodward, R. M., surgeon, department letter of May 13, 1904, granting Surgeon Woodward leave of absence for three months, amended to read two months and twenty-six days from June 14—September 16, 1904.

Stoner, J. B., surgeon, to proceed to Cape Charles Quarantine Station and assume temporary charge during the absence of Assistant Surgeon J. S. Boggess—September 15, 1904. Granted leave of absence for eight days from September 26—September 21, 1904.

Wertenbaker, C. P., surgeon, upon being relieved from duty at New Orleans, La., by Passed Assistant Surgeon A. C. Smith, to proceed to the Immigration Depot, Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty—September 15, 1904.

Smith, A. C., passed assistant surgeon, upon being relieved from duty at New York (Stapleton), by Passed Assistant Surgeon J. A. Nydegger, to proceed to New Orleans, La., and assume command of the service, relieving Surgeon C. P. Wertenbaker—September 15, 1904.

Nydegger, J. A., passed assistant surgeon, relieved from duty at the Immigration Depot, Ellis Island, N. Y., effective October 1, 1904, and directed to proceed to New York, N. Y. (Stapleton), and report to the medical officer in command for duty and assignment to quarters, relieving Passed Assistant Surgeon A. C. Smith—September 15, 1904.

Foster, M. H., passed assistant surgeon, granted extension of leave of absence, on account of sickness, for thirty days from September 18—September 20, 1904.

McLaughlin, A. J., assistant surgeon, granted leave of absence for twenty-four days from October 3—September 15, 1904.

Hamilton, H. J., acting assistant surgeon, granted leave of absence for thirty days from October 4—September 17, 1904.

Richardson, S. W., pharmacist, relieved from special temporary duty in connection with the Louisiana Purchase Exposition at St. Louis, Mo., and from duty in the Hygienic Laboratory, Washington, D. C., and directed to proceed to Boston, Mass., and report to the medical officer in command for duty and assignment to quarters—September 15, 1904.

LaGrange, J. V., pharmacist, department letter of August 30, 1904, granting Pharmacist LaGrange leave of absence for twenty-three days from September 15, revoked—September 15, 1904.

Keen, W. H., pharmacist, bureau order of August 26, 1904, directing Pharmacist Keen to proceed to Boston, Mass., revoked, and directed to proceed to Chicago, Ill., and report to the medical officer in command for duty and assignment to quarters—September 15, 1904.

Reinstatement.

C. H. Bierman, of New York, reinstated as pharmacist of the third class—September 17, 1904.

Board Convened.

Board convened to meet at Stapleton, N. Y., September 19, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon A. C. Smith, chairman; Passed Assistant Surgeon C. H. Lavinder, recorder.

SOCIETY REPORTS

INTERNATIONAL CONGRESS OF ARTS AND SCIENCE.

Held at St. Louis, Mo., September 19 to 25, 1904.

[Specially reported for *American Medicine*.]

On Monday afternoon, September 19, the first meeting of the International Congress of Arts and Science, an assembly of great historic importance, was held. After an address of welcome by the President, David R. Francis, Mr. F. J. V. Skiff, the director of exhibits, addressed a welcome to the delegates from the various countries. Replies were made by Sir William Ramsay, of London University, for England; Mons. Gatson Darboux, of the University of France; Prof. Wilhelm Waldeyer, of Berlin; and Prof. Theodore Escherich, of the University of Vienna. Professor Simon Newcomb, President of the Congress, then delivered an address in which he reviewed at considerable length the progress of science in the nineteenth century. After a few remarks by Dr. Oscar Backlund, of St. Petersburg, and by Senor Attillio Brunialti, one of the counsellors of State for Italy, Prof. William R. Harper, of the University of Chicago, described the scheme of the Congress, detailing its history and pointing out its objects, particularly the securing of a comprehensive view of the various fields of learning; the consideration of their interdependent relations as bearing on the unification of knowledge; the formation of a platform from which all the various problems of which future solutions were earnestly looked for might be presented; and finally, the promotion of mutual sympathy and practical cooperation among the distinguished investigators and scholars of all countries which would ensue as a consequence of the living together of those whose life's work naturally kept them asunder. The meeting then adjourned.

On Tuesday morning in the Division of Utilitarian Sciences, Professor David Starr Jordan, president of Leland Stanford, Jr., University, pointed to the problem of immunity as being of prime importance to the medical science of today. He advocated greater devotion to research, and considered that what was really needed by medical investigators was a more thorough grounding in science, rather than the establishment of more medical colleges for instilling into students the mere elements of medicine. He particularly emphasized the importance of more complete endowment of medical schools to avoid the weighing down of medicine by mere commercial considerations.

DEPARTMENT OF MEDICINE.

This meeting was called to order by the chairman, Dr. Wililam Osler, in the afternoon of September 20. Dr. William T. Councilman, of Harvard University, in a paper on the modern conceptions and methods of medical science, called attention to the great changes that had recently taken place in both the conception and the method of medical science. As a consequence of its divorce from speculative philosophy, medicine had at last come to take its true place as one of the natural sciences, and had kept pace with progress in all of the departments of knowledge, because nature, prevention, and cure of disease were the problems which nature had to solve. The lack of harmony of functions among living things was the modern conception of objects. It was upon the occasion of its environment upon living tissue that the phenomena of life depended. The failure of such activity to accord with the normal activities led to disease. Two methods have been employed in the endeavor to advance the knowledge of medicine, viz., first an attempt to conceive all objects through impressions of the senses, and second, through speculative processes. A tendency to speculation was inherent in the nature of man, but it became more and more circumscribed in proportion as knowledge became deeper. Philosophy in all times had accorded to disease a most important place; but speculation alone could never attain to the great ends of philosophy which demanded a proper use of all the material of observation that the natural sciences afforded. Systems of religion based upon supernatural revelations had fostered the speculation idea. Probably the most far-reaching influence on the progress of science during the past century had been cancelled by Darwin, who had substituted for such speculative considerations a rational hypothesis based on observation and experiment. Probably the most important change in regard to medicine in the last century was the general acceptance of the view that medicine was one of the natural sciences and must be pursued by the same methods as it had been found necessary to employ in the other natural sciences. After a review of the history of medicine from the time of Hippocrates the speaker pointed to three things as serving to establish a new era in regard to knowledge, viz., the discovery of printing, the discovery of America, which served to stimulate thought and the reformation which gave thought freedom. A new technic of investigation had also played a most important part. The microscope extended the limit previously placed to the study of gross pathology. The brilliant results in surgery, the increase of knowledge of infectious disease were quoted as instances to the advantage of founding medical methods upon knowledge rather than upon speculation. The speaker referred to specialization as another change affecting both investigation and the exercise of medicine. While the use of technical methods render investigation more easy the broader aspects of questions tended to be lost sight of in the increase of specialization. The breaking up of large questions into smaller ones which was the inevitable result of specialization, while it tended to increase the detail of knowledge did not lend itself so readily to the treatment of disease. Those engaged in the pursuit of clinical medicine needed the same opportunities for research as were afforded to investigators in anatomy, physiology and pathology. He referred to the discovery of the presence of many complex substances in blood-serum and to the important part many of them played in the animal economy. The close association of comparative with experimental medicine might help to answer the question of the relation of chemic variations to disease susceptibility. The study of infectious diseases had given rise to the most brilliant results in experimental medicine. The speaker referred to experiment upon human beings and stated that there was occasion in which such experiments must take place, even though fraught with a fatal ending. They were, of course, only to be resorted to when the knowledge to be obtained was of the highest importance and the subjects of the experiments were adults who were fully aware of the possible consequence. He referred to the lasting honor due to the brave man who by voluntary submission to such an experiment had placed yellow fever among the preventable diseases. Dr. Councilman referred with regret to the wide separation which had arisen between the public and the medical profession and deplored the fact that the public impression of medical subjects was derived largely through the sensational articles in the press. As to medical education it has undergone a revolution in the last 25 years. The didactic lecture had been replaced by object study and was now only used for correlating knowledge obtained by the latter. Finally he emphasized the importance of an increased attention to clinical work, even at the question of preliminary work in the anatomic, physiologic and pathologic laboratories. [This paper will appear in a future issue of *American Medicine*.]

[*To be continued.*]

AMERICAN RÖNTGEN RAY SOCIETY.

The Fifth Annual Meeting Held in St. Louis, Mo., September, 9, 10, 12, and 13, 1904.

[Specially reported for *American Medicine*.]

New Officers.—President, Charles L. Leonard, Philadelphia, Pa. Vice-presidents, Weston A. Price, Cleveland, O.; Henry Hulst, Grand Rapids, Mich.; Gordon G. Burdick, Chicago, Ill. Secretary, Russell H. Boggs, Pittsburg, Pa. Treasurer, Leavitt E. Custer, Dayton, O. Executive Committee, P. M. Hickey, Detroit, Mich.; Kennon Dunham, Cincinnati, O.; George C. Johnston, Pittsburg, Pa.

The following committees are to be appointed later: Committee on Histologic, Physiologic, and Bacteriologic Influence of the Röntgen Ray. Committee on Technic of Radiotherapy. Committee on Technic of Radiography. Time and place of the next meeting to be decided upon by the Executive Committee.

Comparison of Röntgen Ray and Surgical Treatment of Tuberculosis.—President's address. JAMES B. BULLITT, Louisville, Ky. [This paper will be published in *American Medicine.*]

The following papers were contributed on the röntgen ray in tuberculosis:

The Röntgen Ray in Tuberculosis and Malignant Disease. J. D. GIBSON (Denver, Colo.) [Read by title.]

The Röntgen Ray in the Treatment of Pulmonary Tuberculosis. EMIL GRUBBE (Chicago, Ill.) had seen marked therapeutic effect in the treatment of pulmonary tuberculosis. His results lead him to feel that as much good can be accomplished in deep tuberculous lesions as in the superficial, *i. e.*, lupus, when the requisite technic has been developed.

The Röntgen Ray in the Treatment of Tuberculosis.—J. RUDIS-JICINSKY (Cedar Rapids, Ia.) made some very interesting reports of the result of treatment in tuberculous manifestations. He believed that the röntgen rays should be used as an adjuvant to other recognized therapeutic measures, and that in appropriate dose they aided materially in producing a cure.

The Röntgen Ray in Tuberculous Adenitis.—MAY CUSHMAN RICE (Chicago, Ill.) reported several successful cases of tuberculous adenitis cured by röntgen ray treatment. Some of them were very severe. This treatment possesses many advantages. The cosmetic result is particularly valuable.

Discussion.—GORDON G. BURDICK (Chicago) said that since he had been making use of various remedial measures advocated for the cure of tuberculosis in conjunction with the röntgen ray, he has had much better results than he had when he relied on the röntgen ray alone. Although the röntgen ray is the most valuable method of treatment for the slow forms of the disease, the physician who relies upon it alone, to the exclusion of all other remedial agents is bound to have a great many failures. He also advised the early and abundant use of the antistreptococcus serum in the mixed infections, and also the use of a serum that he derives from the growth of the yeast cell on vegetable albumin. GEO. E. PFAHLER (Philadelphia) said that his results from the use of the röntgen ray in the treatment of tuberculous adenitis as well as other forms of tuberculosis, have been very encouraging. He advises that in cervical tuberculous adenitis the lung should also be exposed so as to get the double effect of the ray. Only the hair and face of the patient should be protected. The value of adjuvant treatment, such as fresh air and sunshine, together with the röntgen ray was emphasized by W. W. JOHNSON, GEO. C. JOHNSTON, C. E. SKINNER, TOUSEY, EGELHOFF, WILLIAMS, HULST and KASSABIAN. Tousey reported excellent results from the röntgen ray in the treatment of a case of tuberculous laryngitis. Several of the speakers referred to the fact that many of the socalled good effects following the use of the röntgen ray are due to errors in diagnosis, the cases treated not being tuberculous at all. C. L. LEONARD (Philadelphia) called attention to the fact that the results accruing from the use of the röntgen ray in the treatment of the various forms of tuberculosis are not equal to those obtained in the treatment of malignant disease, for the reason that the röntgen ray technic in the former condition has not yet been perfected as it should and will be, and that when that end is reached the results will be equally as good. The effects of the röntgen ray in tuberculosis are due to its stimulating and alterative qualities, but in order to get the maximum effect, accurate dosage is required. He also agreed with the other speakers that the röntgen ray must not be depended on alone, and that the patient should receive the benefit of every known measure that has been proved of value in the treatment of tuberculosis, and that these should be depended upon and the röntgen ray used as an adjuvant.

Symposium on the Treatment of Malignant Disease.

The Treatment of Epithelioma.—GEO. C. JOHNSTON (Pittsburg, Pa.). (This paper will be published in full in a future issue of *American Medicine.*)

Radiotherapeutic Nihilism.—GORDON G. BURDICK (Chicago, Ill.). (This paper will be published in full in a future issue of *American Medicine.*)

The Röntgen Ray Treatment of Sarcoma.—JOS. F. SMITH (Chicago, Ill.). (This paper will be published in full in a future issue of *American Medicine.*)

The Results of Treatment of Carcinoma.—J. N. SCOTT (Kansas City, Mo.). (This paper will be published in full in a future issue of *American Medicine.*)

Two Blunders and Their Lessons.—W. W. JOHNSON (Rochester, N. Y.). (This paper will be published in full in a future issue of *American Medicine.*)

Carcinoma of the Breast.—CHAS. L. LEONARD (Philadelphia). (This paper will be published in full in a future issue of *American Medicine.*)

Variations of Radiotherapeutic Technic.—RUSSELL H. BOGGS (Pittsburg, Pa.). (This paper will be published in full in a future issue of *American Medicine.*)

Summaries of cases of malignant disease were contributed by GEO. C. JOHNSTON, C. L. LEONARD, JOS. F. SMITH, J. N. SCOTT, G. G. BURDICK, R. H. BOGGS, W. W. JOHNSON, M. K. KASSABIAN, E. G. WILLIAMS, and GEO. E. PFAHLER.

Discussion.—SPRING (Minneapolis, Minn.) reported a case of metastatic carcinoma of the lymph channels of the skin, secondary to a scirrhus of the breast, which was in no way benefited by the röntgen ray. Another case of extensive carcinoma of the colon improved rapidly under treatment with the röntgen ray emanating from a 12-inch coil, 110 volts, and a high tube. GRUBBE (Chicago) maintained that the burning method, the speedy production of a röntgen ray burn, hastened a favorable outcome in these cases of malignant disease. By giving vigorous treatment from the beginning, many lives may be saved. That every case cannot be cured should not be cause for discouragement, because the röntgen ray operator gets only those cases, as a rule, which are considered hopeless, and if he succeeds in relieving the symptoms he has cause for feeling encouraged with his results. In many cases, when no reaction follows the use of the röntgen ray, prompt results may often be obtained from antispecific treatment. COOK (Detroit) reported a case of extensive lymphosarcoma that improved remarkably under daily exposures to the röntgen ray, and in six months the patient was able to return to his work. Frequent mild treatments, without producing a burn, are better in cases of sarcoma than severe treatments at longer intervals. W. C. EGELHOFF (Chicago) reported a case of carcinoma which failed to improve under röntgen ray treatment until the röntgen ray was discontinued, when improvement was rapid and continued, until after six weeks no sign of the primary trouble was visible. He referred to the fact that some cases do not show any improvement until they have been subjected to a certain amount of röntgen ray, while others improve from the very beginning. In superficial lesions he uses a low tube, and in the deep-seated lesions he uses a high tube, getting better results with less dermatitis. The best tubes for this work are those that have a deposit on the inside from long usage. M. C. RICE (Chicago) called attention to the value of high-frequency currents, which in some cases have given better results than the röntgen ray alone. A case of epithelioma of the lip, without glandular involvement, was cured in five treatments, using the röntgen ray and the high-frequency currents at the same sitting. In another case in which the röntgen ray failed to produce any results, the high-frequency currents gave splendid results. C. E. SKINNER (New Haven, Conn.) said that if the röntgen ray is applied strongly enough immediately after operation, so as to affect any malignant tissue that might be present, it is very apt to interfere with the process of healing. It is best not to use the röntgen ray until after the operation wound has healed.

The Compression Tube in Skiagraphy of Calculi.—HENRY HULST (Grand Rapids, Mich.) called attention to the fact that the difficulty of radiographing for stones is overcome by the use of some apparatus, such as his compression tube, which is a modification of the Albers-Schoenberg "compressions blende." Every kidney stone can be demonstrated, providing the technic is perfect. The compression tube is especially useful in fat people. After preparing the patient by fasting and cathartics, he makes from two to three exposures on each side of the spine, so as to show the last two or three ribs, the sacroiliac synchondrosis, and part of the spine; and one exposure over the bladder. If anything resembling a calculus is found, the process is repeated a few days later, but the compression tube is now centered directly over the shadow found, and if all the negatives show the same shadow, the diagnosis is positive. Time of exposure, a second or less. He uses the following developer: Potassium carbonate, dry, 12 dr.; sodium sulfite, dry, 6 dr.; potassium bromid, 10% solution, 2 oz.; hydrochinon, ½ oz.; water, 2 pints. If the high lights begin to show before 40 seconds, from 2 oz. to 4 oz. of potassium bromid solution are added. Development should be complete in four minutes.

[*To be continued*]

THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Seventeenth Annual Meeting, Held at St. Louis, Mo., September 13, 14, 15, and 16, 1904.

[Specially reported for *American Medicine.*]

[*Concluded from page 536.*]

Officers for the Ensuing Year.—The following officers were elected for the ensuing year: President, H. W. Longyear, of Detroit, Mich.; vice-presidents, D. Tod Gilliam, of Columbus, O., and John Young Brown, of St. Louis, Mo.; secretary, William Warren Potter, of Buffalo, N. Y., reelected; treasurer, X. O. Werder, of Pittsburg, Pa., reelected; councilors, James F. W. Ross, of Toronto, Ont., and Walter B. Dorsett, of St. Louis, Mo. After the introduction and adoption of resolutions of thanks, the Association adjourned to meet in

New York City in 1905, the time to be fixed by the Executive Council.

Gunshot Wound of the Abdomen.—JOHN D. S. DAVIS (Birmingham, Ala.) reported a case of gunshot wound of the abdomen, with 18 perforations, in which he resorted to intestinal resection of 5 feet, 7 inches, with use of metal button, followed by recovery of the patient. While the patient, a woman, 23 years of age, was attempting to place a rifle in the rack on the wall, the gun was discharged, with the muzzle about 8 inches from the abdomen. The bullet, a 32-caliber, entered in the median line midway between the umbilicus and the symphysis pubis, ranging backward, upward, and to the right, and was deposited in the muscles of the back on the right side. The ball in traversing the abdomen made 18 perforations of the gut, and 2 cuts in the intestine that went to the mucous membrane. Sixteen of the perforations and the 2 seromuscular wounds were in the small intestine, and 2 perforations in the transverse colon. The bullet cut 2 mesenteric arteries, which caused a large amount of blood to collect in the abdomen. Patient was shot at 4.30 p.m., February 2, 1904, and was brought a distance of 80 miles on a freight train to Birmingham by her physician, Dr. W. O. Watson, and carried to Hillman Hospital. At 9 o'clock Davis saw the patient and had her prepared for section. Temperature at this time was 102°, and pulse 130. She probably had fever at the time she was shot. A seven-inch incision was made in the median line, a large quantity of blood turned out, and the bleeding vessels controlled by hemostatic forceps. The two perforations in the transverse colon were so near the mesenteric border that he stripped up the mesenteric serosa and turned the mesenteric border in as though the two openings, one on each side, had been one large opening, including mesenteric border, and closed with interrupted silk sutures. He then brought the mesenteric folds back and sutured over the wound. Four perforations and two seromuscular cuts in the small intestine were turned in and closed with small loop silk sutures. Two perforations were situated so close together that they had to be closed by flexing, pouching or looping the mesenteric border, the bowel being bent on its convexity so the two wounds could be closed as one large wound by interrupted longitudinal loop sutures—suture with axis of bowel. There were 2 other perforations that could have been closed by suture, but the openings were between 2 mesenteric perforations on one side and 8 on the other, and he thought it better to lose 1 more foot of intestine than to do 2 resections. He resected that part of the intestine containing the 10 mesenteric perforations (67 inches), including the 2 large perforations in the convexity of the ileum, and closed with the third-sized metal button. The resected bowel and its mesentery were removed, the vessels ligated, and the gap in the mesentery closed with interrupted silk sutures. The abdomen was flushed with hot normal salt solution; plain gauze drainage was used, and the abdomen closed with through-and-through silkwormgut sutures. The operation lasted an hour and a half. Drainage was removed on the second day. Patient passed the button on the twenty-first day, and left the hospital March 1, 1904. A week later she was doing housework and was now perfectly well. Davis exhibited the metal button, which was made in four sizes, like the Murphy button, with the exception that it had no spring. In his opinion, the spring served no good purpose, was an additional expense, and made the button more difficult to apply. He also showed a metal horseshoe button which he had made to take the place of his catgut horseshoe plates, which he had been in the habit of using to close large wounds on the convexity of the bowel without destroying the mesenteric border by resection.

Some Clinical Reasons for Advising Early Operations in Cases of Fibroid Tumor of the Uterus.—RUFUS B. HALL (Cincinnati, Ohio) discussed this subject under three heads: 1. Which cases should we advise not to be operated? 2. In which cases should we advise late operation? 3. In which cases should we advise early operation? He discussed at some length the clinical history of patients in order to form a correct conclusion. 1. If a patient between 35 and 38 years of age, suffering from a fibroid tumor of the uterus, the tumor and uterus combined, making a mass not larger than a cocoanut, had no symptoms other than profuse metrorrhagia, the whole period not extending over five or six days, and she was free from pain except at her menstrual periods, it would be wise and judicious not to interfere surgically. But this patient, during her entire menstrual life, should be considered an invalid by her physician and should report to him at once if her symptoms became aggravated. 2. If she suffered pain in one or both iliac regions at other times than at her menstrual periods the cause of the pain should be discovered at once and corrected. On the contrary, if her menstrual period was prolonged to 10 or 12 days, the loss of blood amounting almost to a hemorrhage, and this hemorrhage could not be controlled or mitigated by the usual internal medication, and rest during the period, the advisability of an operation should be considered. 3. Prolonged and severe uterine hemorrhage had not been considered a sufficient reason for advising an operation. A patient suffering from a tumor as large or larger than a cocoanut, who had profuse bleeding at each menstrual period and the period was prolonged for 8, 10 or 15 days, as it frequently was, was in considerable danger. It was the author's experience that a large majority of those patients in whom the hemorrhage could not be controlled by medicinal remedies in two weeks, came to operation sooner or later. They could frequently stand off the operation two or three weeks, or in some instances longer, but the anemia was profound, and if some complication arose in the tumor, ovaries or tubes, making an immediate operation necessary, they were in the worst possible condition for it. The chances for a successful operation were greatly diminished. Therefore, when the hemorrhage could not be controlled within a few months, these patients should be advised to have the operation made before the anemia was pronounced. These symptoms, however, were not of so much importance as others, but if permitted to continue for many months they caused profound anemia and lowered vitality, and a high mortality followed the operation. He regarded hematoma, complicating these tumors, as the gravest complication the surgeon had to deal with in the management of the late cases. His records showed that only one patient in seven operated upon for fibroid tumors, where pus tubes were present, developed peritonitis after the operation; while five in every six of those operated upon in which hematoma of the ovary existed, suffered from peritonitis following the operation for removal of the tumor. The speaker had notes of a case of a woman suffering from a fibroid tumor about the size of a cocoanut, who ceased to menstruate at 47, and all symptoms attributed to the tumor disappeared. He removed the tumor when she was 56 years old, after it had been causing trouble for six months, and it had malignant disease well advanced in it. Other similar cases were cited. His experience in removing these malignant fibroid tumors had been that within a year or two after the operation for removal of the tumor, the patient had a recurrence of malignant disease in the pelvis and abdomen and succumbed within a few months.

Shall We Remove All Fibromas of the Uterus on Diagnosis?—THOMAS B. EASTMAN (Indianapolis), after quoting freely numerous writers on the subject of the removal of fibroid tumors, stated that in the 117 patients upon which he had operated for fibroid tumor of the uterus, complications which bade fair to result eventually in death were encountered in 43 cases. Hydrosalpinx, either unilateral or bilateral, 5 times; suppurating dermoid cyst, 3 times; sarcoma, once; parovarian cyst, once; necrosis of tumor, 8 times; cystic degeneration of ovaries, 3 times; ovarian cyst, 4 times; intraligamentous development of fibroid, 3 times; pyosalpinx or salpingitis, 7 times; hematosalpinx, once; cystic degeneration of the tumor, once; myxomatous degeneration, 3 times; adenocarcinoma of body of uterus, twice. Among the more prominent complications, appendicitis was encountered once. In addition to the complications inherent in the uterus and its adnexas proper, there were those arising from the pressure of the mass upon the bladder, rectum, ureters, and the persistent anemia resulting from prolonged hemorrhages. In his 43 complicated cases, as well as in those of other writers on this subject, it was a significant fact that those complications which were inherent in the tumor and which presaged the most certainly fatal results, were those of such character as to preclude a positive knowledge or ofttimes even a suspicion of their existence prior to operation or even a microscopic examination. This, then, was the arraignment of the uterine fibromyomas, and in the mind of the author justified their removal in all cases, except in so few as to scarcely merit attention. Should we not remove all fibromas upon diagnosis, not for the harm they were now doing, but against the harm that they might do in the future? So far as the danger was concerned, the removal of a fibroma was attended with as little danger as the average abdominal section, and he was not unmindful that the removal of the uterus from a comparatively young woman was not a thing to be lightly considered. The results obtained by various operators warranted one in classing it among the safe operations, the mortality being in the hands of skilled men scarcely more than 5%, a mortality certainly much less than would result from the policy of procrastination, which advocated delay until the forces of death plus those of the operation outweighed those of surgical interference. There was nothing so innocent as an innocent fibroid, and nothing so treacherous. When one considered the dangerous conditions into which an innocent fibroid might quickly change itself, and the ease and safety to the patient with which this innocent fibroid might be removed, the writer believed that the deduction was evident that all fibroid tumors of the uterus should be removed upon diagnosis.

Removal of Skeleton of Ectopic Fetus, Ulcerating into Bladder, by Vaginal Cystotomy.—WILLIAM D. HAGGARD (Nashville, Tenn.) reported the case of a white woman, aged 31, the mother of two children, who presumed herself to be normally pregnant, and expected to be confined August 30, 1900. There was a continuous flow from the uterus for the first three months, and she had pain in the bladder and straining on micturition from the beginning of conception; but there was no history of rupture of the ectopic gestation. On June 20, at six and a half months, while lying down, she felt motion for the last time. Previously it had been unusually vigorous, more so than with her two other children. She was confined to her bed for three or four weeks with pain. She had more or less pain for about a year, and she was a semiinvalid from weakness, pain, and tenderness in lower abdomen. The enlargement of the abdomen had gradually but appreciably diminished. At the end of a year pus first made its appearance in the urine, and the first day after getting up, a bone, which was a fetal vertebra, made its exit through the urethra. During the second year she had been able to attend to all household duties, but occasionally would have several days of unusual bladder irritation, and pass a bone through the urethra. In the last four months she had passed all the long bones. Sometimes one would catch in the urethra. She would get hold of the free end and gradually pull it out. Commonly several days of comparative comfort would elapse before another one would set up irritation, and finally escape. In this way she passed 85 bones. Six weeks before admission to the infirmary she felt the discomfort of another bone, and had not been free from it since, nor had any bone passed. She had been in bed two weeks with pain in the lower abdomen, which was very intense on motion. Upon examination the bladder was exquisitely tender, crepitated upon pressure. Bones were covered with phosphatic deposit. She described a small lump to the right of the median line and low down, the remains of the once six and a half months' enlargement, but this could not be made out on account of tenderness. The urine was loaded with pus and phosphates, and exceedingly offensive. Curiously enough, the woman did not void it oftener than every six or eight hours. Micturition was very painful, and after the urine was voided free pus was often expressed. Under ether, October 31, 1902, the index finger was made to enter the urethra without much effort, and detected numerous bones, and communicating with the bladder, an opening into a lesser chamber on its right upper surface. There was a mass on the right to be made out bimanually about as big as a small orange, and communicated with the bladder much as a bow-window with partially drawn curtains did with a room. The uterus was retroverted and not much enlarged. The bones were much too large to be removed through the urethra, and an incision was made into the vesicovaginal septum. The finger in the bladder through the urethra located the bone, and it was withdrawn with forceps introduced through the incision. In this way 52 bones were removed. Some were embedded in granulation tissue in the remains of the ectopic sac, and were with difficulty removed. The sac and bladder were freely irrigated, and an artificial vesicovaginal fistula established for drainage, after Emmet's method of sewing the vaginal mucosa to that of the bladder by silver wire sutures. The operation, while tedious, was not attended with shock. The bladder was irrigated twice daily afterward with boric acid solution, and the urine soon became normal. At the end of six weeks the artificial vesicovaginal fistula was closed successfully by silver wire sutures. A cystoscopic examination with the Bransford Lewis ureter cystoscope revealed a healthy mucosa, and at the site of the former communication only a slight reddish depression was seen. The ureteral catheter failed to disclose any depth to this aperture, and the patient was discharged eight weeks from the operation, and had remained well since.

Retrodeviations of the Uterus: President's Address.—WALTER B. DORSETT (St. Louis, Mo.), president of the Association, stated that in casting about for a subject upon which to address the fellows, he had selected for consideration the various operations for the relief of retrodeviation of the uterus. He spoke of the excellent operative work which had been accomplished within the past few years, so that what he had to say was more of a review of what had been done surgically. He discussed the methods of operation, saying that the different plans of accomplishing the reposition of the uterus might be classified according to the route selected by the advocates of each. They might be divided into extraperitoneal, vaginal and intraabdominal. After considering and discussing exhaustively the different methods in vogue, and indulging in some criticism of them, he stated that some of the methods did not merit the prominence they had obtained in the estimation of the profession at large, and for the reason that no one could arrive at a proper conclusion as to the best method of relieving the suffering woman without a careful study of the different methods. If one operation was in accord with the accepted idea of proper surgical technic, the other certainly was not. When one considered the great diversity of opinion as to which was right and which was not, without a proper appreciation of them all, one was certainly at a loss as to the choice of operations. In his opinion one should not consider any operation that did not contemplate the possibility of a thorough inspection of the adnexa from above the pubic bone. He would discard the entire class of operations that contemplated vaginal incision, either anteriorly or posteriorly, on account of the greater liability of sepsis as well as from the impossibility of anchorage to firm structures. While ventrosuspensions and ventrofixations had been condemned as unjustifiable, he took it that it was because only the fixation or suspension that was accomplished by anteverting the uterus and stitching the fundus, or, perchance, the posterior uterine wall to the abdominal wall, had been considered. It was reasonable to assume that this unnatural suspension or fixation was a causative factor in the production of lengthened adhesion bands for the entanglement of bowel as well as barrier to the proper development of the pregnant uterus. If, however, a lower segment of the anterior uterine wall was attached lower down on the abdominal wall, and omentum was allowed to drop to or behind the uterine fundus, the bugbears of necessary cesarean sections in labor cases and entangled bowel would be less feared. His own work in obstetrics and with this operation justified him in this statement.

Gunshot Wound of the Hip-joint.—L. H. LAIDLEY (St. Louis, Missouri), reported a case of gunshot wound of the hip-joint, but before doing so referred to the literature of the subject. The patient, aged 18, a visitor and looker-on, of remarkably vigorous constitution and unexceptional health, was shot in a brawl on "The Pike" at the exposition on June 18. He was admitted to the emergency hospital, and within an hour an abdominal section was made. Upon examination it was found that the ball had passed through the abdominal wall near McBurney's point, passing inward and slightly downward. On examining the viscera it was found that the ball had penetrated the cecum, making two openings, one in front and behind, passing down into the soft parts into the pelvis. These were closed up by Lembert sutures, the abdomen cleansed of large quantities of blood and escaping contents of the bowel, and the abdomen closed with through-and-through sutures. The patient left the table within an hour under very favorable circumstances, the pulse being 72, temperature normal. The next morning he complained of great pain in the hip-joint, and was unable to move that limb. For ten days his condition was favorable, when he gave evidence of disturbance, especially about the joint. Chills and fever and increased pain suggested an examination with the röntgen ray, which would have been used earlier were it not for the fact that they had not been provided with such an appliance up to that time. On July 11, after the bullet was removed, an incision was made over the joint, disclosing the presence of pus outside of the joint which was opened, showing that all of the head of the bone within the capsule was entirely destroyed and fractured; likewise the acetabulum was fractured and necrosed; following up the course of the cavity made by the bullet, the missile was removed, which was lodged in the upper and outer margin of the cavity of the socket. The necrosed portions of this bone were chiseled out, and with a sharp curet were entirely cleansed, likewise the dead portion of the head of the femur was removed, the cavity packed with gauze and thoroughly drained. He afterward showed evidences of sepsis, which prompted the author on the twenty-second of July to reopen the wound, washing out the cavity, and introducing further drains. These were continually used up to the present time. About three weeks ago the patient manifested evidence of acute nephritis. Upon examination it was found that he had a large quantity of albumin, with casts, which was evidently due to toxemia as found in scarlet fever. Since that time, by repeated cleansing of the cavity and thorough drainage, these evidences were disappearing, leaving the patient in a fair condition for recovery. The subsequent treatment would be to free the cavity and its surrounding structures of all suppuration, and by this means the author hoped to restore his patient to his normal health, probably leaving him with a shortening of the limb, and perchance a degree of ankylosis. The patient was exhibited.

Strangulated Umbilical Hernia.—JOHN YOUNG BROWN (St. Louis, Mo.) reported an interesting case of complicated strangulated umbilical hernia, and presented the patient.

Sterility Due to Retrodeviation of the Uterus and Its Treatment.—HERMAN E. HAYD (Buffalo, N. Y.) reported 12 pregnancies following the simple Alexander operation. Among other things, he stated that posterior displacements of the uterus were a very frequent cause of sterility. Pregnancy had frequently followed when such a uterus was placed in position, either by pessary or operative measures. He made an eloquent plea for the simple Alexander operation for a large class of suffering women who had simple uncomplicated retroposed uteri. In reporting the twelve cases in which pregnancy followed the simple Alexander operation, it was pointed out that the ligaments had stood the test of pregnancy and parturition. The canal was never opened *per se*; the internal ring and peritoneal cavity under no circumstances whatsoever. The author made a plea that the simple Alexander operation should be always employed for this special class of sufferers in whom a pessary was not worn with comfort or willingly tolerated.

A Unique Case of Circumscribed Infection of the Placenta and Excessive Vomiting, the Cervix Uteri and Ovum Being Intact; with Remarks upon Hyperemesis Gravidarum.—ALBERT GOLDSPOHN (Chicago) reported this case. There was a first pregnancy of three to four months with severe nausea, and much vomiting almost from the beginning, with the gradual additional development of fever, and finally also severe chills and a scanty, foul discharge. There was no alteration in the shape and consistency of the cervix, or of the body of the pregnant uterus. The patient had a rapid pulse, and irregular, high temperature, and chills. The uterus was emptied. The membranes and ovum were intact. The edge of the placenta bore a circumscribed area of broken-down gelatinous tissue, with a very offensive odor. The author gave a brief review of the current views of the pathology of hyperemesis gravidarum and considered the rare etiologic bearing of the above case.

Conservation of the Natural Resistance of the Patient in Surgical Work.—ROBERT T. MORRIS (New York) said that the late Lawson Tait was the first great exponent for conservation of the natural resisting force of the patient. Tait operated very quickly. He did as little as possible. He avoided handling viscera; he avoided disturbing the patient's mind with details of what he was about to do. He treated the most difficult cases lightly, and patients looked at it in the same light. The repair of surgical injury depended primarily, secondarily and finally upon a proper hyperleukocytosis. The author used this term in a generic way to avoid elaboration of detail in statement. This was a manufacturing process carried on under the control and guidance of the sympathetic ganglions. The more the surgeon shocked a patient, the more he lessened the production of the leukocytes. The common ways for lessening the natural resistance of the patient were prolonged anesthesia, unnecessary amount of anesthetic. All surgeons had seen patients who had been literally drenched with ether; they had seen patients carried to the danger line with chloroform. On the other hand, surgeons had watched the beautiful work of men who were expert in giving anesthetics, who began with nitrous oxid and a little oxygen, then changing to ether, who did it skilfully, quickly, nicely, and avoided shock, which took away one element of resistance from the patient. Quick work was a point in which Tait excelled. Expeditious work conserved the natural resistance of the patient. Undoubtedly the resistance of patients was lessened in abdominal surgery with gauze packing. He said that if ten healthy policemen were taken from the street and a yard of gauze was introduced into the peritoneal cavity, those policemen the next day would not be in good condition. This being so, how could one expect a patient with septic appendicitis to be in good condition if a yard of gauze was packed into his abdomen? If one drained quickly, got out of the abdomen quickly, disturbed the bowels as little as possible, made short incisions—in other words, leaving the patient alone as nearly as possible, he would make such a wonderful recovery that one might be accused of taking out a normal appendix. The tendency was to do too much. If a surgeon pricked his finger in operating on a septic case, the surgeon died, while the patient recovered. Why was this? The patient was loaded with bacteria and toxins. The patient had called out all of his resistance factors; his hyperleukocytosis was under way ready to meet infection and bacteria. The surgeon had not called out his resistance factors, hence the bacteria proliferated rapidly and gained ascendancy. Was it necessary for the surgeon to get all of the septic culture media out of the patient's abdomen? No. All he needed to do was to turn the scale; there was a conflict between the bacteria and the leukocytes in that patient's case; the bacteria were winning; the leukocytes were losing. What did the surgeon do? By taking out most of the toxins and bacteria quickly, he turned the scale, turned the balance in favor of the leukocytes, and they went on and won. He took unfair advantage of them, but if he had labored conscientiously, in accordance with textbooks and the best authorities, he would have put the patient out of commission where he could not have done it.

Perpetual Segregation of Criminals.—According to *Charities*, Gino C. Speranza, in the American Law Registry, makes a plea for radical reform in criminal legislation. The essential reform advocated is the segregation of habitual criminals. Mr. Speranza says: "Criminal therapeutics must take the place of our present conception of punishment; that is, where a cure is possible, let the remedial agencies suggested by criminologic and sociologic science have full scope. But where juridic therapeutics fail, let there be no mistaken altruism to perpetuate the unfittest. Perpetual segregation, where less trying ostracism is impossible, is the only way out of the problem of the criminal. All this, however, on a modern and scientific classification of criminals, based on more reliable, tangible and positive tests than the somewhat vague and uncertain theory of the forces of good and evil in man and their control by the spirit or the will."

Will Not the Other Magazines Follow This Example? —*Dear Doctor:* We are after the quacks—will you lend a hand? We decline to carry any patent medicine or other fraudulent or otherwise objectionable advertisements in our magazine. Publishers have no right to lend their pages to help swindle the public, or, what is worse, to help unscrupulous men to frighten the credulous into believing that all sorts of diseases and ailments possess them, in order to sell a lot of cheap stuff at high prices, much of it positively harmful. Other magazine publishers are following our lead. We hope to work up a sentiment strong enough to drive out this pernicious traffic. Write to the publishers of other magazines and ask your friends to write, insisting that they decline such business. It is costing us a good deal of money to conduct this campaign. The business we have already declined amounts to many thousands of dollars. We will appreciate your cooperation. Our subscription price is $1.00 by the year, or ten cents a copy, through your newsdealers. May we have a line from you assuring us of your support? Very truly yours,

THE RIDGWAY-THAYER COMPANY,
New York City.

The Cincinnati *Lancet-Clinic*, commenting on this letter editorially, says in part: The above letter appeared in *Everybody's Magazine* for May, and is such a radical departure from the "ethics" of modern journalism as to attract more than ordinary attention. A careful perusal of the 130 pages of advertising matter of this issue shows that, with the exception of several insignificant hair-dye advertisements, which probably did not appeal to the publishers as coming under the head of patent medicines, no vicious announcements of any kind appear, and this applies not only to the medical advertisements, but to the wine, liquor and get-rich-quick literature as well.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE DISCOVERY OF THE TRANSMISSION OF YELLOW FEVER BY THE MOSQUITO.

BY

JAMES CARROLL, M.D.,

of Washington, D. C.

To the Editor of American Medicine:—In looking over a recent small textbook entitled "Parasitologie Animale," by M. Neveu-Lemaire, and published by F. R. de Rudeval, 4 Rue Antoine Dubois, Paris, in 1904, I find the paragraph on yellow fever so remarkable that I desire to call the attention of American students to it, in order that they may avoid being misled by the statements contained therein. After giving credit to Dr. Charles Finlay for advancing the mosquito theory of the transmission of the disease, the author next states that the Liverpool School of Tropical Medicine sent a mission to Brazil "especially charged to study this question," and that Dr. Walter Myers forfeited his life as the result of experiments "that he made upon himself." And the author further states that "more recently" the Americans pursued the study of yellow fever in Cuba, etc.

All honor to Dr. Myers, who, like Dr. Lazear, of the American Army Commission, gave up his life in the work, and to Dr. Durham, who also contracted the disease at the same time as his colleague, and fortunately recovered. Dr. Durham, however, records no attempts at mosquito inoculations of either themselves or other human beings, but describes their search for a small bacillus to which they devoted considerable attention. According to him, the working apparatus of the British Commission was not liberated from the Custom House in Pará until September 13, 1901.[1] By this time the American Commission had already produced two cases of experimental yellow fever through the bites of mosquitos,[2] and on the date mentioned Dr. Lazear knowingly received the bite that brought about his death on the twenty-fifth of the same month. Dr. Myers was not taken ill until January 16 of the following year, by which time the American Commission had produced six additional cases by experimental mosquito inoculation. M. Neveu-Lemaire therefore has failed to accord the American Commission the priority that belongs to them. The concluding sentence on page 206 is simply a perversion of the truth, and may be translated as follows: "Dr. Caldas, of Havana, in August, 1901, experimented upon himself and died some days after, a victim of his devotion." It is much to be regretted that the source of this information is not given. It so happens that Dr. Caldas was not a native or resident of Havana; he was a Brazilian who had seen a great deal of yellow fever and was, in all probability, immune. He was not the subject of any experimental mosquito inoculation and, so far as my knowledge goes, is still alive. He visited Havana for the purpose of exploiting a socalled protective and curative serum for yellow fever, and a bottle of his serum is still in my possession. It had been prepared by means of inoculations with a bacillus obtained from the intestine of a yellow fever cadaver. Dr. Caldas, when requested, declined, for commercial reasons, to exhibit a culture of his organism. In order to demonstrate the value of his serum he secured two Spanish immigrants and after he had injected doses of his serum into both of them, one was subjected to the bites of two of Dr. Guiteras' infected mosquitos. Within four days the man was down with yellow fever,[3] passing through a typical attack which ended in recovery. As soon as he was taken ill, the other Spaniard made a rapid departure and could not be found. Dr. Caldas contended that the mosquitos infected the patient not with yellow fever, but with septicemia!

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[1] The Thompson Yates Laboratories Reports, Vol. iv, Part 2, 1902, p. 485.

[2] Reports of the American Public Health Association, Vol. xxvi, 1900, p. 37 et seq; and paper entitled "The Transmission of Yellow Fever," Journal of the American Medical Association, May 23, 1903.

[3] Reported as Case VIII of Dr. Guiteras' series in *American Medicine*, November 23, 1901, p. 815.

While I regret the necessity that compels me to enter into any controversy, nevertheless I owe the duty to my late colleagues, to the service to which I belong and to myself. I believe that I can justly claim the honor of being the first authentic case of experimental yellow fever on record, and this gives me an additional right to speak.

In view of the publication in Paris last year of the admirable report of the Yellow Fever Commission of the Pasteur Institute and the easy accessibility of other literature upon this subject, there can be no excuse for the issuance of such garbled statements from the pen of an authority like M. Neveu-Lemaire. It is to be hoped that few other paragraphs in his textbook are as inaccurate as the one cited upon yellow fever.

THE HYGROMED: NEW INSTRUMENT FOR DIAGNOSIS.

BY

HENRY EMERSON WETHERILL, M.D.,

of Philadelphia.

The medical hygroscope is an adaptation of the spiral hygrometer for medical purposes. As the clinical thermometer was taken from the meteorologic thermometer, so was the clinical hygroscope a modification of the weather hygrometer. For a long time some instrument has been wanted that would express the amounts of perspiration not otherwise determinable. The large amounts of moisture given off daily pass unnoticed. To retain this moisture and make it operate the delicate spiral of the hygromed, is the method of operation of this instrument. The moisture with this instrument is recorded in relative humidity units, so we have a standard commonly known which is the basis of our comparisons in diseases. There is a hygroscopic material mounted on a copper spiral, and this is put inside a little aluminium box, having holes in the bottom to enable the moist air to enter.

The thought at once occurs, can such an instrument be made so that the moisture of the surrounding air will not practically interfere with the readings. After tests covering a period of 10 years I am glad to state from severe tests, in many climates, the effects of the moisture of the air, on this instrument, are so small that its clinical usefulness is not interfered with. In other instruments of this class there is, however, an important bearing of the atmospheric condition, and even in these, if we plot the moisture of the air before observing our patient, we can see the effect of the relative humidity of the room.

Another point arises, viz.: Will observations of a function so changeable, and so different in different persons, and under different conditions, be of sufficient value for us to base conclusions upon?

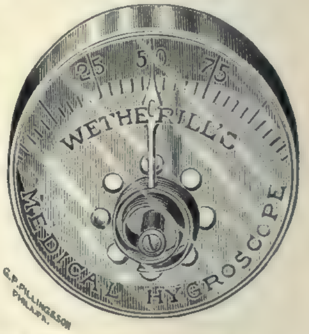
In answer to these pertinent suggestions I would say it is well to have an instrument to show these numerous conditions, as then we know the symptoms of our patients better. As a patient lies in the ward his moisture changes are not generally important unless some factors are at hand to cause them, and it is the effects of these that we wish to measure. It is true that individuals differ, but is this in itself not worthy of measuring? However, the normal variations seldom exceed 10% from the usual readings in the palms of 75%. The variations in diseases have been found so in excess of any normal variables that they are of important diagnostic value.

Results Obtained.—We ventured into this field with practically no data to guide us, our results were therefore most interesting, and as yet so little has been done, comparatively, that we feel much value can be obtained by observations. Naturally, after obtaining a fair idea of the normal, as the result of about 1,000 observations, we turned to those cases giving most striking symptoms. Now we can say, after several thousand tests, that the instrument is of diagnostic import.

In *uremia* we got very valuable data. We found the dryness of the skin was progressive and that when it became 30% the patient was in a very serious condition, whereas at 25% there never was recovery. When there was edema of the lung the moisture of the breath rose proportionate to the edema. Whereas the moisture of the normal breath is 85% that in uremia in several cases was found to be 95%. When there was the most cutaneous edema there the hygromed recorded the lowest. When we gave hot sweat packs the moisture was temporarily increased, but in numerous cases the moisture of the skin suddenly dropped afterward, and did not generally gain its former position for several days. Diaphoretic drugs, such as opium, sp. aeth. nitrosi, etc., had their effects recorded on the chart. On the other hand atropin was plotted in a lower moisture curve. The oncoming of convulsions in uremia is generally preceded by the drop of the moisture curve, and usually sufficient time is given to administer corrective measures.

In one interesting case of parenchymatous nephritis terminating in uremic coma, we carefully observed the patient for nine weeks, taking all the while all usual meteorologic data. These latter had no ordinary clinical value, that is to say, it will not usually be necessary to go into these details.

It was, however, valuable to note that each time the patient was a little better his moisture curve rose, and he was pleased to note the gradual elevations on his chart that foretold his better conditions. Simultaneous readings were the same, and the instrument was in good order at the end of the time. It was always carried in the pocket. This long action of the instrument is of value in demonstrating the reliability, as these instruments being very delicate, and the activity being due to an organic membrane, there is a tendency for an alteration of the instrument's correction. I have one instrument that is still accurate to within a few percent, although 12 years old. This is more than can be expected from the average instrument, so a special chlorid of cobalt scale accompanies each outfit, in order that previous to tests the instrument can be tested and recorrected, if necessary. Five minutes is the time for the instrument to remain on the skin.



In these Bright's disease cases we were better able to understand the general tissue metabolism, thus when the urine was decreased we often had a compensatory increase of the perspiration.

The indications for the hygromed are general, for in nearly all conditions we can make a better diagnosis if there is an accurate plotting of the symptoms. In general it may be said that when there is fever the record of the hygroscope is lower, but not necessarily so, for at the same time there may be concomitant sweating, as measured in several crises. The oscillations in hectic fever were observed for three months in one case of pulmonary tuberculosis, and in 80% of the sudden rises of temperature there was a sudden drop of the moisture. Valuable results should be obtained in septic cases, but as yet these have not been tried. However, I tried one case a few days ago, in which there was a temperature of 103° F., and the hygroscope gave 40%. I have mentioned elsewhere various results obtained.[1]

I hope that the results that I have obtained will start a more exhaustive study of the subject, for it is by the average of many data that we can hope to do the most good.

The average of half a dozen cases of exophthalmic goiter showed the cutaneous excretion increased 10%.

We observed many paralytics, and always found a difference on the two similar parts of the body. Generally the paralyzed side was the dryest, and proportionate to the amount of paralysis.

More results might have been obtained were it not for the fact that most of the time has been spent in satisfying ourselves that we had an instrument that would always do the work, no matter what the condition. Having done this, we are better able to proceed. All of the 50 models worked, but improvements were made so that the observation would not take too long, that the instrument would be low enough in price for general use, and that all parts would be interchangeable.

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[1] Neurological Section, American Medical Association, Atlantic City, N. J., now being published, with illustration.

In *malarial fever* we got some of our best results. In 200 cases in the Philippine Islands, we found we could practically always plot the coming on of the sweating stage; several hours before the sweat was noted the perspiration curve would rise. In one case of beginning typhoid fever we got daily decrements of perspiration with the increments of temperature.

In one normal person there was 2% less moisture in the hands in the evening than in the morning. This was so over a period of three weeks. This moisture change was more than could be expected to be explained by the drying due to the temperature alone, showing that the moisture function is not exactly related to the temperature.

Some observations were made on the lower animals. The cat and the dog gave very low readings, generally about 25%. Their breaths were very moist, in fact, the same condition as in man with uremia and edema of the lung.

Owing to the more variable standard, the observations with the hygromed are of more importance when they have been continued over some time, and as the instrument is handy and easily understood, we have had no difficulty in getting the nurses acquainted with it, although most of the observations so far have been taken by the physicians.

I cannot but think that in lieu of the absolute physical results enumerated, that this apparently useful field, almost wholly neglected, is one that should be given more attention, and if others will suggest particular cases we will look them up in the hospitals, and I hope that this communication may start the general collection of data upon the subject.

SPECIAL INSTRUCTION OF LIFE INSURANCE EXAMINERS.

To the Editor of American Medicine:—Apropos of your editorial note of September 3 on "Special Instruction of Examiners in Life Insurance," and especially on your closing sentence, "Do not the latter (the companies) tacitly instruct a certain winking at the less perfect risk," permit me to add a few words.

I do not think that insurance companies ever compromise themselves with either examiner or agent in the acceptance of poor risks, but that they covertly encourage it by means of their present system there is no question, and the reason may be because of the strife to show large amounts written during any current year.

I may give a few facts bearing on this point:

In any reference to insurance companies I have in mind only the old line companies.

The agent in a certain town I know of carefully avoids two of the examiners for his company, and as he states, because these examiners are too particular in their examinations.

Recently, one of these examiners examined an applicant who would not go elsewhere, although advised by the agent to do so, and was rejected for marked physical defects. The next day the applicant called upon the doctor and told him he had been informed by the agent that he had been rejected by the examiner, thus exposing the doctor to criticism.

Not long ago an examiner rejected an applicant, and the agent took the examination paper, which, however, was not completed, from the doctor's office, and called upon the applicant and told him he could have him insured in another company. The doctor, to protect the insurance interests, wrote the company, giving the facts, and received a circular letter, kept in stock by the thousands, I suppose, acknowledging the receipt of the letter, but the examination which saved the company several thousand dollars was not paid for, because the papers of examination were not completed.

Not many years ago a young man called on an examiner and asked him if he could pass an examination for life insurance in a certain company. He was answered in the negative. He was accepted in another company, and lived less than three years, and this company paid $5,000 to his estate.

A few years since a doctor waited upon a tuberculous patient from the East. This patient was never able to be out of bed after the physician was called in attendance, nor for some weeks prior to this time. He lived about six weeks thereafter. After his death some insurance papers came to the doctor to be filled out in the regular way, and with them a letter from the father requesting that the cause of death be not given as tuberculosis. It developed that this young man had $35,000 insurance on his life, $15,000 of which had been taken out within three months of the time of his arrival in the town in which he died, and at which time he was bedfast.

A certain very estimable gentleman, who for some years has been suffering from tuberculosis, received a policy on his life about a year ago for $5,000. I hope he may live to pay premiums for 50 years.

Inside of a few months past a man, whose estate did not amount to $10,000, received policies from several companies aggregating $75,000, and in a short time thereafter committed suicide. This man, so far as any one knows, never had an income to exceed $2,500 annually.

All these are facts within my knowledge. What if all insurance examiners would speak? Now for a story which I can only vouch for as having been told me by a reputable gentleman. This gentleman received, and is now carrying, a policy for $100,000, and no medical examination was ever undergone. It was issued to him on the strength of another examination of a year or two earlier. This insurance was not sought for by the gentleman, but was urged on him by the company. This gentleman had at the time pulmonary tuberculosis, although I am not certain a diagnosis had then been made.

CONCLUSIONS.

In the matter of life insurance examinations the agent is for himself and the medical examiner against himself and for nobody.

The insurance companies are getting as good examinations as they wish.

The more efficient examiners are avoided by the agents, and with the tacit approval of the companies.

The less scrupulous men in the profession soon learn to take the hint that revenue from insurance examination means poor work, not good work.

No old line insurance company under the present system could continue in business if income were based on percentage of profit realized in other lines of legitimate business.

Inquirendo.

THE McGRAW ELASTIC LIGATURE: A NEEDLE READY FOR IMMEDIATE USE.

BY

S. EDWARD SANDERSON, M.D.,

of Detroit, Mich.

In employing the McGraw elastic ligature, more or less difficulty and delay attaches to the use of any needle which the operator or his assistant is required to "thread." Realizing this, I originated the idea of having every ligature supplied with the needle already attached, ready for immediate use, the needle to be discarded after use. In order to accomplish this, I designed a special needle, which is shown in the accompanying illustrations. It has some other characteristics which commend it: (1) It is of smaller diameter than the needles in use; (2) it is of convenient length, 4½ inches; (3) it has a point differing from other needles.

These three characteristics make it easy to hold and handle; it penetrates easily without leaving a large hole, as the others do. Sterilization by boiling, impairs neither the needle nor the ligature.

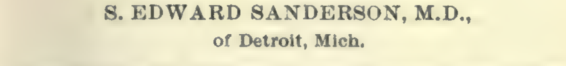

Fig. 1.—Shows needle as supplied ready for use; ligature of larger diameter than needle. (One-half size.)

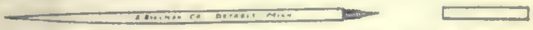

Fig. 2.—Needle showing construction. (One-half size.)

TWO CASES OF TRAUMATIC TETANUS: TREATMENT BY ANTITETANIC SERUM. RECOVERY.

BY

HARDY C. BLACK, M.D.,

of Waco, Texas.

The following cases of traumatic tetanus came under my professional care in the earlier months of 1904.

CASE I.—The patient was a negro boy, aged 10. On Christmas day, 1903, he fired the wad from a toy pistol into the dorsum of the middle finger of his left hand. Not knowing the wad was in the wound, the patient bandaged his finger with an old rag, and gave it no further attention. On January 4, I was called to see the boy, and found him rigid in trunk and legs, and only able to open the teeth about half an inch. His mother said he began to get stiff the day before, and had been having spasms all night. I anesthetized the boy, and cureted a gangrenous-looking mass from the wound on the finger. In the wound I found the wad from the toy pistol. I procured five bottles of Parke, Davis & Co. antitetanic serum, and gave one hypodermically at 10 a. m., and repeated it at 2 p. m. and at 6 p. m. I also ordered chloral hydrate and potassium bromid to be given every two hours, if awake. The boy passed a restless night; he slept but little, and had frequent convulsions; his pulse was quite rapid. As the few patients with tetanus I had seen in former years, in New Orleans, had all been treated with chloral and all had very promptly died, I decided to try to control this boy's paroxysms with morphin hypodermically, using it *pro re nata.* I therefore discontinued the chloral and bromid.

On the second day, January 5, I applied collodion cum caulbinders two inches wide along the spine from the occiput to the lower border of the sacrum, and began the administration of .4 cc. (6 m.) of tincture of strophanthus, every six hours.

On the morning of January 6, the boy's pulse was much slower, steadier and stronger, and there was a good blister on the spine and back. As he was still quite nervous I gave the serum hypodermically again at 10 a.m. and at 4 p.m., and used morphin hypodermically.

January 7 passed with little change from the condition of the previous day. January 8 the boy was very much more comfortable; the convulsive movements were still frequent, but he said they caused him no pain.

On January 9, I discontinued the hypodermics of morphin, but continued the administration of tr. strophanthus until January 14, 10 days after I removed the wad from wound on finger. The boy was able to turn on his side and had considerable use of his legs. His abdominal muscles were still tense and unyielding. He could open his mouth and separate his teeth an inch.

On January 15, I found an eruption on his arms and legs that resembled the beginning eruption of smallpox. I attributed it to the use of the antitetanic serum. This eruption passed away in a few days. The boy had a light fever during the first week of the disease and his tongue presented a thick yellow coat, but his bowels and kidneys acted well every day. He made an uninterrupted recovery, but was not able to walk without a cane until 30 days after the beginning of his attack. He made a complete recovery. This boy is the son of poor negroes, who lived in a small two-room house. He was at all times surrounded by the large family and the family cooking was done in the room where he lay sick.

CASE II.—On May 13, the patient a boy of 6, stuck a nail into the palmar surface of one foot, but the wound healed without trouble. On May 29, 16 days after the injury, his mother states he complained of stiffness of the jaws; this condition existed until May 31, when he began to exhibit rigidity of the body. On June 1, 18 days after the foot was injured, I was called in consultation with Drs. H. and C. to see the patient. He was walking about the gallery, but with a hesitating, faltering step, and with wellmarked risus sardonicus. His body was becoming rigid, although he could still stand and walk a little. He was at once placed in bed, and took the prone position, which he continued for the first five days.

On June 1, we gave him the antitetanic serum subcutaneously at 10 a.m., 2 p.m., and 6 p.m. At 2 p.m. blistering collodion was applied over the spine as in Case I. This resulted in a fine blister next day; also the administration of tr. strophanthus, .4 cc. (6 m.) every six hours was begun. His pulse at 2 p.m. was 120. He had his first paroxysm at 2.30 p.m., and continued to have them at intervals of an hour or less during the night, crying out with pain.

On June 2 the pulse was 108, and much stronger. We gave him the serum this day twice, at 9 a.m. and 3 p.m. He was very restless and paroxysms were still frequent. At 5 p.m. he was given 8 mg. (⅛ gr.) morphin hypodermically, with decided benefit.

On June 3 the patient was still in prone position and body rigid, but he was feeling very much more comfortable. Gave him the antitetanic serum subcutaneously only once. About 6.30 p.m. he became very irritable and restless, and while the paroxysms were lighter, they were more frequent. He was given 8 mg. (⅛ gr.) morphin hypodermically, which quieted him. His bowels were constipated throughout his illness, but moved twice June 3, after taking castor-oil. Subsequent actions from bowels were produced by aromatic cascara.

On June 5 he was able to roll over on his back, and vice versa, but preferred lying on stomach. His body was still quite rigid, but the abdominal muscles had lost much of their tenseness, and he could move his legs from knees down. I would call attention to the fact that hot flushes, followed by rather profuse sweats at irregular intervals, were common in both cases during the first six days.

On June 6 paroxysms became very light and infrequent.

On June 9 he became very irritable and restless, and he was given morphin, 8 mg. (⅛ gr.) hypodermically, which quieted him.

On June 10 he was able to sit in a chair. His recovery from now on was rapid and uneventful. By June 15 he was down stairs, moving around with comparative ease, although some stiffness of body yet remained. This child had recovered fully as much in 15 days as my little negro patient did in 30 days.

I attribute his more rapid recovery to the fact that we used the antitetanic serum, and began the other treatment practically 20 hours earlier in the disease. The negro had been having paroxysms 20 hours when I first used the serum.

Again, the latter patient had perfect quiet, and every attention that money and love could give. The little negro had to fight his battle with death under very different surroundings.

About July 1, the mother of the little white boy left Waco with her children to spend the summer at Bay View, Mich., and she writes her little son is in perfect health.

The conclusions I draw from these two cases are that the early administration of antitetanic serum is of undoubted value in tetanus; the blister along the spine and neck is imperative to relieve the irritation and congestion of the spinal cord, and to sustain the heart we probably have no better agent than the tincture of strophanthus.

RHEUMATISM IN NEW MEXICO.

BY

W. C. KLUTTZ,

of Tucumcari, New Mexico.

Some time ago one of my patients, while in Chicago, consulted a physician, remarking that her doctor in New Mexico had said she had rheumatism. The physician laughed at her and said that it was impossible for one to have rheumatism in a climate as dry as that of eastern New Mexico. Since I had about the same idea while practising in one of the Atlantic Coast States, and others may still think so, I believe a statement of conditions here may not be out of place.

The number of cases of rheumatism seen here, make up a larger proportion of physicians' work than in very much damper localities. I refer to Philadelphia, and some points in North Carolina, which have an annual rainfall of over 50 inches. Here average annual rainfall is less than 10 inches and the elevation about 4,390 feet, an average applying fairly well to the eastern half of the territory.

Two factors I think, are responsible for this frequency of rheumatism, viz.: The natural excess of meat eating, because of the scarcity of fresh vegetables, and the marked difference between the day and night temperature.

Since some writers have traced a relation between attacks of tonsillitis and rheumatism, and tonsillitis is very common in this region, owing no doubt to the wind and dust to which we are exposed, this may apply here, as an explanation of the frequency of rheumatism. I know of one patient, a man of 30, who has been a strict vegetarian for the past two years, who has had an attack of rheumatism this past summer, so the first named factor would not seem to have any weight in his case, at least.

The majority of those who come here with rheumatism, improve at first, but are very liable to be attacked again after some months. I know too, of some who developed their primary attack while living in New Mexico. The drinking water is contaminated with "alkali" nearly everywhere, varying of course in different localities, and is in many places a little saline, but it possesses very slight therapeutic value it seems. I think the variation between the day and night temperatures, which is 25 degrees or more, at all seasons, must be the chief reason for the relative frequency of this disease in such an arid region as that in eastern New Mexico.

ORIGINAL ARTICLES

THE ADVANTAGES OF COMBINING VARIOUS MODERN METHODS IN THE RADICAL CURE OF HERNIA AND THE USE OF LOCAL ANESTHESIA.*

BY

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The great numbers afflicted with hernia, its discomforts and dangers in all cases, no matter how simple, and the brilliant results of operative treatment have been emphasized repeatedly in recent years. But the hesitancy shown by the public in accepting operative relief, and the conservatism of some members of the profession in advising operation for the radical cure of hernia, make frequent reference to this subject a duty for all interested in the progress of surgery. The large number of operations reported from certain clinics in recent years shows that the possibility of cure is becoming more generally appreciated, but the advantages of operation should be known and urged by all practitioners of medicine until the public appreciate the situation and hasten to consult their medical advisers, as is at present the case with a pain in the right lower part of the abdomen and appendicitis. As the membership of this society is largely composed of practitioners of internal medicine, I shall venture to mention a few important general facts at the risk of wearying those who practise surgery.

The frequent occurrence of hernia should be remembered at every physical examination, and inquiry made into the history of any patient's condition. From the medical statistics of our Civil war, during which many thousands of men were examined, it appears that over 5% were ruptured, while in men above 40 years of age, over 9% were ruptured. Probably more than one in ten of all men whom we meet in everyday life have a hernia, and some have even estimated the frequency of inguinal rupture alone as high as 15%.

Consideration of the causes of this great frequency leads to the belief that no single factor can be responsible. Congenital failure of closure of the inguinal canal between the peritoneal cavity and the tunica vaginalis testis, is no doubt always followed by hernia, yet relatively few hernias are congenital. Occupations involving great physical exertion and sudden, severe strain, may cause rupture in certain cases, but a considerable proportion of men escape who have the heaviest work and are subject to the severest sudden strain. The tendency to flabbiness and muscular relaxation with advancing years, may account for greater frequency in men past 40, but many pass four score years without being afflicted. No doubt in all cases there is some anatomic weakness; in some cases so marked that rupture is almost inevitable; in others so slight that under less trying conditions the patient would have escaped. But it is quite unnecessary for me to dwell on the frequency of hernia, the impossibility of avoiding the causes which lead to rupture, the discomforts of trusses, our inability to control many hernias by trusses, and the frequency and great peril of strangulation. Hernia at the present, as in the past, is one of the most important surgical diseases.

In discussing methods which have been introduced in the surgical treatment of hernia in recent years I shall consider first of all the anatomic structures chiefly concerned and the various methods of dealing with them which have been devised; second, the improvements in general surgical technic and its influence on the operation for the radical cure of hernia; and, third, the advantages and best methods of using local anesthesia in our hernia operations.

The frequent occurrence of inguinal hernia is chiefly due to the weak spot in the abdominal wall at the point where the spermatic cord passes out of the abdomen. This opening is ordinarily not a large one and is so completely filled with the cord that the risk of escape of abdominal contents does not seem to be very great. But in connection with this should be mentioned a factor, the importance of which in the causation of hernia has until recently been generally overlooked by English-speaking surgeons: The normal depressions which exist in the posterior surface of the anterior abdominal wall. Some writers refer to an infundibuliform process which they believe results from the hernial protrusion; possibly they are not aware that the peritoneum dips into a funnel-shaped depression of greater or less depth with all persons, whether a hernia exists or not. The existence of these foveas or depressions into which the abdominal contents tend to force themselves was pointed out by French and German writers a number of years ago and in a previous paper[1] I called attention to their importance. Anyone who will take the pains to examine the posterior surface of the anterior abdominal wall will recognize the importance of these natural funnels and will be helped to understand why it is that about 85% of all hernias are inguinal. A factor of almost as great importance, which has been pointed out by Ferguson[2] is that in some persons, because of imperfect development, the space left by arching upward of the fibers of the internal oblique muscle above Poupart's ligament is abnormally great. In well-developed men the thick internal oblique muscle, attached to at least a half of the length of Poupart's ligament, is situated directly in front of the internal ring and acts as a barrier to escape of the abdominal contents through this weak point. In men in whom the muscle is poorly developed the conditions are present which favor the escape of the intestine, the pressure of which is directed into this region by the peritoneal foveas. The fibers of the internal oblique join with the transversalis to form the conjoined tendon and if this be abnormally weak, hernia is almost sure to occur and is more difficult to treat by operation. A third factor in the causation of hernia, which was pointed out by Bloodgood,[3] is the presence of abnormally large spermatic veins. It is not difficult to understand that veins the size of one's finger or larger, when filled with blood, tend to enlarge the hernial rings and favor the escape of abdominal contents.

The operations for the radical cure which are in use are so generally understood that I am sure that it is unnecessary to describe them in detail. All of them aim to accomplish three things: The obliteration of the hernial sac; the placing of the cord in such a position that it may be a source of as little weakness in the abdominal wall as possible; and the suturing of the structures of the abdominal wall in such a manner that the naturally weak places will be made strong. In the disposition of the sac after its contents have been reduced and it has been closed securely, some, like Macewen and Kocher, attempt to make use of it in strengthening the canal. In this country, excision of the sac after the method of Marcy, Halsted, and Bassini has been more popular. Personally, I consider it of importance not only to close the sac securely, but to transplant the neck of the sac from its position in the deep funnel-shaped fovea inguinalis externa back of the internal oblique muscle. This is accomplished by leaving the ligatures with which the sac is transfixed and tied, long, and threading onto their ends needles which are carried back of the body of the internal oblique muscle and transfix it well above its border. When the ends of the ligatures are drawn up and tied this draws the stump of the sac well up behind the solid muscle where escape of abdominal contents will be very unlikely. Instead of bringing the cord out between the oblique muscles, according to Bassini, which gives a direct opening from the internal abdominal ring through the thick muscular wall, it seems to me a better plan to draw the internal oblique and conjoined tendon down to Poupart's ligaments in front of the cord, thus placing the strong muscular and tendinous structures in front of the weak internal abdominal ring. If this opening out of the abdomen be securely guarded there is little likelihood of escape of abdominal contents through the internal ring. When this escape has once occurred it is extremely unlikely that anything will prevent the full development of a hernia. In cases in which the internal oblique and conjoined tendon are very weak, I prefer to transplant the lower part of the rectus muscle. This is easily accomplished by taking two or three sutures well into the edge of the muscle, when it can be readily drawn down to Poupart's ligament. This method was first suggested by Wölfler,[4] and has been found of great value not only in his clinic, but in a large series of cases operated upon at the Johns Hopkins Hospital. After the internal oblique, and in some cases the rectus, has been drawn down to Poupart's ligament I prefer to suture the flap of aponeurosis of external oblique, which is attached to Poupart's ligament, by a continuous catgut suture along its upper edge to the internal oblique muscle. The upper and internal flap of the external oblique is then drawn down over Poupart's ligament so as to make a broad overlap, in some cases of an inch or more, and its lower border is sutured by a running stitch to Poupart's ligament. The veins of the cord I excise only in cases in which they are greatly enlarged as hydrocele very frequently follows excision of the veins and in some cases atrophy of the testicle has been reported.

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*Read at a meeting of the Ontario County Medical Society at Canandaigua, N. Y., July 12, 1904.

It seems to me that this adoption of the important suggestions of a number of different surgeons, gives a combination operation which is superior to any of the numerous methods which have been devised. There is no good reason why we should not combine Ferguson's method of closure with the imbrication, overlapping method of Andrews, with excision of the veins of the cord, as suggested by Bloodgood; transplantation of the rectus muscle, as suggested by Wölfler, and transplantation of the neck of the sac behind the internal oblique. By carefully following the work of those students of hernia who have devised new and important methods and adopting the valuable improvements from various methods, we obtain a composite method which has all of the advantages of any of these various methods and a great many advantages not possessed by most of them.

No matter how perfect our closure in every detail, perfect healing is also necessary if a permanent radical cure is to follow. It is unnecessary for me to emphasize the value of faultless surgical technic or to detail its methods. Every one now recognizes its benefits and its possibilities. Yet, if you would appreciate how great has been the advance along these lines during the past 15 years I would suggest that you read a paper published by Dr. William T. Bull, in the "Transactions of the New York Medical Association," 1889, who reported 69 operations for the cure of hernia, 37, or over 50%, of which were followed by suppuration. He writes: "I am sure that there are more cases of prolonged suppuration and slow healing sinuses due to local sepsis than in other wounds." At the present time, Dr. Bull is everywhere recognized as one of the most prominent advocates of the radical cure of hernia, although 15 years ago he was quoted as an authority, whose experience showed that a majority of operations were in a measure failures. Reports from many sources show the positive gain which has been made by the use of operating gloves. No doubt the majority of representative surgeons now use them, although there are some who still refuse to be convinced of their value. Factors of less importance than perfect asepsis, which are sometimes overlooked, are the necessity for great care in handling of tissues and the arrest of hemorrhage. Any considerable oozing may produce slight separation of the wound edges and thus prejudice firm union as well as tend to infection by filling up the wound with a fluid of little vitality. Crushed tissue in a wound is also of lowered vitality, and if the injury be sufficiently great, necrosis even may follow. This should be avoided by picking up bleeding vessels without seizing surrounding tissues or crushing large masses in artery forceps. Another source of tissue necrosis, the importance of which has been repeatedly emphasized by Ochsner, is bringing parts together under tension and tying ligatures and sutures too tightly. The use of round needles, which penetrate but do not cut or injure the tissues, perfectly sterilized absorbable stitch material and closure of the superficial wound by a subcutaneous stitch which avoids perforating the skin, which is always infected, are further details deserving the attention of those who would attain the highest success. Firm healing is also favored by keeping the parts at perfect rest after operation. To aid in this, Ochsner uses large strips of adhesive plaster. Another measure of greater value, especially in femoral hernia, is the use of a plaster-of-paris spica for the first week or ten days, thus preventing any movement of the leg. Bassini is said always to employ the plaster cast, and from a great deal of personal experience in its use I can testify to its value.

The advantages of local anesthesia in the radical cure of hernia are several, but of greatest importance is the lessened danger to life. The risk of a general anesthesia is slight, no doubt, but is none the less a very positive one, and I feel that none of us if we were personally concerned, would care to take the slightest unnecessary risk. No surgeon who is convinced of the feasibility of operation under local anesthesia is justified in using general anesthesia, I hold, because of this risk to life alone, provided the patient is willing to suffer the slight discomforts of local anesthesia, which are certainly not greater than the after discomforts of general anesthesia in most cases. The lessened risk to life is a matter of special importance in operating upon aged or feeble patients, or in cases of organic diseases of the heart, lungs or kidneys. The danger of lung complication following operation for strangulated hernia has attracted considerable attention in recent years. This is avoided by local anesthesia. The patient is also relieved of the disagreeable necessity of losing consciousness. This is a factor of more importance than would at first be thought. Within the past few months I have operated upon a number of patients who have come to me from a distance because the operation could be done without loss of consciousness. In several other of my patients who were suffering considerable discomfort, operation had been refused by men of good standing because of the age or feebleness of the patient. Another factor of almost as great importance is the elimination of the nausea and vomiting after anesthesia. The continuous retching and vomiting sometimes seen after general anesthesia must certainly put great strain upon the wound, and unquestionably is followed in certain cases by the tearing out of stitches.

The conditions essential to the success of local anesthesia on the part of the operator are time, patience, and care. Without the operator has sufficient time at his disposal to proceed most carefully, taking considerably more time than is required for a general anesthesia operation, he should not undertake the procedure. A local anesthesia operation does not fit in well with an engagement for consultation or the necessity for catching a train. Patience with the restlessness of the patient during a severe test of his ability to lie perfectly still for a considerable time is also a necessity, as well as great care to avoid giving the patient pain. The complete avoidance of any severe pain is possible only by special care in infiltrating the skin most thoroughly, and in carefully isolating the important nerve trunks and blocking them with a stronger anesthetic solution. To Cushing,[5] we are indebted for carefully working out the nerve supply and special anatomy of these parts. After dividing the skin and subcutaneous fat down to the external oblique aponeurosis, it is well to infiltrate beneath the aponeurosis and then divide it with great care. One then comes directly to the main nerve trunks supplying this field, the ilioinguinal and genitocrural branches of the lumbar plexus of nerves. Blocking these nerves so thoroughly anesthetizes the field of operation that the dissection is absolutely painless until the cord is handled and the neck of the sac is isolated. The nerve supply of the neck of the sac is from quite a different source, but it is usually possible to anesthetize it fairly successfully by injecting around it as high up as possible. I have found the massive infiltration method of Matas[6] and the blocking of nerves to be most successful in these operations.

In the early use of cocain, a number of serious cases of poisoning was reported. This can be avoided by using a very weak solution, as has been advocated by Schleich. Still greater safety is possible by using a beta eucain solution, which is variously estimated from three to seven times less poisonous than cocain. It is not quite as efficient in its anesthetic action as cocain, and acts more slowly, but if time is taken and a somewhat stronger solution is used, it will be found most efficient. I have used a solution twice the strength of the usual 1 to 1,000 cocain solution. This solution is certainly three or four times less poisonous than cocain solution 1 to 1,000, and I have found it perfectly efficient. The addition of adrenalin chlorid to make 1 to 120,000, not only prevents oozing, but by delaying the rapidity of absorption, I believe it practically eliminates all danger of poisoning, and greatly adds to the efficiency of the anesthesia. Not only this, but by reducing after congestion it greatly relieves pain and discomfort, and it has been found by a number of observers a most efficient circulatory stimulant. The solution does not need to be freshly made, as is the case with cocain solution, and it can be boiled without deterioration, an advantage also not possessed by cocain solutions. Another very important factor in successful local anesthesia work is a good syringe which will stand boiling. Considerable pressure is required to infiltrate tissues successfully, and without attention is given to see that the syringe is in perfect condition, the result will not be satisfactory. I am accustomed to use a Roux or Walcher antitoxin syringe for this work.

In addition to the skill and patience of the operator and the perfect adaptability of the materials used, a number of points which concern the patient cannot be overlooked if a perfectly successful radical cure is to be performed under local anesthesia. Under no other circumstances is it more important that the patient shall have perfect confidence in his surgeon and a desire to aid in every possible way during the operation. Without the patient has confidence in the efficiency of the method and in the surgeon, success is doubtful, and it is unwise to urge local anesthesia on healthy patients against their will. Nearly all patients have some nervous dread of operation, and to lessen this if possible, I have been accustomed to give 20 gr. or 30 gr. doses of sodium bromid on the afternoon or evening before operation, with possibly one dose on the morning of operation. A hypodermic injection of morphin, $\frac{1}{4}$ gr., 15 or 20 minutes before operation, and a second injection at the time of operation, also helps by its quieting effect. Great care should be taken to see that the patient is as perfectly comfortable as possible on the operating table. I have used either a soft hair mattress or what is perhaps more comfortable, several layers of rubber-covered pillows over the operating table, and, as a rule, it is a good plan to use a screen, such as is used by Kocher in goiter operations, to shut off the field of operation from the patient. An assistant of good conversational power is of great help in diverting the patient's attention and helping him to pass the time. Some one has called such an assistant "the moral anesthetist," and in some cases his importance is certainly almost as great as that of an anesthetist.

With care in regard to details, it is almost always possible to operate practically painlessly; only in unusual cases is the pain more than trifling. I have had numerous patients tell me that they suffered no pain worth mentioning. A number of patients have told me that they suffered more from dread the day previous than from the operation itself. The most satisfactory of all are the cases of strangulation or incarceration in which the patients have been suffering a great deal of pain previous to the operation. Their testimony is invariably that the slight discomforts of the operation are not for a moment to be mentioned in comparison with the severe pain which they have endured. This is true in spite of the difficulties of infiltrating tissues inflamed by taxis and by the strangulation.

The statistics of recent articles on the radical cure of hernia afford most convincing proof of the rapid increase in popularity of operative treatment. Whereas ten years ago the use of trusses was almost universal, even with surgeons, now all progressive men advise radical cure and the almost perfect safety of operation in the hands of competent men gives confidence to the surgeon and the patient. American surgeons should not forget the pioneer work done by Henry O. Marcy, of Boston, who since 1870 has been an ardent advocate of radical cure. His first papers on this subject appeared ten years before Bassini's first publication, and by his successful work, as well as by frequent contributions before societies, he has perhaps done more than anyone else to establish the claims of the operation. The method of Halsted was also published before that of Bassini, which is identical in most details, and the introduction of operating gloves by Halsted is another contribution of no small importance. In statistics of 3,000 operations collected and published in 1892, Marcy found a mortality of 1%, while Pott,[7] in 3,532 operations which he has tabulated from the reports of prominent surgeons since 1895, finds a deathrate of a half of 1%. He quotes Borelius, who collected 650 operations by representative Scandinavian surgeons in 1895, without a death; and Championnière, of Paris, who in 868 operations performed between 1881 and 1901 had only five deaths. Hilgenreiner[8] reports no deaths during the first six years in a series of 828 operations performed in Wölfler's clinic in Prag and one death from postoperative pneumonia in the last year, during which 421 patients were operated upon.

The question of greatest interest, next to the safety of operation, is the probability of permanent cure and in this, modern results are most encouraging. Halsted[9] reports no recurrence in a large series of operations done by him personally since June, 1892. While this degree of success has not been reported by any one else thus far in so large a series of cases, it seems by no means unattainable for careful men in any well-equipped hospital.

This leads to mention again in closing what seems to me the most important factor of all; the care and experience of the operator. While recent reports from a number of clinics show almost entire freedom from recurrence, Coley, whose personal results have been strikingly good, reports 361 recurrences which have come under his observation at the New York Hospital for Ruptured and Crippled. Almost all of these failures could probably have been avoided had the patient first consulted a man thoroughly acquainted with the best methods.

It has indeed taken us a long time to get away from the traditions of the past, the methods of the days before the introduction of anesthesia, when speed was the first consideration and all surgeons worked against time. But the best operating-rooms now rival the laboratories in painstaking, conscientious attention to detail of their work. Surgery is now seldom spectacular, exciting, as was the case so short a time as 10 years ago, it is often tedious and wearisome to both the operator and the spectator, but its results are most beneficent for the patient both in the cure of his disease and in the saving of discomfort, pain and of life. Local anesthesia operations for hernia are distinctly of this class. They eliminate even the small danger of general anesthesia, and the greater danger of postoperative pneumonia; they are safe and they relieve the patient of the disagreeable loss of consciousness. The care in dissection necessary to prevent pain also adds to the certainty of cure.

Considering the extent to which patients are hampered by wearing a truss, its discomforts and the ever-present danger of strangulation if it is removed even only for a bath, and on the other hand the freedom from danger and a practical certainty of permanent cure by the radical operation, it would not seem that there should be any question in the minds of intelligent practitioners as to the course of treatment which it is desirable to advise for patients who are suffering from hernia.

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ATYPICAL CASES AND DUST INFECTION, AND PRELIMINARY DESCRIPTION OF DUST DISEASE.

BY

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In the course of time a physician meets many cases of ill-health, not to say of disease, with a symptom-complex that is difficult to classify or to which the name of any recognized disease cannot be applied without some qualifying terms. Some of these cases, perhaps more or less chronic, resemble neurasthenia and are regarded as such. But the term neurasthenia is a very elastic one and includes a variety of types; according to some writers, as many as half a dozen, or more. Acute articular rheumatism is not a common disease, but cases manifesting more or less vague and illy-defined pains and aches in the joints or muscles, perhaps more severe in certain parts of the body, are exceedingly common. We all know the difficulties in arriving at satisfactory conclusions. The various forms of gastritis or stomach disturbance form another group that present similar difficulties. For example a simple case may be mentioned:

Case I.—G. T., a well-developed farmer boy of about 18; seems to be a picture of health. He complains of feeling feverish, with headache, soreness in the chest and down the arms; there is some irritation in the throat with expectoration; he says he is subject to similar attacks, that he nearly always feels uncomfortable when away from home, and becomes ill every time he comes to town. On examination nothing definite of a pathologic nature could be detected, except some hypertrophied tissue in the region of the tonsils. The temperature was only slightly elevated.

Cases in which there is a greater number of symptoms, mainly subjective, might be mentioned; some with marked rheumatic, neurasthenic or gastric features. A report on the findings of examinations of the blood, of the stomach contents after test-meals, of the circulatory and nervous systems, etc., might be added and still the nosologic position of the affection or disease would be a matter of doubt.[1] There is one factor that has not been mentioned so far and which is ordinarily not considered in connection with, or in the causation of, ill-health and disease, and that is dust.

I have been making observations for a number of years and have come to the conclusion that dust—that is, city dust or dust mixed with dried sputum—plays a most important part in cases like the foregoing, indeed, I believe it to be the cause, and that the reaction of certain individuals in relation to the cause is quite constant.

The following paragraphs are from a paper recently read before the Indiana State Medical Association on "Dust—A Neglected Factor in Ill-Health:"

> Man, in a primitive condition, may be said to inhale a pure atmosphere, and in proportion as he lives in communities with fixed habitations, the atmosphere about him becomes polluted, and nowhere more so than where the habit of promiscuous spitting prevails. We all know that the air we breathe is often badly polluted by the expectoration of persons affected with all sorts of diseases.
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> Now the respiratory mucous membranes differ greatly in their resistance to the infective matter in the inhaled air. The average man, under average conditions, gets along very well; if the amount of infecting matter inhaled is unusually large, or the inhalation long continued, there may be more or less disturbance. At either end of the average we have opposing conditions. On the one end we find the individual who seems practically immune, even under severe exposure; on the other end we find the individual who becomes afflicted under even a slight exposure.
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> Among immunes, or rather I should say among those least susceptible, may be classed street sweepers who inhale an immense amount of dust from day to day with seemingly little bad effect; railway conductors on smoking cars come under the same head. The law of the survival of the fittest explains why this is so—a man unusually susceptible to the dust would not long fill such a position.
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> It is a common observation that during the prevalence of dry, windy weather, and for some time thereafter, many persons complain of malaise, of wandering pains and aches throughout the body, some complain of lumbago or pleuritic pains, in some a coryza and catarrh are set up; in fact, a whole train of disturbances may follow after the subsidence of the dust.
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> If we call for the sputum of a patient during or after the prevalence of dusty weather, we are apt to find present much glairy mucus, colored more or less dark by innumerable dust particles. We will also find little bits of yellowish or greenish matter, and this, under the microscope, will be found to be made up of polynuclear leukocytes, and in and among them various kinds of bacteria. This purulent matter is evidence of an infective process that has taken place, and is of frequent occurrence in the inhabitants of cities; as a rule it subsides promptly when the amount of dust inhaled is reduced to a minimum.
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> I am inclined to believe that the importance of this infected dust is not fully realized, even by eminent writers on diseases. For instance, I have just looked over a description of acute catarrhal rhinitis in a recent authoritative work, in which we are told that the causes are predisposing and exciting. Under predisposing are mentioned the diatheses, such as the rheumatic and gouty, and the uric acid or lithemic state. Then we have a mention of eating too much meat, of living in overheated rooms, of swaddling the body, and that excesses of all kinds predispose to coryza. Under exciting causes we are told of wet feet, drafts, sitting in a cool place with a moist skin; we are also told that the amount of moisture in the air and the temperature require consideration. Now this is all well enough, but nowhere is there anything said about the infective material in the air, and that in a pure atmosphere all the foregoing predisposing and exciting causes go for naught. I have seen socalled rheumatic and gouty and uric acid diatheses disappear, along with the rhinitis and colds, as soon as the patient got into a good atmosphere, and, on the other hand, their prompt return on getting back into the dust.[2]

In some cases the inhalation of dust simply acts as a modifier of the symptoms of disease. The behavior of a typhoid fever case in a city with a dusty atmosphere differs from that of one in the country with a pure air—the constant slight efforts of coughing and clearing the throat may be wholly absent in the latter case, and respiratory diseases, like bronchitis, laryngitis, pneumonia, pleurisy, tuberculosis, etc., are less apt to carry the patient off. Indeed, it would seem that among the first things to do in the treatment of typhoid fever (as well as of other exhausting diseases) would be to place the patient in a good atmosphere.[1]

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[1] A few illustrative case reports are given at the end of this paper.

[2] This phase was taken up more in detail in a paper before the Indiana Academy of Science, December, 1903.

It seems we are so accustomed to inhaling air full of dust that we do not make proper allowance for the influence exerted on the individual. Then again, we do not keep track of our patients or study their cases in detail and try to account for their complaints. One of the most important duties of the physician is to search for the cause or source of the ailment or disease. (I am myself somewhat influenced by a contaminated atmosphere, and this first led me to pay special attention to this subject.)

During the last four years I have been located in one of the larger Indiana towns, with a population of about 20,000, and have had good opportunity of studying a number of cases, urban and rural, influenced by the dust. It was soon noticed that there was great uniformity or similarity among cases, and that the difference was chiefly due to the organ or part of the body more strongly affected. More recently I have applied the term *dust disease*, qualified, if need be, by such words as respiratory, peripheral, nervous or gastric in certain cases; this designation gives a definite idea as to the patient's affection.

I have found this designation so satisfactory, the etiology so definite, and the symptomatology and indications for treatment so uniform, that I believe the affection can be regarded in the light of an entity, that is, as a disease. When we speak of pneumonia, or epilepsy, or of any of the recognized diseases, we at once have some definite idea of the symptomatology, etiology, course, prognosis, and treatment. I am not aware that this has been done heretofore in the kind of cases under discussion, and I feel convinced that the recognition of such a disease will be a distinct step in advance. We will be enabled thereby to classify more thoroughly cases that heretofore seemed aberrant or atypical, and to refer them properly to the underlying cause, to the inhalation of infective dust. Quite a number of cases with symptoms formerly referred to other diseases will at once reveal their true character, and there will be fewer cases of atypical rheumatism, neurasthenia, malaria, grip, gastritis, vesical irritation, and affections of the respiratory tract.[2]

It would seem that if symptom-complexes like those of mountain fever, caisson disease and autumnal catarrh —diseases perhaps wholly dependent on atmospheric conditions—can be regarded as entities or independent diseases, then the symptom-complex due to the inhalation of infected dust has an equal claim for recognition as an entity, as a distinct disease. Asthma might also be mentioned in this connection.

Cases of dust disease are frequent in cities and towns. The country furnishes a number of cases,[3] and these are easily recognized by a history of attacks coming on after a visit to the city. Very acute cases often occur in prominent men who take part in a political convention. Without any further knowledge of the facts in the case, I am inclined to believe that the following, copied from a daily newspaper, is an example:

> Chicago, June 24.—Suffering from the strain of the convention and in cold nervous chills most of the time, X was taken to his home at XX, completely broken down after the convention. X was ill during the convention and only by spartan efforts held out until the end. His physicians claim he will have to give up politics for a while and take a long vacation. He will go to Europe to spend several months.

The beginning of chronic ill-health may have its origin in just such an attack.

I fully realize that facts can often be differently interpreted, and that no one can be always absolutely sure that his explanation is the right one. It is said that facts are explained when brought in harmony with other facts or bodies of general knowledge. A theory tries to account for the facts. Prevision or prediction is the test of a theory. If attacks of a disease can be predicted according to the theory and the prediction verified by observation, then that theory has value.

Now I do not wish to appear "possessed by a theory," nor do I desire to insist too strongly on the correctness of my views. There may be a different explanation for the cases to be cited,[1] or for the thirty odd other cases on which I have notes, during the present year.

What follows may seem presumptuous, but it is based on an observation of numerous cases extending over a period of years, and publication may perhaps shed some light on a class of cases that has heretofore not been understood. I regret that the literature within my reach is so limited that I have not been able to keep fully informed of any work that may have been going on along these lines, and perhaps some one, unknown to me, has been making and recording similar observations.

It will be understood that the following description is provisional—a preliminary study, synthetic conclusions—subject to modification and correction.

DUST DISEASE OR DUST FEVER.

Definition.—An acute infectious, endemic disease, due to the inhalation of dust contaminated by sputum. It is characterized clinically by an irritation of mucous membranes; vague wandering pains throughout the body, mostly referable to the muscles or ligaments; lassitude, headache, feverishness and anorexia, up to vomiting, marked nervous disturbance, and severe localized pain. The manifestations may vary considerably in different individuals, and the symptoms may be wholly subjective. It is often followed by other, specific, diseases.

Distribution.—It is very common in the United States, especially in those portions where people are massed together and where the spitting habit prevails.[2] It occurs sparingly in thinly settled regions; is practically absent in the far North, on high mountains, and on small isolated islands. North pole explorers are free from it while in the far North, but are attacked on their return home, and the severity of the attack seems proportional to the length of the absence from home. It occurs sparingly among people like the Japanese, who are cleanly in their habits and change footwear before entering their homes.

Etiology.—It is due to the inhalation of a sputum-contaminated atmosphere, containing more particularly the expectoration of persons affected with socalled catarrh.

The effects that are to be ascribed to the mechanical irritation of mucous membranes by the solid particles in the dust, those due to the action of toxins—a sapremia, and those due to living microorganisms, have not been worked out. Cultures of blood have given mostly negative results, certainly nothing positive. Heredity seems to play a part in some cases—that is, the inheritance of delicate mucous membranes.

Seasons.—It is most common in the fall and spring, and with the prevalence of high winds and no sprinkling of the streets. At times it assumes the character of an epidemic. It is also prevalent in the winter, on account of closed, illy-ventilated rooms, street cars, railway cars, theaters, or public halls, with a sputum-contaminated atmosphere. It is least prevalent in the summer (when the sputum is sterilized on the sidewalks and streets by the rays of the sun, and when doors and windows are open). The whirlwind of dust stirred up by a fast-moving city trolley car should also be considered.

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[1] The inmates of insane hospitals or asylums are, on the whole, remarkably free from acute respiratory affections—"colds," bronchitis, pneumonia. The reason is simple enough: Patients are not allowed to spit on the floor nor on the walks where the sputum can be tracked in on the shoes. A man must be very "crazy" if he cannot be taught to use a cuspidor.

[2] The list of recognized diseases is constantly growing, and this is due chiefly to the activity of investigators of our large cities, especially of men connected with our medical schools and hospitals. Naturally, such descriptions are usually based on city cases with city surroundings, and often while under treatment in a city (urban) hospital, as country people only exceptionally come under the care of these city physicians—excluding, of course, surgical cases. There may have been no comparative study of urban and rural cases, and so the country physician is constantly meeting or finding atypical cases (aside from socalled atypical cases, regarded as such on account of imperfect study or mistaken diagnosis). The modifying influence of good or bad air on or in diseases has scarcely received any attention.

[3] The "Thrasher's Chill," or "Thrasher's Cold," is an acute disturbance due to an intense mechanical irritation of the mucous membranes by the dust arising in thrashing grain, clover, etc.; it is rarely seen at the present time when the stacking is done by mechanical contrivances.

[1] The relationship of cases to eyestrain, to mouth-breathing, to splanchnic neurasthenia, and to nasal and genital disturbances—as brought out by Mackenzie, has been kept in mind.

[2] Europeans, with their clean cities, have no adequate idea of the condition of the sidewalks of some of our cities and towns.

Among *predisposing* and *exciting factors* or causes, may be mentioned: Sedentary occupations in illy-ventilated rooms; the use of excessive amounts of albuminous foods; sudden cooling of the body or depression of temperature; disturbed physical functioning due to worry, etc. Mouth-breathing should also be mentioned. In the absence of the real cause, all such factors go for naught.

Pathology.—The symptoms being almost wholly clinical and mostly subjective, there are practically no recognizable pathologic lesions, although most patients show hypertrophied tissue in the upper respiratory tract and an abnormal secretion of mucin. The mucous membranes, especially the respiratory, will probably be found defective, allowing the entrance of infective matter.

Symptomatology or Clinical History.—The objective symptoms may be slight, the subjective symptoms may be protean and varied. An attack may develop insidiously or rapidly, perhaps even within an hour or two after an exposure.

There are several clinical types based on local manifestations.

(a) *The Respiratory.*—Local catarrhal symptoms may develop within an hour or two after an exposure, or rather an unusual exposure, or in the course of a day or two. There may be a suffusion of the conjunctivas, a hyperemia of the upper respiratory tract, with cough, dyspnea, and more or less expectoration. There is a feeling of lassitude, vague wandering pains and aches in the chest and extremities, headache, anorexia, and even nausea. Usually there is a slight primary elevation of temperature, out of proportion to the subjective sense of heat, especially of the face. Attacks may last from a day or two to several weeks, depending more particularly on the condition of the atmosphere in keeping up the disturbance. During its season hay-fever is to be ruled out. Atypical cases of asthma[1] should be studied in the light of dust disease.

(b) *The Peripheral or Rheumatic.*—In this type the most striking symptom is pain of a rheumatoid nature. Beside the vague wandering pains throughout the body, there are, or may be, more or less well-defined pains in certain places, especially in the arms and the muscles; at times there may be a severe aching over all the body. Most cases of socalled muscular rheumatism come under this type. The "growing pains of children," and "rheumatism in school children," are perhaps mainly cases of dust infection. Enlarged tonsils are common in this type.

A peculiar feature in some cases is the early appearance, and perhaps exclusive localization, of the pain in some one part of the body, most commonly in the back. Severe forms usually are regarded as lumbago or pleurodynia, or torticollis, etc., depending on the location. Cases of dust disease, with the pain thus localized, may be qualified by the term traumatic, because in most cases, history of an injury can be obtained. In some cases under observation, the pain invariably appears at the site of an old injury, as of a severe sprain or a broken bone. (Sciatica and some forms of peripheral neuritis, and "rheumatic neuralgia," should also be mentioned.)

(c) *The Nervous or Neurasthenoid.*—Under this head come many cases ordinarily classed as neurasthenia, migraine, or sick-headache, hysteria, etc. Heredity—that is the inheritance of the predisposition—seems to play a more important part in this type than in any of the others. Cases in which the patients constantly complain of neurasthenic symptoms while in the dusty city, and get well as soon as they go to the country on a vacation belong here. (It would seem that with the air constantly filled with infective dust, which must of necessity be inhaled, the agencies for warding off disease are perhaps overworked.) Literary men who spend much time in close libraries where the air is filled with dust from the tops of rarely used books, are frequently affected; likewise lecturers and preachers who use their voices in illy-ventilated halls. Children with neurasthenic symptoms who sit in dusty schoolrooms belong here.

(d) *The Gastric.*—In this type the alimentary tract bears the brunt of the attack. The disturbance begins in the fauces and extends down into the stomach, with acute gastritis, anorexia, and perhaps severe nausea; usually there is considerable mucus in the vomit. Gastralgia is present in many cases of dust infection.

In two or three cases under observation, typical attacks of socalled membranous catarrh of the intestines followed after each unusual exposure. (See Case III). Perhaps the overstimulation of the mucous membranes and the overproduction of mucin play an important role in cases of dust infection. (The influence of dust is not mentioned by von Noorden in his treatise on mucocolitis.)

In this gastric type the bladder is frequently irritated, several times an increase of mucin in the urine has been noticed; the vesical irritation may, however, be ascribed to the concentrated acid urine, due to a diminished use of fluids while the stomach is irritated. Nearly all patients with dust disease complain more or less of anorexia; the tongue may be coated continually, with a bad taste in the mouth, and the digestive functions disturbed. It is often surprising to find how rapidly these disturbances disappear when the patient goes away from the city for a rest or vacation, and he may remark on his ability to eat anything and everything.

Complications.—It is evident that, in the respiratory type especially, all sorts of complications may arise, or rather, sequels may follow the attack. (The attack itself may be regarded as simply a stirring up of the soil.) With the active causes present in the inhaled air, pneumonia and tuberculosis may follow, not to mention bronchitis, tonsillitis, laryngitis, pleurisy, etc.

Differential Diagnosis.—The one great factor to keep in mind in cases of dust disease, is the inhalation of a sputum-contaminated atmosphere, also a history of attacks after similar exposures, and the absence of the disease while living in a good atmosphere—in the country.

Hay-fever, *rose cold*, and *autumnal catarrh* are names in use for seasonal disturbances due to the inhalation of special forms of dust—the pollen of various plants. Without venturing any opinion on the etiology of the foregoing affections, I believe that many cases of "hay-fever" (socalled atypical cases)[1] are in reality cases of dust disease, because the patients get well as soon as they get out of the city,[2] and no matter how much pollen may be in the air of the country.

Influenza or La Grippe.—Although dust disease in a general way resembles influenza, it can be differentiated by its history. Influenza is an epidemic and pandemic disease, and not endemic in the United States, and bestows a fair degree of immunity. Dust disease follows an exposure, more or less severe, to a polluted atmosphere, and an attack gives no immunity; the onset is also less marked, as a rule. There is a marked parallelism between the two affections in clinical types; in both diseases there are marked respiratory, nervous, gastrointestinal, and rheumatic types.

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[1] Night attacks of asthma (as well as of coryza) may be due, in certain cases, to the inhalation of dust arising from old feather pillows—on compressing an old pillow in a beam of sunlight the dust can be seen puffing out, as I witnessed in the Alps in the spring of 1899. (See Indiana Medical Journal, August, 1901.)

[1] The fact that farmers who have good health for 10 months in the year become ill at certain periods of each year, and the fact that other farmers have good health all the year round except when they come into town on a dusty day, would tend to prove the marked difference between hay-fever and dust disease.

[2] When the etiology of cases of socalled "febricula" or of "catarrhal fever" can be traced to the inhalation of infected dust, such cases are to be regarded as cases of dust disease.

(I believe that most cases of grippe occurring long after an epidemic has subsided, are simply cases of dust disease, and socalled recurrent attacks at short intervals may well be rediagnosed after a study of the sputum.)

Malaria.—This disease was formerly very common in the Wabash Valley, and quinin was used very freely. At the present time the initial chill incident to the onset of many diseases is at once called "malaria," or referred to as "a touch of malaria"—from habit, perhaps—until subsequent developments rule it out. Many cases of dust disease in which chilly sensations and more or less fever are present, are diagnosed as malaria, even if occurring in midwinter, although some physicians realize that such cases are atypical, and the term False Malaria has come into use. An examination for hematozoa, and the application of the therapeutic test—quinin—will promptly rule out malaria.[1] (The test for dust disease is a pure atmosphere.)

Rheumatism.—That is, acute articular rheumatism,[2] is marked by swollen, red joints, great pain, and requires rest in bed. Rheumatoid conditions and the various forms of arthritis can usually be ruled out after a short study of a case. Many cases of socalled muscular rheumatism and irregular gout may be found to be cases of dust disease.

Neurasthenia.—Many cases of nervous prostration socalled are in reality cases of dust infection and the symptoms subside as soon as the atmospheric conditions improve. This remark also applies to some cases of migraine, hysteria and kindred affections. The diagnosis of neurasthenia in men or of hysteria in women should be made only after excluding all other affections. When a man who seems the picture of health complains after every unusual exposure to a dusty atmosphere, perhaps complains continually while living in a dusty city, and feels perfectly well when sent to the country, and when his former symptoms return on coming back to the city, we may conclude that it is not a case of neurasthenia, but of dust disease of the nervous type.

Gastritis and Gastrointestinal Catarrh.—Cases coming under this head should be studied and the influence of a contaminated air ruled out. (The influence of foods exposed to street dust, especially berries, should not be overlooked.)

Bronchitis, Tonsillitis, Pharyngitis, Bronchopneumonia and Lobar Pneumonia.—The inhalation of infected dust plays a most important role in the production of these diseases, they are air-borne diseases, and in some cases may be associated with dust disease as defined before. Some cases of asthma may be wholly due to dust.

Pleurisy.—Many mild, socalled atypical cases of pleurisy are cases of dust disease. If the dust infection is sufficiently severe a typical pleurisy may develop. In systematic descriptions of pleurisy we are told that "in almost all instances a careful search will disclose the existence of some diathesis—tuberculous, gouty, rheumatic—that may be properly regarded as the favoring cause." In my opinion, based on experience, this "rheumatic diathesis" is dust infection or dust disease.

Prognosis.—This is variable. In some cases there may be only a slight illness, chiefly malaise, with no well-defined symptoms and not localized; after a day or two there may be a return to the normal condition. In cases in which there is more or less localization, recovery may be slower. Other patients grow progressively worse, unless placed in a better atmosphere. An inhabitant of the city may always be miserable on account of the dust, but may get along in comfort in the country. If the mucous membranes refuse to adapt themselves to existing conditions, chronic ill-health is apt to follow and the body may not be able to resist the entrance of other diseases, especially tuberculosis. A farmer may have excellent health while on the farm, but suffer every time he makes a trip to a dusty city, and remaining there may mean chronic ill-health.

Therapeutic Test.—The test for dust disease is pure air—air away from a dusty city.

Treatment.—From the very nature of the disease, prevention is easier than a cure, and reducing the amount of dust in a city is of primary importance. Some patients get along in comfort after their attention has been called to the source or the cause of their attacks or of their continued ill-health, because they are able to guard themselves. Sometimes the patient may have to be taken away from his surroundings; a stay in the country, or at the lakes or ocean, or in the mountains, will often produce most decided effects.[1] Likewise a stay at some mineral spring or well, where the air is good.

A "change of climate" in cases of dust disease does not necessarily mean a change of latitude or altitude; a going to a hot or a cold country, to the sea-level or to the mountains, but it means simply a change into a good atmosphere, which may, perhaps, be found only a few miles from the patient's home. Unfortunately, prevention in many cases means a removal from the city, and as this is not always expedient, it therefore becomes advisable to attempt to reduce the disagreeable symptoms to a minimum.

Strict attention to bodily functions and to diet are highly important; medicines play only a secondary role. Stomach conditions should be ascertained by the use of test-meals and advice given in accordance with the findings; hydrochloric acid can often be given with benefit when there is a continued deficiency. Mild laxatives may be of service; in cases with much mucus (mucous colitis), liquid vaselin, oil of petrol, may be useful—a tablespoonful or more between meals. In cases with blood deficiencies, the use of some organic iron preparation may be indicated, in the anemias especially. Sedatives may be of use in the nervous forms, especially codein, in sufficient amount. Salol or salophen is useful in the forms with sharp pains.

Report of Cases.—I desire to report more or less briefly a few cases, to illustrate the description of dust disease, and also to show how seemingly obscure cases of illness will often become quite clear when considered in their relation to the dust. In the case cited in the beginning of this paper, mention of the influence of the dust was purposely omitted, because dust is a factor that is ordinarily not considered as standing in any causative relation. To complete that case report the following should now be added:

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[1] I did not see a single case of malaria during the past year, although living in a region where malaria was formerly very prevalent.

[2] Typical cases of this disease, according to accepted descriptions, have not been common in my experience, although what may be regarded as atypical or aberrant cases have been quite common, and these latter in nearly every instance have on close analysis fallen under the head of dust infection; many could be definitely traced to the source, to the exposure, to the dust or an unusual amount of it, as in the case of country people, or even city people, going to a very dusty circus performance or to a skating rink contest, for instance, with the poorly ventilated room or hall densely full of dust. Occasionally I have received several cases after a windstorm in dry weather. In this connection I may say that in one case at least a typical attack of acute articular rheumatism followed the prevalence of a dust storm, beginning with coryza, bronchial irritation, aching of the joints, and after a few days developing into a typical case of acute articular rheumatism, running into subacute and subchronic with albumin and casts in the urine.

[1] Erb, of Heidelberg, has called attention to the great value of a winter sojourn in high mountain resorts for many patients suffering with neurasthenia, hysteria, certain nervous disorders, etc. Many writers insist on the value of an ocean voyage in nervous disturbances, asthma, chronic catarrhal conditions of the air passages, chronic rheumatic states, and arthritis. "Voyages often have a beneficial effect on persons who are very susceptible to catarrhal attacks ('colds') and rheumatic pains. Hay-fever never occurs during sea voyages. Certain patients suffering from asthma are greatly benefited by sea trips."—(Cohen: System of Physiologic Therapeutics, Vol. iii, p. 88.) We may ask, Why is this so? The answer will be: Dust.

The case was suspected to be one of dust disease, and inquiries were made along this line. The patient said that he himself had noticed the evil influence of dust, but he could not distinguish between kinds, that is, whether containing sputum or not. The patient was informed of the nature of his affection and the cause, and advised to remain away from town as much as possible, and to come in only on wet days when there was no dust, likewise to avoid masses of people in illy-ventilated rooms. He has since acted on this advice and gets along in comfort.

CASE II.—Mrs. S., middle-aged housewife. History of frequent headache, vague wandering pains in extremities and chest; at times the pains are severe, accompanied by a disturbed stomach and an irritable bladder; attacks last a few days. Says she gets sick after going to church or to a party, and also gets sick on sweeping in the house. This patient dimly recognized the influence of the dust, as I soon learned, without asking any leading questions along the line of dust infection. She says that formerly she could not take a ride over a dusty road or in a street car without getting ill; she goes to church or to a party only at times when all the doors and windows are open, and even then she does not always escape.

This patient belongs to that class of women who regularly have a "blue Monday," the result of housecleaning on Saturday and attending an illy-ventilated church on Sunday, or of going down town on a dusty day. After pointing out the source of the "blueness," many women get along in comfort without any special medication. Acting on the advice given her, she has reduced the disturbances to a minimum.

CASE III.—Mrs. H., a housewife of about 26, lives in the eastern residence portion of the city; she has the appearance of being "run down." She came to me early in March with a history of various disturbances; pain in the back, wandering pains in the body, headache, deranged stomach and bowels with a discharge of much mucus at times. Has a sickly yellow color. Says she has had all sorts of experiences with physicians and was now almost discouraged. I suggested a systematic examination, to which she agreed, with the following results: Bodily development good; excepting tenderness in the chest and abdomen and along the spine, the physical examination was practically negative. Red blood cells reduced to 3,800,000; hemoglobin to 60%. Gastric fluid, after a test-meal, contained much mucus; small amount of HCl present, also lactic acid, yeast, and some pus. Sputum mainly mucus with some purulent matter full of bacterial life, but no tubercle bacilli. Urine very concentrated; acidity and phosphates high. Pulse tracing normal, but nervous and influenced by the respiration. I should have stated before that this patient wore a long trailing dress and came down town frequently.

After further questioning the patient, and after a study of the results of the examinations, she was advised: 1. To shorten her dresses—to keep them off the ground. 2. To stay at home; if compelled to go down town, to go only on wet days. 3. To use water more freely and to reduce the amount of animal food. 4. For the excessive amount of mucus in the throat and stomach, she was advised to gargle with a very dilute salt and baking soda solution, and to drink half a glass full, hot, half an hour before meals. 5. She was placed on a laxative organic iron preparation, to be used after meals, and in sufficient amount to keep the bowels open.

This patient began to improve at once, the bodily functions became normal, color came to the cheeks, and the former disagreeable symptoms disappeared. The only time she complains is during the prevalence of dusty, windy weather, and then only of the wandering pains. The excessive secretion of mucus from the respiratory and alimentary tracts has almost ceased.

Recently it was explained to her more fully how the dust had, and still does affect her, and this has made her more cautious; she is now firmly convinced of the influence of infected dust.

CASE IV.—In the following case the alimentary tract bears the brunt of the attacks. The case is that of Miss B., aged 25, farmer maid. Her past history was obtained chiefly from her employer, an intelligent country woman.

She has a brother and sister, both well and not subject to colds. Her parents are dead. Her mother was affected like the patient, and would get along in the country, but would get sick on coming to town, and when later on she removed to town, she was ill continually with colds and stomach disturbances, and finally died of pulmonary tuberculosis.

Miss B., the present patient, lived with her mother until the age of 8, then for two years was at an orphan's home, where she had what was pronounced to be scrofula. At the age of 12 she was taken to the farm with her present employer, as already mentioned. She could not go to school because her neck would swell and she would feel bad. For the past five or six years the neck has ceased to swell, but at times her stomach would become deranged. It was soon noticed that after she visited in town she would complain of feeling tired, and of aching, with pain up the nose, and headache over the eyes and back of the head. Later on, that is beginning five or six years ago, the stomach would become deranged after a trip to town; usually she would begin to spit on the way home and get sick, with a sense of fulness or filling up, followed by vomiting and severe pain during the night. For the last year or two the vomiting would appear on the following day, and she would be sick all of that day, but by the next, the third day, she would be well again, only weak.

I was informed that all sorts of opinions had been passed on her condition and all kinds of medicines had been given. The lady wanted to bring the girl to me in the hope that I would be able to find out what was wrong, and if possible suggest a remedy. It is, perhaps, needless to say that I at once suspected the nature of the difficulty—dust. However, I thought there might be some unusual stomach condition, and so advised the use of a test-breakfast and a systematic examination.

The patient came in two days later according to appointment, accompanied by her employer. She seemed to be a well-developed, healthy looking country girl. Now it happened that it was a rainy day when she came in, and I questioned her about wet weather, and she told me that she came to town only when the weather was fine, and excepting for this appointment she would not have come in on a day like this one. I expressed a hope that she would not get sick this time, but without giving any reason. She returned home at once, after swallowing the stomach-tube, which brought up a greenish-colored fluid. A urinary examination made at the same time proved negative.

The patient came back the next day, and at once remarked that she did not get sick on the way home, and that this was the first that she had been to town without getting sick. This was gratifying news, and confirmed my views on the causation of her illness. On further questioning, she confirmed what had already been said by her landlady. She cannot go to church or Sunday-school because she always gets sick afterward. She gets along comfortably at home, excepting at times of company for dinner, when the distressing feelings in the nose, forehead and back of the head come on; if there is a large company, the after-effects are the same as on going to church or after a trip to town, that is, vomiting will come on. Her landlady suggested that perhaps it was the noise that made her sick, to which the girl dissented, and remarked about coming to town the day previous that it was noisy and that she did not get sick.

I now explained my views on the influence of dust, that is, dust due to human activity and mixed with sputum (excluding dust of country roads), of dust carried into rooms by trailing dresses, and of poor ventilation. She was advised to come to town only on wet days and not to stop where people were massed together. She saw the point at once, and readily assented to my views.

The patient, of course, expected some prescription to help her, and she was given a prescription for a tonic. What to do for such patients to enable them to overcome this susceptibility to dust, permanently, is a problem.

Another case, which I would like to mention *in extenso* is that of a young man of 24, who ordinarily would be regarded as a neurasthenic, but whose difficulties are due wholly to the influence of polluted air.

Occasionally we meet patients who do not expect impossibilities from a physician, and who fully realize the importance of prophylactic measures and with whom we can discuss conditions freely. The patient referred to, belongs to this class, and at my request he has written me a history of his case, to which he has appended some of his observations on the dust and how it affects him.

CASE V.—Mr. C. As written by himself, May 16, 1904: Age at this writing, 24 years.

Family: All long-lived; no tuberculosis so far as can be traced. Mother and mother's family both subject to colds and nose, throat, and stomach troubles. Mother always extremely nervous and exhausted after such attacks. This condition also occurs in subject.

First appearance of complaint: Up to about five years of age no inflammation or cold troubles of any kind. Then a great susceptibility, always beginning in respiratory organs and canal, and ending in disturbed stomach and muscular exhaustion. End in prolonged cough.

Condition when in school and the vacation periods: Up to the time of starting to school no evidence of these symptoms, after that, colds very frequent, growing less frequent and ceasing during summer months of vacation. Several vacations spent in the country, where no disturbances occurred. Recurrence of disturbances upon continuing school sessions. Left school at age of 18.

Office work: At first this position was not confining and allowed of half time in open air, during which time no great disturbances occurred. Then work became more confining, and finally, inside exclusively. Cold conditions became aggravated immediately. After about two years of this work, subject was compelled to quit work entirely for over 18 months, during which he suffered from continued colds, excessive nervousness, and general weakness. This condition was owing partly to confinement and partly to overwork. About three months of the last of this period of enforced idleness were passed in the country. Those three months were more beneficial than anything else toward improving condition.

Occupation since 18: Both indoor clerical work and outside work—no manual work. Habits sedentary, body sluggish. General condition pretty good until increased application to inside work, then condition became worse. Overwork and confinement to quarters in which practically no ventilation was possible, finally produced same condition as before, continued and frequent colds, followed by stomach disorders and nervous exhaustion.

Observation.—1. Office in which the subject was occupied was below ground level, with no facilities for ventilation, consequently dust and spittle deposited or blown into the room were held, and the air was never more than a slight percent pure. Whenever his work confined him to this place his condition became rapidly worse.

2. Dust: It was observed that on clear sunny days the subject's condition was very much improved, but two or three days of dusty weather again produced, first, nose and throat and bronchial irritations, and then stomach disorder, accompanying or following the cold condition; which disorder followed on exposure to blowing dust or indoor confinement with impure air. When at home no such disagreeable sensations were experienced as in the down-town districts and districts where impure air was the irritant.

3. Railway trains: Two very severe colds can be traced directly to confinement for three hours or less in a railway coach; in both cases all windows were closed and cars full of people, some of whom spat upon the floor frequently.

4. It has been observed that overheating in impure air will always produce cold condition.

5. Condition always worse after attending public gatherings, meetings, etc., especially when the majority of the people are men. At one political meeting especially, where expectoration was unusually frequent, inflammation began before he even left the room.

6. Subject was formerly told by physicians that the nervous exhaustion was produced entirely by overwork, but it has been observed that this nervous condition invariably accompanies a cold or respiratory or alimentary inflammation.

7. During the sweeping and after the sweeping in the office where dust had been deposited for some time, a condition of cold occurs, but not invariably.

(The foregoing notes were copied just as they were handed in, only slightly changing personal references.—R. H.)

SUMMARIES AND CONCLUSIONS.

The foregoing is a brief statement of what I consider a symptom-complex which is fairly uniform or constant and entitled to the name of a distinct and independent disease.

By Dust Disease is meant not the specific diseases which can be transmitted through the agency of dust or may follow the inhalation of dust, such as pneumonia, tuberculosis, typhoid fever, etc., not to mention the lesser troubles of tonsillitis, bronchitis, and the like, but those heretofore vague and illy-defined symptom-complexes that are variously referred to or misdiagnosed as "colds," "biliousness," sick-headache or migraine, hypochondria, etc., or as atypical cases of influenza, rheumatism, neurasthenia, gastritis, malaria, etc., or as cases of a rheumatic or gouty diathesis, or of lithemia, not to mention autointoxication, eyestrain, etc.

Cases of dust disease are to be especially looked for under and separated from recognized diseases in which "rheumatic and gouty diatheses" play a part, also among cases spoken of as nervous—neurasthenic men and hysteric women; likewise in cases in which there are frequent alimentary or respiratory tract disturbances.

It is most prevalent in crowded cities; country people may become affected or attacked on going to the city.

It is absent among Arctic explorers and weather observers on high mountains; men returning home are attacked again.

The manifestations of the disease vary somewhat; cases may be divided into groups, depending on the part of the body or organ chiefly affected; variations within these groups are slight.

Keeping this dust infection in mind clears up many cases with obscure symptoms, and simplifies the prognosis and treatment—telling us what to do and what not to do.

Slight disturbances due to the inhalation of dust can hardly be dignified with the name of a disease. Chronic nasopharyngitis, adenoids, and similar affections are to be regarded as due to a polluted atmosphere, and are common in city residents; affections of this kind are frequent in cases of dust disease.

Dust disease belongs to that class of affections in which there are no marked or recognizable pathologic lesions. Mucin may play an important part. The causative factor is infective dust. Whether it is due to a systemic infection, due to a microbic invasion, or to a septic intoxication or sapremia, is really immaterial from a clinical standpoint.

The practical application of the recognition of dust disease, or of a knowledge of the evil influence of the dust, lies along the line of prevention, pointing out to the afflicted the nature of their ailment and its cause. In some cases all attempts at medication may prove futile, and relief can only be obtained by removal to a better atmosphere.

A caution is perhaps unnecessary in regard to a too universal application of the term dust disease or dust infection to cases that present the symptoms given. *Man hute sich vor einem zuviel.* The initial symptoms and many symptoms of a number of specific diseases run along the same lines, but the complete clinical picture is different. A little observation and study of a case in connection with its past history will soon enable one to differentiate and exclude.

After all, it is not so much a question of symptomatology and pathology as of etiology. The great fact that stands out is that there is an affection due to the inhalation of a contaminated atmosphere or of dust. This is a fact that should be especially considered in cases of certain individuals who are very susceptible and may be attacked over and over again. The *cause* of their illness should be recognized.

Finally, one of the most important as well as the most neglected problems for study, is the influence of a dust-contaminated atmosphere in the production of ill-health and disease in general.

TOTAL COLOBOMA OF THE OPTIC DISC WITHOUT AFFECTION OF THE CHOROID: TOTAL IRIDEREMIA: ECTROPION UVEA; AND RETAINED PUPILLARY MEMBRANE.

The Clinical Record of a Series of Congenital Malformations of the Eye.

BY

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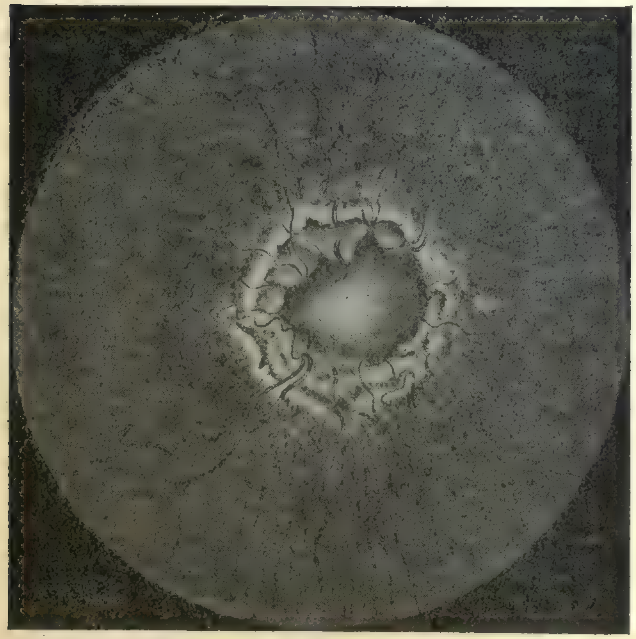
In analyzing the records of my private practice for the past five years, it is singularly interesting to note that there have occurred several instances of congenital anomalies of the uveal tract; in these I consider myself fortunate, because in the same period I have not seen any similar cases in the public services with which I have been associated. The occurrence of anatomic congenital anomalies, as cases of unusual diseases, happens like the irony of fate; if one seeks for interesting specimens none is to be found; but when one does not expect them, they are sure to be present, and after one's neighbor has reported an instance, or at the end of a long interval in one's own experience, they come with repeated frequency. In my student days, during a ward class period, the surgeon was languishing for an opportunity to demonstrate a case of strangulated hernia. When almost in despair, a man presented himself in the waiting-room, and for six weeks thereafter the class was rewarded with strangulated hernias innumerable.

The cases of incomplete embryologic development, which are herewith recorded, are of importance, because while the specific deformities detailed are not seldom met, they illustrate conditions in single tissues unaccompanied by marked defects of contiguous structures, and are found in individuals whose personal and family histories throw no light upon the causation of deformities occurring in them.

COMPLETE COLOBOMA OF THE OPTIC NERVE WITHOUT AFFECTION OF THE CHOROID.

Localized deficiencies in the optic disc are not of infrequent occurrence. The rarest variety of coloboma of the optic nerve is that in which an enlarged and excavated disc is surrounded by a broad scleral ring, and in which the retinal vessels appear already divided in the disc and arranged regularly about its center. In addition, as most cases of coloboma of the choroid show some involvement of the disc, so do we find associated with extensive colobomas of the disc, deficiencies, more or less complete, in the choroid and retina, in the region of the disc. Yet in 1897, Hosch,[1] of Basle, reported a case of complete coloboma of the optic disc without deformity of the choroid, and he was able to collect from the literature only 10 other cases. The details of the case which I am about to record are in so many respects similar to that which he has reported, that they are thought to be of interest, as no other instance of this anomaly has been published since then :



A. H., aged 6, is the first child of unrelated, healthy parents, in whose families there had occurred no known case of ocular anomaly. In her early infancy it was noticed that the child's left eye turned inward, and at a later period, it became apparent that the vision of the left eye was imperfect. When first examined, the child was about 5, in the interval of several months she had learned her letters, so that the vision of the right eye is estimated at 5/10; of the left at 5/50. The right eye is hypermetropic, with $+2.+0.75$ ax $90=5/5$; the left is myopic, with -1.25 ax $30=5/30$, and accommodation most imperfect; for she reads with difficulty Snellen's type 2 D only. The child is not capable of giving intelligent replies in an attempt to outline the visual fields; the blind spot of the left eye, however, is certainly of greater dimensions than is that of the right. Color perception is manifested distinctly. The tension of each eye is normal.

The well-shaped eyes present no external abnormality. The slight internal squinting of the left eye is promptly and decidedly relieved by the use of spectacles. The hazel-gray irises are perfectly formed; under the influence of mydriatics the centrally placed pupils dilate equally and regularly.

The corneal membranes are not appreciably irregular in curvature and are free from opacities. The anterior chambers are of the usual depth. The media of both eyes are clear of opacities or extrusions. In an unfocused view, the left optic papilla appears as a great hazy mass; in the upright image the disc is about four times the diameter of the normal nerve head. It is irregularly circular in outline, and is without the usual definite rings. The arrangement here of the tissues reminds one of the appearance of a crater; or, it is like the mouth of a funnel with a broad turned-over rim. This fibrous rim is of a dense dusky whiteness, and is crimped into more or less deepened folds which are much pigmented. The central portion is indefinable, resembling a mass of cotton wool. In the inverted image it is infundibular, extending to an uncertain depth; as great an axis as — 20 D can be penetrated by direct measurement.

Inside the rim of the disc is a narrow shelf-like projection of dense and darkly pigmented tissue. The sides of the funnel slope regularly, but at the apex of the cone there are no signs of the cribriform lamina. The cone is of a grayish-orange color. There is neither central artery nor vein, but creeping along the sides of the cone are numerous undifferentiated vessels which are traceable until they are obscured by the overhanging border at the base of the cone. Here they are seen to wind over, bending sharply, and then to continue along the folds thereof until they finally mount over the dense ring to be distributed to the retina. There is in all, about a score of vessels, of average caliber, at the mouth of the pit, although, upon finer definition, many others of narrower caliber are observed.

The vessels disperse in much the same manner as that depicted by Lawford,[1] and which Lindsay Johnson defines as the natural arrangement of the vessels in the eyes of bears. He also shows, in his singularly interesting atlas on the "Comparative Anatomy of the Mammalian Eye," that many other animals, chiefly the felidæ, have deep universal cups in the optic discs, and that there is an absence of the central vessels, which are replaced by a number of large vessels which run between the optic nerve and its sheath, curling over the edge of the depressed disc to spread in various directions beyond the periphery.

It is difficult to distinguish between the arteries and the veins; the arteries, however, are apparently more numerous than the veins. The veins consist of large, almost unbranched trunks extending in tortuous lines. The arteries also are unbranched, except in a few instances; they are wavy, distinctly narrower than the veins, and they taper as they approach the periphery. The temporal region of the fundus is scantily supplied with visible vessels, as quite all are found distributed to the nasal region.

The disc area resembles a yellowish crater at the summit of the reddish eyeground. The sides of this summit slope into the retinal level, the vessels bend clearly over the edges to seek the retina. Fine collections of pigment gathered together in irregular clumps form a ring encircling the nerve. A small buttonhole in the fibrous expansion on the midnasal meridian displays the underlying choroidal vessels. The macular region is of normal color, and presents no structural abnormality. In the vertical meridian, above and below the disc, the epithelium is greatly absorbed, and the choroid shines in flames like an aurora. There are no other uveal changes.

The external appearance of the right eye is normal and the media are clear. The optic disk is more pale than is usually noted in a dark-complexioned child. It is quite flush with the general retinal level, and it is vertically oval in shape, the outlines being sharply cut. It is without the usual physiologic excavation. There is a clearly defined scleral ring, beyond which is a densely black choroidal ring, the width of which varies from a quarter to a third the disc's diameter.

The entire retinal field is darkly stippled. In the vertical meridian, extending from the borders of the disc far out into the periphery, and less outlined above than below, is a pyramidal area of closely grouped collections of pigment. From the center of the disc the vessels have their entrance and exit; while they present many branchings, they are distributed only to the nasal region of the fundus, except for two tiny shoots, which go out into the temporal portion.

The nature of the disturbance which primarily affects the closure of the fetal fissure is still mysterious. As the secondary optic vessel closes the seventh week of embryonic life, it must have become active prior to that period. The closure of the fissure begins at the optic nerve and ends at the ciliary body, and normally, it takes place from above, downward, and from behind, forward. Hence, the presence of colobomas of the optic nerve sheath indicates that a disturbance occurred in the vesicle at a period earlier than that which causes colobomas of the choroid. It was distinctly noticed on the examination of the present patient that there was arranged, above and below the disc, choroidal pigment in faint columns, resembling, it may be said, the markings of a raphe.

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[1] Archiv für Augenheilkunde, Vol. xxiv, p. 59.

[1] Plate 8, Vol. xv of the Transactions of the Ophthalmological Society of the United Kingdom.

In extremely microphthalmic eyes, the nerve has been found to be imperfectly formed, and it is doubtless this imperfection has influenced the development of the eyeball. The fissure in the optic nerve stalk, may not, of necessity, close simultaneously with the closure of that in the bulb, yet, the failure to close while the choroidal fissure has disappeared remains a mystery. Can it be that there has been an antecedent inflammatory process in the intruding vitreous which has hindered the collecting of the nervous strands into a compact bundle, and has caused the sheath of the optic nerve to remain as a hollow tube, with the transmitted fibers spread out on its inner surface?

ECTROPION UVEA.

A. R., a perfectly developed, robust girl of 16, sought relief from severe headaches which were clearly dependent upon the eyestrain caused by the presence of a compound hyperopic astigmatism of two diopters. The pupils of her eyes were most irregular in outline, for extending into them and projecting into the anterior chamber were dark slaty-brown crumbly masses. These masses were not attached to the anterior surface of the iris, for during the distinctly preserved pupillary reaction, they appeared to swell, or, as de Schweinitz tersely described the condition, in his account of several similar cases which he reported before the section in Ophthalmology of the College of Physicians, a night or two before this young girl consulted me,—"they 'slopped over,' like the paint on a painter's can." In this instance the masses were larger and more numerous in the left than in the right eye. No signs of previous iritis were even present, neither was there any obstruction of the media. The choroidal ring in the right eye was very dense, being broadest along the nasal border of the disc; at the temporal side there was a moderately wide pigmented conus. The retinal epithelium was markedly granular. The left eye presented similar increase in pigmentation. The lower border of the disc was veiled by distinctly hazy fibers.

I cannot recollect any other cases of the kind since this young girl was seen, though they are sufficiently common. Formerly, many cases of supposed neoplasms of the iris proved to be only these harmless excrescences. They are produced by an excessive and irregular growth of the uveal pigment which covers the posterior surface of the iris. Iris fibers do not enter into their structure. Having been formed, they cease to enlarge, though they sometimes, through iridic reaction, become detached and fall into the aqueous chamber where they undergo cystic degeneration.

In the horse and cow, and other allied animals, these nipple-like projections are found as proper formations, for, as these animals have large oval pupils, which contract only feebly to light, in them they serve to diminish the vertical diameter of the pupil, and thus screen the pupil from the glare.

TOTAL IRIDEREMIA.

M. E. S., aged 11. Her mother states that she had been a weakling from birth, and failed to develop as her other children. She always feared that her own depressed condition of health due to great business and domestic anxieties in the early months of her pregnancy, had profoundly impressed the unborn child, and had much to do with the child's feeble development. The birth was an easy, normal one. When about 6 this child began to have severe headaches, and it was noticed that she suffered much from the midday glare. At 7 glasses were prescribed for her by a most careful physician, but they were soon cast aside. She was a pale, thin and bony child, with a pinched face, peaked forehead, and high vertex. Although a pronounced mouth-breather, with a lofty, narrow palatal arch, there were no pharyngeal adenoids. Through her very narrow palpebral fissures, the eyes were seen to be in a state of constant and very rapid lateral nystagmus. The microphthalmic globes squinted internally, with fixation by the right.

There were sharp corneal curves. In neither eye is there any vestige of an iris. Each crystalline lens is completely formed, and is brilliantly outlined against the bright red glare from the fundus, and surrounding the lens are seen the fine radiations of the fibers of the suspensory ligament. In the right eye several fine strands like those of pupillary membranes extend from the position of the base of the iris in the lower outer quadrant, to be attached to the pole of the lens. Similar strands in the left eye were arranged in loops or festoons along the base. Pyriform opacities occupy the posterior poles of the lenses. The eyes are very hyperopic. No other embryologic or pathologic anomaly was seen in the fundus of either eye. The vision, 5/35 Sn. in each eye, is not materially improved with glasses.

The child has not been seen since the days of my examinations, for, by my advice, she was sent to school, and from 1900 she has resided at a distance. By the last accounts of her she had been keeping well up in her classes.

RETAINED PUPILLARY MEMBRANES.

C. T., a lady of advanced years, has been greatly nearsighted since childhood. In early life she suffered from an attack of granular conjunctivitis, which was followed by considerable distortion of the lids. In recent years there have been complaints of serious intraocular disturbances. The fundus of each eye shows signs of recent and remote chorioretinitis with numerous hemorrhagic foci. The margin of the right pupil is remarkably crenated, and, extending obliquely across it, from near the larger curvature of the iris, and from the upper nasal to the lower temporal quadrant, is a great broad pupillary band. There are no other congenital anomalies noticed.

I. W. H., aged 19, who resides in northern New Jersey, 12 miles from the residence of the lady whose eye has just been described, and who presented himself as I was dismissing the lady, is also a myope. In his healthy and otherwise normal right eye, are two broad pupillary bands which are arranged as the diverging sides of an angle, the apex above. The points of contact are well toward the base of the iris. The pupil is round, and reacts perfectly; during its reactions the bands become alternately taut and slack.

Just as I finished the transcription of these notes, a lady of 27 presented herself, complaining of asthenopic symptoms. In her right eye are festoons of membranous bands extending over more than the entire nasal half of the iris circle, and standing out free into the anterior chambers.

ETHYL CHLORID AS A GENERAL ANESTHETIC.

BY

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(Service of Professors Keen, DaCosta, and Hearn.)

As early as 1870 anesthesia was produced by Langenbeck with a drug which many have since regarded as ethyl chlorid (C_2H_5Cl). Following him, Newman, Hodges, and Reichert tried the drug, Newman publishing a report of 1,867 cases in which it was administered, with but one death which could be attributed to its use. Later, the investigations of Cumston (Boston) proved this drug was not ethyl chlorid, but chlorinated ethyl chlorid ($C_2H_5Cl_2$). According to this author, general narcosis was first produced in a patient with ethyl chlorid in 1895, when Carlson, a dentist of Gothensberg, induced the condition accidentally while attempting to freeze the gum in one of his patients. The following year Theising, of Nildesheim, published a report of five anesthesias obtained with this agent. In 1897–1898, in Von Hacken's clinic, University of Innsbrück, Ludwig and Lotheissen carried out the first systematic study of the drug for purposes of general narcosis.

Considerable has been written concerning the use of ethyl chlorid as a general anesthetic, but it appears to me that the merits of the drug, as compared with other agents for inducing general anesthesia, are not fully appreciated. The drug is not suited for prolonged anesthesia, for the following reasons: The patient comes rapidly from under its influence so soon as it is withdrawn, and complete muscular relaxation is not usually produced, especially in adults. However, I believe the drug is peculiarly adapted to conditions requiring brief anesthesia. Its adaptation to these conditions is determined by the following facts: (1) It is reasonably safe; (2) it is quick in action; (3) the patient quickly comes from under its influence with a minimum of disagreeable sensations, such as nausea, vomiting, etc. These facts show plainly how valuable such a drug must be in surgical dispensary service, where many minor operations must be performed, and where it is not desired to keep the patient longer than absolutely necessary. But one to three minutes are required to induce anesthesia, and consciousness is regained in even a shorter period after administration ceases, while on the other hand, with chloroform or ether, particularly the latter, considerable time is consumed in inducing anesthesia, and a much longer period must elapse after the operation before the patient can go upon the street.

Indications in General Surgery.—In the excision of carbuncles, opening of abscesses, reduction of fractures, pelvic examinations, reduction of dislocations, and in fact, all the brief operative procedures generally classified under "minor surgery," ethyl chlorid has its greatest field of usefulness. The fact that the drug does not produce complete muscular relaxation militates against its use somewhat in the reduction of luxations, but in the great majority of recent cases it will be found sufficient.

Nose and Throat.—The use of ethyl chlorid would appear to be specially indicated in nose and throat work, particularly in the removal of adenoid growths, but the fact that these growths are frequently associated with enlarged tonsils, which require operative attention at the same time, thereby necessitating a longer period of anesthesia, argues somewhat against its use in these cases. Yet in this connection it is interesting to note that Mackie[1] has reported 48 instances in which the drug was used to produce general anesthesia in nasal operations, with satisfactory results; and that McCardie[2] has also used the drug in the removal of adenoids and tonsils, with good results. This author's longest period of general narcosis produced by ethyl chlorid was 16 minutes.

Gynecology and Obstetrics.—Montgomery and Bland,[3] after an extended trial of the drug, recommend its use in gynecologic work for painful pelvic examinations, in minor operations such as vaginal incision for pelvic drainage, and as a preliminary to ether or chloroform anesthesia. They believe it is safer than chloroform or ethyl bromid and probably safer than ether. In obstetric practice it has been used successfully by Lepage and Lorier,[4] who report its use as a general anesthetic in 14 obstetric cases. They summarize its advantages as follows: It is easily administered; anesthesia is induced in 30 to 60 seconds and lasts about four minutes without repeating the dose (evidently they used the dosage method); the return to consciousness is very rapid and is rarely accompanied with nausea. They further state the drug can be used with advantage in the following conditions: 1. In the course of labor when it is necessary to extract the fetus with forceps or to perform version by internal maneuvers or to lower the anterior foot in incomplete breech presentation. In the latter condition it is of especial advantage, in that it permits a rapid awakening of the patient, who can then by her own efforts aid in the expulsion of the fetus. 2. When manual removal of the placenta from the uterine cavity is required; or when, as in the case of a very weak woman, it is deemed wise to extract the membranes which have remained in great part in the uterus. 3. After delivery, it may be used while making any necessary suture of the perineum. 4. It is recommended when an examination under anesthesia is indicated during pregnancy, to determine any abnormality or vicious pelvic condition.

Dangers.—The administration of ethyl chlorid for general anesthetic purposes is not devoid of danger; the drug will probably never be found which possesses such merit. Statistics indicate that when the pure drug (kelene) is used it is much less dangerous than chloroform, and probably even less dangerous than ether. Martin W. Ware,[5] who probably has had a more extensive experience than any other surgeon with ethyl chlorid, reports 1,800 personally conducted cases, without a fatality due to the use of the drug, and he has also collected with his own cases, a total of 12,436 such anesthesias with but one death which could be fairly attributed to the drug. He analyzed two other deaths attributed to the drug, one reported by J. Seitz,[6] and one occurring in Kocher's clinic, and believes they cannot fairly be maintained as due to the drug. He says if these three deaths be unqualifiedly accepted, the mortality approaches that of chloroform; if not, it stands between that of ether and of gas. Symptoms bordering on fatality were observed six times in his own series of 1,000 personally conducted cases. In each instance they were those of respiratory interference, and according to Ware, occurred through neglecting the retrodisplaced tongue during the stage of profound narcosis, or through a disregard of a sufficient admixture of air. All these patients recovered under artificial respiration, which speaks favorably for the use of ethyl chlorid. The author refers to the report published by Schleich, who narcotized rabbits to the point of respiratory paralysis with ether, chloroform, and ethyl chlorid, respectively. The animals succumbed to the ether and chloroform, but were capable of resuscitation by artificial respiration when asphyxiated with ethyl chlorid. In experiments conducted upon rabbits and the simian family, Fritz König[7] has noted that in the former, respiration was accelerated and at times spasmodic, probably due to irritation of the respiratory center. In monkeys this feature was entirely absent, and, compared with ether given to apes, ethyl chlorid was considered less dangerous. W. J. McCardie[8] cites 16,000 ethyl chlorid anesthesias collected by Seitz, with but one death. Allen[9] reports a death at the Pennsylvania Hospital.

> The patient, a man of 28, had an inguinal hernia of three years' duration. There was incarceration, and for 10 hours it had been irreducible; there was abdominal distention with vomiting, which, however, had not become fecal. About 15 gm. of ethyl chlorid had been given during three or four minutes, with the idea of following with ether narcosis. When the change to ether was made, the patient suddenly spurted a large quantity of clear fluid from his mouth, the flow lasting two or three minutes, and at the end of this time was dead.

In this case it may be fairly assumed that the ethyl chlorid, *per se*, was not responsible for the patient's death; and it is reasonable to suppose that any general anesthetic would have had the same effect, though only indirectly. This case bears a striking similarity to one reported by Edward H. Goodman.[10]

> The patient, a man, aged 65, was suffering from an old scrotal hernia, which, during the two days previous to the accident, had become strangulated. Vomiting was present, and after admission to the hospital it became stercoraceous. *Ether* was being administered and the patient had not become completely unconscious, when he suddenly ceased breathing. Efforts at artificial respiration caused fluid to flow from the mouth and nostrils and through a tracheotomy wound, which was made in an unsuccessful attempt to resuscitate the patient.

The author believes that this case illustrates the contention of Andrews, that the anesthetic benumbs the sensibilities of the throat, and in case of intestinal obstruction the patient is apt to drown in his own overflow from the stomach without an effort at vomiting.

There have not been more than six deaths reported, attributable to ethyl chlorid. Lotheissen,[11] of Innsbrück, who investigated most of the cases, says:

> The anesthetic in Soulier's case was not ethyl chlorid (C_2H_5Cl), but ethyliden chlorid ($C_2H_4Cl_2$). Zeitz's (Zürich) death occurred 16 hours after local use. In another instance, for 49 minutes ether followed a one minute use of ethyl chlorid. McCardie's (Birmingham) case was that of a very debilitated patient, who died an hour and a quarter after regaining consciousness. The autopsy showed nephritis, chronic adhesive pericarditis, pleuritis, and a fatty liver. In Bossart's case the conditions present counterindicated general anesthesia. A tracheotomy was to be done upon a cyanosed child to relieve the dyspnea caused by laryngeal diphtheria.

Lotheissen's own case is the one accepted by Ware as the only bona fide death attributable to ethyl chlorid.

> The patient was an alcoholic laborer, aged 41; kelene narcosis for two minutes; extensive excitation; more kelene injected on the mask (Brewer); after three minutes there was muscular rigidity, cyanosis, and spasmodic breathing, and the patient expired. Necropsy showed excentric hypertrophy and fatty degeneration of the heart, extensive arteriosclerosis of the coronary arteries, and sclerosis of the aorta.

In the Jefferson Medical College Hospital we have employed ethyl chlorid for general anesthesia in various departments for the past three years. During the past year it has been employed in the out-patient surgical service more extensively than ever. No serious mishap has ever occurred from the use of this drug, and while no record has been kept of the actual number of patients thus anesthetized, there has been a sufficient number to make us confident of the reasonable safety of the drug.

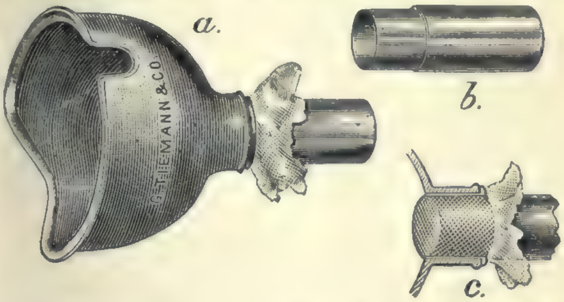
Up to January 1, 1903, Cumston,[12] of Boston, employed this drug as a general anesthetic in 44 instances at the Massachusetts General Hospital with entire success, and since that time he has employed it in 350 cases with equally good results.

Erdmann,[13] of Brooklyn, estimates that there have been 30,000 anesthesias with ethyl chlorid; this, I believe, is under, rather than over the actual number, as he appears to believe the employment of the drug is much more restricted than is actually the case. But taking 30,000 anesthesias as a fair estimate, and only six deaths reported, which can even in the remotest degree be attributed to the drug, it gives a deathrate of one in 5,000, whereas, if we accept Ware's estimate and regard but one death as due to its use, we have a mortality rate of one in 30,000. Accepting the higher rate we find that it is decidedly safer than chloroform, and if we accept the lower rate, it is still far in advance of ether, so far as safety is concerned. From these facts we can safely conclude that ethyl chlorid as an agent for producing general narcosis has passed the tentative stage, and may now be regarded as a relatively safe drug.

Administration.—In the first place, the drug should be absolutely pure. Kelene is the trade name given by the Société Chimique des Usines du Rhône for the product most commonly used. Cumston has also used a product under the trade name "Anodynone," and another "Antidolorin," with satisfactory results. The various measures employed for administration conform to one of two methods—the "open," and the "closed," or to some combination of the two. In the "closed" method a "dose" of 3 gm. to 5 gm. of the drug is placed on gauze or cotton within a closed mask, the patient inhaling as the drug evaporates. I have had no experience with this method, but on general principles it would seem as difficult to regulate the "dose" of ethyl chlorid as to accomplish the same feat with chloroform or ether. Of course, a "dose" can be found, but the question is whether it is both safe and effective in the great majority of cases. In the "open" method the drug is sprayed or dropped on a gauze compress or upon a mask, the inside of which has free communication with the air. In this country some form of the open method is usually employed. We have often employed simply the gauze compress, and when not too thick, and especially when made somewhat cone-shaped over the patient's mouth and nose, fitting fairly tight down over the face, it is quite effective and satisfactory. The simplest and most satisfactory mask for the open method, which has come to our notice, is the one contrived by Ware. (See Fig.) Lately we have used this to the exclusion of the gauze compress, but aside from its economic advantage, it does not seem to possess any great superiority over the compress. However, as it answers every purpose, is inexpensive, and easily cleansed, it fully merits the recognition it receives.

If the gauze compress is used it will be found that by letting the drug fall drop by drop, somewhat after the manner of giving chloroform, a much smaller quantity is required than if "sprayed" upon the gauze, and the patient is more quickly and satisfactorily anesthetized. This is accomplished by using the tube provided with a lever-spring stop and a metal hood or cap fitting over the orifice. If the lever is pushed down a little, lifting the cap a short distance away from the orifice, the escaping stream will strike within the cap and fall drop by drop, penetrating the gauze, there to volatilize, rather than striking the gauze as a spray, freezing and volatilizing from the surface. I would advise those in doubt to give this a trial. This method should not be employed if the Ware mask is used, for here the spray passing into the tube permits a rapid volatilization, the vapor passes at once through the thin layer of gauze into the mask, and is inhaled at each respiration. In anesthetizing an adult, whether the mask or the gauze compress be employed, the anesthetist should always be provided with two tubes of the ethyl chlorid, for frequently one tube will give forth the drug so slowly that anesthesia is not induced until after a long agonizing period. Reinforced by the spray or the dropping from a second tube unconsciousness is quickly attained.

Effect upon the Patient.—The disagreeable choking sensation so frequently observed at the beginning of ether administration is not seen. The patient breathes naturally and complains of no disagreeable sensations. The pupils soon begin to dilate, and the respirations increase somewhat as unconsciousness is approached; frequently snoring marks the beginning of surgical narcosis. The conjunctival reflex is usually abolished, as with ether. A period of preanesthetic excitability of short duration is usually seen in adult patients. In alcoholics this is usually quite marked unless preceded by a hypodermic of morphin. However, I have observed in some cases that unconsciousness supervenes a sufficient time before excitement to allow the performance of a brief operation. Of course for a more tedious operation we must await the postexcitement quiet. The administration of ethyl chlorid is seen to best advantage in children up to adolescence. In these cases there is frequently no preanesthetic excitability, the patient passing quietly to complete unconsciousness.



Malherbe and Roubinovich, who studied arterial tension and the pulse under ethyl chlorid, using Potain's sphygmomanometer, observed arterial depression in 22 out of 24 cases. Generally speaking, the number of pulse-beats followed quite exactly the modification in the degree of arterial tension, diminishing during narcosis, and gradually increasing to the normal as consciousness returned. An intermittence in the cardiac beats was quite constant. These authors occasionally found traces of albumin in the urine, and more rarely bile pigment, when none was observed before the administration. These symptoms disappeared after a few days.

Whatever slight changes in pulse and arterial tension may be made out by laboratory technic, the fact remains that clinically very little change can be discerned. The pulse remains close to normal in frequency and volume.

The length of time necessary to induce surgical narcosis, and the amount of the drug necessary to accomplish this end, vary considerably. As before stated, anesthesia is usually accomplished in from one to three minutes. Recovery is usually complete within two minutes to five minutes, though the patient feels somewhat heavy for a short time after consciousness is regained. However, this does not prevent his leaving the dispensary within a few minutes after the operation. All observers agree that nausea and vomiting are rare after ethyl chlorid narcosis.

SUMMARY.

1. The use of ethyl chlorid for purposes of general anesthesia has passed the experimental stage.
2. The position of the drug, so far as danger is concerned, has not as yet been definitely determined, though taking all available statistics into account, it can be reasonably assumed that it is safer than chloroform, probably safer than ether. The future will, no doubt, accord it a place somewhere between ether and nitrous oxid gas.
3. Only the *pure* preparation of the drug should be used for general narcosis.
4. The best method of administration is some form of the "open" method—either the Ware mask or the ordinary gauze compress, the former requiring a smaller amount of the drug.
5. Its use is especially indicated in young subjects.
6. It is not suited for prolonged operations, and as it does not produce complete muscular relaxation it cannot be especially recommended for the reduction of dislocations, and possibly of fractures, and for divulsion of the anal sphincter.
7. It is indicated in the various brief surgical procedures occurring in dispensary service of general surgery; in short operative measures in gynecology; in a fairly wide field in obstetric practice; and in much of the operative work of the nose and throat specialist.

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TREATMENT OF CHRONIC SUPPURATIVE OTITIS MEDIA.[1]

BY

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Ponfick has demonstrated that in 100 autopsies of unselected cases of infants dying under two years, there was scarcely one without pus in the middle-ear. Bardes asserts that 3% of all persons suffering from pus-discharging ears die from the results of such aural conditions or the complications attending them. If these statements are true, and we have not seen them disputed anywhere, how important does this subject become. Ochsner shows a mortality of only 2½% in several thousand appendicitis cases under his care. Pus-discharging ears claim ½% more deaths. Consequently, we would expect that pus-discharging ears would receive fully as much consideration as appendicitis. We all know that the facts do not justify this belief. These conditions, on the other hand, justify the indictment of professional one-sidedness or anomalous medical training. I believe I am fairly correct when I state that the profession, no less than the laity, is apt to bestow more attention upon those diseases and conditions that offer the best opportunities for the largest amount of opera-bouffe and flourish-of-trumpet methods in their treatment, than upon those more obscure and difficult conditions, whose treatment does not lend itself readily to such methods, even though more fatal. In the hands of the superficial medical man, and in the eyes of the laity, the treatment of pus-discharging ears is often nothing but plain drudgery, scarcely worth the trouble as compared with that of appendicitis. But believing that the medical conscience needs only to be awakened to a full realization of the conditions as they are, in order to rectify any past mistakes, I appeal to this section, and through it to the profession at large, to enter upon a campaign of education on the dangers lurking within pus-discharging ears, with the same energy and persistence as that which characterized the campaign of education for the past several years with regard to appendicitis. In this respect I have but one suggestion to make, viz., accept every patient coming to you with a pus-discharging ear in a manner befitting the gravity and danger of this condition, and see to it that the patient, friends, and relatives fully understand this fact. Do not speak lightly of it as a mere gathering in the ear. In your own mind you know it to be a serious condition, and you do your patient an injustice by making false insinuations and not informing him of the conditions as they actually are.

Pus confined within circumscribed boundaries is an abscess. It tends to find an exit along the lines of least resistance. Pus internal to the drum membrane is an abscess, pure and simple, similar to an abscess in any other part of the body, subject to the same laws and influences, and treated according to identical principles. The points of least resistance to its pressure are the eustachian tube internally, the drum membrane externally, and the aditus leading to the mastoid cells posteriorly.

In order to study this question profitably, let me first call attention to the following important points:

1. It is rare to have chronic abscess of the middle-ear without more or less complete closure of the eustachian tube. If this tube is open the abscess will be constantly drained and aerated, which condition would of itself tend to produce a cure even without other treatment.

2. The direction of the eustachian tube is inward, downward, and forward when the body is erect. Consequently if there is an occlusion anywhere along its course, the contained pus will be bottled up, and only so much of it will escape as can force its way through the drum membrane above the level of the upper portion of the tube. Therefore, the abscess can never drain itself completely, but a certain amount of stagnant pus will always be present, undergoing putrefactive changes with all its evil consequences.

3. Syringing the ear, as ordinarily practised for purulent otitis, does not cleanse the middle-ear, and rarely reaches the eustachian tube. Consequently its value is extremely limited.

4. Syringing the ear as ordinarly practised, may bring about an infection of the mastoid cells, the very thing we most fear and most desire to avoid. Owing to the occlusion of the eustachian tube, the fluid cannot pass through into the nasopharynx, nor is there much opportunity for it to return through the diminutive opening of the drum membrane, and consequently it follows the only other line of exit from the middle-ear, viz., the aditus, which unfortunately leads into the mastoid cells, forcing along in front of it a certain amount of infected material.

5. Chronic purulent otitis media is almost always accompanied by a salpingitis of the eustachian tube, and unless this receives proper recognition it will be impos-

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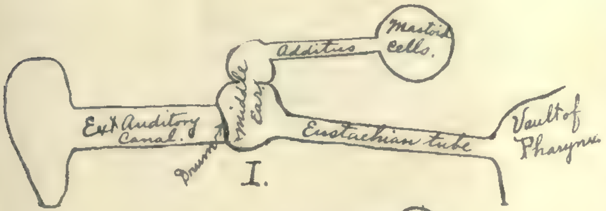
[1] Presented to the Section of General Medicine of the Michigan State Medical Society, at Grand Rapids, May 28, 1904, and ordered published

sible to cure the otitis, as it will continue to act as a constant and ever present source of infection for the middle-ear.

6. This intimacy of relation between the middle-ear and eustachian tube makes it imperative that the entire auditory tract, from the external auditory meatus to the internal terminus of the eustachian tube, be made as nearly surgically clean as possible. Leaving any part of this tract in an infected condition, is to invite continuous reinfection of the middle-ear, and neutralize the good of any treatment that may be applied.

7. To maintain an aseptic or antiseptic condition, it is imperative that there shall be good and efficient drainage. This can only be obtained by having the eustachin tube thoroughly dilated and the opening in the drum membrane as large as possible.

8. The chronicity of purulent otitis media is often due to the putrefaction of stagnant pus producing cholesteatomas, which destroy the surrounding tissues, resulting in necrosis. Scheibe makes the statement that necrosis following purulent otitis media, without cholesteatomas, is strikingly rare, and if it is possible to prevent putrefaction of the pus, the onset of the necrosis can be prevented. I think it was Gradle who stated that if we could obtain an antiseptic condition of the tympanum, the existing necrosis would tend to cure itself.



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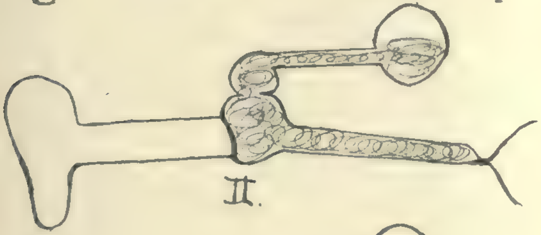

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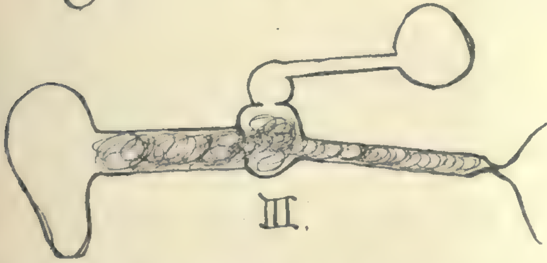

III.

Fig. 1 represents the middle-ear and the passages connected with it as they ought to be in health.
Fig. 2 represents a constriction at the pharyngeal end of the eustachian tube, with the drum membrane intact, forcing the contained pus into the mastoid cells.
Fig. 3 represents the same condition with the drum membrane perforated and the pus discharging through it.

9. Purulent otitis media is an infection, the process and results of which are different from infection in any other organ or part of the body, only in so far as the peculiar nature of the particular organ is concerned. The most common cause of this infection is some disease or anomalous condition in the nose or nasopharynx. If the primary condition in the nose or nasopharynx can be relieved or cured before the onset of the otitis, the otitis can be prevented. After the otitis has once been established, the cure of the primary trouble and cause of the infection will exercise a favorable influence upon its course and duration. Consequently, the proper treatment of the nose and nasopharynx is a *sine qua non* in the treatment of the otitis.

10. Mastoid disease or mastoid involvement is a complication of otitis and usually the result of a direct infection from the middle-ear. In so far as the condition in the ear can be cured or prevented, the mastoid disease may generally be cured or prevented, without recourse to the radical operation.

Treatment in Detail.—In order to understand better the requirements to be fulfilled in this treatment I would direct attention to three schematic illustrations of the middle-ear and the passages leading to and from it.

The following facts should be noted as important:

1. The contents of the eustachian tube tend to discharge into the nasopharyngeal vault because (*a*) the direction of the canal and the force of gravity favor it, (*b*) the movements of the ciliated epitheliums lining the canal favor it, (*c*) the peristaltic action of the wall of the tube resulting from movements of the jaw and the muscles of deglutition favor it. If then this tube be constricted as in Figs. 2 and 3, the effect of the factors mentioned would be to retain whatever secretions or matter it might contain, to oppose the egress of pus through the drum, and therefore to oppose a thorough cleansing of it by syringing as ordinarily practised, even if the fluid could be forced into the tube.

2. If the drum membrane has been ruptured or perforated, the size of the opening in it is so small, generally speaking, that perfect drainage through it is almost an impossibility even were it possible for all the pus to escape by this route. The obvious inferences to be drawn from these facts are, (*a*) the necessity of thoroughly opening and dilating the eustachian tube as a primary requisite in the treatment, (*b*) the necessity of maintaining this dilated condition until the cure has been completed, (*c*) the necessity of making the opening in the drum as large as possible.

Dilation of the eustachian tube may be accomplished by any one of the following methods, preference being given to the order in which they are mentioned:

1. By forcing air into it through the eustachian catheter at a pressure not to exceed 25 pounds. The air may be medicated by interposing a vaporizer between the catheter and the compressed air tank. For this purpose there is nothing better than iodin. The dilation should be continued uninterruptedly for a period of from 5 to 15 minutes.

2. By forcing air into it through a eustachian catheter by means of Politzer's air bag. Not less than 12 or 15 insufflations should be given at a sitting.

3. By means of insufflations with Politzer's air bag and a suitable nose-piece without the interposition of the catheter. To obtain the best results the patient should be made to swallow water simultaneously with the compression of the air bag. This tends to open the eustachian tube and shuts off the passages forward and backward; 12 to 15 insufflations should be given at each sitting.

4. By means of Valsalva's method of closing the mouth and pinching the nose shut so as to prevent the egress of the air, and then making an effort at blowing. This will force the air into the eustachian tube in a certain proportion of cases. It should be repeated several times at each sitting.

5. By means of the eustachian bougie, with or without the negative galvanic current. The efficacy of electricity in this connection has been largely overestimated, and practically as good results are obtained without as with it. In certain cases the bougie is an invaluable instrument in the hands of an experienced man. Results are occasionally obtained that are surprising. Having introduced it, it should be left in situ for from 15 to 20 minutes. It is well to have several different sizes of bougies, and beginning with the largest that can be introduced, increase the size at each subsequent

sitting, until one having a diameter equal to that of a No. 5 or 6 Bowman probe can be easily passed.

Whatever method is used must be used daily, and in some cases two and three times daily until a cure has been effected.

If the opening in the drum membrane is too small, it may be enlarged by freely incising the posterior and inferior borders of it. A still better method is to destroy the entire membrane by means of a strong caustic. So far as the ultimate results are concerned, the patient will have about as useful an ear when the entire drum has been destroyed as when the incision mentioned has been made, and the chances for a rapid recovery are immeasurably increased thereby.

Having thoroughly opened both proximal and distal ends of the passages leading to and from the middle-ear we have met the first requisite of treatment. The second is to obtain and maintain as nearly as possible a surgically clean condition of the entire auditory tract. This may be accomplished by the following methods, preference being given in the order in which they are mentioned:

1. By introducing a middle-ear syringe loaded with the cleansing solution, directly into the middle-ear through the perforated drum and forcing the solution through so as to make it escape at the pharyngeal end of the eustachian tube, which will be manifested by the patient hawking and spitting it up. This should be repeated several times.

2. By introducing an ordinary aural syringe loaded with the cleansing solution into the external auditory canal so that the point of it will be in close proximity to the opening in the drum; and then by the use of considerable force the fluid can in a large percent of cases be forced through so as to emerge at the distal end of the eustachian tube. Repeat it sufficiently often to obtain an aseptic condition.

3. Having tilted the patient's head to one side so that the direction of the external auditory canal will be upward, this canal is then filled with the cleansing solution. Then placing the ball of the thumb or finger tightly over the meatus, push down repeatedly until the fluid passes through. The result will be a sort of force-pump action. This is repeated several times until the patient will hawk and spit up the fluid. This method will often succeed even when the foregoing have failed.

Whichever method is employed, it should be preceded by thoroughly cleansing and mopping out the external auditory canal. The certainty of the results and the rapidity of the cure will be governed by the thoroughness with which the treatment is carried out. Here, as in the treatment of abscess in other parts of the body, everything depends upon the thoroughness of the surgeon, and not on the method. No dressing of any kind should ever be applied to the ear. The external canal should not be packed, but everything left wide open "to give the germs a chance to walk out."

Antiseptics and Drugs.—There is a wide range of choice as to the drugs and antiseptics that may be employed. It makes little difference so far as the ultimate results are concerned, which ones are used so long as those employed are not too irritating, and will render the parts surgically clean. Hydrogen dioxid has often been condemned because of the danger of forcing particles of infected material into undesirable places. But if the opening in the drum be large, and the eustachian tube thoroughly dilated, I fail to see why it should be dangerous. But if some think that even then it may be dangerous to use it for the internal ear, I would recommend the addition of mercuric chlorid or other powerful antiseptic. The result will be that in the evolution of the gas, these drugs will be carried along and deposited in the most remote corners and pockets that would be difficult to reach in any other way. By this method the danger of the hydrogen dioxid is not only diminished, but its efficacy materially increased.

Preventive Treatment.—Much has been said upon this important subject, but the fact that the profession, as a whole, is still to a lamentably large extent ignoring important and wellknown pathologic conditions of the nose and nasopharynx, makes it necessary to continue discussing this subject until it receives such consideration as it merits. I believe that I am quite conservative when I state that from 60% to 75% of cases of purulent otitis media are preventable. This would reduce the deathrate from this cause by about 2%.

The following facts should be persistently and judiciously presented to our patients: Otitis media is almost invariably the result of diseased conditions in the nose and nasopharynx, caused by pathologic enlargement, malposition or deformity of certain structures or tissues, whose cure, in the majority of cases, requires minor surgical intervention in addition to such local and constitutional treatment as may be indicated. Catarrh, generally speaking, is a curable condition, and the only reason why so much scepticism is constantly manifested with regard to this statement is because the profession has endeavored to cure it by means of simple medication alone, without reference to the deformities, malpositions or malformations that may exist within the nasal cavities. One of the great fundamental laws of therapeutics has been grossly ignored, viz., that all anatomic malformations and displacements must be corrected in so far as they interfere with the functions of any organ or part of the body. While simple medication alone often gives great relief, yet it rarely cures. The majority of cases require surgical treatment in order to obtain permanent results. Let catarrh receive proper recognition at the hands of the profession, and the days of otitis media will largely pass into history. Remove the hypertrophied tonsil, curet the nasopharynx for adenoids, straighten the nasal septum, saw away spurs, ridges, and bony projections; cauterize or amputate such parts of the turbinals as may be unduly enlarged and cause pressure symptoms or occlude the outlets of important sinuses. In a word, secure as nearly normal a condition of the nose and nasopharynx as may be possible. This is preventive medicine and is scientific. It is based upon good logic, it has been demonstrated experimentally and clinically thousands of times all over the world, and now it demands the endorsement of the family physician to make it still more effective.

THE PRESENT STATUS OF THE ETIOLOGY OF MALIGNANT GROWTHS.[1]

BY

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During the last decade undoubtedly the most concentrated effort in any field of scientific endeavor has been devoted to researches in the etiology of malignant growths. And with what results? We cannot say from the failure to thoroughly establish a definite etiologic factor that the effort has been entirely in vain, for the vast array of clinical and experimental data cannot but make a surer foundation for future research. One by one, various hypotheses have gained supremacy only to be supplanted by perhaps some theory totally different and in a different realm. Vast sums of money are being expended annually in an effort to fathom the mysteries of malignancy, and as fast as one vale is passed another and perhaps even more impenetrable maze confronts us. Undoubtedly the most important problem today, from the standpoint of medicine, is the etiology and consequent therapeutics of malignant growths.

During the last half century there has been a most remarkable increase in cancer. Park states from his investigation of the United States Census and other reports that in 1850 there occurred 1 death from cancer to 156 deaths from other causes; whereas in 1900 there was 1 death from cancer to 35 from other causes, an appalling increase in a comparatively short period of time. This may be partially explained by improved methods of diagnosis and more accurate health reports, but allowing for these there is still a large percentage of increase unaccounted for. In fact Park concludes that of all deaths occurring after the age of 30, 1 in 14 is due to cancer. Such a vast economic as well as personal loss may well demand a large expenditure of effort and money to solve the problems of prophylaxis and treatment.

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[1] Read before the Tennessee State Medical Society, held at Chattanooga, Tenn., April 13, 1904.

Cancer—for under this term we shall include epithelial growths as well as connective-tissue tumors—is insane cell proliferation, or as Park puts it, "cell anarchy." Carcinoma, including the malignancies of epithelial origin, and sarcoma those of mesoblastic—it would seem that the etiology of both conditions must be primarily the same. We are confronted first of all in our efforts at fathoming etiology—by the distinction between malignancy and nonmalignancy.

For example, an insane cell proliferation of connective tissue leads in one to an enormous fibroid tumor, a socalled benign growth, whereas in another the insane cell proliferation of connective tissue may lead to a sarcoma, a socalled malignant tumor. Again, epithelium may proliferate as a benign ichthyotic wart or as a malignant carcinoma. Wherein then lies the distinction? What determines the benignity or malignancy of a tumor? It lies evidently in its manner of growth—whether circumscribed or by infiltration—and in the formation of metastases.

Park argues that there is no other disease characterized by metastasis to which the pathologist does not ascribe an infecting, *i. e.*, a parasitic cause, as for example, tuberculosis, gonorrhea, and septicemia. Again he reminds us that there is no other disease characterized by infiltrative growth that is not of infectious origin, yet the analogy is far from perfect in that, in the one, the metastasis generally speaking is probably of the germs themselves, whereas in cancer the metastasis consists of insanely proliferating cells.

The heredity of cancer has been much argued, but inasmuch as there have been reported exceedingly few cases of malignancy in the newborn, and extremely few in adolescents, it would seem that direct heredity is practically out of the question. There is however, an undoubted predisposition, whatever that may be, running through various families. Again, from analogy, it would seem that if cancer be entirely of an infectious or parasitic origin that it would be found more frequently in the newborn, if not in the fetus itself, as tuberculosis, syphilis, and other diseases so thoroughly similar at times in clinical and pathologic appearances.

The researches of Park, Gaylord, and others, along the line of the parasitic origin of cancer have been exceedingly valuable, and much light has been thrown upon a hitherto dark side of the problem. Various parasites, species of blastomycetes, have been isolated and cultured. Plimmer has also described certain cell inclusions, but much confusion arises as to the reality of the same. Equally eminent and careful pathologists have judged these bodies to be artefacts, secretions, or cell degenerations. However, the work of Gaylord has shown that cancerous tissue transplanted from one rat to another of the same species will give rise to a neoplasm of similar structure. The observations on various plants have afforded considerable valuable data, and the parasitic theory in the light of modern bacteriologic progress cannot but command our attention. It is unfortunate that the New York Legislature should have deemed the results too meager to warrant a repeated annual appropriation to the cancer laboratory at Buffalo.

But to consider cancer thoroughly analogous to recognized infectious diseases seems to me highly presumptuous. The fact that infancy, childhood, and adolescence are practically exempt from its ravages; that in its metastasis there are always demonstrable in every new focus and in the blood or lymph channels en route to the new focus definite cancer cells; and that it can be transmitted only from an animal of one species to another of the same species, would rather conflict with our recognized pathology of infectious diseases. It is clearly evident that malignancy comprises an insane cell-proliferation, characterized by infiltrative growth and the formation of metastases. Again, in a fibroma or an adenoma there is marked insane growth; however it is circumscribed, and not metastatic.

Undoubtedly the rapidity of proliferation is a factor in malignancy, and consequently in metastasis. An adenoma passes by mere transitional stages into a carcinoma. We must explain, then, what factors lead to an adenomatous proliferation, and at just what stage the parasite enters the economy to produce malignancy. What determines the rate and type of proliferation? If we predicate a parasitic etiology, there must then be a definite time of parasitic infection, else we are forced to declare all insane cell-proliferation, that is, all tumor formation, whether socalled benign or malignant to be of parasitic origin.

Cell-growth, from a histologic standpoint, is determined primarily by the nucleus, or structures within the nucleus. Acting under certain conditions of heat, moisture, nutrition, etc., cells live and multiply in a socalled normal manner. Any deviations from normal growth must originate either from within the cell or without. So little is known of cell chemistry that argumentation as to intrinsic causation would be highly speculative.

But as to extrinsic agencies, the efficiency of various forms of irritation in the formation of tumors, both benign and malignant, is thoroughly apparent. Thus physical irritation, as by calculi in the gallbladder, hard scybalous masses in the rectum, the constant friction on a part, particularly upon a more or less cellular anomaly, as a wart or mole, or trauma to a particular area, may give rise either to a benign or malignant neoplasm. Chemic irritation, as in the stomach and intestines, due to alterations in the various digestive juices, abnormal fermentations, and products of digestion; or in the uterus, with its varied forms of endometritis, giving rise to irritating secretions and presenting important glandular alterations; the breast, with its active and then dormant epithelium, and the lacteal secretions, may cause either simple ulcerations or insane proliferations, passing from simple glandular increase to adenoma, which is benign, and to adenocarcinoma and carcinoma of high malignancy. Again, physiologic irritation (which I mean to include disturbed nutrition, and consequent disturbed metabolism), altered innervation, and perhaps disturbed intercellular relationships, undoubtedly have something to do with an alteration in cell structure, that is, nuclear, which is determinative structure, thus giving rise to a growth of abnormal constituency, viz., a neoplasm. And lastly, as an extrinsic cause of irritation, various forms of parasites, either germs or protozoa, may serve to produce the irritation of the cell, which shall cause, perchance, a nuclear change and rearrangement, thus leading to loss of original function, *i. e.*, reversion of type and a consequent cell anarchy, which lead to neoplastic growths. Thus it seems to me that we must credit not only one, but several factors in the etiology of neoplasms and the malignancy or nonmalignancy, to the degree of disturbance of the mechanism within the nucleus, which regulates karyokinesis and proliferation, which disturbance has been caused by one of several causes.

There are several factors in the etiology of colds, such as insufficient elimination, leading to autointoxication; chilling of a part or the whole of the body, either by changes of atmosphere or undue exposure to moisture;

again, some colds appear to be of clearly infectious origin. So in cancer it would seem that there is not one, but a number of factors in the etiology, many of which, acting under favorable conditions, perhaps in some cases with a socalled predisposition, and for sufficient time, may give rise to neoplasms, varying from the most benign to the most malignant.

In summarizing, it would appear that as the dividing line between various neoplasms is so difficult to determine, and the transition from a nonmalignant to a malignant growth depends upon such slight conditions, that contrary to all infectious conditions which might be considered analogous, exceedingly few cases have been recorded of malignancy in the newborn, and exceedingly few cases in childhood, which also militates against any theory of direct heredity; a multiplex and varying etiology must seem the most plausible. Intrinsic irritation of the cell-proliferating mechanism in the nucleus may, with the advance of cell chemistry, yield certain autogenous factors; but as extrinsic factors, may be summarized; various physical, chemic, and physiologic irritations and the irritations caused by parasitic life, any of which cause an evident disturbance in cell-proliferation, as it were, a loss of equilibrium, which leads to insane proliferation and the consequent formation of neoplastic growths. The degree of malignancy would then depend upon the rate and type of proliferation, and the loss of function and consequent reversion of type in the proliferating cells, attest the theory of nuclear or chromatin alteration or rearrangement. The foregoing argument, based upon both clinical observation and pathologic data, is offered, perhaps, as a slightly different phase of a much discussed and ever important subject.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

September 24, 1904. [Vol. XLIII, No. 13.]

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10. Travel Notes. X. A Winter Semester. LLEWELLYS F. BARKER. (Concluded.)

1, 2.—See *American Medicine*, Vol. VII, No. 26, p. 1007.

3.—See *American Medicine*, Vol. VIII, No. 1, p. 8.

4, 5.—See *American Medicine*, Vol. VII, No. 24, p. 922.

6.—See *American Medicine*, Vol. VIII, No. 4, p. 139.

7.—See *American Medicine*, Vol. VII, No. 26, p. 1010.

8.—See *American Medicine*, Vol. VIII, No. 1, p. 10.

9.—Röntgen Ray Therapy in Leukemia.—J. A. Capps and J. F. Smith briefly review the literature of the subject. A report of cases and table of salient features alluded to as accompanying the article are for some reason missing. Their general deductions from the study of their own and other cases are that the action of the röntgen ray seems to be of two kinds: (*a*) A local influence on the spleen and glands characterized by inflammatory reaction, and later disintegration; (*b*) the formation of toxins which inhibit the manufacture of leukocytes by the bone marrow. The röntgen ray toxins may be compared to those produced by the acute infections, which have a similar effect in leukemia. In no recorded instance of either lymphatic or splenomyelogenic leukemia has the spleen tumor entirely disappeared. With the discontinuance of the röntgen ray the disease, after varying periods, tends to reassert itself. Death may take place when the glands and spleen are smallest and the white count is normal. Acute cases seem to receive no benefit from the röntgen ray. The chronic form of lymphatic leukemia responds even more promptly than the splenomyelogenic type. In every instance the glands rapidly softened and dwindled to small proportions. The röntgen ray holds the disease in abeyance, but probably is not curative. Yet it is too soon to say that persistent treatment of an early case may not give permanent relief. [H.M.]

Boston Medical and Surgical Journal.

September 22, 1904. [Vol. CLI, No. 12.]

1. The Tendencies of the Practice of Medicine as a Profession and an Art. LEWIS M. PALMER.
2. Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. PERCY MUSGRAVE.

Medical Record.

September 24, 1904. [Vol. 66, No. 13.]

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6. Icterus in Secondary Syphilis. B. C. HYDE.
7. Polymazia among Enlisted Men of the Marine Corps. RALPH O. MARCOUR.

1.—Operations on the Eyeball with an Infected Conjunctival Sac.—C. S. Bull discusses the various bacteria found with their varying virulence under different conditions and the frequent absence of reaction except in the presence of traumatism. He advises cleansing the face and lids with soap and water before operation, using normal salt or boric acid solutions for the sac in preference to concentrated antiseptic solutions. The eye should then be dried as thoroughly as possible to prevent entrance of fluid into the wound. A microscopic and bacteriologic examination should be made in every suspected case. If toxic germs are found in great numbers operation should be postponed till they have disappeared. In suppurative disease of the lacrimal passages, the sac must be excised and the puncta obliterated by the cautery before operation on the ball. In catarrhal dacryocystitis or mucocele of the sac, both canaliculi should be incised and the sac irrigated till secretion ceases. These steps are necessary even in urgent cases. When the germs are few, operations may be done, but the eye should be opened and irrigated twice in the 24 hours. In all cases the bandage should be removed and the eye examined under the strictest aseptic precautions. On the first sign of wound infection the lid edges should be thoroughly cleansed as before operation and the conjunctival sac thoroughly irrigated; the wound must be reopened and cauterized throughout and the anterior chamber gently irrigated with bichlorid, 1 to 5,000, followed by another cleansing of the conjunctiva. [H.M.]

2.—The Use and Abuse of Athletics.—Coughlin's conclusions are: 1. The prime object in athletics is improvement of the general health. 2. To obtain good health, muscle building is not a necessity. One cannot judge of a person's health by the size and hardness of the muscles. The converse may be true. 3. To obtain health one most not be in a perfectly trained condition, owing to the effects of severe training on the nervous system. 4. There is no evidence to prove that athletics and muscle building improve the constitution. 5. One should always keep in mind the fact that built up or hypertrophied muscle has a tendency to degenerate. The heart being a muscular organ shares in this tendency. 6. In regard to the moral side of the question it remains to be proved that athletics *per se* corrupt the morals. 7. The evidence for and against athletics is contradictory, the whole may be summed up by stating that athletics are beneficial when properly and judiciously applied, and very injurious when precautions are ignored. [A.B.C.]

3.—Pericarditis.—H. E. Lewis believes if pericarditis is looked for it will be found more frequently than is commonly supposed. Though the treatment of the disease it complicates may not be modified, it is a satisfaction to know everything about the patient's condition. Subjective symptoms may be absent, even in extensive inflammation. The diagnosis must be made from physical signs, as the friction murmur, whose significant feature is that it is adventitious, usually double, with no definite relation to diastole or systole. Its character may be modified by holding a full breath or by pressure of the stethoscope. Rarely a thrill can be felt. With effusion, friction sounds disappear, the area of dulness increases with intercostal bulging, usually marked dyspnea and sensation of fulness in the epigastrium, frequently a feeling of faintness with feeble pulse, which often gives an abrupt kick to every five or six beats; the face is red. He reports a case with effusion, due to a chest burn, in which paracentesis relieved alarming symptoms and resulted in complete recovery. He finds no similar case reported. Pericarditis is often responsible for sudden death in Bright's disease. In infants the plastic form without effusion is common. The majority of cases in the first five years of life are tuberculous. [H.M.]

6.—Icterus in Secondary Syphilis.—Hyde states that comparatively few cases have been reported in literature. Lausch collected 46 reported cases; Neumann, 14; Werner, 57; and others sufficient to bring the total up to 127, as collected by Hyde. The latter reports a case. The patient was a man of 21. He had gonorrhea and a chancre at the same time. Some six weeks after the appearance of the chancre, and concomitantly with a general adenitis, without skin eruption, jaundice appeared. It steadily increased for two weeks, but under treatment by iodids gradually disappeared, clearing up entirely within six weeks from onset. The etiology is not known. The following have been stated as causes: 1. Enlarged glands pressing on the bile ducts. 2. Secondary eruptions in the intestines cause an obstruction in the flow of bile. 3. A general catarrhal condition, such as is found in other infectious diseases. 4. Hyperemia of the bile capillaries, due to inflammation of the liver. 5. Changes in the blood and bloodvessels. 6. Changes in the nervous system. Its course usually is accompanied by the customary secondary symptoms. Its character is not constant, and it may recur like the eruptions. Its duration is from a few days to a few months, and if untreated it may become chronic. [A.B.C.]

New York Medical Journal.

September 17, 1904. [Vol. LXXX, No. 12.]

1. Suggestions upon the Medical College Library. EUGENE F. CORDELL.
2. Postmortem Examinations for Medicolegal Purposes. I. L. POLOZKER.
3. The Present Condition of Tenontoplasty (Continued). PROFESSOR VULPIUS.
4. Trachoma and Some Diseases Resembling It. JAMES A. NYDEGGER
5. Notes on Uremia, Urea, and the Urea Tests. F. L. WACHENHEIM.
6. The Nonsusceptibility of the Newborn to Measles. EDWIN E. GRAHAM.
7. Insufficient Motility of the Stomach and Its Treatment. DUDLEY FULTON.
8. Gonorrhea (?) in the Male. JOHN FLANAGAN.
9. Elevation of the Hips in the Treatment of Placenta Prævia. ALFRED KING.
10. Our Relation to One Another. JOHN M. KENNEDY.

2.—Medicolegal Postmortems.—I. L. Polozker describes in detail the method of conducting a postmortem for medicolegal purposes. He cites some of the evils that the county physicians have to contend with in their work. One is in regard to the conviction of professional abortionists. The reason these men are so seldom convicted is because some members of the medical profession will go on the witness stand and testify to anything; make statements that are ridiculous in medicine and surgery, to save these abortionists from prison. Another is, that in many cases valuable evidence in regard to the cause of death is destroyed by police, detectives and newspaper men before the county physician is even notified. It is not unusual to find that the body has been embalmed. The author suggests that we should demand better laws governing medical testimony; that a board of medical experts should be appointed by the court, and that the coroner's court should be abolished. Instead, the prosecuting attorney, on recommendation of the medical society, should appoint a physician to investigate sudden deaths. The Board of Supervisors should make an appropriation for the erection of a suitable building for a county morgue, where satisfactory work could be done by county physicians, instead of as at present doing it as best they can in some badly lighted room in the rear of an undertaker's shop. [C.A.O.]

4.—Trachoma.—J. A. Nydegger discusses trachoma and some diseases resembling it. According to his observations there appears to be no relation between follicular conjunctivitis and trachoma; nor does follicular conjunctivitis appear to be the forerunner of trachoma as is asserted by some authors. Trachoma follicles are to be regarded as new tissue. The appearance of these follicles which make more or less large nodes is very different, on account of their size and state, and according to the grade of the diseased processes. The follicles, granules, granulations or nodes—these terms being used interchangeably—form the characteristic picture of trachoma. They are the result of inflammation, and show first as a net of capillaries with fine partitions. These granulations lie in the adenoid structure of the conjunctiva and extend or arch the epithelium before them. The follicles develop first principally on the lower lid. The late and serious complications of trachoma are pannus and atrophy of the cornea. In many cases cocci are believed to be the cause of trachoma—those which show in the form of diplococci. [C.A.O]

6.—The nonsusceptibility of the newborn to measles is well illustrated by a case reported by E. E. Graham. A child was born while the mother was in an attack of measles. The child was healthy, and at no time was it isolated from its mother. It was kept in the same bed and nursed at intervals of two hours. At the present writing, six weeks after its birth, the infant has presented no evidences of having contracted the disease. [C.A.O.]

7.—Insufficient Motility of the Stomach.—Dudley Fulton discusses the etiology, pathology, diagnosis and treatment of this condition. The indications for treatment are plain—the diagnosis of insufficiency due to atony or to obstruction having been determined. In both, stagnation of the stomach contents is to be prevented, and a diet given that spares the motor powers of the stomach. In the atonic, to improve the muscle tone and motor powers of the stomach is the indication. In obstruction, to do this would be worse than useless and an irrational procedure, as it would add to the difficulties. In this form the one indication is to remove the obstruction as early as a diagnosis permits. In selecting a diet for patients with reduced motor powers, the more feeble the motility, the more liquid the diet prescribed; especially in obstruction of the pylorus. Milk preparations, soft eggs, gruels, soups, and the various articles of concentrated food are to be chosen. The feedings should be small and frequent. In cases of slight motor insufficiency, if an analysis reveals a fairly normal gastric juice, solid foods may be allowed. In atonic insufficiency, strychnin $\frac{1}{24}$ gr. three times daily should be tried. Fulton has had good results from a pill containing one grain of creosote, with one grain each of pulverized rhubarb and soap, in improving the peristalsis and preventing fermentation. In the absence of HCl, the dilute HCl given, freely diluted in 20 or 30 drop doses, through a tube, after meals, and repeated two or three times, is of decided value. When excessive acidity exists, teaspoonful doses of burnt magnesia and sodium bicarbonate, one or two hours after eating, and repeated if need be, relieve cardialgia. Of the mechanical measures, well-fitted abdominal bandages very often give great relief. Lavage is indispensable in all cases in which there is abnormal retention of food. [C.A.O.]

9.—Placenta Prævia.—Alfred King reports a case of marginal placenta prævia complicating labor. The patient was etherized and placed in the lithotomy position at the edge of the bed, her legs being held by Kelley's leg holder. The side, to which the patient had been brought, was elevated and held so by means of two wooden-bottomed chairs placed under the legs of that side. The plane of the patient's body now made an angle of 45° with the floor and the axes of the pelvic planes were more nearly horizontal. Gravity, by preventing the loss of blood and the escape of amniotic fluid, and by causing the fetus to settle to the fundus, facilitated version and a speedy and safe delivery. The loss of blood during the whole operation was very slight. [C.A.O.]

Medical News.

September 24, 1904. [Vol. 85, No. 13.]

1. Home Treatment of Tuberculosis by Means of Hospital Dispensaries. JOHN W. BRANNAN.
2. Bone and Cartilage in the Tonsil. JAMES E. NEWCOMB.
3. The Distinction between Fracture of the Neck of the Femur and Epiphyseal Disjunction in Early Life, with Reference to its Influence upon Prognosis and Treatment. ROYAL WHITMAN.
4. The Rectal Administration of the Newer Hypnotics. MORRIS MANGES.
5. The Medical Treatment of Appendicitis. A. J. HALL.
6. The Correction of Abnormal Conditions of the Blood, Relative to Surgical Operations. S. C. EMLEY.
7. Addison's Disease, with and without Adrenal Tuberculosis. CHARLES F. WITHINGTON.

1.—Home Treatment of Tuberculosis.—J. W. Brannan outlines the work done by the special dispensaries of Bellevue, Gouverneur, Harlem, and Fordham. The objects of the tuberculosis clinic are thorough attention to each patient by experienced physicians, systematic supervision of home conditions, education of patients and their families in hygiene and prevention, study of the social and economic conditions and amelioration when unfavorable, and the opportunity for scientific investigation and clinical experience for physicians and students. The paper is illustrated by devices for carrying out fresh-air treatment. [H.M.]

2.—Bone and Cartilage in the Tonsil.—Newcomb recites the case of a woman of 30, upon whom he performed tonsillotomy. In removing the left tonsil, the blade was felt to pass through a hard substance. Examination showed he had cut off the end of an elongated styloid process. Mention is made of Richard's case, in which it became necessary to use bone forceps to cut the dense styloid process in an elderly woman. The same condition, only to a less degree, existed on the opposite side. Mention is made of the wellknown fact that ossification may extend down the stylohyoid ligament and thus materially lengthen the styloid process. Aside from instances such as these, Newcomb quotes a number of authorities who assert that isolated masses of cartilage are rather frequently found in the tonsil. These always lie free, and have no connection with the skeletal frame. Virchow has said that newly-formed connective tissue, the result of chronic interstitial inflammation, may become the matrix of a later enchondroma. Newcomb suggests that possibly these cartilaginous masses arise in this way. [A.B.C.]

3.—Fracture of the Neck of the Femur as against Epiphyseal Separation.—Whitman presents an interesting paper on this subject, with diagrammatic illustrations. He says we may include under fracture of the neck of the femur in early life three classes of cases: 1. Simple direct fracture of the neck, usually incomplete, occasionally complete. 2. Direct epiphyseal disjunction, usually incomplete, rarely complete. 3. An indefinite class, in which the deformity is at or near the epiphyseal junction. Of classes one and two, 30 cases have come under Whitman's observation, 5 being classified as epiphyseal disjunction; of these the youngest was 13 and the oldest 16. Of the 25 cases of actual fracture of the neck, 20 were under 10 years. The third class is usually included, coxa vara, and of these, 63 cases have been treated by the author. The object of Whitman's paper is to call attention to the two forms of fracture of the neck of the femur, of which an accurate diagnosis may have an important influence upon treatment. Simple fracture should be treated by fixation at the limit of normal abduction, an attitude which implies restoration of the depressed neck to its normal position. Partial epiphyseal separation should be treated by direct operative reposition of the head. Excision, which is at present in such favor with German surgeons, should be an operation of necessity rather than of choice. [A.B.C.]

5.—Medical Treatment of Appendicitis.—Hall is of opinion that the tendency to operate in cases of appendicitis has gone to the extreme, and that we are prone to undervalue the efficacy of medical treatment. The author believes that, on the whole, medical treatment will yield as good results as are obtained by surgical measures. He says an efficient medical treatment of acute appendicitis is as follows: Rest in bed, hot poultices to the abdomen, a liquid diet, chiefly composed of milk; four to six copious enemas of soapy water or sweet-oil a day, internally the arsenite of copper and creasote. Purgatives and opiates are not to be used. His conclusions are: The tendency of appendicitis is toward recovery. All acute cases should be treated medicinally until, after mature deliberation, it is shown that operation offers a better prospect for recovery. In recurrent cases operation should be advised during the interval after recovery from the second attack. [A.B.C.]

6.—The Hemogenetic Properties of Certain Drugs in Surgical Cases.—Emley, working with Ochsner, tested the hemogenetic property of several of the more common drugs given in anemic conditions. The test was applied to a series of patients, mostly surgical cases. The author says that only those were selected whose appearance indicated the need of a hematinic. As often as possible, similar cases were paired off, one patient being given one preparation and the other patient another, and the results compared. The cases were paired according to pathologic condition, age, sex, general condition, and the condition of the blood as to hemoglobin and erythrocytes at the beginning of treatment. The preparations used were malt with iron and manganese; malt with iron, quinin, and strychnin; Blaud's pills, and the preparation known as peptomangan (Gude). Blaud's bills acted quickly, but constipated; the malt combinations caused nausea in a few patients, and the malt, manganese and iron combination, constipation in nearly all. The peptomangan, given in milk, was agreeable to take, and in no case did it cause nausea or constipation. On the whole, peptomangan gave better and quicker results than any of the others. A table is appended showing the increase in erythrocytes and in hemoglobin of each patient treated with peptomangan. [A.B.C.]

7.—Addison's Disease.—C. F. Withington would classify cases with Addison's complex, as Addison's disease, whether arising from tuberculosis or anything else causing adrenal inadequacy. The clinical syndrome consists of bronzed skin, constitutional disturbance, gastrointestinal irritation, and usually progressive weakness. But types vary. He divides them as follows: I. Cases with bronzing: (*a*) Adrenal tuberculosis, the commonest; (*b*) nontuberculous forms, atrophy, chronic interstitial inflammation, cancer, occlusion of the adrenal vein, hemorrhages; (*c*) no adrenal disease: (1) with and (2) without disease of the semilunar ganglion; (3) pigmentation, usually without other symptoms of Addison's disease. II. Cases without bronzing: (*a*) Adrenal tuberculosis; (1) with, and (2) without tuberculosis elsewhere; (*b*) Adrenal disease, nontuberculous; (1) cancer; (2) tumors; (3) necrosis, etc. He reports four cases of the disease, in one of which there was no tuberculosis, but simple and extreme atrophy. He reviews the literature of the subject in connection with his classification, and also hospital and other records of lesions of the adrenals without Addison's disease. Certain analogies with other diseases of ductless glands should encourage us to try the administration of adrenal extract whenever advanced tuberculosis is not present. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Tender Spots on the Spine in Relation to Pain in Various Parts of the Body.—St. Clair B. Shadwell[1] presents an interesting paper showing the relation between pain situated in various parts of the body and tenderness of the spine in the region where the nerve which supplies the area wherein the pain is located, emerges. One patient, a woman of 26, complained of severe pain in the right side of the chest, which increased on taking a deep breath. Careful examination showed there was no pleurisy or lung trouble. On the spine a tender spot was found over the seventh dorsal vertebra. The area painted with iodin resulted in a cure. Another patient, a woman of 45, had complained of a severe pain in both shoulders for a fortnight, she was treated for rheumatism without improvement. Examination showed a tender spot over the lower spinal vertebras; it was likewise cured by being painted with iodin. In another instance a woman of 37 complained of severe paroxysms of pain over the region of the heart; the sixth intercostal nerve was painful on pressure and a spot on the spine corresponding to this region was tender. A blister applied cured the condition. In another instance a woman complained of severe spasmodic pain over the region of the stomach and little or no food had been taken for two days. A tender spot was found over the dorsal vertebra corresponding to the nerve supplying the painful area. A blister cured the patient. In another instance a woman of 58 complained of pain over the left side of the chest, extending to the lower part of the sternum. Acutely tender spots were found on passing the fingers over the dorsal and lumbar spines; the spinal area being painted with iodin the patient was relieved. The curious condition is that patients never complain of pain in the spine in the class of cases here mentioned, they may even protest that there is no spinal tenderness until the affected spot is pressed upon. [A.B.C.]

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[1] The Lancet, September 10, 1904.

The Feces in Cholelithiasis.—V. Oefele[1] analyzed the stools from a large number of patients in whom a diagnosis of gallstone was made. The conclusions from his analyses showed that when icterus is present the feces were discharged in small particles frequently during the day. The high acidity develops an irritability of the rectum. The first defecation occurs usually between rising and breakfast, and there is generally none until midday or evening. Between the midday and evening meals there are two and sometimes three evacuations. The interval between the stools is shorter than normal. The consistency of the stools is pulpy and the amount and quantity of dried substance is less than the normal. The crystallization of the triple phosphates is rare. The stool is usually whitish gray in color, and is never dark. The color of the ether extract does not differ usually from that of normal stools. This is true also of the residue after treating with ether. The macroscopic amount of mucus present in icterus is about the average, but microscopically the mucous fibers are rarely observed. The high percentage of ether extract is characteristic of the stools when icterus is present. In normal stools the dried substance amounts to 10% to 20%, while in icterus it is 30%. The acidity of the ether extract corresponds to the acidity of the stool. The urobilin is lowered and the fat drop and stearic acid needles are frequently observed microscopically. Cellulose is found in abundance. The amount of homogeneous albumen and muscle fibers deviates from the normal. The frequency of the peptone reaction is about normal. The odor of the stools is characteristically foul. With the disappearance of icterus the tendency to the formation of pulpy stools disappears, and the frequency of the evacuation is diminished. The quantity of a single stool and the amount of the dried substance is higher than when icterus is present, and appears about normal. The color is grayish, and the ether extract is of the normal brown color. When a gallstone passes into the intestines without icterus the putrid odor is rare, and the odor of the gallstone is about normal. The acid reaction of the stools in cholelithiasis without icterus is lowerd, and the appearance of the peptone reaction is rare. The presence of triple phosphates is rarer than in the normal conditions. Mucus, fat drops and stearic acid crystals are frequently seen. The dried substance without icterus is less than the average, and the saponified stearic acid is increased, while the other acids are diminished. The albuminoids are less than the normal. [J.H.W.R.]

A Case of Malarial Sciatica.—E. O. Huntington,[2] Surgeon U. S. N., reports that at Hongkong a soldier in the U. S. Navy, 35 years of age, who had been on duty in the Philippine Islands for several months, during which time he had enjoyed good health, developed great pain in the sciatic nerve; the seat of greatest intensity was below the pelvis; there was no history of traumatism. The patient was relieved from duty, given calomel, to be followed by a saline purge, and was put to bed with local applications of counterirritation and hot-water bottles. There was no improvement. The patient's blood was examined, and the presence of the estivoautumnal malarial parasites was clearly demonstrated. The patient was placed upon full doses of quinin by mouth and by injection into the sheath of the nerve. There were three injections of a saturated solution of quinin bisulfate injected into the nerve immediately below the gluteal fold. That the needle reached the shaft of the nerve was evidenced by brief paroxysm of pain extending to the toes. The pain and disability rapidly disappeared, and the patient made a complete recovery. The author believes the injection of quinin into the sheath of the nerve has not heretofore been reported. [A.B.C.]

Primary Malignant Tumor of Both Adrenals.—S. Amberg[1] found this condition in a child of 2 months, the parents having noticed a slight swelling of the abdomen one week before. The principal point of interest on examination was the enlarged abdomen. There was some edema of the abdominal wall, and the superficial veins were distended. Palpation revealed a hard, smooth mass, chiefly in the right side of the abdomen, extending from the costal margin to the right inguinal region. In the latter region a firm edge could be felt, and to the left of the navel a distinct notch, but it was not possible to distinguish two separate masses. Red blood cells were 2,800,000; whites, 11,000, 79% of which were polynuclears. The baby died in convulsions six days after it was first seen. Autopsy showed a tumor of the left adrenal, and also of the medulla of the right adrenal. The liver substance was almost entirely replaced by tumor tissue of the same type as that in the adrenals, which is believed to have arisen from the medulla. The tumor in the right gland is possibly a metastasis from the left. That in the liver is evidently secondary. Considering the uncertainty of the histogenesis of the adrenal medulla, Amberg says the tumor may be classed as a carcinoma or an alveolar sarcoma. [A.G.E.]

Human Piroplasmosis.—C. Donovan,[2] connected with the General Hospital, at Madras, states that from June, 1903, to June, 1904, there had been admitted to his wards 72 patients suffering from this disease, all diagnosed by examination of blood from splenic puncture. The total admission of patients during the same period was 1,304; the deathrate among the patients suffering from the piroplasmosis was 22 (30.55%). The disease is especially prevalent in the congested and unsanitary part of the native quarter, and is equally common among the poorer Mohammedans and Hindoos; the sexes are equally amenable. The parasites in the peripheral blood are of different form from those seen in the splenic blood, and are very rarely found, and only when the temperature is 103° to 104°. Organisms have been found in ulcers of the skin. The most characteristic feature of the disease is an enlarged spleen. There is seen irregular pyrexia of from two to six months duration, not affected by quinin; the temperature is irregular in type, varying from 97° to 104°. In only 5 out of 72 cases was the spleen not enlarged; skin eruptions are common. In 10 instances subcutaneous hemorrhages or petechias were noticed; ulcers, resembling Delhi boils, in several instances were seen. Several illustrative cases are reported, charts are exhibited, and colored illustrations of the blood in this condition accompany the article. [A.B.C.]

Epidemic Polyneuritis.—P. Blackall[3] describes this disease as it appeared in 6 cases recently studied. It appears to attack only children and young adults and comes on gradually. There is headache, vomiting, pains in the abdomen, particularly in the cecal area; the tongue is coated and the bowels constipated. The temperature may rise to 102°; the pulse is slightly and the breathing considerably accelerated. At this stage it may be mistaken for appendicitis until pressure shows entire absence of muscular rigidity over the site of pain. A day or two later it stimulates subacute rheumatism, but the pain is not localized in the joints. At this time loss of muscle power begins and soon becomes absolute. The reflexes are lost and the *tache méningeale* appears, better than in many cases of meningitis. The temperature remains up for one to three weeks; the paralysis gradually disappears, but in all the cases seen, certain muscles have not regained their power within two months and the final results cannot now be given. There are reasons for regarding the disease as mildly infectious. [A.G.E.]

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[1] Wiener klinische Wochenschrift, No. 29, 1904, p. 819.
[2] The Journal of the Royal Army Medical Corps, September, 1904.

[1] Archives of Pediatrics, August, 1904.
[2] The Lancet, September 10, 1904.
[3] Australasian Medical Gazette, July 20, 1904.

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

EDITORIAL COMMENT

Cutaneous Hyperesthesia in Appendicitis.—The importance of localized pain in the diagnosis of appendicitis is well known to all. It is usually acute and sharply limited, at least in the greater number of cases, to a distinct spot, the classic McBurney's point. It is of importance to distinguish this particular pain from that more deeply seated, which has an entirely different significance, and in order that all mistakes may be avoided, it is well if one attempts to search for it with care. Dieulafoy advises to pass the point of a pencil lightly over the right iliac region in different directions, and when McBurney's point is reached the patient will experience a distinct localized pain over a limited area, sometimes not larger than a 25-cent piece. According to Sherren[1], who has studied the characters of cutaneous hyperesthesia in appendicitis with great detail and care, and who gives a novel interpretation to it, the pain is only infrequently localized over McBurney's point; frequently it extends over a considerable area, but in this case it possesses special features as to its localization. The pain often follows a line running obliquely downward and inward, extending from the right iliac fossa to the middle line, at which point it occasionally stops abruptly. As can be seen, this topography of the pain somewhat recalls that of herpes zoster, and in point of fact, Sherren believes that it is in relation to the cutaneous distribution of the eleventh dorsal pair of Head, that is to say, that it has a radicular territory. Sherren was able to demonstrate that this area of hyperesthesia exists in the dorsal region as well, a fact which upholds nicely the theory of a nervous localization. The area of hyperesthesia is more frequently triangular in shape; one of the sides of this triangle extends along Poupart's ligament, another exactly follows the linea alba, while the third is nearly horizontal. This territory ceases to exist behind the axillary line. As the periappendicular inflammation subsides, one may occasionally notice that the cutaneous pain becomes more and more restricted, and that finally it becomes reduced to a localized circular area situated over McBurney's point. This authority has had cases under his observation in which the hyperesthesia became localized at a point corresponding to this area, but in the lumbar region. It is quite probable that this hyperesthesia is present in the large majority of first attacks of appendicitis, and only infrequently lasts longer than six days or one week. In the successive attacks it may remain for a much longer time. An important diagnostic sign has been pointed out by Moullin, Cumston, and other surgeons some time ago, namely, that when the hyperesthesia is absent the case is one of gangrenous appendicitis, or else perforation has taken place. In a case of appendicitis undergoing a typical evolution, the cutaneous hyperesthesia can be made out in the above-mentioned triangular area; at the end of a few days it completely disappears, and at the same time vomiting supervenes, the pulse becomes small, weak, and rapid, and if operation is at once resorted to, as it should be, a recent perforation will be found. The neurotic nature of this hyperesthesia is evident. It is not in direct relation to the underlying inflammatory process, as is the case in pleurisy, but is without doubt produced by the intermediary of a true reflex, starting in the sensory nerves of the appendix, which communicate at the cord with the sensory cutaneous nerves of the area already alluded to. The best proof of this theory lies in the fact that even when the appendix occupies an atypical position, the hyperesthetic area is always to be found at the same spot. Thus in cases of appendicitis with a retrocecal appendix pointing directly upward under the liver, the area of hyperesthesia will be found in the hypogastric triangle, near McBurney's point. This hyperesthesia is of considerable diagnostic value in appendicitis if it is not confounded with that caused by other painful abdominal affections, such as nephritic or hepatic colic, gastric ulcer, salpingitis, etc. It should be recalled that diseases of the lungs and pleura may give rise to abdominal pain, and Comby has drawn attention to the presence of pain over McBurney's point in pneumonia in young children, and patients have been operated upon in the belief that the case was one of appendicitis. However, in most cases the pain is subjective and deeply seated, without any true cutaneous hyperesthesia. Although it is true that a sudden disappearance of the hyperesthesia, without any improvement in the other symptoms, is an indication for operation, it by no means implies that one should not operate when it is present. In the latter case the guide should be the general condition, and too much cannot be expected from this diagnostic point. Generally speaking, hyperesthesia is absent when a periappendicular abscess has formed, and the same may be said of cases of generalized septic peritonitis coming on at the beginning of an acute appendicitis.

REVIEW OF LITERATURE

The Radical Cure of Patent Urachus.—B. Crossfield Stevens[1] reports that a urachus closed at the umbilical end, but connected with the bladder, was diagnosed in a boy of 17; there was pain on micturition, especially when the bladder was distended, so severe that operation was considered justified. Under an anesthetic the bladder was emptied by catheter and boric solution injected. By a transverse incision across the hypogastrium, an inch above the pubes, the bladder was exposed and the urachus isolated, the peritoneum was stripped back and the urachus, which was the size of a clay pipe-stem, was seized and bared to the extent of one and a half inches; it was clamped near the bladder and another clamp applied an inch higher up, the part between was divided, the two ends touched with pure carbolic acid and ligated with catgut, the vesical end being invaginated into the bladder by means of a purse-string suture in the same way that the stump of the appendix is often invaginated into the cecum. The other cut end was brought outside the abdomen and through the incision in the recti and anchored to the muscles and sheaths and left under the skin and fascia only, so that both ends were treated extraperitoneally. The wound was closed and the patient made a good recovery. The eczematous condition at the umbilicus, which existed before operation, persists, three months after operation, but was gradually getting better. [A.B.C.]

Primary Muscular Tuberculosis, with Multiple Distribution.—F. LeJars[2] uses the term "muscular tuberculosis" in the clinical sense, though the tubercle starts and develops in the connective tissue of the perimysium, the muscle fiber being specially resistant. The term primary also is merely clinical. Even in the most circumscribed types there must have been an initial infective lesion, though distant and obscure. Indolent collections running a chronic course are not always tuberculous. Three varieties of muscular tuberculosis are usually described, the gumma, the cold abscess, and the tuberculous infiltration. The disease spreads in the peri and intramuscular connective tissue, following particularly the vasculonervous sheaths. Around the arteriole in the muscle bundle collect embryonic cells with large nuclei. These form a nodule, the nearest muscle fibers are invaded and isolated and soon disappear in the nodule and thus we get a tuberculous nodule without giant cells of connective-tissue origin and without epithelioid cells. The muscle fiber may atrophy, swell with loss of fibrillation, or be transformed into cells with multiple nuclei. Infection obviously reaches the muscle by way of the circulation, a preference being displayed for the "working muscles" and often near where it blends with the tendon. Rupture and detachment of fibers probably prepare the way for infection. The tumors ought always to be removed *en bloc* by cutting through the muscle, not by cureting. The removal of even large portions of muscle does not usually determine serious functional trouble. The operation should be repeated on recurrence. [H.M.]

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[1] The Lancet, September 19, 1903.

[1] The Lancet, August 27, 1904.
[2] Medical Press and Circular, June 22, 1904.

Repair of Urethra by Transplantation of the Urethra of Animals.—J. H. Pringle[1] of the Glasgow Royal Infirmary, reports the results of his efforts to thus repair the urethra in three instances. Two of the patients were men who had sustained complete and extensive rupture of the urethra in the perineum. The third was a boy of 14 with hypospadias, with deficiency of the entire penile urethral floor. One patient, a man of 50, had an abscess at the penoscrotal junction. There was gangrene and sloughing of the urethra. Under perineal and suprapubic drainage the patient did well and six weeks after the original rupture the ends of the urethra were loosened and freshened and 13 cm. (5.2 in.) of a young bullock's urethra, removed immediately after the animal was killed, was sutured into the gap between the separated ends. All healed by primary union except at the junction of the graft with the remaining portion of the penile urethra. Several subsequent operations were performed to close the fistula but without success. In a second case the patient was a man of 28 who suffered a traumatic rupture of the perineal urethra. After a month of treatment there remained a gap of 5 cm. (2 in.) between the ends of the urethra. As before, the urethra of a young bullock was transplanted to fill the gap. The wound healed perfectly except at one minute point behind the scrotum, and the prospect appeared fair for complete union when the patient suddenly died after an operation for abscess of the kidney. In the case of hypospadias 7 cm. (3 in.) of a young bullock's urethra was employed in an attempt to provide a urethra for the lad. It all healed except at the junction of the original urethra and the graft. The implanted tissue gradually sloughed, was finally completely excised and replaced by a fresh graft of 9 cm. (3⅗ in.) from a bullock. This operation was finally successful and the boy has been taught to pass a bougie. [A.B.C.]

Acute Primary Cholecystitis.—J. G. Sheldon[2] says most medical men are doubtful as to the occurrence of acute primary cholecystitis, and believe in such statements as that it is associated with gallstones in 75% of cases, and in the balance with typhus fever, variola, etc. It is time to discard such statements, to know that the condition does occur, that it can be diagnosed, and in most cases be treated successfully. Sheldon reports four cases and adds seven from the literature. The condition is amenable to successful surgical treatment in all cases in which operation has not been too long delayed. The mortality depends entirely upon the promptness of recognition and treatment. Most patients will die if not treated surgically. Sheldon knows of no medical treatment for the disease, but if the patient refuse operation, the stomach should be washed out, rectal feeding resorted to, morphin given if necessary, and cathartics avoided. The advice of Ochsner not to operate during an acute attack of cholecystitis is dangerous. Cholecystostomy meets the indications in the early stages. The gallbladder should be removed only in cases with extensive gangrene, drainage sufficing in all others. The presence of gallstones does not modify the treatment. In acute infected cases, cholecystostomy has a smaller mortality than has cholecystectomy. [A.G.E.]

Traumatic Chylothorax.—According to F. Munch,[3] an effusion of chyle into the thorax is usually the result of a violent contusion of the chest. There is only one case on record where a penetrating wound has produced the condition. Except in two cases, the effusion has always occurred on the right side. The thoracic duct is on the right of the median line only from the eleventh to the sixth, fifth or fourth dorsal vertebras; hence the rupture of the duct must almost always occur in the lower part of the thorax. It is very rare that a satisfactory explanation of the pathogenesis of this condition can be given. There are no physical signs typical of chylothorax, the diagnosis being established by examination of the aspirated liquid. This examination reveals to the naked eye a whitish, opaque liquid. When allowed to stand, a creamy layer accumulates at the top; under the microscope this is seen to be composed of droplets of varying size, which assume a grayish tint with osmic acid. The addition of ether to the chyle clarifies the liquid; after separation and evaporation of the ether a residue of fat is left. The prognosis of chylothorax is very variable. Death has occurred in four cases out of ten, the cause of death not being easy to determine. The best line of treatment seems to be expectant vigilance, with repeated thoracentesis whenever necessary. If the effusion recurs very rapidly and abundantly after tapping, thoracotomy may be performed. [B.K.]

Effect of Inhaled Gasolin Vapor.—Torald Sollmann[1] reports an investigation begun some years since for the purpose of finding a cheap anesthetic for laboratory work. The results showed that gasolin would not be practical. Since renewed interest in the subject has been aroused by the use of petroleum ether in Schleich's inhalation mixture the experiments are now published. The effect of gasolin on normal dogs is to cause struggling, then convulsions, and finally sudden death in from 2 to 20 minutes, the heart and respiration stopping at nearly the same time. The previous injection of a heavy dose of morphin does not modify the phenomena if the gasolin is pushed. The conclusions reached are that gasolin (or petroleum vapor) when inhaled has a comparatively slight anesthetic action. The anesthesia, however, is very dangerous, since the substance also produces convulsions, weakening of the heart, vasomotor depression, and paralysis of respiration. The kidneys are also irritated. The effects are produced very promptly and recovery under artificial respiration is also prompt. The cause of the convulsions is not known; they do not occur in frogs. [A.G.E.]

Surgical Treatment of Chancroid.—According to Carle[2] cauterization with the actual cautery or with a chemic caustic is to be practised on chancroids of the following types: 1. Chancroids seen within the first 48 hours. 2. Chancroids of longer duration, situated in places where excision would be difficult or would be followed by the formation of annoying scars (glans penis, meatus, frenum; in the female the periurethral regions, fourchet, etc.). 3. Cases having numerous chancroids, spread over the whole penis. Other cases present themselves, in which excision is to be considered. The most favorable condition for this form of treatment is the single chancroid situated on the edge of the prepuce. Cases presenting a few sores on the mobile parts of the penis or on the labia majora may also be subjected to excision. It may also be practised in persons who desire a rapid cure, or who cannot give proper attention to other forms of treatment. Circumcision may be done in cases where the chancroids are limited to the free border of the prepuce, with or without phimosis. It may also have to be performed where the chancroids involve the glans and prepuce, with considerable inflammatory reaction of the whole penis. [B.K.]

Sensory Distribution of the Fifth Cranial Nerve.—Harvey Cushing,[3] in a lengthy paper, illustrated by 30 diagrams and photographs, considers the determination of the confines of the trigeminal sensory field by four methods: (1) The study of clinical cases. This part of the article is accompanied by photographs of patients on whom the outlines of the field in question have been drawn; (2) the dissection method. In consideration of the multiple innervation, the variability of field configuration, and the demonstrable overlap between the fields, there is a surprising conformity in the clinical outlines in a large group of cases, and a close correspondence between the tactual line delineation of these cases and the average field determined by Frohse's dissections; (3) the results of animal experimentation. From this he finds that the "method of resulting anesthesia" serves as well for the establishment of the outline as that of "remaining esthesia," the embryologic basis. The paper, though impossible to summarize and needing to be studied in connection with the illustrations, is an important contribution to the subject in question. [A.G.E.]

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[1] Annals of Surgery, September, 1904.
[2] American Journal of the Medical Sciences, September, 1904.
[3] La Semaine Médicale, August 10, 1904.

[1] American Journal of the Medical Sciences, September, 1904.
[2] La Semaine Médicale, August 31, 1904.
[3] Johns Hopkins Hospital Bulletin, July and August, 1904.

PATHOLOGY.

ALLER G. ELLIS

REVIEW OF LITERATURE

The Chemic Origin of Leukocytes.—E. Schmoll[1] reports the results of a study of two cases of leukemia under various diets in order to determine whether the body is able to synthesize the nuclein of its tissue cells or is obliged to build them out of the cell material contained in its food. Certain errors inherent in this method were so far avoided as to essentially eliminate them from the accuracy of the results. A case of lymphatic leukemia and one of the myelogenous variety, both chronic, were studied. Both were in the period of intermission with a very low count of leukocytes. From the influence of dietary changes there is believed to be no doubt that as the result of an albumin-rich diet, the leukocytes were increased; such diet then acts as a stimulus to the formation of leukocytes. The particular kind of albumin seemed to have no effect on this increased production. Schmoll concludes that the organism is able to cover its needs in nuclein from any albumin. Further, the organism is always able by simple chemic processes to form the building stones of nucleic acid and then unite and utilize them for the building of cell material. [A.G.E.]

Nondiphtheric Membranous Anginas.—L. B. Wilson[2] considers of such anginas five types associated with these organisms: Streptococci, diplococcus of pneumonia, Friedländer's bacillus, spirillum of Vincent, and blastomyces. Streptococci are doubtless often overlooked in routine examinations for *B. diphtheriæ* since the blood-serum used for the latter is not favorable for either the growth or recognition of the former. The only marked clinical distinction of the anginas due to Friedländer's bacillus is the ivory-like hardness of the membrane. In the Minnesota State Laboratory during the year 1903, yeast-like organisms have been present in 136 cases which were noted by the reporting physician as showing a membrane in the throat and which did not show *B. diphtheriæ*. Blastomyces have also been found in 97 cases associated with *B. diphtheriæ*. Wilson says these anginas are important, not only because they must be differentiated from diphtheria but also because they are transmissible and their treatment should vary according to the organism present. In order to determine as early as possible the etiologic factor in anginas, direct coverslip or slide preparations as well as cultures on ordinary diphtheria mediums should be made from the membrane by the physician on his first visit. Cultures should also be made on broth, agar and other mediums more suited to the development of nondiphtheria-like organisms than is Löffler's blood-serum. [A.G.E.]

Unilateral Gigantism.—C. Reismann[3] contributes a further note on a case reported in 1902. The child was born in January of that year, and still exhibits right-sided gigantism, although this side has not grown proportionately to the sound side. The right leg is 5 cm. (2 in.) longer than the left, the circumference of the right calf 9.5 cm. (4 in.), that of the left calf 8 cm. (3 in.). The particular interest in the case is that the left side of the cranium, in the parietal and occipital regions, is larger than the right, this being the only reported case of gigantism in which the enlargement affects half the body and the opposite half of the cranium. Reismann believes that in cases of unilateral gigantism there is a pathologic activity of certain nerve structures which excites an abnormal growth in the parts they control; in the case reported, probably the cortical cells in the parietal region of the left side. He is also inclined to believe that unilateral gigantism and akromegaly are so closely related that both may be due to a similar fundamental cause. In the child under consideration are two painless nodules 0.5 cm (.2 in.) in diameter in the deep layer of the skin in the epigastric region. Similar nodules are frequent in cases of akromegaly. [A.G.E.]

Borated Food as a Cause of Kidney Lesions.—Charles Harrington[4] says that borax and boric acid are so extensively used as food adulterants that not only people in cities but also in the country at large receive frequent if not daily doses of one or both. He sifts the arguments of those who believe the substances harmless, and holds the directly opposite view. In support of his belief, he cites the result of a feeding experiment recently conducted for a period of 19 weeks. Twelve cats were selected and kept under the same conditions. One as a control received no preservatives; six received borax in amounts varying from 72 gm. to 108 gm. (2½ oz. to 3½ oz.) during the 133 days; five received another preservative which proved to be innocuous. The animals were killed and all the organs subjected to microscopic examination. The chief lesion found was in the kidney, and of the 12 cats, five showed kidney involvement; these were all in the borax group, one of which escaped. The changes consisted of degeneration of the tubular epithelium with partial desquamation, cellular infiltration in the cortex and around single glomeruli, and circumscribed necrosis. The lesions were analogous to those found in subacute and chronic nephritis in man, though not conforming to any definite type. Harrington says these were not larger doses of borax than people receive in proportion to their weight in certain foods. He shows how a man might easily ingest 7 gm. (105 gr.) in a certain meal, or double that amount in a day. [A.G.E.]

Changes in the Nervous System after Thyroidectomy.—C. K. Russell[1] details the changes found in the brains of seven dogs after extirpation of the parathyroid glands. They are quite uniform, though slight: 1. Chromatolysis in which the chromophile granules especially in the immediate neighborhood of the nucleus become reduced to such a fine state of division as to give a diffuse blue stain with Nissl's method. The nucleus may be dislocated or even extruded from the cell. 2. In most severe cases there is in many of the large pyramidal cells a change which leads to their great shrinkage and distortion, the cell protoplasm becoming so densely stained as to hide the nucleus. 3. The small neuroglia cells, of which one or two are usually associated with the pyramidal cells, may become more numerous so that each nerve cell is surrounded by a group of them. In the medulla and cord the alterations are similar but far less intense than in the cortex. These changes are believed to be sufficient to lead to the tetany that comes on in such dogs. [A.G.E.]

Bacteria in the Dead Body.—R. B. H. Gradwohl[2] reports the findings in a series of cultures made to determine what bacteria are found in the body after death. He believes his results more tangible than those of the more extensive investigations of Simmonds or Canon, because the inoculations were made sooner after death and the bodies were kept in cold storage. Bacteriologic examinations were made of both the venous blood from the arm and the heart's blood in 50 bodies. Bacteria were found in 39 of the latter, mainly streptococci and *B. coli*, though there was no evidence that they were present during life. They were in only three of the specimens of blood from the arm and in each case there was the history of general sepsis before death. Gradwohl concludes that little, if any, reliable information can be obtained from postmortem bacteriologic examination of the heart's blood, but blood from the median basilic vein will furnish valuable data. His autopsies were made from 2 to 11 hours after death, the average being six hours. [A.G.E.]

Reaction of Leukocytes to Tincture of Guaiacum.—S. Klein[3] has made control examinations relative to the statements of Brandenburg, who found that pus, leukemic blood, normal and leukemic bone marrow cause blue reduction of tincture of guaiacum, while ordinary blood and tissues containing lymphocytes do not have this property. The blue change being due to the neutrophilic leukocytes, and all the structures mentioned possessing various proportions of these, Klein felt the necessity of reexamining these statements, especially in connection with blood. He found his deduction to be correct; if several drops of blood are diluted with 1 cc. of water and then centrifuged, the residue being dried on white filter paper, the addition of even one drop of tincture of guaiacum will result in the production of a blue color, and this result was noted in every blood, independent of the number of leukocytes. The greater the number of leukocytes, and especially of neutrophilic leukocytes, the stronger was the reaction. Fresh guaiacum produces a better reaction than old guaiacum. He concludes from his examinations that the difference in the reaction between normal and pathologic blood on the one side, and mixed cell leukemic blood and bone marrow on the other side is only a quantitative one. Every blood blues tincture of guaiacum, but the greater the number of neutrophilic leukocytes the greater the reaction. [E.L.]

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[1] Bulletin of the Johns Hopkins Hospital, July and August, 1904.
[2] St. Paul Medical Journal, September, 1904.
[3] Australasian Medical Gazette, June 20, 1904.
[4] American Journal of the Medical Sciences, September, 1904.

[1] Johns Hopkins Hospital Bulletin, June, 1904.
[2] Journal Missouri State Medical Association, August, 1904.
[3] Folia Hematologica, 1904, i, No. 2, 71.

Carcinoma of Mice Treated with Radium Rays.—With particles of very malignant carcinomas, Apolanti[1] infected 32 mice belonging to two series. One of the tumors produced metastatic growths. After from 12 to 14 days, and after the tumors had grown to considerable size, he exposed 15 of the mice to rays of 20 mm. of radium, using the other 17 animals as control animals. The length and frequency of the treatments varied in the different animals, but in all of them could retrograde changes be observed several days after the treatment was begun. The 15 animals had 19 tumors, varying in size from a pea to a large bean. Eleven of these tumors were entirely absorbed by the radium, while the other eight were reduced to mere traces of their original size. In some of the cases inflammatory and ulcerative changes of the skin were observed several days after the treatment was started. The radium was suspended directly over the tumors in such a position as to touch them slightly; it was encased in tin. Thirteen of the control animals showed marked increase in size of their cancers during the same time; in four others the amount of growth was but slight, and in two there was spontaneous disappearance. As all the treated animals improved or recovered, this cannot be considered as an argument against the effectiveness of the rays. By means of two graphic charts he shows the difference in size before and after treatment, as well as the difference in size between the tumors of the treated and untreated animals. The reason why some of the tumors were not entirely absorbed by the radium rays was found in the fact that some of the cancer tissue was changed to dense fibrous tissue. [E.L.]

Essential Similarity of Innocent and Malignant Tumors.—Charles W. Cathcart's[2] conclusions, abridged, are as follows: 1. Every type of tumor has associations with malignancy, no class being exempt. The more highly organized and formed the tissue of a tumor, the more it belongs to the simple class, and vice versa. The connective-tissue tumors seem to converge to the round-cell sarcoma type; the epithelial tumors to the encephaloid cancer type. 2. Attention is drawn to the difference that exists between the behavior of the developing cells of a tumor and that of the cells of an embryo, though under the microscope their appearance may be indistinguishable. Structure does not necessarily indicate clinical behavior. 3. No theory of tumor growth can be considered satisfactory which would not apply equally to innocent and malignant tumors. 4. This similarity of tumor growths should put both surgeons and pathologists on their guard. The fact that there is no hard and fast line of demarcation, helps to explain that the tumor cells may be less resistant to certain influences than the cells of normal tissue; hence the partial explanation of spontaneous subsidence, the influence of toxins, röntgen rays, and even mental influence. 5. Tumors should be classified primarily according to the type of tissue or organ from which they arise, and in each class should be arranged the individuals according to the degree of malignancy which they manifest. [A.B.C.]

Agglutination of Typhoid Bacilli through the Blood-serum of Jaundiced Subjects.—Steinberg[3] examined the blood of 22 patients, suffering with jaundice due to different causes, for its agglutinative reaction with typhoid bacilli. In 15 instances the agglutinating reaction was either not present at all or present in dilutions of less than 40; these cases included catarrhal icterus, cholelithiasis, carcinoma, tumor of the gall-bladder, acute yellow atrophy, sepsis and febrile icterus. In seven cases the agglutinating value of the serum was found to be greater than 40. In two cases, where the agglutinating value was 160 and 640 respectively, (cholelithiasis and carcinoma), the patients had typhoid fever 2 and 30 years before; the other five patients had catarrhal jaundice, carcinoma, febrile infectious icterus and chronic enlargement of the liver. The serum culture mixture was studied after it had been in the oven for two hours at blood heat. He concludes that there is no constant relation between the existence of jaundice and the presence of the serum reaction with typhoid bacilli. Marked biliary stasis may exist as the result of the most varied causes without giving rise to the Gruber-Widal reaction. It cannot therefore be the bile or its constituents, which cause this reaction, but rather the infectious factors, which produce the icterus. He reviews the cases of icterus recorded in literature, which give the Widal reaction, and calls attention to the fact, that all possess an infectious etiology. [E.L.]

Hodgkin's Disease and Its Transition into Sarcoma.—M. Yamasaki[1] discusses the supposed relationship between Hodgkin's disease and tuberculosis, maintaining that the former is a clinical entity having no connection with the latter. He describes in detail five cases of Hodgkin's disease that have come under his notice. They are characterized by a slow, steady, painless enlargement of the lymphatic glands, usually beginning in the neck, without any characteristic blood picture; the liver and spleen are also frequently enlarged. The enlarged glands were characterized histologically by an increase in the fibrous connective tissue, and an abundant proliferation of endothelium, leading to the formation of epithelioid cells and large multinuclear cells. In two cases tuberculosis was found in certain glands and organs, but there was no similarity or transition between the tuberculous tissue and that of the Hodgkin's disease. On the other hand, the author describes additional cases of sarcoma affecting the lymphatic glands, in which the lymphoid tissue in many places closely resembled that of Hodgkin's disease. The author believes that these two cases probably started as Hodgkin's disease, and later assumed a neoplastic character. [B.K.]

The Mode of Action of Antitoxin in the Living Organism.—Ehrlich's statement that the action of antitoxin on toxin is a direct chemic reaction, without assistance from any of the vital components of the organism, is based upon a reagent glass test; ricin, a hemolytic poison, could not produce agglutination of the red blood cells in the presence of a serum containing antiricin, and the same results were obtained when red blood cells were used which had been killed by potassium chlorate or other cell destroying salts. The toxin antitoxin combination was found to be more prompt, the warmer and the more concentrated the solution. The toxin and antitoxin in a solution could be separated from each other by filtration, if the combination had not existed too long and the union was therefore still a loose one; the toxin thus separated was as toxic as before its combination with antitoxin. To determine whether the same chemic laws governed the action of the antitoxin *in vivo*, A. Wassermann and C. Brueck[2] performed a series of ingenious experiments. Knowing that tetanus toxin travels along nerve channels to produce its results, and antitoxin along blood and lymph channels, they injected into the hindfoot of a guineapig a quantity of a mixture of tetanus toxin and antitoxin, which they had determined would not produce symptoms in the animal; in another animal's foot before injecting this mixture they injected suprarenin, producing a contraction of its capillaries. This animal developed typical tetanus as the passage for the antitoxin was shut off or at least narrowed. This shows that the toxin is separated from the antitoxin in the living organism, the chemic union of the two molecules not being firm enough; if the substances have been mixed for two hours the chemic combination is so firm, that the avidity of the central nervous system for the toxin is not strong enough to break the union and the animal remains well even though the blood paths have been narrowed and the mixture cannot travel along them. If the mixture is sufficiently concentrated only 15 minutes of chemic combination are required to prevent separation after the animal is injected with it. These experiments speak for Ehrlich's theory that the antitoxin neutralizes the toxin within the body by combining with it chemically and that a third as yet unknown vital factor is not necessary. [E.L.]

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[1] Deutsche medicinische Wochenschrift, 1904, xxx, No. 13, p. 454.
[2] British Medical Journal, September 8, 1904.
[3] Münchener medicinische Wochenschrift, 1904, li, No. 11, p. 469.

[1] Zeit. für Heilkunde, Bd. xxv, Heft 7, p. 269.
[2] Deutsche med. Wochenschrift, 1904, xxx, 764, No. 21.

The Methods of the Gruber-Widal Reaction.—As the Gruber-Widal reaction is sometimes present in other infections beside typhoid fever, A. Lion[1] takes the standpoint that only by a dilution of 1 to 50 or more, can the reaction be said to be of positive value in making the diagnosis of typhoid fever. He discusses the various methods which have been employed to perform it. Widal himself performed it macroscopically and also microscopically, using an oil immersion lens; the latter is a perfectly satisfactory method, even though much has been written against it. The length of observation is of value: If the bacteria are still motile and do not form into clumps after one hour has elapsed, he considers the reaction absent. As many physicians do not have laboratory facilities, a suitable macroscopic method is sure to be of value. Lion tested the various macroscopic methods which have been employed, to determine the most useful one. They include: (1) Living bouillon cultures; (2) mixing 1 oese of agar culture with 1 cm. of diluted serum; (3) formalin bouillon cultures; (4) Ficker's typhoid diagnosticum (dead typhoid cultures); (5) a mixture of typhoid bouillon culture with paratyphoid bacilli of both types, killed by means of formalin. The methods working with living organisms labor under the disadvantage that the organisms are not necessarily in that stage of growth where they are most suitable for the acquisition of the reaction. In a number of instances, because of this fault, the result was negative when control tests proved it to be positive. Ficker's method and the typhoid formalin cultures are reliable methods and not infectious; if no precipitate occurs with them the test may be considered negative. The latter method is preferable to all, as the physician can prepare the culture himself. It is, however, also advisable to have a typhoid-paratyphoid culture in formalin so as to be able to diagnose paratyphoid fever. To prepare a typhoid formalin culture the typhoid bouillon culture is permitted to grow for 24 hours at 98° F., one part of formalin (40%) is added to 100 parts of bouillon. This remains at body heat for two days; the supernatant fluid is poured off and used; .5 cc. of this is used with .5 cm. of serum. The reaction employing dead cultures occurs later than when living cultures are employed. [E.L.]

The Presence of Fatty Substance in the Embryonal and Infantile Spinal Cord.—Julius Zappert[2] examined by the Marchi method about 120 spinal cords from embryos and children ranging from the third month (8.5 cm. long) to the eighth year. In 2 embryos of 8.5 cm. and 9 cm. (3 in. to 3.5 in.) long, respectively, he found what was described by Obersteiner as vessel granules. These were found so frequently in the fetal and infantile cords that Zappert was inclined to ascribe no significance to their presence. He found fatty granular cells (Fettkörnchenzellen) in an embryo 9 cm. in length. They were absent in 5 ranging from 13.5 cm. to 17 cm. (5 in. to 7 in.) in length, and appeared again in an embryo 27.5 cm. (11 in.) long, continuing to be found present then on up to birth. These cells were found in all parts of the white substances which are medullated. From the very beginning the posterior columns are the places of predilection. They were not found in relation to the vessels, and were not observed outside of the white substance. They were arranged not rarely along the septums. The cells sometimes are filled with fat, and then again may contain a single drop. The granules were found also in the intraspinal portion of the anterior spinal roots, in the cord of an embryo 38 cm. (15 in.) in length, and in cords up to two years of age. From this age on they were found less constantly, and after the sixth year none were seen. Zappert found the granules present in the anterior and posterior roots. In the first year they were found more abundantly in the anterior roots; during the second year in the posterior roots. It is to be especially noted that these granular cells were present, especially in cords of children of a year old, in all parts of the spinal cord excepting the anterior and posterior horns, showing no preference to any system of fibers. In the majority of cords of the first year the anterior roots were the principal part of the cord which showed change. The granules were seen in 10 out of 104 cords in the motor cells of the cord, the ganglion cells, and in the cells of the cerebral canal. Zappert claims that the presence of these cells is not due to artefacts nor are they the result of pathologic change, but that they are in some way associated with a physiologic degeneration of the nerve fibers, though their exact motive is not yet clearly defined. [J.H.W.R.]

Precipitin of Cobra Venom.—G. Lamb[1] has shown in a former paper that the serum of a rabbit immunized against cobra toxin is capable of precipitating cobra toxin from solutions. In this paper he reports concerning the behavior of cobra antiserum against other snake poisons. Some snake poisons are precipitated by this serum, others give only a weak reaction or no reaction at all. A connection between the absence of the reaction and relationship of different snake varieties could not be established. He could not precipitate cobra toxin from solutions by means of cobra serum, nor did the serum against the cobra toxin of highly immunized animals give a precipitate with the serum of the cobra. The serum of a rabbit, which was injected repeatedly with fresh cobra serum, gave a profuse precipitate with cobra serum and a decided precipitate with cobra toxin. The formation of antitoxin he shows to be absolutely independent of the formation of precipitin. In horses the formation of precipitin can be prevented by heating the cobra toxin to a temperature of 72° C.; this does not interfere with antitoxin formation. By quantitative determination of the precipitating value of rabbit serum, which was manufactured by treating with cobra toxin, he found that the precipitin value reaches a maximum quickly, and retains this maximum by continued immunization. [E.L.]

Hemolysis Produced by Carcinoma Extract.—Kullmann's[2] experiments were conducted with an extract of cancer tissue, made with salt solution and glycerin. This extract contains a hemolytic substance, which acts as a poison for blood, both *in vitro* and in the animal body. This substance is doubtless the cause of the characteristic cachexia observed in cases of carcinoma. It is not specific for homologous blood-corpuscles, but is a general blood poison. It is not destroyed by heat, is soluble in water and alcohol, and is not identical with the autolytic ferments of cancerous or normal tissues. If macerated carcinoma tissue be injected into the peritoneal cavity of an animal, a higher and more complex blood poison is produced, which is to be regarded as a biologic modification of the hemolysin obtained from the above extract. [B.K.]

Experimental Study of Thyrotoxic Serum.—M. M. Portes'[3] experiments had for their object the production by means of specific thyrotoxins of the same symptoms noted in animals after the removal of the thyroid gland. He found that the serum of goats injected with suspensions of the thyroid gland or with the thyroid colloid matter of dogs acquires many and striking properties. Injected into dogs it causes marked symptoms, prominent among which are depression, convulsions, vomiting, rapid breathing, hemoglobinuria, and early death in some cases, and in other animals that lived longer there were present also some fever, lacrimation, loss of weight and progressive weakness. It cannot be claimed that there has been reproduced the exact picture presented by thyroidectomized animals. Histologic changes in the thyroid gland, degenerative changes of the liver, spleen and kidneys were associated with the symptoms; the parathyroid bodies and the hypophysis showed no changes. The symptoms and lesions were thought by the author to be due to the hemolytic properties of the serum injected, though the thyrotoxic serum may also contain cytotoxins for the cells of the liver and kidneys. The thyrotoxic goat serum is more destructive and agglutinative for the thyroid cells of the dog than normal goat serum. [E.L.]

Tissues with an Internal Secretion.—Leotta[4] says Kohn in 1902 and Vassale in 1903 definitely worked out the essential dual function of the suprarenals. Confirming this, the experiments of Pende (1903) show that injury of the celiac plexus, or section of the splanchnic, causes atrophy of the medullary substance alone, and on the same side as the divided nerve tracts. This medullary substance is strongly chromophilic. But chromophilic tissue is not limited to the suprarenal capsule. Such tissue shows an inclination to accumulate in the vicinity of nerve ganglions, and by Kohn have been termed paraganglions. Pende is of opinion that internal secretions exert a direct influence upon the involuntary musculature, and not through the agency of reflex nervous excitation. Cortical or mesothelial elements elaborate lecithin; during certain normal and abnormal body processes, *e. g.*, pregnancy, this function is highly increased. In all mammals the nature of thyroid and parathyroid tissue is radically different. Removal of the latter causes death, accompanied by tetanic spasms; of the former, in the adult very trifling disturbances, although in the young cretinism and myxedema may occur. Experiments prove this is true in different mammals. Loisel (1902) and Regard have shown that pigeons elaborate an internal secretion in the interstitial glands of the testicle and ovary, which determines much of the secondary sexual characteristics, such as color of plumage, etc. Bonin and Ancel (1903) show the same is true in mammals. In the pituitary gland, Lanois and Mulon have shown three kinds of cells. It seems that cells of this gland preside over the nutrition of cartilage and bone, while the thyroid gland regulates the connective tissue, and the chromophilic centers govern the tonicity of the involuntary muscular system. [T.H.E.]

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[1] Münchener medicinische Wochenschrift, 1904, ii, 908, No. 21.
[2] Wiener klin. Woch., No. 19, May, 1904, p. 521.

[1] The Lancet, 1904, i, 916.
[2] Zeit. für klin. Med., Bd. liii, p. 293.
[3] Journal of Infectious Diseases, 1904, i, 127.
[4] Il Policlinico, No. 33, 1904.

The Physiologic Action of Radium.—Wohlgemuth[1] finds that by subjecting a piece of tuberculous lung to radium for 15 or 20 minutes several days, and during the intervals kept in an incubator with a control piece imparts to the solution in which it is placed four times as much nitrogen as the control piece contains. He maintains that the radium breaks down the resistance of the tissue which leaves the autolysins in the tissue free to act. [J.F.]

Dysenteric Toxin.—L. Rosenthal[2] was able to separate dysentery toxin from cultures in the same manner as diphtheria toxins are isolated, that is, through filtration of bouillon cultures. He employed slightly alkaline Martin's bouillon as culture medium, and with it was able to develop a weak toxin; 5 cc. of a 3-day old toxin killed a rabbit only after 3 weeks; the same dose of an 11-day old toxin succeeded in 12 hours, and when 3-week old toxin was used from 0.1 cc. to 0.2 cc., injected subcutaneously, killed a rabbit weighing 2 kgr. within 24 to 48 hours. Symptoms appeared within 8 to 12 hours; diarrhea, paralysis, fall of temperature, collapse, and death. The autopsy showed injection of peritoneum, frequently serous exudation within abdominal cavity, intestinal hyperemia, hemorrhage from intestinal and vesical mucosa. The toxin is very resistant, being weakened, but not destroyed by temperatures between 70° C. and 100° C.; acids do not affect it, but alkalies destroy it. Animals immunized with dysenteric bacilli are immune against the toxin; a serum can be manufactured with the toxin, which protects against infection with dysentery bacilli. [E.L.]

Agglutination of the Streptococcus.—Thaddius Zelenski[3] concluded from his experiment and a study of the literature that the contradictory statements of the various writers on this subject were in great part due to the difference in the methods used. He believes that the emulsion of agar culture in physiologic salt solution is a precise and delicate medium for such studies. He states that while in a great number of experiments normal human serum possesses the power of agglutinating almost all varieties of streptococci and in many cases in high dilution, that the facts in regard to the agglutinating power of human serums in general and the specific agglutination of the streptococcic infection cannot be summarized so as to follow a fixed rule. [J.H.W.R.]

Heredity of the Precipitin Reaction.—H. Merkel[4] injected three rabbits, one male and two females, with human blood-serum. They were then placed in one compartment, with resulting pregnancy to both females. The blood-serum of the young rabbits gave a positive reaction with the blood-serum of man, thus establishing the ability to transfer antibodies for the production of precipitin from parent to child through the placental circulation. [E.L.]

Pathogenesis of Acute Infectious Myelitis.—The artificial production of this disease with a view to study its nature, has been effected by many experimenters, and by means of various toxic substances, among which streptococci, *B. coli communis*, B. of Escherich, and diphtheric toxins have been used. Some experimenters resorted to a modified subdural injection. The startling result, however, has been the fact that Vidal and Besançon were able in only 7% of all experiments to produce any infectious state whatever. F. Ghilarducci,[1] of Rome, considering that a *locus minoris resistentiæ* may be found where the blood current is impeded, believes that the medulla oblongata is the most effective point in the spinal nerve axis to introduce pathogenic material. With the assistance of Prof. Gaglio's technic and original methods, many experiments, of which some are reported in detail, show the efficacy of this procedure, *i. e.*, medullary infection. The author advises it for the better study of tuberculin, alcohol, arsenic, and other pathogenic forces which attack the nervous centers. [T.H.E.]

Polycythemia and Splenic Tumor.—P. Preiss[2] reports a case in which the chief symptoms were diffuse cyanosis, tachycardia, moderate dyspnea with slight bodily movements, marked enlargement of liver and spleen, slight albuminuria, and an enlargement of the larger superficial veins over the whole body. The blood-examination showed about 125% hemoglobin, 6,750,000 red corpuscles, and 22,000 whites. The blood was dark red, thick, readily coagulated, and the red corpuscles were of normal form. An interesting feature was a marked increase in the eosinophiles and mast cells, and the occurrence of a few normoblasts and eosinophile and neutrophile myelocytes, *i. e.*, immature forms of blood cells. The author believes that a diseased condition of the spleen is at the basis of this disorder, the nature of the disease not being known as yet. It could be supposed that the spleen produces certain substances, which stimulate the bone marrow to increased activity. The chief symptoms of the disease are referable to the polycythemia, producing disturbances in the circulation of the blood. In cases which show that disease of the spleen is at the origin of the trouble, splenectomy would be indicated. [B.K.]

Agglutination of Streptococci, Especially Those Cultivated from Cases of Scarlatina by Human Serums.—G. H. Weaver[3] concludes from his studies on agglutination of streptococci by means of human serums, that of streptococci cultivated from cases of scarlatina, some are agglutinated by almost all scarlatinal serums, but at dilutions varying from 1 to 60 to 1 to 4,000; streptococci cultivated from other diseases are agglutinated by the same serums with less constancy and at lower dilutions, and many are not agglutinated at all. Streptococci cultivated from cases of scarlatina are agglutinated by serums from cases of lobar pneumonia and erysipelas at about the same dilutions as by scarlatinal serums, and in the case of erysipelas at even higher dilutions. The same appears to be true of typhoid fever serum, so far as limited tests indicate, and to almost the same extent of puerperal fever serum. The agglutination reaction between the streptococci cultivated from cases of scarlatina and the serum from cases of scarlet fever is in no way specific and cannot be of any value as a means of diagnosis. [E.L.]

The Agglutination of Bacillus Typhosus in Diseases of the Liver, and Icterus.—Kämmerer[4] concludes from his experiments that the agglutination in icterus is not due to the bile circulating in the blood; it appears to him to be probably the socalled "group agglutination" in icterus. The cases of jaundice which are believed to be due to infection and in which the Widal reaction is positive, should be further tested for agglutination with the paratyphoid bacillus, colon bacillus, proteus, and staphylococci. He found agglutination with *Bacillus typhosus* positive only twice in a dilution of 1 to 40. Kämmerer believes that the Widal, and still better, Ficker's modification, are the best differential methods to diagnose typhoid fever that we possess, but the dilution should be 1 to 100. [J.F.]

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[1] Berliner klin. Wochenschrift, 1904, No. 26.
[2] Deutsche medicinische Wochenschrift, 1904, xxx, 235, No. 7.
[3] Wiener klin. Woch., No. 16, 1904, p. 406.
[4] Münchener medicinische Wochenschrift, 1904, li, 329, No. 8.

[1] Il Policlinico, Rome, No. 25, 1904.
[2] Mitth. a. d. Grenzgeb. d. Med. and Chirurg., Bd. xiii, Heft 3, p. 287.
[3] Journal of Infectious Diseases, 1904, i, 91.
[4] Berliner klin. Wochenschrift, 1904, No. 26.

The Secretory Quality of the Polynuclear Leukocyte.—Erwin Lasar[1] made a series of experiments upon dogs, and concluded that when leukocytes were exposed to a foreign serum or an inactive serum, bactericidal qualities developed in the fluid. The bactericidal power only appeared when parts of the leukocytes were destroyed. In no respect could it be maintained that bactericidal qualities could be ascribed to living cells. The fact that a cell takes the Nakanisha stain shows nothing more than that the vital quality of the cell is intact. The presence of bactericidal qualities in his experiments was associated with the death of the leukocytes. [J.H.W.R.]

The Influence of Röntgen and Radium Rays on Cell Division.—To note the influence of röntgen and radium rays on living cells, Perthes[2] exposed fertilized eggs of *Ascaris megalocephalus* (intestinal worm of horses) to these rays, and controlled them with cultures not so exposed. He found that the rays injure the eggs by slowing cell division, producing irregular development of cells, and giving rise to abnormal developmental products (deformities). It matters not whether the eggs are exposed from at first, or after they have started to develop normally. The changes are not noticed at once, but after some little time of exposure. The same results were obtained when plant cells were exposed to the rays. [E.L.]

Action of Venoms of Different Species of Poisonous Snakes on the Nervous System.—George Lamb and Walter K. Hunter,[3] in a communication to *The Lancet*, January 2, 1904, describe the histologic appearance of the central nervous system in six monkeys and three rabbits paralyzed with cobra venom. In the present paper they report further experiments carried out on seven monkeys. The first four are regarded as an addition to the series of six already published. From analysis of these they conclude that it is necessary for monkeys to live from at least two to three hours after the injection of cobra venom if microscopic changes are to be found in the motor ganglion cells of the central nervous system. Judging from the whole 10 cases, it would seem sufficiently evident that the longer the animal lives after its injection the more advanced are the degenerative changes in the ganglion cells. As to the action of cobra venom on peripheral nerves, they have as yet nothing definite to report. The last three monkeys were of interest in showing the appearance of the ganglion cells at different intervals after recovery from cobra poisoning. These findings are given in detail. [A.B.C.]

Agglutination of Typhoid Bacilli in Proteus and Staphylococcus Infections.—In two cases of an otitic proteus infection, of which one was complicated at the same time with a staphylococcus and streptococcus infection, Lubowski and Steinberg[4] were able to find an agglutinating reaction of the blood-serum with the typhoid bacillus up to a dilution of 1 to 80. Experiments with guineapigs and rabbits demonstrated that by injections with proteus and staphylococcus cultures, the agglutinating property of their blood-serum could be decidedly enhanced for typhoid bacilli. Treatment with streptococcus, cholera asiatica, and *Bacillus fluorescens liquefaciens* did not produce any such result. [E.L.]

Tests of the Virulence of Sputum in Croupous Pneumonia.—While cultivating pure cultures of the pneumococcus by injecting sputum into mice, Stuertz[5] observed that those mice, which were injected with sputum from severe cases of pneumonia, died sooner than those inoculated with sputum from mild cases. He then instituted a series of experiments which showed that the comparative duration of life of the mouse after the injection of 1 cc. sputum, may be regarded as a fairly accurate index of the virulence of the pneumonic process in man. In very severe or fatal cases the mice die in 8 to 10 hours. Moderately severe cases are represented by death of the mice in 11 to 20 hours, while in mild cases the animals die in 20 to 45 hours. The fact that the virulence does not diminish with the crisis, but remains relatively high for at least 24 hours longer, shows that loss of virulence is not the cause of the crisis. Relapses or exacerbations of the pneumonic process are accompanied by exacerbations in the virulence of the organisms, and may be recognized by mouse inoculation before the physical signs of the relapse announce themselves. In order to recognize these exacerbations of virulence it is advisable in severe cases to inoculate two mice every morning and evening. [B.K.]

Angina and Stomatitis Ulcerosa.—Toebben[1] reports six cases. These patients' tonsils showed small ulcers, the edges of which were everted, and the floors were covered with a yellowish-white substance. The same substance covered the mucous membrane as far forward as the wisdom teeth, and aroused a suspicion that he was dealing with diphtheria. The bacteriologic findings of these cases were nearly identical. In each case he found a bacillus which corresponds closely to that described by Vincent; a spirocheta was always present, such an organism was also described by Vincent. In one case Toebben found *Bacillus diphtheriæ* associated with the bacteria just named. These were found in a woman whose two children became affected about eight days after the mother recovered. In these two cases he found the bacilli and the spirocheta of Vincent, but fails to state whether *Bacillus diphtheriæ* was present. Toebben intimates that possibly the bacillus of Vincent is a harmless inhabitant of the mouth, but so soon as the spirocheta becomes associated with it the bacillus takes on a virulent form. [J.F.]

Nature of Crystals in Icteroid Feces.—T. Kimura[2] found large numbers of needle-like crystals, also sheaves and bundles of crystalline needles, which were not fatty acid crystals, in the clay-colored feces of jaundiced patients. Certain observers have spoken of these as magnesium and sodium soap, but he determined through a number of tests, which he describes minutely, that they are calcium soaps. Their acids he found to be palmitic and stearic acids. [E.L.]

The Action of Hemolytic Serums.—Karl Landsteiner and V. Eisler[3] quote the experiments of Landsteiner and Jagic, who showed that a solution of silicic acid after the addition of a small amount of lecithin possessed hemolytic properties; and the experiments of Kyes and Sachs, which demonstrated that a combination of venom poison and lecithin affected the blood-corpuscles. The authors removed the corpuscles from the blood and added benzine, and after agitation evaporated the mixture on a water-bath. The residue was then added to fresh dog serum. For purposes of comparison they mixed 2 cm. of a like serum with the residue after evaporating a solution of cholesterin in benzine. A study of the tables given, shows that the hemolytic action of serum is considerably lowered by admixture with the extract. The extracts from the horse, dog and rabbit were less effective. The extracts from the guineapig attained a hemolytic action most frequently. The result varied with the different kinds of blood-corpuscles used. The experiments go to show also that hemolysis possesses an action upon the fatty part of the red blood cell. [J.H.W.R.]

The Importance for Early Diagnosis of Lead Intoxication of Red Corpuscles Containing Basophilic Granulations.—Van Emden and Klerekoper[4] have examined the blood of 207 individuals, most of whom worked habitually in lead; some few had nothing at all to do with lead. In a few cases, in which individuals were perfectly well, granulations were found within the cells; slightly more frequent was their presence in the blood of ill individuals, but not ill from lead. Their presence was very frequent in those laborers who were brought in contact with lead habitually; in fact, so frequent that they believe early diagnosis of lead intoxication justifiable in all cases in whom the basophile granules were found without other symptoms. [E.L.]

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[1] Wiener klin. Woch., No. 16, 1904, p. 439.
[2] Deutsche medicinische Wochenschrift, 1904, xxx, Nos. 17 and 18, 632 and 668.
[3] The Lancet, August 20, 1904.
[4] Deutsches Archiv für klinisches Medicin, 1904, lxxix, 396.
[5] Zeit. f. klin. Med., Bd. lii, p. 422.

[1] Berliner klin. Wochenschrift, 1904, No. 21.
[2] Münchener medicinische Wochenschrift, 1904, li, 653, No. 15.
[3] Wiener klin. Woch., 1904, No. 24, p. 676.
[4] Nederlandsche Tydschrift voor Geneeskunde, 1904, i, No. 9.

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Abuses in Old and Large Hospitals.—Until recently, in one of our large eastern cities, a citizen, well-to-do, or even rich, who wished the private services of a visiting physician to one of the great hospitals, might get the better of both the hospital and the physician by a cunning bit of diplomacy. Finding the physician's private fee too high, he could apply for and get a private room in the hospital and thus have the consultant's treatment for nothing, the rules preventing the visiting physician making any charge in such circumstance. We are informed that in another of our large city hospitals this abuse is still practised. An alteration of the rules in such cases is desirable, because the profession is now doing too much charity work without including those who are so uncharitable as to cheat the public and doctor by one trick. It is noteworthy that these and many similar customs have come down to our times with the older, larger, and more official institutions—those in fact which should be and which in reality are powerful enough to set the fashion of better ways for smaller and younger institutions. The question is intimately bound up with that of their control by the profession, or by political and lay managers. It is evident that the abuse of the private rooms referred to above could be abolished only by the determination of professional men. If laymen could see these injustices they would probably not be very earnest in their attempts at abrogating them. There should always be some method preserved whereby the medical opinion shall be spoken, heard, and influential in the control and administration of hospitals.

Public Control of Milk Distribution.—There is steady progress being made toward the control by the public's officials of the milk supply of cities. A noteworthy step in advance is shown in the results of the experiments made by the Rockefeller Institute in New York. The recent report gives an account of the results of experiments in feeding pure and impure milk to infants in tenement houses and institutions. Six physicians were employed by the institute, their work having extended over three summers and a winter. In all, 632 infants were observed. The milk used was of four general classes—condensed milk, "store" milk of the cheapest grade, and purchased by tenement mothers in small quantities, bottled milk, and milk from central distributing stations. Leaving out the worst "store" milk in summer, the results were much less affected by the character of the milk fed, and distinctly less affected by the sort of care the infant received. As a result of the investigations, Dr. William H. Park and Dr. Holt strongly recommend the establishment of central distributing stations under city control, at least from May 15 to September 15. They propose the systematic education of mothers in the tenement house sections not alone by printed directions for the care of infants, as has been done in the past, but by regular visits from trained nurses or women physicians. The close inspection of small milk dealers, the source of supply for most tenement house mothers, is strongly urged on the Board of Health.

Municipal Dentists are appointed and paid for by many of the large towns and cities of Germany. In Strasburg, for example, 2,666 children were examined last year, 699 teeth were filled, and 2,912 were extracted. The method of work is simple. The teacher brings his class to the dentist, who examines each mouth quickly and marks on the card each child has brought whether treatment is necessary. If so, the child must come again on a Saturday. Russia is also joining in this movement, and has already fitted up nine such institutions in St. Petersburg alone. And why not, or rather, why so late in coming, one might ask. If it is true that, generally speaking, good teeth are necessary to good health and long life, and if, also, a large and growing proportion of citizens have not good teeth, then it follows that the fact is one of public concern. Is it not, for instance, of as much importance to the community that workmen should have good masticating and digesting powers as that there should be twenty million dollar city halls, public parks, expositions, etc.? This little, or large, realization of preventive medicine has so far got into our American minds that we have ordered the soldier's teeth to be attended to and his governmental service by so much enhanced. But the soldier is at last paid by the civil worker, and as to his teeth and service we are entirely indifferent.

Warning against the Medical Career.—A document has been sent by the executive committee of the National Medical Association to the 482 gymnasiums and 181 Realschulen of the empire, with an urgent request for distribution among the graduates. It is an official appeal *not* to enter upon the study of medicine. The chief reason is the deplorable financial condition of an exceedingly large percentage of physicians. The determining facts adduced are a surplus of medical men much beyond the demand; the abrogation of the laws against practice by the incompetent; legislation for the *Krankenkasse.* The increase in the number of physicians has been enormous, from 17,728 in 1876 to 24,225 in 1887 and 29,133 in 1902. The number has more than doubled in a single generation, and the prospects are that the "learned proletariat" in this department will grow still more in the next year, since women and the graduates of the semiclassic Realgymnasiums are now admitted to the profession. A further reason for avoiding this study as given by the circular letter is the fact that the addition of a "practical" year to the course has made the expenses of preparation, already very costly, still more so. The "overcrowding of the profession" in old countries has long been a source of bitter complaint, and in many ways it is a just one, but one cannot help wondering if the medical profession differs from others in this respect, and if the iron law of supply and demand will not at last be the only regulator in all such matters. In the United States the abuse does not seem so great, and up to now at least is not noteworthy. There are so many correctives and compensations. If really existing it would seem to be one with the great trend toward urbanization rather than a distinct evil *per se.*

Sanitary Houses.—There is no science worth much that does not, soon or late, come down to the practical matter of bettering human life. Bacteriology at last ends in diet, ventilation, hygiene, etc. And so one is glad to welcome Dr. Sternberg back among the practical reformers. In *Charities* he writes of the organization of a second Housing Company in Washington, to provide hygienic dwellings at moderate prices. In our modern cities that is almost the *unum necessarium* of social betterment. The sanitary house encourages the sanitary householder. The deathrate depends upon clean living and ventilation. There is absolute unanimity on the part of all students of the subject that tuberculosis almost entirely, and pneumonia largely, are diseases dependent upon the house—the badly constructed, badly ventilated, and badly kept house, it is understood. In New York, as is well known, the new tenement law, for which the Charity Organization Society is largely responsible, has enormously improved the conditions of the poor—and consequently of the rich, because one cannot be selfishly healthy. Disease is the most socialistic doctrine in the world. In Cleveland, Ohio, they have just enacted a new tenement and building code which will yield great benefits for the city. These are some of its provisions: "The height of a tenement shall not exceed one and a half times the width of the street;" "all frame tenements shall not exceed three stories without a basement or 40 feet in height;" "the stairs and stair halls in all tenements more than three stories and a basement, or four stories high, shall be constructed of fireproof material throughout;" "every living apartment in which cooking is done shall have not less than two rooms, one of which shall have not less than 80 feet of floor area, the other not less than 120 feet." Definite minimum provisions as to windows, water-closets, fire-escapes, plumbing, etc., are given. Owners of buildings violating the ordinance are made guilty of misdemeanors. When five percent dividends are rare in ordinary investments, it is good to find that Dr. Sternberg's helpers secure it regularly. From his report we see that even charity "pays":

GROWTH OF ASSETS AND SURPLUS EARNINGS OF THE WASHINGTON SANITARY IMPROVEMENT COMPANY.

	Assets.	Surplus funds.
April 1, 1898	$35,959 05	
" 1, 1899	47,952.17	$ 484.88
" 1, 1900	76,123.79	1,951.43
" 1, 1901	138,344.22	4,672.76
" 1, 1902	265,668.59	8,326.02
" 1, 1903	382,538.63	15,655.38
" 1, 1904	427,910.09	33,371.44

"Degermanization" is a term devised by a speaker at the recent meeting of the British Medical Association, to express a theory that blonde or fair adults form an undue proportion of hospital patients in England, and that the blond children are shorter lived than the brunets or dark-haired. The sole basis for such a theory would be accurate statistics of the number of blonds and of brunets in the whole nation, and these compared with accurate statistics of the number of fair and dark adult patients, and of children living and dying. Who would pretend that such careful counting has been made? Mr. Balfour, the Prime Minister, seems to have accepted this baseless theory and to have advised a very pessimistic philosophy of "degeneration" as its necessary result. He fears that there is no legislation possible, or if enacted, that could possibly affect the causes of the supposed degeneration in any permanent way or to any considerable degree. This is therapeutic nihilism in the large, and one might add, *in extremis.* The specific reason offered for it is the constant increase in the proportion of the urban to the rural population, the resultant "degermanizing" of the people, the steady alteration of the balance of population against the tall and light-haired element descended from northern emigrations. The middle and upper classes, it is also said, propagate less abundantly, and the working classes are constantly rising into the nonpropagating classes. But even if the wholly ungrounded facts should be admitted, the deductions from them would be far from justified. There is a somewhat ludicrous and surely gratuitous assumption that the classes are immeasurably superior in some hidden way to the masses. Man for man and woman for woman one might successfully contend that the reverse is true, and that for abiding character, valor, and true worth, the masses are the more valuable to the nation. What is civilization for, indeed, if not that the masses should rise into the classes? And, lastly, is there any proof worth a smile that fair or dark is of any advantage or disadvantage, or that either has power to dominate or characterize the evolution of civilization? Ethnology and history have no decision to render in the fanciful controversy. In our country at least the blonds are in the ascendancy, even in the cities.

The Cost of War.—Professor Richet, of Paris, calculates the death-roll of the nineteenth century wars to run to about 14,000,000, made up as follows: Napoleonic wars, 8,000,000; Crimean wars, 300,000; Italian war, 300,000; American Civil war, 500,000; Franco-German war, 800,000; Russo-Turkish war, 400,000; Civil wars in South America, 500,000; various colonial expeditions in India, Mexico, Tonquin, South Africa, etc., 3,000,000. If to these who died in the "stricken field" we add the number of "broken" disabled soldiers, the widows and the children who suffered, we have indeed a huge budget of slaughter, a record of Christian activity that almost makes one despair. The new century seems also to have started as if it intended to maintain the record. Mr. Edward Atkinson, another lover of peace, has tried to estimate the financial cost of war and warfare to the United States from 1898 to 1903 inclusive, and he finds it to have been about one thousand millions of dollars. That means that it has cost each citizen of the United States over two dollars each year, or ten dollars per family, with the rate steadily increasing. Taking the census of 1900 as a basis, Mr. Atkinson figures in round numbers the pro rata cost of war annually for each separate State as follows:

	State or territory.	Population.	Capital.
1	New York	7,300,000	$14,600,000
2	Pennsylvania	6,300,000	12,600.000
3	Illinois	4,800,000	9,600.000
4	Ohio	4,200,000	8,400,000
5	Missouri	3,100,000	6,200.000
6	Texas	3,000,000	6,000,000
7	Massachusetts	2,800 000	5 600,000
8	Indiana	2,500,000	5,000,000
9	Michigan	2,400,000	4,800,000
10	Kentucky	2,200,000	4,400.000
11	Georgia	2,200 000	4,400,000
12	Iowa	2,200,000	4,400,000
13	Wisconsin	2,100,000	4,200.000
14	Tennessee, etc	2,000,000	4,000,000

He pertinently asks if this indirect tax were made direct, if it were poll tax, and the tax gatherer came to the door once a year for our two dollars or our ten dollars, how long would we endure the cruelty, disease, death, expense, and the nonsense of war.

Trafficking in Tuberculosis.—The signs continue to multiply of the determination of the commission men to exploit those afflicted with tuberculosis. The public interest which has been aroused by the crusade against the Great White Plague has aroused also the avarice which is always awaiting its opportunity. Those interested in the crusade could wisely spend a part of their energies in compiling data, trustworthy references, circulars, etc., for the benefit of physicians who may not know exactly where to send individual patients. The traffic in the hopes, despairs, ignorances, and sufferings of patients should not be allowed. We have frequently called attention to this condition, and before the abuse extends to a systematized scandal it should be met by professional and scientific intelligence. Physicians should not allow their patients to drift into the hands of the extortionists to be farmed out, according to the dictates of greed and cunning. The latest phase of the methods adopted comes to us from a subscriber, who sends us the following letter, received by him:

> *Dear Doctor*:—Presently I propose advertiseing the Eastern Cities in the interests of a Southern sanitarium. No doubt I will meet with many cases of diseased lungs not accepted by us. These cases I can send to Arizona and New Mexico.
>
> I am open to a proposition from you upon a basis of so much per week for each case I send you, so long as they remain with you. You can board and house them in private families or in tents or in the open, as your judgement indicates—making the money agreement with them so as to pay us both. Waiting your reply,
>
> I remain, truly yours,
>
> ——— ——— ———.

Fear-illness.—The part that fear or mental shock may have played in the past when barbarism, war, and horror reduced the life-forces can hardly be imagined by those living in civilized security. That such conditions still prevail in parts of the earth supposed to be more or less civilized will also surprise many. Whatever part poverty, purely physical hardships, want of proper food, etc., may be held to play in producing illness and death, simple fear alone or in conjunction with other things must be recognized as a powerful source of evil. An illustration is apposite. Lady Thompson, who superintended the distribution of the Macedonian Relief Fund in the stricken province of Kastoria, tells very vividly of her experience in the current *Cornhill:*

> There are (she says) but two ways of death recognized as possible for a Bulgarian in Turkey in these days, and one soon learned to ask as a matter of course, "And how did your husband die, *ot Gospod ili ot Turzi?*" ("from God or from the Turks"); just as there were apparently but two dates when the women had become widows, *ot vreme* (a long time ago), or *na lieto-to* (last summer). There is, too, an illness, more or less serious and sometimes fatal, peculiar to Macedonia, openly avowed by the sufferers and recognized by name by the doctors—*strach* (fear). How many women, and men, too, did we not see this winter, literally bent to the ground, unable to lift up their heads, unable to walk, unable to speak, and yet organically sound and uninjured! It was not only the horror of burning houses, the hasty flight before the soldiers, the grief for those who fell, but it was the weeks and sometimes months spent in hiding and suspense on the mountains, after the villages were destroyed, and before they dared come back to their ruined homes.

President Roosevelt's Wise Words as to Alleged Insanity in Criminals.—In declining to interfere in the execution of the sentence of a criminal on the plea of the man's insanity, the President has spoken the opinion of thoughtful physicians. Emphasis needs to be given the matter, because some members of the profession, justly or not, in individual cases have been blamed by the public for extreme insistence upon the "insanity dodge." Too much support has also been given the charge by the thoughtless nonsense of some alienists and medical writers who have talked wildly of all crime as an evidence of insanity, and who would transform all jails and penitentiaries into asylums and hospitals. In the face of a too lax public sentiment, President Roosevelt thus answers the petitioners:

> I have scant sympathy with the plea of insanity advanced to save a man from the consequences of crime, when, unless that crime had been committed, it would have been impossible to persuade any responsible authority to commit him to an asylum as insane. Among the most dangerous criminals, and especially among those prone to commit this particular kind of offense, there are plenty of a temper so fiendish or so brutal as

to be incompatible with any other than a brutish order of intelligence; but these men are nevertheless responsible for their acts; and nothing more tends to encourage crime among such men than the belief that, through the plea of insanity or any other method, it is possible for them to escape paying the just penalty of their crimes.

Reverencing a Founder who Disowns Them.—Napoleon's physicians at one time decided that he was suffering from *gale rêpercutée*, *i. e.*, the itch struck in. A young man named Corvisart was called, and he supplanted the others as medical adviser because he practised the despised clinical method of percussion instead of taking refuge in the nonsense of inverted itch. About that time the Polish peasant women, wiser than Napoleon's physicians, had learned that the itch was due to a skin parasite, and that they could dislodge *Acarus scabiei* from beneath the skin of their fingers with their sewing needles. This knowledge finally found its way to Paris, and there was an end of Hahnemann's itch theory of disease. The incident illustrates many things, but especially the coming discomfiture of those who are satisfied in designating a condition with a mystic name. There is a warning in it, also, against calling a school of practice after one person. The founder's errors in time have to be disallowed and disavowed, and in the progress of science all his teaching and methods may be recognized as errors, and then what significance has the name? What homeopathist today believes in the itch theory of disease, that a drug is made infinitely stronger by shaking it, or that even *similia*, etc., is always true? Those institutions, colleges, hospitals, etc., proudly calling themselves Hahnemannian, are often in a pathetic plight. For Hahnemann said: "I recognize nobody as my follower but him who gives medicine in so small doses as to exclude the perception of anything medicinal in them by means either of the senses or of chemistry. Only potencies are homeopathic medicines." "The pellets may be held near the young infant when asleep." How near he came to the more logical beliefs of Mother Eddy, the Schlatters, and the vibralogists generally, may be gathered from this quotation: "Gliding the hand over the patient will cure him, providing the manipulation is done with firm intention to render as much good with it as possible, for its power is in the benevolent will of the manipulator." Why even glide the hand? Why wait the "healing vibrations" of the "healer" in his "healing room"? Why, lastly, call oneself the pupil and follower of a master who refuses to accept such a disciple?

Experiments in the Imperial Institute of Public Health, Germany, and Koch's Theory.—Professor Koch has given his permission to the publication in the London *Times* of a translation of a private letter to Mr. G. A. Heron, in which he says: It will interest you to hear that the experiments which were made at my suggestion in the Imperial Institute of Public Health concerning human and bovine tuberculosis are practically complete, and quite bear out my views. These experi[illegible] were carried out on such a number of animals, and with [illegible]h care, that they are, I firmly believe, incontrovertible. [illegible] this, these experiments were made during my absence [illegible]ica), and, therefore, were not influenced by me. They [illegible]at bovine and human tuberculosis are different from [illegible]ner. Cattle can not be infected with human tuberculosis [illegible] very rare instances can man be infected with bovine [illegible]osis. This work will be published in detail in a few

AMERICAN NEWS AND NOTES

GENERAL.

Pure Food Congress.—Representives from 33 States, of eight foreign governments, and the leading manufacturing interests of the country were present at a recent session of the International Pure Food Congress at the World's Fair. The addresses delivered were a general review of food inspection in foreign countries. Later a conference was held with fruit and vegetable dealers relative to the use of antiseptics and colors.

Experts Would Restrict Coloring Matter in Candy.—At the concluding session of the International Pure Food Congress on October 1, a resolution was adopted favoring the restriction of the use of coloring matter in pastry and confectionery to harmless materials and the prohibition of the use of antiseptics. The congress also recommended that all baking powders be labeled and universal standards be adopted. A resolution that saccharine might be used, if properly labeled was opposed by the State Food Commissioners, and was finally tabled.

Use of Acetylene in Laboratories.—Acetylene is finding a new outlet in electrochemic laboratories situated at points where a supply of gas is not available, being a substitute for the oil gas often used under such circumstances. A special burner, being a hemispheric perforated cup, is used. The temperature of the flame is so high that it is sufficient for most operations for which a blow-pipe is ordinarly required. Lighting flames of acetylene are often used in laboratories where reactions indicated by changing of color or tint are conducted.

Army Officers and Marriage.—The remark, which is credited to General Corbin, and which has called forth marked criticism by the lay press, is as follows: "Marriage of army officers who have made no proper provision for assuming the responsibility therefor, is hurtful both to the army and to the officers themselves. To this broad statement there are, of course, exceptions, as there are to all broad statements, but the general fact remains that our army is overmarried. That a bachelor officer is more valuable to the service than a married officer does not follow, nor do I wish to be understood as so saying."

Rich do not Give Liberally to Medical Education.—In a recent address, Dr. Henry M. MacCracken, Chancellor of the New York University Medical College, stated: "Both the city of New York and the State of New York have lost ground relatively in a shameful degree in their work for medical education. What is the matter with New York in its treatment with medicine? Having watched it for 20 years, I have no word to express it better than 'disgraceful.' The disgrace attaches to the rich men of New York. I can count on my fingers every large giver to medicine in New York City in the last 20 years. Not more than two families or two individuals have given any one of the four regular schools a large gift. By large gift I mean at least $100,000. What do I see here at First avenue? A medical faculty that treated without a dollar of remuneration over 100,000 patients last year. The wealth of this city has not yet been persuaded to give this work enough endowment to pay a quarter of the expenses. I have personally stood in the offices of several multimillionaires during the past year to beg money for this charity, and have received the reply that times were so bad that they did not feel able to give a dollar. I suppose that every one of them was suffering from the misfortune of having a million or two that was not bringing them in a cent of interest. They could not give a dollar to the relief of the hundred thousand patients treated last year at Twenty-sixth street and First avenue."

Miscellaneous.—Philadelphia: Medical Department of University of Pennsylvania: On September 30 an address by Prof. Horatio C. Wood. The principal address was delivered by Sir Clifford Allbutt, regius professor of medicine at Cambridge University, England. **Sir Lauder Brunton**, of London, the famous pharmacologist and therapeutist, and **Prof. Oscar Liebreich**, of the Pharmacologic Institute of Berlin, Germany, the discoverer of chloral, whom Emperor William appointed to make an examination of certain institutions of learning in America, have been recently visiting in Philadelphia. Notification has been received by Dr. John H. Musser of his appointment as a member of a special **commission of bacteriologists** chosen to study the **causes of pneumonia**, with a view of checking the increasing mortality. Arrangements have been made to hold the first session of the board in New York, about the middle of October, Health Commissioner Darlington, of New York, is the head of the commission, and that city has appropriated $10,000 to pay for the investigation. The other members of the commission are Drs. W. H. Welch and William Osler, of Johns Hopkins, Baltimore; E. G. Janeway, L. E. Holt and T. M. Prudden, of New York; Theobald Smith, of Harvard, and Frank S. Billings, of Chicago.—**New York: Manhattan City Hospital.** Dr. A. E. McDonald retired on October 1, 1904, from the superintendency of the Manhattan City Hospital, Ward's Island, N. Y., and Dr. J. T. W. Rowe is retained as acting superintendent.

EASTERN STATES.

The Vermont State Medical Society will hold its ninety-first annual meeting at Rutland, Vt., October 13 and 14, 1904. An attractive program will be presented.

Milk Dealers Fined in Boston.—Seventeen milk dealers were fined in the first session of the Municipal Court by Judge Sullivan, September 27, for selling milk below the standard.

Bequests to Charity.—By the will of **Mrs. Sarah Potter**, of Boston, more than $1,000,000 was made in the form of a public bequest. To the Boston Medical Library was bequeathed $150,000; Kindergarten for the Blind at Jamaica Plain, $100,000; and $50,000 each to the following: Harvard University, Boston Home for Incurables, Hospital Cottage for Children, at Baldwinsville, Mass., Free Hospital for Women, at Brookline, and the Massachusetts College of Pharmacy.

Arrests for Drunkenness Increased.—According to the clerk of the Municipal Court, Boston, in his annual report to the prison commission, for the year ended September 30, 1903, there were 17,118 cases of drunkenness. For the year just ended there were 22,621 cases, and of these 14,357 of the defendants were released. Four men were sentenced as common drunkards. Last year there were 23,605 cases of all kinds before the court. This year's docket numbered 31,081 cases.

NEW YORK.

"Vacation Typhoid."—Just now the State Department of Health is receiving returns which show a large increase in the number of cases of "vacation typhoid" fever, especially in the cities. The disease, it has been proved, is contracted in the country, where the air and water are so "pure." In many cases the water wells in country places where summer boarders are taken are found to be contaminated with sewage.

Holding Up Pure Food Bills.—The last half year has seen another refusal of the Senate to enact a national pure food law, and the abandonment of a crusade begun by the Post Office Department against harmful nostrums. Yet the establishment of some new safeguards for the public against deleterious food products and dangerous "medicines" cannot be indefinitely deferred. Dr. Lederle, the ex-health commissioner, speaking before the International Congress of Arts and Science, pointed out anew the need for a national food law, and for a statute in line with those of the European countries, which require the maker of a proprietary medicine to print its formula on the package. Legislation against secret proprietary medicines has made no progress in Congress. Yet there is every reason to believe that the public opinion which can accomplish these needed reforms is being aroused. We are far better off in the matter of State legislation than we were four years ago. We have excellent safeguards against impure food products from abroad. The people are interested, and if they show that they are in earnest they will ultimately get the legislation they demand.—[NewYork *Evening Post.*]

Druggists Object to Ordinance Against the Sale of Carbolic Acid.—Recently Health Commissioner Darlington was waited upon by representatives of the druggists of Manhattan and Brooklyn, who protested against the new State ordinance concerning the sale of carbolic acid without a physician's prescription. It was claimed that the ordinance would not lessen the number of suicides, as persons who wanted to kill themselves would adopt some other method. If the sale of small quantities of the acid was stopped, it was declared, the wholesale druggists would put up the poison in small original packages and thus evade the ordinance. Dr. Darlington said that his investigation of carbolic acid suicides for several months had showed that 42% of the acid was bought in drug stores without difficulty or question upon the part of the druggist or clerk making the sale. A temporarily despondent woman, whose intentions might be changed by a little kind advice, can go into a drug store, buy five cents worth of the acid, and then rush out, go into a doorway and drink it with fatal results. The outcome of the hearing was that the commissioner promised to give full consideration to the protests against the ordinance, and to place the matter before the Board of Health.

PHILADELPHIA, PENNSYLVANIA, ETC.

Typhoid Fever at West Chester.—On October 1 there were 25 cases of typhoid fever in the borough and vicinity. Officials of the Board of Health say they learned that most of the patients had been drinking milk furnished by a farmer of West Goshen township, and this farmer has been requested to sell no more milk until after an investigation has been made.

To Restrict the Sale of Cocain.—Louis Emanuel, president of the State Board of Pharmacy, has been charged with selling cocain in violation of the State law prohibiting its sale, except when called for in prescriptions. The information was made by Superintendent of Detectives Thomas A. McQuaide, in continuation of his crusade to break up the sale of drugs to the drug fiends, who are multiplying in the city so rapidly as to become a menace to good order. Several suits have already been entered, and it is thought the cases will go to court.

The Use of the Public Baths.—The public baths of the city closed recently. The general returns show that the season just closed was the most successful one in the history of these establishments. The gross attendance this season in the 16 bathhouses which were open, showed an attendance of 4,500,000. Last year, with 15 houses, the attendance was 3,900,000, but in 1902, with but 14 houses, the attendance was 4,400,000.

Nurses Ask for Title.—At the recent meeting of the Pennsylvania State Medical Society a communication was read from the State Nurses' Association asking the cooperation of the Pennsylvania State Medical Society in the effort to have a bill passed by the State Legislature providing that the graduating nurses be licensed and that they be permitted to use the letters "R. N." after their names, signifying "registered nurse."

More Room for the Insane.—The grand jury for the September term of court made its final presentment before Judge Biddle. The jury reports that all the institutions of the county are in good condition, except "the old county prison at Reed street. In this building we consider the ventilation of the cells inadequate and the plumbing very antiquated." Attention is called to the crowded condition of the insane department of the Philadelphia Hospital and to the inadequate accommodations for juvenile prisoners. Broad street, south of Moyamensing avenue, the jury found to be filthy.

Criticism of Textbooks of Physiology in Public Schools.—At the recent meeting of the Pennsylvania State Medical Society, the report of the committee appointed to pass opinion on the textbooks of physiology used in the public schools was made, and in it the committee recommend that more uniformity be secured in the textbooks on these subjects, as many of them are entirely too advanced for the brains of some of the children who are compelled to study these subjects. They also report that experts on these subjects be engaged to teach the pupils of the various public schools, because so many of the teachers employed in the public schools have so little knowledge of the subject they are called on to impart to the younger generation.

Wood Alcohol in Whisky.—Dr. B. H. Warren, Pennsylvania's pure food commissioner, has made a discovery regarding the cheap-order grades of whisky sold all over the State. In an interview he said: "Most of the cheap whisky sold in Pennsylvania, I have discovered by analysis, is manufactured from wood alcohol and red or India pepper, the latter element giving the deadly dose the desired 'snap.' I was astounded when the chemists informed me of the findings in a number of cases, and immediately had over a thousand samples taken up all over the State. Ninety-five percent of the samples so far examined have shown the presence of wood alcohol in poisonous quantities, along with the pepper. Some samples contained arsenic, turpentine, and traces of prussic acid."

Election of Officers of the State Medical Society.—At the recent meeting of the Pennsylvania State Medical Society the following officers were elected for the ensuing year: Dr. Adolph Koenig, of Pittsburg, president; E. V. Swing, of Coatesville, first vice-president; W. Stewart, Wilkesbarre, second vice-president; John M. Corson, Chatham's Run, third vice-president; J. B. Ewing, Fayette county, fourth vice-president. The incumbents of the other offices were reelected as follows: Cyrus Lee Stevens, Athens, secretary; Theodore B. Appel, Lancaster, assistant secretary; George W. Wagoner, Johnstown, treasurer. Scranton was selected as the place for the annual meeting next year. Among the resolutions adopted was one instructing the delegates to the American Medical Association to introduce a measure which should forbid the insertion of cheap and "quack" medical advertisements in the journal of the national Association.

Wish Vital Statistics Kept.—The executive council of the State Medical Society, in line with the recommendations made by the convention of State Health Authorities and Sanitarians at Gettysburg last summer, at the annual meeting held in Pittsburg last week, adopted the following resolutions relative to registration of vital statistics and pollution of rivers:

> The Medical Society of the State of Pennsylvania recommends that the next Legislature of Pennsylvania be requested to enact such laws and make such appropriations as may be necessary to enable the State Board of Health to establish and maintain a bureau for the registration of vital statistics throughout the State, in manner and form as suggested by the United States Census Office and American Public Health Association.
>
> *Resolved*, also, That as a thorough and constant supervision of our inland water-supplies is necessary to prevent pollution and spread of contagious and infectious diseases, it is the sentiment of the Medical Society of Pennsylvania that the powers of the State Board of Health should be extended, that provision should be made for the appointment of health officers in rural districts and that a liberal appropriation should be provided for these purposes.

SOUTHERN STATES.

Excessive Heat in the South during September.—News from Mobile, Ala., under date of September 30, says: All heat records for September have been broken. September 28 the record was 92, and yesterday 94 was registered. Today the thermometer showed 91. Last September a temperature of 94 occurred on the seventh, but a temperature of 92 so late in the month has not been recorded in many years.

Typhoid Fever in Baltimore.—Since the beginning of the summer the deathrate from typhoid fever has been so much higher than formerly that the Health Department is bending every effort toward checking the disease, which has reached the proportions of an epidemic. For the three weeks in September just ended the total number of cases reported at the Health Department was 441. The fatalities numbered 74, or a deathrate of nearly 20%. The bacteriologists of the Health Department declare there are no typhoid germs in the city water-supply, and are advising people to be careful in drinking milk or eating oysters.

WESTERN STATES.

Pure Food Congress at the Fair.—The International Pure Food Congress began September 26 at the World's Fair. Scientists, Government authorities, and manufacturing interests will be called to action relative to the control of adulterations and misbranding. A resolution will be presented demanding that foods competing at the exposition be free from adulterations, and truthfully branded.

Iowa and Medical Reciprocity.—According to the Iowa Health Bulletin for September, 1904, the Iowa State Board of Medical Examiners has passed a resolution, extending reciprocal relations to Maine, Ohio, Texas, District of Columbia, South Carolina, Michigan, Maryland, Kentucky, Indiana, and to any other States conforming to the Iowa requirements and disposed to reciprocate. Illinois, Wisconsin and Nebraska were admitted to such relations at a previous meeting.

Would Inaugurate New Hospital Death Rule in Hospitals of Chicago.—A Chicago councilman is planning to reintroduce in the council an ordinance to protect the bodies of patients dying in hospitals, from undue haste in removal to favored undertakers' rooms. Under the plan the hospital authorities, when there are relatives, must hold the body at least 24 hours, unless written permission for the removal is given. Hospitals must provide suitable rooms for the bodies. The undertakers' association has appointed a committee to take up the subject.

A New Army Sanatorium.—Congress has appropriated, at first $75,000, and now in the last session $240,000 more, a total sum of $315,000, for the improvement of one of the oldest and most famous of the army posts of the West—Whipple Barracks, Arizona. Whipple is to be an army sanatorium. When the returning soldiers come home from the Philippines, invalided through sickness and life in the jungles and swamps of the tropical climate of the islands, they are to be provided with a place for rest and recuperation under medical care, where the altitude and dryness give purity to the air. At Las Vegas, New Mexico, the government has been at large expense in purchasing a sanatorium from the Santa Fé Railway, where the altitude is 6,000 feet, and where the hot springs are reported to have peculiar medicinal powers. The hot springs are not found at Whipple Barracks, but the elevation of 5,000 feet, the pure air, the splendid climate, etc., make it an almost ideal location.

FOREIGN NEWS AND NOTES

GENERAL.

Medical Students in Russia.—New statutes just issued in Russia place women doctors on practically the same footing both with regard to education and practice as their male rivals. Women may now obtain diplomas, pursuing their studies for medical degrees in the universities and in the Military Medical Academy. But the law restricts Jewish students to 3%.

Berlin Children Physically Deficient.—Ten percent of the 16,000 children in the Berlin schools this year were found insufficiently developed in body or mind, and had to be excluded for half a year or longer; 16% were not strong enough to attend school, owing to the debilitating effect of scarlet fever and other diseases; 15% suffered from anemia or scrofula; 5% had tuberculosis trouble, etc.

Beriberi in Port Arthur.—The *Daily Telegraph's* Shanghai correspondent, under date of September 29, gives a vivid account of the terrible ravages of beriberi among the Japanese, and especially among those besieging Port Arthur, asserting that deaths from disease exceed the number of those killed in fighting. The correspondent adds that it is rumored the Japanese are preparing to occupy Sakhalin.

Kings at Finsen's Bier.—News from Copenhagen, September 29 says: The funeral of Professor Niels Finsen, discoverer of the socalled Finsen rays of light for the cure of lupus, was held at the Frederica Church today. Few scientists have been recognized in death as was Professor Finsen. Two kings, those of Denmark and Greece, were present, and almost every other European ruler was personally represented, while princes and high ministers of state and leading scientists came to pay a last tribute to the dead man. Among these famous personages several more humble mourners were seen—patients whom Finsen had cured.

OBITUARIES.

Phineas J. Horwitz, of Philadelphia, at Bar Harbor, September 28, aged 82. Dr. Horwitz was in charge of the Tampico Hospital in the Mexican war, and later medical inspector and director in the United States navy, retiring in 1884. Following the Civil war he was chief of the bureau of medicine and surgery and had charge of tabulating the casualties of the war. He graduated from the medical department of the University of Maryland in 1848.

James G. Hyndman, of Cincinnati, in the Good Samaritan Hospital of that city, September 18, after an operation for appendicitis, aged 51; a graduate of the Medical College of Ohio, Cincinnati, in 1874; member of the American Medical Association; former secretary of the College of Ohio, and professor of chemistry and laryngology in that institution.

Richard M. Thomas, from heart disease, at his home in Baltimore, October 3, aged 51; a graduate of the medical department of the University of Maryland in 1875; he was a prominent practitioner in the city of Baltimore, particularly among the society of Friends.

Francis E. Phelps, at his home in Cambridge, Md., September 17, aged 74; a graduate of the University of Maryland in 1853; surgeon in the Federal service during the Civil war, and member of the Maryland Legislature from 1893 to 1895.

A. G. Watson, at his home in Baltimore, Md., September 30, aged 53; a graduate of the University of Maryland, medical department, in 1872. He was an active practitioner and prominent in politics in Baltimore.

Charles E. Pease, of Middletown, Pa., at the German Hospital, Philadelphia, September 12, after an operation for appendicitis, aged 47; a graduate of the University of Pennsylvania in 1882.

Silas Updegrove, at his home in Philadelphia, October 1, aged 75; a graduate of the University of Pennsylvania in 1854, and a surgeon in the Federal service during the Civil war.

Ellery G. Fuller, from Bright's disease, at his home in Sterling Center, N. Y., September 5, aged 46; a graduate of Starling Medical College, Columbus, Ohio, in 1888.

Charles Conrad, committed suicide by shooting himself, at his home in Columbus, Ohio, September 19, aged 35; a graduate of Tulane University, New Orleans, in 1897.

Andrew D. Finucane, of Chicago, at the Illinois Northern Hospital for the Insane, Elgin, August 16; a graduate of Bellevue Hospital Medical College in 1884.

John L. Free, at his home in Stewartstown, Pa., September 30, aged 84; a graduate of the medical department of the University of Maryland in 1848.

James H. Benton, of New Bern, N. C., at Black Mountain, N. C., September 14, aged 61; a graduate of the University of Pennsylvania in 1876.

H. vonKoehring, at his home in San Antonio, Texas, September 14, aged 58; a graduate of the Friedrich Wilhelm University, Berlin, in 1865.

George P. P. David, at his home in New Orleans, September 18, aged 45; a graduate of the Kentucky School of Medicine, Louisville, in 1891.

William L. Whitted, of Bloomington, Ind., at Oceanside, Cal., September 8; a graduate of Miami Medical College, Cincinnati, in 1878.

Frederick Dorsey Mitchell, at his home near Hereford, Md., September 15, aged 80; a graduate of the University of Maryland in 1846.

George Jacob Hirth, at a sanatorium in Wauwatosa, Wis., September 14, aged 38; a graduate of the University of Michigan in 1891.

M. M. Ash, at his home in Mt. Eaton, Ohio, September 14, aged 45; a graduate of the Toledo (Ohio) Medical College in 1883.

Victor Rounds, recently, at his home in Brainerd, Minn.; a graduate of Rush Medical College, Chicago, in 1882.

G. C. Dortch,, of Clarksboro, Tenn., at South Ryegate, Vt., September 10, from Bright's disease.

Newton Wyat, from Bright's disease, at his home in Staunton, Va., September 18, aged 67.

E. C. Sample, at his home in Florin, Lancaster county, Pa., September 28, aged 75.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended September 30, 1904:

	Smallpox—United States.		Cases	Deaths
Louisiana:	New Orleans	Sept. 17-24	5 Imported	
Massachusetts:	Lawrence	Sept. 17-24	1	
	Lowell	Sept. 10-24	2	
	North Adams	Sept. 20-27	4	

Michigan:	42 localities	Sept. 10-17	Present.	
Minnesota:	Morrison County	Sept. 12-19	1	
	Washington Co	Sept 12-19	1	
Missouri:	St. Louis	Sept. 17-24	6	1
New York:	New York	Sept. 17-24	4	
Pennsylvania:	Titusville	Sept. 17-24	1	
South Carolina:	Camden	Sept. 17-24	1	
Tennessee:	Memphis	Sept. 17-24	1	
	Nashville	Sept. 17-24	2	
Wisconsin:	Milwaukee	Sept. 17-24	2	

SMALLPOX—FOREIGN.

Austria:	Prague	Sept. 3-10	1	
Brazil:	Rio de Janeiro	Aug. 7-28	917	408
China:	Shanghai	Aug. 6-20		4
Great Britain:	Bristol	Sept. 3-17	2	
	London	Sept. 3-17	3	
	Nottingham	Sept. 3-10	1	
India:	Bombay	Aug. 23-30		3
	Calcutta	Aug. 20-27		1
Italy:	Palermo	Sept. 3-10	8	5
Mexico:	City of Mexico	Aug. 28-Sept. 4	1	
Russia:	Moscow	Aug. 27-Sept. 3	5	2
	St. Petersburg	Sept. 3-10	2	
Turkey:	Alexandretta	Aug. 27-Sept. 3		1
	Beirut	Sept. 3-10	Present	
	Constantinople	Sept. 4-11		9

YELLOW FEVER.

Brazil:	Rio de Janeiro	Aug. 14-28	2	1
Ecuador:	Guayaquil	Aug. 24-Sept. 7		5
Mexico:	Coatzacoalcos	Sept. 11-18	8	2
	Merida	Sept. 11-17	1	
	Tehuantepec	Sept. 11-17	2	1
	Vera Cruz	Sept. 10-17	1	

CHOLERA.

India:	Bombay	Aug. 23-30		39
	Calcutta	Aug. 20-27		4
Turkey:	Bagdad	Aug. 22	127	105
	Basra	Aug. 22	3	3
	Bazian	Aug. 22	53	41
	Hitt	Aug. 22	61	28
	Mendelli	Aug. 22	27	10
	Nasrie	Aug. 22	17	13

PLAGUE—INSULAR.

Philippine Islands:	Manila	July 23-30	6	6

PLAGUE—FOREIGN.

Africa:	Cape Colony	Aug. 13-20	1	1
Australia:	Perth	July 29	1	
	Sydney	July 31-Aug. 6	1	1
Brazil:	Bahia	Aug. 13-27		10
	Rio de Janeiro	Aug. 7-28	21	8
China:	Fuchau	Aug. 8	Epidemic	
Egypt:	Achmun (district)	Aug. 20-27	2	
	Alexandria	Aug. 20-27	3	
India:	Bombay	Aug. 23-30		59
	Calcutta	Aug. 20-27		5
	Karachi	Aug. 21-28	3	3
Japan:	Formosa	Aug. 13-20	21	27

Changes in the Medical Corps of the U. S. Army for the week ended October 1, 1904:

Maus, Lieutenant-Colonel **Louis** M., deputy surgeon-general, is granted leave for one month, from about October 1.

Greenleaf, Captain **Henry** S., is granted leave for one month, with permission to apply for an extension of one month.

Stephenson, Major **William**, surgeon, leave granted September 8, is extended twenty days.

Stiles, Captain **Henry** R., assistant surgeon, extension of leave on account of sickness granted June 15, is further extended two months on account of sickness.

Gosman, First Lieutenant **George** H. R., assistant surgeon, is relieved from further duty at Camp George H. Thomas, Ga., and will proceed to Fort Caswell for duty, relieving First Lieutenant William Roberts, assistant surgeon. First Lieutenant Roberts will proceed to Fort Hamilton for duty.

Taky-ud-Deen, **Najib**, contract surgeon, leave granted July 22 is extended one month.

Rebert, **Michael** A., contract surgeon, will proceed, when the transport Sumner is put out of commission, from New York City to Fort Totten.

Kelly, **John** P., contract surgeon, will proceed, when the transport Kilpatrick is put out of commission, from New York City to Fort Riley.

Lauderdale, **Clarence** E., contract dental surgeon, is granted leave for two months.

Kellogg, W. V., contract surgeon, extension of leave on surgeon's certificate granted is further extended one month on surgeon's certificate.

Wythe, **Stephen**, contract surgeon, is granted leave for two months, with permission to apply for an extension of one month.

Vedder, **Edw.** B., contract surgeon, is granted leave for one month and fourteen days on surgeon's certificate, to take effect October 1.

Allen, **Ulysses** S. G., sergeant first class, now at Pettysville, Ind., will be relieved from further duty at Fort Keogh and report upon expiration of furlough granted him from that post to the commanding officer at Jefferson Barracks, who will send him to the Presidio of San Francisco, Cal., with instructions to report to the commanding officer, Company of Instruction No. 2, Hospital Corps who will send him to Manila, P. I.

Sands, **John** R., sergeant first class, is relieved from further duty aboard the transport Buford, San Francisco, Cal., and will report to the chief surgeon, Department of California, for temporary duty in connection with the transfer of medical property of the government transports out of commission.

Whitney, **Walter**, contract surgeon, is relieved from further duty in the Philippines Division, and upon the expiration of his present leave will proceed to Columbus Barracks for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended October 1, 1904.

Lovering, P. A., medical inspector, commissioned medical inspector, with rank of commander, from June 9, 1903—September 23.

Backus, J. W., assistant surgeon, ordered to the Southery—September 23.

Shiffert, H. O., assistant surgeon, ordered to the Franklin—September 23.

McDonnell, W. N., assistant surgeon, commissioned assistant surgeon, with rank of lieutenant, junior grade, from September 19, 1904—September 23.

Herndon, C. G., medical inspector, detached from the Naval Hospital, Yokohama, Japan, and ordered home to wait orders—September 24.

Percy, H. T., surgeon, detached from the Iowa and ordered to duty in charge of the Naval Hospital, Yokohama, Japan—September 24.

Dennis, J. B., surgeon, commissioned surgeon, with rank of lieutenant-commander from March 3, 1903—September 26.

Guest, M. S., surgeon, commissioned surgeon, with rank of lieutenant-commander, from January 31, 1903.—September 26.

Peck, A. E., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, March 27, 1903—September 26.

Judd, N. W., acting assistant surgeon, detached from duty with the marine detachment, Dry Tortugas, Fla., and ordered to the Naval Hospital, Washington, D. C., for treatment—September 26.

Bucher, W. H., surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered to the Naval Station, Olongapo, P. I.—September 28.

Benton, F. L., passed assistant surgeon, detached from the Naval Station, Olongapo, P. I., and ordered to Naval Station, Cavite, P. I.—September 28.

Bachmann, R. A., assistant surgeon, detached from the Supply and ordered to the Naval Station, Cavite, P. I.—September 28.

Wheeler, L. H., assistant surgeon, detached from duty as recorder of the Naval and Medical Examining Boards, Washington, D. C., and ordered to duty at the Naval Museum of Hygiene and Medical School, Washington, D. C.—September 29.

Changes in the Public Health and Marine-Hospital Service for the week ended September 28, 1904:

Vaughan, G. T., assistant surgeon-general, granted leave of absence for fourteen days from October 18—September 28, 1904.

Bailhache, **Preston** H., surgeon, detailed as a member of a Revenue Cutter Service Retiring Board to be convened in New York City—September 22, 1904.

Stoner, G. W., surgeon, leave of absence for eight days from September 19, 1904, under paragraph 189 of the regulations.

von Ezdorf, R. H., passed assistant surgeon, detailed to represent the service at the meeting of the Association of Military Surgeons at St. Louis, Mo., October 10-15—September 27, 1904.

Kerr, J. W., passed assistant surgeon-general, detailed as a member of a Revenue Cutter Service Retiring Board to be convened in New York City—September 22, 1904.

Berry, T. D., assistant surgeon, relieved from duty at Laredo, Texas, and directed to proceed to Stapleton, N. Y., and report to the medical officer in command for duty and assignment to quarters—September 28, 1904.

Rucker, W. C., assistant surgeon, granted three days' extension of leave of absence from September 28—September 26, 1904.

Collins, G. L., assistant surgeon, granted leave of absence for four days from September 20, 1904, under paragraph 191 of the regulations.

Smith, F. C., assistant surgeon, granted leave of absence for seven days from September 24, 1904, under paragraph 191 of the regulations.

Ferguson, **Bismarck**, acting assistant surgeon, granted leave of absence for twenty-one days from September 27—September 27, 1904.

Frary, T. C., acting assistant surgeon, granted leave of absence for thirty days from October 1—September 27, 1904.

Goldsborough, B. W., acting assistant surgeon, granted leave of absence for one day, September 29—September 28, 1904.

Gray, R. H., acting assistant surgeon, granted leave of absence for seven days from October 2—September 27, 1904.

Hallett, E. B., acting assistant surgeon, granted leave of absence for three days from September 24—September 22, 1904.

Light, S. D. W., acting assistant surgeon, granted leave of absence for five days from October 9—September 28, 1904.

McMahon, R. L., acting assistant surgeon, granted leave of absence for thirty days from November 5—September 27, 1904.

Marsh, W. H., acting assistant surgeon, granted leave of absence for thirteen days from October 7—September 21, 1904.

Goodman, F. S., pharmacist, granted leave of absence for sixteen days from October 5—September 27, 1904.

Hall, L. P., pharmacist, to proceed to Norfolk, Va., for temporary duty—September 26, 1904.

Bierman, C. H., pharmacist, to proceed to Tampa Bay Quarantine, Florida, and report to medical officer in command for duty and assignment to quarters—September 21, 1904.

Board Convened.

Board convened to meet at Washington, D. C., September 29, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General G. T. Vaughan, chairman; Assistant Surgeon A. J. McLaughlin, recorder.

Resignation.

Frank Siedenburg, pharmacist of the third class, resigned to take effect September 30, 1904.

SOCIETY REPORTS

INTERNATIONAL CONGRESS OF ARTS AND SCIENCE.

Held at St. Louis, Mo., September 19 to 25, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 579.*]

SECTION OF PUBLIC HEALTH.

The Department of Public Health went into session on September 21, at 10 a.m., Surgeon-General Walter Wyman, of the United States Marine-Hospital Service, in the chair.

The Relation of Public Health to Other Sciences.—Professor William T. Sedgwick, of the Massachusetts Institute of Technology, described the science of public health as having taken its rise in the eighteenth century, for though there had previously been many isolated efforts directed toward the preservation of protection of the public health, they were all more or less empiric, and aimed quite as much at the preservation of the convenience of mankind as at its safety. As examples, the speaker cited the Mosaic code, the introduction of a water-supply into Jerusalem by Hezekiah, and some of the early but ineffective efforts at quarantine. He denied that the inoculation for smallpox, as practised in the East, had any scientific basis. The first public health discovery that was truly scientific was that of Sir George Baker, about the middle of the eighteenth century, who proved that an epidemic of colic that had appeared in Devonshire was the consequence of lead-poisoning that had its origin in the cider drunk in that district. This was the foundation of epidemiolgy. In 1774, an act of Parliament providing for the proper sanitation of prisons, laid the foundation of the modern science of State hygiene; while the science of personal hygiene took its rise in the discovery of Jenner, in 1796, which was the basis of the modern principle of induced immunity. The foundations thus laid were built further upon by Pasteur, Lister, and Koch, so that the period between 1880 and 1890 might aptly be termed "the decade of etiology," during which were discovered the germs of typhoid, tuberculosis, malaria, Asiatic cholera, diphtheria, and tetanus. No modification of human knowledge had more profoundly affected the general conditions of existence, with the exception, perhaps, of the general acceptance of the theory of evolution, than the altered attitude toward the nature, causation and prevention of disease. While there had been a marked awakening of the public mind in England, in the middle of the nineteenth century, to the importance of sanitary principles, there was no close relationship between public health science and the other sciences, such as physics, chemistry, climatology, engineering, or education, until the time of Pettenkofer and Angus Smith. Sufficient importance had not hitherto been attached to the services rendered by sanitary chemistry to public health. The speaker instanced the chemic studies of the State Board of Health of Massachusetts, under Professor Brown, and the chemic studies of the rivers of Illinois, by the late Professor Palmer, as among the most important services to the public health. In the course of the next 25 years we should probably witness a return to the more patient and exact studies of the environment, such as were made under the scientists of the middle of the nineteenth century. Personal hygiene, however, would not be lost sight of, for the proper use of it reacted favorably on the public health, just as an improved condition of the environment reacted favorably on the health of the individual. He next spoke of the importance of the services rendered by scientific architecture and engineering, to the public health in the proper construction, lighting, water-supply, drainage, etc. In the study of water purification, especially, the engineer had rendered conspicuous service, though this department of engineering was yet in its infancy. As regarded the mutual relations of public health and education, the speaker asserted that all the schools, high and low, technical and general, even the medical schools, entirely neglected the subject of public health. If the present conditions of medical training rendered such instruction impracticable, then the public would have to turn to some other source for proper sanitary legislation and administration. The crowding into cities, which was especially prevalent today, coupled with the substitution of a sedentary for an outdoor life on the part of large numbers of the people, rendered an attention to the questions of personal hygiene a consideration of the utmost importance. [This paper will be published in a future issue of *American Medicine.*]

Public Health: Its Present Problems.—Dr. Ernst J. Lederle, former Commissioner of Health of New York City, stated that a new profession had been called into existence in the person of the sanitarian. Medical men had had so much to do with the preaching of sanitary science that it had come to be looked on as their peculiar province, but the training incident to the formation of a physician did not tend to make a good administrator, and generally the accomplishment of results in sanitary science was likely to be best attained by a properly trained layman, aided by skilled medical advice upon purely medical points. The ideal Board of Health should consist of a medical man thoroughly proficient in bacteriology, a trained engineer, and a man of affairs selected especially on account of his breadth of view and his administrative capacity. The speaker strongly advocated the establishment of a national Board of Health, which would be able to settle such questions as national quarantine, and to secure the adequate training of its own sanitary officers. Sanitary inspection was left too much in the hands of men without adequate training and without sufficient theoretic knowledge. What the service needed was to attract a higher class of men into its service than many who at present took up the work; but in order to accomplish this it was necessary that a sufficiently attractive rate of pay should be offered. The establishment of a national Board of Health would quickly effect that. Its first business would be the prevention of the spread of preventable disease, though there were many other points to which its attention should be also devoted. But it must be kept clear of all party politics. Once the high sanitary officers came under the control of the politician he would eventually control the subordinates also, and then the efficiency of the service would be irretrievably hampered. Rigid inspection of the public schools was another matter that was urgently necessary, for they were the principal mediums for the spread of contagious diseases. With regard to smallpox, compulsory vaccination should be enforced in the public schools as a condition of entrance. While the bacteriologist had done more than anyone else to check the spread of contagious disease, the speaker urged that private laboratories should be put under the supervision and direct control of the Board of Health, even if the latter were not endowed with the function of the production of serums. Regarding tuberculosis, the speaker urged the foundation of sanatoriums and institutions on a large scale for the care of those afflicted with the disease, and maintained that the saving to the community through the service that would otherwise be lost to it by the incapacitating of so many workers would speedily counterbalance the cost of erecting and maintaining the institutions. Factory and child labor, water and milk supply, etc., were considered in their relation to disease, and cooperation between the State and municipal authorities advocated. The wide and growing interest in public health problems was one of the greatest forces at work in this new science, of which men still in the prime of life in the United States had seen the beginnings. The bacteriologist, the sanitarian, and the engineer must work hand in hand to accomplish the solution of the important problems that faced them. [This paper will be published in a later issue of *American Medicine.*]

TEN MINUTE DISCUSSIONS.—MILK.

Dr. Arthur J. Reynolds, commissioner of health for Chicago, urged a reduction of the time that elapsed between the production and the consumption of milk. He said that milk 24 hours old was of far less value dietetically than milk only 12 hours old, while milk 36 hours old was entirely unfit for use. Milk would keep for three or four days if at once placed in a temperature below 50° F. Milk was unfit for use many hours before it began to turn sour. Old milk not only starved, but poisoned the young. It was therefore of the utmost importance to urge the production and use of pure, clean, sweet milk. [This paper will be published in a later issue of *American Medicine.*]

Dr. J. N. Hurty, secretary of the State Board of Health, Indianapolis, cited the investigations of Dr. Hessler, on dust as a factor in disease. The speaker said that many conditions, termed colds, malaria, rheumatism, etc., were really the results of dust infection. He had induced acute coryza in both himself and a pet dog, by means of the inhalation of dust gathered from an attic.

The chairman, in reply to Dr. Lederle, said that recent legislation provided for what was practically a national Board of Health. Several manufacturers of antitoxin had given up during the last few years, rather than face government inspection, while others had altered their methods so as to conform to government requirements. The national health organization had some four hundred medical officers throughout the United States. The government did not wish to encourage the weak to lean on the strong, however, but rather that State Boards of Health should be brought into contact with the national board without becoming dependent on it.

THE SECTION OF OTOLOGY AND LARYNGOLOGY.

The meeting of this section took place on Wednesday morning, September 21, Dr. William E. Glasgow, of Washington University, in the chair. Sir Felix Semon, Physician Extraordinary to His Majesty, the King of England, read a paper on the **Relation of Laryngology, Otology, and Rhinology to Other Sciences**. [This paper will be published in full in a later issue of *American Medicine*.]

SECTION OF PEDIATRICS.

This meeting took place on Wednesday, September 21, Dr. Thomas M. Rotch, of Harvard University, in the chair. The first paper read was by Professor Theodor Escherich, of Vienna. It will be published in full in a future issue of *American Medicine*.

The History of Pediatrics in Its Relation to Other Specialties.—Dr. Abraham Jacobi, of Columbia University, New York, said that more than 7,000 works had been published on the diseases of children before the year 1849, and two of these were published as early as the fifteenth century. The first teaching in this country on pediatrics had been given by the lecturers on diseases of women and children, and it was not until 1860 that the New York Medical College instituted a clinic devoted to the diseases of children alone. Simultaneously with the recognization of pediatrics as a separate specialty in New York, the European schools were issuing some excellent work on this subject. The growth of pediatrics as a science and separate study was evidenced by the multiplication of periodicals on the subject, of which the United States now had two, France three, Germany five, Italy two, and Spain one. Pediatric societies by increasing at a similar rate, also bore witness to the increasing conviction that the subject was one of sufficient importance to demand separate attention. The first institution for sick children was established by Dr. G. Armstrong, in 1769. The *Hôpital des enfants malades*, the largest children's hospital in Europe, was established by the first French Republic, in 1802. Hospitals especially devoted to the diseases of children had since then spread throughout the civilized world. The subject of heredity next engaged the speaker's attention. He pointed out that the day of birth was not the beginning of childhood, but that the evolution went gradually on from the moment of conception. The structure and nature of the child rendered the laws of heredity distinctly perceptible. An angioneurosis had been traced through three generations. It was not at all necessary that a fully developed disease should be present, to evidence morbid heredity. Resemblances, complete or incomplete, of some one or more of the organs, internal or external, might be an evidence of heredity, affecting the nerve, muscle, bony, or other tissues, whence obesity, hyperplasia, or atrophy might be distinctly inherited, or only a disposition to degeneration might be handed down. Social influences were often to blame for hereditary degeneracy, for instance, militarism threatened degeneracy, because the maintenance of a standing army of millions of men kept the most vigorous part of the population from marriage, and at the same time increased prostitution, with its attendant venereal disease; further, war led to the killing off of the best members physically of the race, while the inferior ones were left at home to propagate their weakly kind. The etiology of certain diseases, such as lymphoma, sarcoma, and carcinoma, had been studied in the evolving subject with the result of confirming Cohnheim's theory, that they were due to the persistence of an abnormal location of embryonic cells. The speaker next considered the relation of pediatrics to obstetrics, otology, ophthalmology, pedology and dermatology. As to its relation with forensic medicine, the vast literature on infanticide bore witness. The question of the excessive mortality of the young was a question that concerned the humanitarian, the pediatrist, and the practical statesman. The poverty and illness of the parents, illegitimacy, artificial feeding, parental ignorance of hygiene, exposure, absence of medical attention, etc., were among the causes. Faulty diet was among the most prolific of causes of excessive premature mortality. Berlin statistics showed that babies fed with cow's milk had six times the mortality of babies fed with the breast. The speaker protested that chemistry was not physiology, and that cow's milk, casein and fat were not identical with human casein and fat. Even the trade mark, "certified" or "modified," did not convert cow's milk into human milk. The prevention of congenital malformations was one of the probabilities of the therapeutic future. Their number was much greater than was to be found by statistics and heredity, syphilis, consanguineous marriages, all had to be considered in the etiology. In the older child other considerations came into view, especially the influence of school. The school physician was coming into prominence. Bulgaria and Hungary had no schools without their physicians. Physical development, greater weight, and increased breathing capacity went *pari passu* with increased mental power. Pediatrics was very intimately connected with psychiatry. Insanity in children was much more common than the statistics of institutions would seem to indicate; the reason for this was that few such children were placed in institutions. The speaker next protested against the exaggerated views of Lombroso, who would brand every one with brown hair and dark eyes, brachycephalic head, and medium sized body, as of the criminal insane class. Finally the speaker acclaimed the young as the owners of the world and to their education and training the physician, and especially the pediatric physician, would be mainly responsible. Even should the pediatrist's present ideal be attained, new problems would assail the pediatrist of the future. [This paper will be published in full in a future issue of *American Medicine*.]

TEN MINUTE ADDRESSES.

Dr. William P. Northrup, of New York, discoursed on **how to feed a baby deprived of the breast**. Goat's, asses', and mare's milk must be dismissed from consideration as useless; cow's milk alone was a practicable basis for infant feeding. He detailed the needs of a laboratory dealing with the proper production of artificial humanized milk and discussed its chemistry.

Dr. Rotch said that the commercial side of the question was the greatest drawback. The laboratories must pass from the control of commerce to that of scientific investigators.

Dr. Edward Saunders, of St. Louis, dealt with the subject of intestinal occlusion in infancy and childhood, and on the dilation of the stomach consequent on rachitis.

Dr. John L. Morse, of Boston, discussed **pneumonia in infancy**, and considered that the special liability of infants to the disease was due to the undeveloped condition of their lungs. [The above papers will all be published in a future issue of *American Medicine*.]

[*To be continued*.]

Opposed to High Buildings.—Skyscraping buildings are doomed, according to the prophecy of Prof. Louis Wuarin, of the University of Geneva, who delivered an address on "The Future City" at a recent session of the International Congress of Arts and Science. Professor Wuarin maintained that the individual should be subservient to the community, and declared that, from a sanitary consideration, high buildings were detrimental to public health, and would, therefore ultimately disappear from the topography of the future city. He asserted that the increase in the value of property on the outskirts of cities would compensate for other restrictions.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-fourth Annual Meeting Held at Pittsburg, September 27, 28, and 29, 1904.

[Specially reported for *American Medicine.*]

FIRST SESSION.

The society was called to order by President William B. Ulrich, of Chester. Prayer, offered by Rev. J. H. McIlvaine, was followed by addresses of welcome from J. A. Blair, William J. Holland, Ph.D., LL.D., curator of the Museum of Carnegie Institute, and T. M. T. McKennan, president of the Allegheny County Medical Society. The presentation of the program by William S. Foster showed that the sessions of Wednesday and Thursday were to be held in two sections. Just before adjournment a pleasant feature of the meeting took place when the president, Dr. Ulrich, was presented with a medal from the society. The presentation was made by T. D. Davis, who complimented him on his 50 years of service as a physician, and said that the medal represented two characteristics of the recipient—true as steel and pure as gold.

SECOND SESSION.

Address in Medicine.—HENRY BEATES JR. (Philadelphia) dealt with medicine in a broad and general sense. Its origin and existence was determined by those inherent and material forces which are incident to being: "'Tis the inevitable consequence of cause and effect, and constitutes, of the many systems wielding potent influence upon human life, one, which in importance, is second to none. It stands between humanity and eternity, and has to do with all of those influences which determine success by mankind in his highest possible physical, mental and moral achievements." This relationship, in order to be maintained was shown to be dependent upon qualification and this latter to involve an especial training or preparatory education, individual for medicine. That an especial examination be required by medical colleges, the source of the practitioner, proving the possession of a preliminary education adequate for the pursuit of medical study, was recommended as an essential for right beginning. The formulation of a rational curriculum for the doctorate was shown to be a necessity, which, thus far, has not received the serious consideration the vital problem demands, and suggestions were offered involving the application of established pedagogic principles in solving this important question. Character was demonstrated to be a *sine qua non* for the physician to occupy his peculiarly close and trusted relations with the most sacred matters of mankind. Reference was made to needed revision of the methods of teaching the fundamental sciences included in the medical curriculum, stress being laid upon the proper teaching of principles rather than to disproportionate emphasis of "superficial structure" or glittering details of but minor importance. The need of an educational influence upon the public by a qualified profession, for demonstrating the value of cooperation in establishing measures for the common good of humanity was the subject of brief but suggestive consideration. Commercialism, in a bad sense, which continues to confer the doctorate upon individuals not possessing the medical development essential for the comprehension and mastery of the sciences of medicine, and traceable to its origin in medical colleges, thus abusing their charter rights was recommended to be stopped by the profession, adopting such measures as would either blot out of existence such institutions or compel them to become honorable and reputable. The need of having the services of teachers skilled in the art of imparting knowledge in such a manner as to coordinate the work and instruct in the normal growth and development of a well-rounded medical training was advocated and the means to this end advised to be based upon well-founded pedagogic principles as set forth by Spencer, Rousseau, Bacon and Huxley. The need for the profession to admit to its ranks men of character was shown to be a matter of peculiarly important value and for the achievement of these several essentials each individual member of the State Medical Society of Pennsylvania was invoked and his duty so to do clearly shown.

Address in Surgery.—W. D. HAMAKER (Meadville) chose for his subject **Damage Suits against Surgeons**, and spoke in part as follows: No more timely subject for an address at this time can be found than that of civil suits for damages against surgeons. The number of these suits is appalling, and the danger seems to be increasing. The prominent surgeons and operators in the cities and the physicians and surgeons in the small towns and country are equally liable to be called into court. If it were not for juries, who, out of ignorance or sympathy for the plaintiff will bring in verdicts not justified in any measure by the law and evidence, no one would have cause for complaint. The laws of the different States and the opinions and charges given by the judges in the lower and higher courts have in nearly all cases been eminently fair and just, but in spite of this the surgeon must face a jury ignorant of surgery and full of sympathy for the plaintiff. The physicians and surgeons have no desire to escape from their responsibilities to the State and their clients, but they do object to the annoyance of having suits brought against them and damages awarded where the defendants are not guilty, as in the case of the great majority of suits brought. A surgeon brought into court is at a great disadvantage: 1. His prosecutor is, in nearly all cases, without property, and the juries know that the counties must pay the costs if the suit fails. 2. In many of the cases the poor result has been brought about by neglect or disobedience on the part of the patient or his friends. 3. Before the jury, a case may be made out worse than it really is, or can be "made up" entirely. 4. Courts will not allow examinations under an anesthetic to make a complete diagnosis. 5. The profession has devised no system of common defense. 6. The juries are ignorant of the subjects discussed, 7. Socalled experts, very often ignoramuses, are brought to testify against the defendant. 8. The impossibility of obtaining good results in many cases of severe injury. He who treats surgical cases should often have a consultation, should insist upon the strictest obedience on the part of the patient, should examine his patients frequently and should use the röntgen ray. So great has the evil become that defense companies have been formed who issue policies to surgeons, guaranteeing to defend them in case a suit of this kind has been brought. Many surgeons have availed themselves of this protection from this form of blackmail. It is recommended to the society at this meeting that a committee be appointed to investigate the subject of the best form of policy issued by these defense companies, and it is also recommended that the Legislature be petitioned to pass a law requiring the judges in the different courts to appoint the expert witnesses, instead of the interested parties, and also, since this is a civil suit, that a law be passed requiring the plaintiff to guarantee the county in the matter of costs in case the plaintiff fails to make out a case.

Address in Obstetrics.—X. O. WERDER (Pittsburg). This address will appear in a future number of *American Medicine.*

The Disturbances of Menstruation and Their Significance.—E. E. MONTGOMERY (Philadelphia) attributed the occurrence of menstruation to irritation from the ovaries, for the following reasons: (1) It is the function of the uterus to nourish and retain the ovum until the product has sufficiently matured for a separate existence, and it is the place of the producer, not the retainer, to dictate the function; (2) the entire removal of ovarian structure invariably leads to cessation of subsequent menstruation; (3) the extirpation of the ovaries is followed a couple of days later by a discharge of blood from genitals simulating menstruation, evidently due to pressure upon the nerves of the ovary by the ligature; (4) Stuessman's experiments of injecting the ovary with sterile water is followed by bloody discharge not differentiable from menstruation. The function of menstruation is accompanied by increased vascular tension. The disturbances of menstruation are symptoms of disease, and may be caused by a variety of conditions. They are amenorrhea, dysmenorrhea, menorrhagia, and metrorrhagia, and vicarious menstruation. Amenorrhea is almost or complete cessation of the menstrual flow. It may be congenital, when puberty has been delayed; constitutional, from chlorosis or profound blood changes; mechanical, as in obstruction of the genital canal, and may then be either acquired or congenital ovarian when the structure of both ovaries has been destroyed by cystomas or by the destructive change incident to large fat deposits. Finally it is incident to pregnancy. The failure to menstruate may be due to the lessened vascular tension which is not sufficient to induce rupture of the vessels and consequent escape of blood. The menstrual flow may be supplanted by a profuse leukorrhea from increased gland secretion. This symptom is frequent in early stages of tuberculosis, hence the dread of the laity upon the arrest of menstruation. Dysmenorrhea is painful flow which makes the term intermenstrual dysmenorrhea a misnomer. It is usually considered as congestive or inflammatory obstructive or mechanical, ovarian and nervous, while a more intense form is called membranous. He would assert inflammation as cause of all forms, and would exclude obstruction. Some of the severest cases have a uterine canal which will readily prevent the introduction of a sound, while women with acutely anteflexed uteri uncomplicated by inflammation menstruate painlessly. The uterus undergoes an erection when distended by blood which in some from myometritis causes symptoms resembling chordee in the male. In the neurasthenic who performs all her functions with more or less of conscious effort, is it surprising that menstruation should be painful? Menorrhagia and metrorrhagia, excessive and irregular menstruation are symptoms dependent upon blood-pressure or degenerative changes in the endometrium. The former may be induced by constitutional conditions, as cardiac, renal, and hepatic disease; cystic degeneration of the ovaries and the pressure of nervous or inflammatory exudate in the pelvis; the changes in the endometrium from pregnancy, ectopic or intrauterine, retained fetal products, malignant degeneration, myomatous growths and interstitial endometritis. Vicarious menstruation occurs from some other surface than the endometrium, and is due to weakened vessels which by the premature rupture lessen the blood-pressure so that the vessels of the endometrium do not rupture.

Knee Ankylosis.—DE FOREST WILLARD (Philadelphia) said that knee ankylosis is a condition, the result of disease, not a disease in itself. Many entirely different pathologic conditions lead either to partial or complete fixation of the joint. A traumatic or other synovitis, followed by slight effusion, a slipping cartilage, a septic or gonorrheal infection, a tuberculous disease, any of these conditions may be the primary cause.

The discovery of the cause is all important. The determination as to the treatment to be pursued after the joint has become fixed must depend first upon the cause, next on present joint conditions as discovered by careful clinical examination, aided by röntgen rays. A sensitive joint following injury, with or without effusion, may become apparently firmly fixed after primary rest, yet there comes a time when such a joint needs motion, both passive and active, otherwise the patient will long remain a cripple. Ankylosis following gonorrheal infection, when the joint has not been primarily drained, should be treated by forcible manipulations under anesthesia, followed by passive and active movements of the joint. A fixed joint following septic infection will, as a rule, remain permanently ankylosed; such a limb may be best straightened by osteotomy at the lower end of the femur. In ankylosis following tuberculous disease, when there has been no suppuration, it is unwise to awaken activity in the infected area; an osteotomy of the femur is less dangerous. In ankylosis with suppuration, an erasion or excision should be done. An excision or an erasion is better than amputation in children. The accidents most likely to result from forcible straightening by hands are fracture, posterior dislocation, aneurysm.

Retarded Development of Speech in Young Children.—G. Hudson Makuen (Philadelphia) reported and exhibited an interesting case by way of illustration. He said that retarded speech development always results in defective mentality, and that it may be due to structural irregularities in the peripheral organs, obstructed nasal respiration, paretic conditions of the nerves supplying the tongue, palate and lips or to defective hearing. He said that deafness for only a few of the sounds of speech is sufficient to render all speech unintelligible to children, and that failing to hear conversational speech accurately and not understanding what they do hear they gradually become inattentive to auditory speech, and develop in its stead visual speech; that if lip reading and pantomime are encouraged complete word deafness soon follows. He said that the treatment consists in rendering the peripheral organs of hearing as effective as possible, by the use of the wellknown local and mechanical measures, and in the systematic training of the central auditory and speech mechanisms by the frequent repetition of words and sentences in close proximity to the ears and thus developing the auditory impressions of speech. Makuen emphasized the importance of excluding as far as possible, the use of lip reading and pantomime in the training of partially deaf children. The patient exhibited had prior to treatment, a year ago, never used articulate speech and she did not know the meaning of a single word. She now can read easy words and speaks fairly well, and she shows unmistakable evidence of hearing and understanding much that is said to her, and she has some hearing for even whispered speech.

[*To be continued.*]

MEDICAL AND CHIRURGICAL FACULTY.

Semi-annual Meeting, Held at Ocean City, Md., September 9 and 10, 1904.

[Specially reported for *American Medicine*.]

The Faculty was called to order by the President, Edward N. Brush, in the Plimimmon Casino, at 3.30 p. m., on Friday, September 9.

In his opening remarks he spoke of the manifest progress of medical organization in Maryland since the adoption of the new constitution. He spoke hopefully of the general good to be derived from the proper exercise of their political influence by a united profession.

He referred to the removal of William Osler from Maryland as in all probability the most important event in the near future of the faculty, a very great, and in anticipation, an apparently irreparable loss. He spoke of the project, already well advanced, to place a portrait of him in the Hall of the Faculty, and said that a movement of much more extended scope should be undertaken to mark in an appropriate way an event of such large import to American medicine.

Fulton moved that the president be authorized to appoint at his leisure, and without restrictions, a committee to plan a fitting public recognition of Osler's career in Maryland, and that the president shall be the chairman of that committee. The movement was seconded by Ashby and Earle, and carried. Thomas McCrae being absent, the first number on the program was passed, and a report upon the **Present Status of Gynecology** was read by W. S. Gardner, who spoke first of cancer of the uterus, saying that the chances for recovery depended more upon timely diagnosis than by any other consideration whatever. Then, chances are diminished most seriously by the survival of absurd views about the menopause. The time is past when a physician can be pardoned for allowing a woman at or about the socalled climacteric age, to drift along with a persistent uterine discharge or irregular hemorrhage, without careful and satisfactory examination of the uterus and its adnexa. He also condemned severely the temporizing attitude of some general practitioners in dealing with fibroid tumors of the uterus. Uterine fibroids are never insignificant, and their progress is apt to be aggravated as to be ameliorated by the menopause. They always demand operation, and the operation rule is to remove the tumor with the least possible damage to surrounding tissues. Badly damaged uteri are better lost than saved, and hysterectomy is often preferable to myomectomy.

Recent Progress in Surgery.—Joseph C. Bloodgood (Baltimore). During the last two years the surgical treatment of diseases of the stomach has received more general attention by physicians and surgeons than any other one branch of surgery. In spite of all the excellent work done, it must be confessed, however, that surgical technic is in advance of clinical diagnosis. The experience of a number of large German clinics who have recently published their cases treated during the last 20 years, clearly shows that the operations for carcinoma of the stomach are with rare exceptions undertaken at too late a stage in the disease. The number of cases of carcinoma of the stomach which have remained well five years after operation does not exceed 20 in the entire surgical literature. Our hopes for improvement in these results rest upon an earlier recognition. If the physician delays for the symptoms like tumor, absence of hydrochloric acid, or cachexia, there is little hope for his patient. The immediate medical treatment of simple ulcer of the stomach usually gives good results. These results are, however, in over 50% of the cases temporary. For this reason any conclusion based upon the condition of the patient at the discharge from the hospital, or after a proper medical treatment at home, is no criterion of the result. A certain number will die of perforation, others of hemorrhage, and a large proportion of the remainder will show increasing evidence of pyloric obstruction or other signs of meteoric disturbance of the stomach. At the present time hemorrhage of any amount, or small repeated hemorrhages associated with other symptoms of gastric ulcer, are a sufficient indication for operation. Experience has shown that these symptoms are relieved by a simple gastroenterostomy. The explanation how gastroenterostomy relieves a gastric ulcer is that it puts the stomach at rest; the larger opening allows free drainage into the intestine without aid of muscular contraction. During this stage of rest the ulcer heals. The number of cases of secondary gastric hemorrhage or perforation after gastroenterostomy or ulcer are very few in the literature. Practically it can be safely stated at this time that patients exhibiting symptoms referred to the stomach should be examined with the greatest care. When the physician can find no reason for the disturbance of gastric function like alcohol, tobacco, improper food, overwork, certain general diseases like cirrhosis of the liver or disturbance of cardiac compensation, he should bear in mind that ulcer and cancer are very common factors in the causation of these gastric disturbances. If the patient is a young female the probabilities are that the lesion is an ulcer. If the patient, however, is an adult and no cause can be found the condition should be regarded with grave suspicion. Cancer of the stomach is usually treated for months for simple indigestion; ulcer very frequently for neurasthenia. Experience, therefore, urges that these patients be given the benefit of an exploratory operation in the early stage of their symptoms, and that delay be not made for some positive symptoms or exact diagnosis. As these patients are first seen by the general practitioner the hope of future prognosis in this branch of surgery rests with them. During the past month he has operated on two patients, both of whom had been treated off and on for the past three years with the diagnosis of gastric neurosis and hyperacidity. In both patients there was found mechanical obstruction at the pylorus due to the scar tissue of old ulcers. The experience of surgeons whose operations for lesions of the stomach are increasing demonstrates that quite frequently the complex clinical picture considered before operation to be due to some gastric lesion is found at operation to be seated in the duodenum. The differential clinical diagnosis of these two lesions is not of great importance. The responsibility rests with the surgeon when he opens the abdomen and fails to find sufficient in the stomach to explain the clinical symptoms, to carefully expose and examine the entire length of the duodenum. I am inclined to feel that not infrequently in the past the abdomen has been closed after an exploratory laparotomy and the cause of the trouble in the duodenum overlooked. There is sufficient in very recent literature to indicate that duodenal diseases and their surgical treatment are arising from their hitherto obscure position. It is rather interesting in passing to note how the development of the surgery of one abdominal organ has led to the knowledge of lesions in another, and thus to their surgical treatment. Abdominal section for appendicitis undoubtedly marks the beginning of abdominal surgery. Apparently this led, at least it was followed, by the operative treatment for gallstones. The knowledge obtained by surgeons in the exposure of the gallbladder and its ducts, of the stomach, duodenum and pancreas, prepared them better for the third and fourth advance in abdominal surgery that instituted for the relief of lesions, stomach and pancreas. To the general practitioner the results of gallstone surgery should indicate that one attack of gallstone colic is a sufficient indication for operation. It is unnecessary to wait for jaundice, Charcot's chills and fever, or a huge gallbladder tumor. The surgical intervention in the early stage is so simple and the relief so quick and complete, that the diffusion of knowledge of this disease should be encouraged. Too frequently the gallstone attack is repeatedly diagnosed gastralgia. The general practitioner must also be impressed that prolonged jaundice increases the danger of operative intervention. At the present time surgeons are studying with great care the indications for cholecystostomy on one hand, and cholecystectomy on the other. When cholecystectomy was first introduced some few years ago, apparently the majority of surgeons were too enthusiastic, and performed the operation when cholecystostomy would have been sufficient. There were a few, however, whose experience with cholecystostomy in proper cases was too satisfactory to allow them to perform the removal of the gallbladder, except in selected cases. At the present time the consensus of opinion has returned to that of the smaller, more conservative group, while in appendicitis, if seen early, we wish to operate at once; in acute cholecystitis, it seems better to delay until after the attack is over, because in the quiescent period one is better able to judge whether cholecystectomy is indicated, and the patient is in the better condition for this operation if it is indicated. There has been much discussion whether the gallbladder should be examined whenever the abdomen is opened and gallstones removed if found. Theoretically, as many things in surgery, this is correct; practically, in perhaps the majority of laparotomies, not justifiable. When the patient to be subjected to an abdominal section is studied carefully, as a rule, the location and character of the lesion can be, with a good deal of certainty, made out. And, in the majority of cases the abdomen of the patient is subjected to sufficient manipulation necessary for the proper treatment of the lesion, the cause of the clinical symptoms. This being so, the manipulation to expose the gallbladder is of no value unless the patient's condition would allow the further operative intervention necessary for the relief of whatever might be found. For this reason conservative surgeons are content, when they find sufficient trouble in some one organ to confine their attentions to its relief. However, when the abdomen is open and the suspected trouble not found, one should conscientiously continue one's search until every possible organ in which a lesion could explain the clinical symptoms is examined. An extensive experience in surgery of the abdomen demonstrates the rarity of multiple lesions. Few cases of appendicitis return with gallstones; few gallstone cases develop appendicitis; we seldom observe ulcer of the stomach with gallstones. During the past month I have studied critically the clinical histories of about 900 cases of appendicitis. Of these, 755 cases were treated in the surgical clinic of Professor Halsted in the Johns Hopkins Hospital. This clinical and pathologic investigation has strengthened my previous opinion, that the best time to operate is within the first 48 hours, in fact, the moment a diagnosis can be made, provided the operation is performed by one qualified to cope with any of the possible complications. In cases in which an early operation is necessary a positive diagnosis is usually not difficult. The most important local signs are tenderness and muscle spasm; temperature is of little importance as an early sign, nor should one wait for effects on the pulse. As a rule, the respiration, if carefully noted, is an aid in indicating an inflammatory lesion of the abdomen; a rapidity of respiration out of proportion to the pulse, especially if the respiratory movements are chiefly costal. A statistical study demonstrates that 327 cases out of 755 were admitted to the Johns Hopkins Hospital surgical clinic during their first attack. Of these, 27, or 8%, had general peritonitis, with a mortality of 79%; 182 cases, or 55%, had developed localized abscess before their admission; the mortality after an abscess operation was about 7%. Of the patients who survived and in which the appendix was not found, 5%, or 7%, returned for secondary operations. The remaining cases were different forms of acute appendicitis without abscess or peritonitis. In 61 cases in which the acute inflammation of the appendix did not extend into gangrene there is not a single death after operation, while in the 38 cases in which the appendix was gangrenous or distended with pus, there are two deaths. The remaining cases were admitted at the end of the first attack. These figures demonstrate the dangers of delay in the first attack of appendicitis if proper surgical intervention can be obtained at once. It appears to me to be a prevailing opinion among the general profession that if a case exhibiting symptoms suggestive of appendicitis is not better after the third day they should seek surgical treatment. When I grouped all the cases of appendicitis together according to the duration of the attack it was graphically demonstrated that after the third day the attack of appendicitis is either in the stage of resolution when operation is not necessary, or in the stage of peritonitis or abscess, in which, of course, operation is imperatively demanded, but after which the mortality is greater. For this reason it is only fair to the surgeon that if he is to see your patient at all he should be called early, if possible within the first 24 hours. In surgery of the chest, the most recent and interesting contribution comes from the clinic of Prof. von Mikulicz-Radecki, in Breslau, by Sauerbruch,[1] one of his assistants. The chief danger in the major operations on the pleural and mediastinal cavities is due to the exposure of the lungs to atmospheric pressure, and the change of the relation between the normal pressure and that in the bronchi. The lungs collapse. Sauerbruch, in an extensive investigation on animals, has found a method in which the proper relation of the atmospheric pressure within and without the lungs can be maintained. The principle is simple. A special room is built in which the operator and his assistants and the body of the animal remain; the head of the animal is protruded through an opening in the wall containing a rubber collar. The animal, therefore, is anestherized under normal atmospheric pressure, while the air in the operating-room is reduced or rarefied to the proper pressure, as that when the chest is opened the operating-room is nothing but an enlarged pleural cavity. The amount of rarefaction necessary is not sufficient to be at all uncomfortable or even noticeable to the surgeon. Prof. v. Mikulicz already had erected in his operative clinic a special room modelled after Sauerbruch's experimental chamber. Many details are yet to be worked out. If this contrivance proves to be successful it will very largely increase the field of surgery of the chest. Esophageal carcinoma can be removed through the mediastinum. Many autopsies have demonstrated the operability of this lesion. The larger clinics in this country should carefully follow this new interesting work of Sauerbruch and he prepared to build these special operating rooms. In surgery of the neck the results of partial thyroidectomy for exophthalmic goiter are most satisfactory, and it is very important that this knowledge should be quickly diffused. In the past, medical treatment of this disease has been most unsatisfactory. The best results in surgical treatment are obtained when the operation is performed early. We must thank orthopedic surgeons, and especially those in Boston for the new impetus to the study of chronic joint inflammations, especially arthritis deformans. The problems in tuberculous arthritis are pretty well settled. Acute pyogenic arthritis reacts quickly to arthrotomy and irrigation if performed early. Acute polyarthritis rheumatica (acute polyarticular rheumatism) as a rule quickly recovers under proper medical treatment. But there is a very large group of chronic nontuberculous arthritis which has been neglected because they were considered hopeless by both surgeons and physicians. A most excellent clinical view from the medical standpoint was presented by McRae to the section on the practice of medicine at the recent meeting of the American Medical Association in Atlantic City, and it is a great disappointment that McRae is unable to be here to discuss this subject. Just what surgery will accomplish is impossible to predict. However, we must try to begin treatment earlier. Joints must be attacked before changes in the soft parts and bones have gone too far. I trust during the coming year to present to the society the results of the work which we have planned and which is now being carried out in the Johns Hopkins Hospital. In conclusion I think I can safely repeat that in the majority of the branches of surgery, operative technic is in advance of clinical diagnosis, and future progress in surgery depends more upon the early recognition of disease than any other factor. Schoenholzer in discussing cancer of the stomach expresses it so well that it will bear repetition. The duration of the disease may be divided into three stages: The first, the time during which the pathologic lesion does not excite the notice of its host; this may be called the latent period; second, the time during which the patient delays on account of ignorance or timidity before seeking the advice of his physician, and third, the time the physician spends in making up his mind what to do. Few diseases amenable to surgical treatment become incurable during the latent stage. The better results of operative intervention in the early stage soon reach public attention, and for this reason delay due to the procrastination of the patient will undoubtedly decrease in pretty direct proportion to the rapidity with which we improve our own shortcomings. It is the duty of large clinics to demonstrate to the general profession by a series of careful observations the better results of early operative intervention in the various surgical diseases. Then the responsibility rests with the general profession. It is the surgeon's responsibility to reduce mortality by improvement in surgical technic; it is the general practitioner's responsibility to train himself to recognize surgical lesions in that earlier stage in which with improved technic the chances for the patient's immediate and ultimate relief are the best.

[*To be continued.*]

AMERICAN RÖNTGEN RAY SOCIETY.

The Fifth Annual Meeting Held in St. Louis, Mo., September, 9, 10, 12, and 13, 1904.

[Specially reported for *American Medicine.*]

(*Continued from p. 580.*)

Discussion.—CHAS. L. LEONARD said that he had examined 328 cases for renal calculus and had made a positive diagnosis in 96 cases. He has had 10 errors. Twenty-eight cases of kidney stone were operated upon. Of 46 cases of ureteral stone, 26 passed by natural methods, and the remaining 15 were removed by operative methods. He uses a tube having a fixed vacuum, which is essential to prevent the penetration of the smaller calculi. The patient is placed on the back with the shoulders elevated and the knees drawn up, producing a normal curvature of the spine and bringing the back in close apposition to the plate. That position prevents the motion of the diaphragm and obviates the use of a compression apparatus, except in very stout people. Time of exposure, 5 to 10 minutes. P. H. Hickey (Detroit) testified to the value of a compression apparatus, especially in the hands of inexperienced operators. Another advantage of this apparatus is that it permits of accurate setting of the tube; it entirely obviates the use of a plumb line. M. Kassabian emphasized the importance of perfect development of the plate when radiographing for calculi. Grubbe thought that this compression apparatus has been overestimated; that perfect technic is the only essential in the making of good radiographs. He straps the patient to a table with a 6-inch roller bandage, thus preventing movement and still bringing the parts near to the plate.

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[1] Zentralblatt für Chir., 1904, Bd. xxxi. No. 6, p. 146; Archiv für klinische Chir., 1904, Bd. lxxiii, p. 975; Mittheilungen aus den Grenzgeb. d. Med. u. Chir., 1904, Bd. xiii, p. 399.

The Interpretation of Radiographs of the Chest.—P. M. Hickey (Detroit, Mich.) said that in order to do the best work in this field, it is necessary to have a perfect tube; mastery of the tube; a stable secondary current; development of the plate by reducers, which will secure the greatest detail and maximum contrast; to know the position of the target of the tube with reference to the area exposed; that the observer be experienced in the reading of these negatives; to make the exposure as rapidly as possible and still to secure the greatest amount of contrast, and a stable illumination of the negative by means of the illuminating box. Care should be observed to differentiate between physiologic conditions and the pathologic, such as a vigorously pulsating aorta and an aneurysm of the aorta. Hulst agreed that rapid exposures are necessary in order to get rich details and contrast, but he did not think that skiagraphy is as valuable in diagnosis of diseases of the chest in most cases as is fluoroscopy. The fluoroscopic picture is the nearest approach to a postmortem examination. This is especially true in incipient tuberculosis. Pfahler corroborated that physiologic conditions may be mistaken for pathologic lesions of the aorta and cited two cases illustrating this point. Leonard said that postmortem study after skiagraphy is of the greatest value and should be made whenever possible. Fluoroscopic diagnoses are always open to question, especially in chest examinations. It is impossible to make a diagnosis of tuberculosis by fluoroscopic examination. With the skiagraph the possibility is greater. They give confirmatory evidence rather than primary proof of the presence of disease. M. I. Wilbert (Philadelphia) said that if a large screen is used (14 x 20), more information can be obtained from a fluoroscopic examination than from a photographic plate. Care must be taken, however, that the operator does not become too interested in his work and spend too much time over it and at the risk of burning his hands. H. H. Snook (Philadelphia) said if a large fluoroscope is used, of the open screen type, large enough to cover the chest, there is no necessity that the operator expose himself to the rays.

The Röntgen Ray in Injuries near the Wrist.—Wilbert called attention to the fact that fractures of the lower end of the radius are frequently complicated by other more or less extensive injuries of the other bones that enter into the formation of the wrist-joint. Fractures of the carpal bones are more common than is supposed, and for this reason it is desirable, when radiographing for fracture in or near the wrist-joint, to include in the radiograph as much of the surrounding structures as possible, because only in that way is it possible to find fractures of the carpal bones, the metacarpal bones, and the ulna and radius are higher up. Radiographs should also be taken from at least two sides, as otherwise a fracture might go undiscovered. The radiograph should be made as soon after the occurrence of the injury as possible, in order that a perfect picture of the fracture or injury can be made and the true condition ascertained. (See *American Medicine*, September 17.)

Discussion.—Hickey, Kassabian, and Cook agreed that the skiagraph should be made early, and even in cases in which there is no evident displacement, cases that are diagnosed as sprains, because these are frequently fractures of the styloid process or impacted fractures of the radius.

Diagnosis of Brain Tumors and Softening.—Geo. E. Pfahler cited 30 cases of brain tumors and abscesses of the brain, and showed slides of many of these. He believes that it is possible to show in a skiagraph of the brain most large lesions, such as newgrowths, hemorrhages, softening and abscess, but he would never take the responsibility of an operation on the brain purely upon skiagraphic evidence. The value of the röntgen ray in brain lesions, as a diagnostic measure, is at present somewhat dubious.

Discussion.—Kassabian is of the opinion that the position of the plate or the tube and the varying degrees of thickness of the skull may be sources of error in diagnosing tumors of the brain. Egelhoff referred to a case of softening of the brain, in which he was able to make a skiagraphic diagnosis. Hulst called attention to the fact that this work is not only extremely difficult, but also, to some extent, dangerous. The different thicknesses of the skull mentioned by Kassabian may cause confusion. As corroborative evidence, the skiagraph of the skull is all right, but as a diagnostic measure it is not very reliable. Cook agreed with the previous speakers, and remarked further that a different angle of the tube or plate would be the cause of error in showing confusing shadows.

The Value of Stereoscopic Skiagraphy, with Practical Demonstrations of the Process and Technic.—Kassabian showed a stereoscopic apparatus, which was commented upon very favorably by many present.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

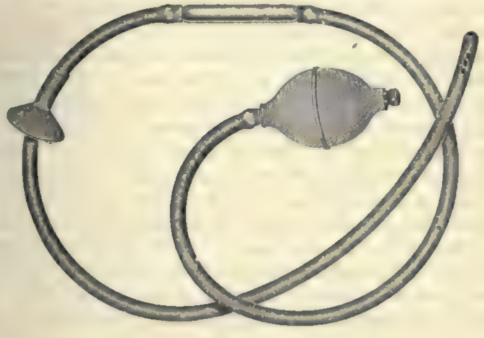
A SIMPLE STOMACH AND COLON APPARATUS.

BY
RICHARD F. CHASE, M.D.,
of Boston, Mass.

The variety of stomach tubes carried by dealers, together with their various attachments designed for diagnostic and therapeutic purposes, is greater than many suspect. Such variety has, in the main, resulted from the ingenuity and attempts of various physicians to produce a stomach tube or apparatus possessing certain advantages over other tubes. Notwithstanding this considerable number of tubes, there are but two patterns of stomach tubes proper, that are extensively used. They are the Ewald and the Jaques patent, or tubes made in more or less close imitation of these. The Ewald tube has an opening in the end, a side eye, and on the opposite side five small holes. The Jaques patent (sometimes called the Boas tube) has a solid end with an eye on either side at different distances from the end. Both tubes are about 30 inches long. The size most commonly used is a 30 F. or 31 F.

While one may occasionally hear these tubes adversely criticised, the fact that such men as Ewald, Riegel, and Boas use and recommend one or the other is sufficient guaranty that they are well adapted to their purposes. Probably neither tube can be much improved upon, but the poor imitations made here in America, as a rule, lack several of the good features possessed by the original German tubes. It is perfectly natural that some should prefer the Ewald tube and others the Jaques tube.

A stomach tube proper, however, does not constitute the apparatus required for the various diagnostic and therapeutic purposes in treating stomach diseases. Such an apparatus must consist of parts which will enable one (1) to obtain the stomach contents; (2) to inflate the stomach; and (3) to wash out, or douche the stomach. But, strange to say, no such complete apparatus has thus far been carried by the instrument dealer. To be sure, there is the old-time long tube, having a soft rubber tunnel and a bulb in the middle (Friedlieb's apparatus), which might be used for such purposes, but it is not much used for the reason that it is not well adapted. There are also other devices designed for either lavage, aspiration, or inflation, but not for all these purposes. Consequently the physician who desires an apparatus for these several purposes must have it made to order. The apparatus most commonly employed consists of the following parts: (1) An Ewald or Jaques tube; (2) a connecting tube with a glass connector; (3) a hard rubber or glass tunnel; (4) a Politzer bag, Boas aspirator, or other aspirating bulb; and (5) an inflation bulb.



To obtain the stomach contents with this apparatus, the stomach tube proper alone is used, if "the expression method" is employed, or, if aspiration is desired, the Politzer bag or Boas aspirator must be used. To wash out the stomach, the aspirating bulb must be detached and the connecting tube with tunnel connected to the stomach tube. To inflate the stomach, the tunnel must be detached and an inflation bulb connected. The cost of such an apparatus varies from about three to six dollars, and when one has it, it is not a simple device, easily operated without an assistant. Yet it can be, and is operated by the physician alone, who, during the greater part of the procedure entrusts the tube to the care of the patient. Those who have become accustomed to this apparatus and know of no better, are probably well satisfied with it. I formerly used it, and have learned its disadvantages. They are as follow: 1. To carry out aspiration of contents, inflation, and lavage of the stomach, *three* disconnections and connections are necessary. This is inconvenient, and requires time. 2. The stomach tube proper must be left in charge of the patient during the greater part of the proceeding. Cases are reported in which the patient has accidentally swallowed the short tube. This accident may happen to any one. Regurgitation of the tube may occur at any time when left in the care of the patient. This is merely an unpleasant occurrence.

These objections may not seem serious, and to those who are familiar with the use of this apparatus, they may seem too slight to be worthy of notice. But, after having once become accustomed to a more simple device which entirely does away with all of these objections, the drawbacks of the more complicated apparatus here described will be appreciated.

The simple device to which I refer consists of an Ewald or a Jaques tube, to which is connected with a glass connector, another tube of the same length and caliber, to which is connected a *valveless* bulb. These parts constitute the apparatus. While I have employed a similar apparatus for the past several years, and found it both convenient and practical, it is not until recently that I have so far perfected it as to be willing to subject it to public opinion.

This[1] I have done to a limited extent, and the comments received have been so generally favorable that I now desire to bring the tube to the further attention of physicians. The device in itself, with the principle involved, is exceedingly simple, and herein lies its chief virtue.

Parts in Detail.—The stomach tube proper of the Ewald pattern has an opening in the end, the sharp edges of which have been rounded, the side eye is extra large and well shaped for its purpose, on the opposite side are five small holes. The advantages of these slight modifications of the ordinary tube must be evident. On account of the construction of the end of the tube, when fluid is injected, it escapes from all of the holes, thereby furnishing a spray or douche. The other stomach tube which may be used, if desired, has a closed end, with an eye on either side, at different distances from the end. Both tubes, as thus far made, are not of uniform stiffness, but they are somewhat stiffer than the average stomach tube. The extra stiffness, however is not due to increased thickness of the walls, which would diminish the caliber of the tube. The length of the tubes is 30 inches. They are marked at about 22 inches with a white band. The sizes made are 31 F. and 34 F. To the stomach tube proper is attached a detachable and adjustable saliva shield. This device directs the flow of saliva into the pocket of the rubber apron, or onto the bib or towel used, thereby preventing it from mixing with the stomach contents or escaping on to the office floor. It obviates one of the annoyances of lavage, etc., and I trust may be found of service. The connecting tube is of the same length and caliber as the stomach tube proper. The glass connector is especially made for its purpose. Beside serving its purpose as a connector it affords a view of the contents as they flow through the tube, so that one can readily detect the presence of blood, mucus, etc.

The bulb is the special feature of the apparatus. It has been acquired only after considerable experience with larger and smaller bulbs of varying degrees of stiffness, both with and without valves. This bulb just fits the hand. Its capacity is 3 oz., or 90 cc. The walls of the bulb are extra heavy, thereby affording good suction power and durability. By using the thumb as a valve, either suction or injection can be employed without reversing the ends of the bulb, as would be necessary in the case of a bulb with valves. Moreover, valves in a bulb are very liable to become clogged. No stopcocks are required. The hard rubber connectors are so fitted into the ends of the bulb that the lodging of food fragments, etc., is prevented. The entire apparatus is easily disinfected by washing the outside and injecting through the tube warm water with soda bicarbonate (½ dr. soda to 1 pint water) and then leaving in a solution of formalin 1 to 1,000.

How to use it: Hold the tube in the left hand, and the bulb in the right hand, palm up.

To obtain the stomach contents: Introduce tube and instruct patient to express contents into a beaker placed upon the floor or a low stool, or if aspiration is desired, pinch tube with left thumb and finger, compress bulb and apply right thumb to end, then allow bulb to expand. The tube may always be retained by the operator's left hand held close to mouth. Should the eyes of the tube become plugged, the injection of one bulb of air dislodges plug.

To douche the stomach: Immerse the bulb in a basin of water, keeping it below the surface of the water to prevent entrance of air. Fill bulb, apply thumb, then compress bulb. This injects fluid into the stomach; pinch tube with the left thumb and finger to retain it. The quantity of the fluid used may be measured by the number of bulbs used, each bulbful being 3 oz., or 90 cc.

To inflate the stomach: Apply right thumb to end of bulb, then compress the bulb, this injects air into the stomach. Pinch the tube with the left thumb and finger to retain it. Repeat this process until the stomach is sufficiently distended, then allow the patient to pinch the tube. The operator's hands are thus left free to palpate and percuss the stomach. The air is allowed to escape at any desired moment, simply by having the patient release the tube. This entire proceeding is carried out without making a single connection or disconnection, and the tube is always retained by the operator's left hand, except after inflation of the stomach.

In self-lavage the advantages of this apparatus must be apparent. The patient sitting, holds the tube close to the mouth with his left hand, while with the right hand he injects water from a basin placed on a table. He then allows it to flow into a receptacle placed upon the floor.

In cases of poisoning, evacuation of the stomach may be carried out more expeditiously and more thoroughly than by ordinary lavage.

By detaching the bulb and connecting the funnel, an ordinary stomach tube may be had at any time, if desired.

By substituting a "Rosenheim tube," a tube with four rows of small holes, 20 to 30 in number, douching of the stomach may be carried out most effectually.

By using a colon tube in place of the stomach tube, inflation of the colon may be done, and high enemas and rectal injections administered.

The colon tube which comes with the apparatus, if desired, is a 30-inch tube of extra stiffness, with an end opening only, the sharp edges of which are avoided. The Rosenheim tube may be procured with the apparatus, if wanted.

The only adverse criticisms which the apparatus has thus far received, pertain to the dangers of aspiration and injection. The liability of tearing off a piece of the gastric mucosa by suction, is a danger common to the use of all aspirating bulbs. By using only the two tubes here described, I believe that this danger is reduced to a minimum. In the injection of fluids, too much force can be used. This will cause discomfort to the patient.

In several years' experience with this apparatus and a similar one, I have never had any accident nor seen any untoward effects from its use. In placing this apparatus, so simple in construction and so easily operated, in the hands of the general physician, I believe he will be led to undertake more thorough examinations of the stomach, and consequently render better treatment.

The apparatus has been acquired after considerable experience with various kinds of stomach apparatus, and while no claim of originality is attached to it, I believe no like device, involving the same modus operandi, has ever before been offered physicians.

My thanks are due the Davidson Rubber Company, who by their many helpful suggestions, have enabled me to bring the apparatus to its present state of perfection. The apparatus will be manufactured and furnished the instrument dealers by this company.

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[1] Exhibited at the meeting of the Massachusetts Medical Society, June 8, 1904.

ORIGINAL ARTICLES

GASTROPTOSIS, WITH SPECIAL REFERENCE TO THE SURGICAL TREATMENT: THE OPERATION OF GASTROPEXY.*

BY

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The condition known as Glénard's disease, enteroptosis or splanchnoptosis was first described by Glénard in 1885. For several years following this first description the disease was considered to be of rare occurrence, was looked upon as simply an interesting displacement of abdominal organs, a condition incapable of producing symptoms of importance, and its treatment unnecessary and at most unsatisfactory. With the more careful studies of the symptomatology and diagnosis of abdominal diseases by the internist during recent years, particularly the last six or eight years, it has become determined that such descent of one or more of the abdominal viscera as described by Glénard is a very frequent cause of pronounced and persistent ill-health, especially in women, demanding the most painstaking medical and mechanical, and now, at the present day, often surgical treatment. The disease and its treatment are today being widely studied, and our knowledge of its influence and treatment is in a rapid progress of development.

While it may be said of the specialist in medicine, as regards his knowledge of Glénard's disease, that he recognizes its presence, its pathologic influences, and carries out a systematic and satisfactory treatment, the majority of general physicians seems as yet unfamiliar with its great frequency; it is still believed to be a rare disease and the suffering induced by it is being widely treated as indigestion, dyspepsia, hysteria and neurasthenia.

Glénard's disease or enteroptosis is a term given in a broad sense to the symptom-complex resulting from the downward displacement of one, two or more of the abdominal viscera, especially of the stomach and transverse colon, the right and sometimes the left kidney, the small intestines and more rarely the liver. The disease is also described by recent writers according to the organ chiefly displaced and causing the major part of the symptoms complained of—thus, when the stomach is the organ ptosed, it is known as gastroptosis; the kidney, as nephroptosis; the liver, as hepoptosis, etc.

It is not my purpose to consider the whole subject of abdominal visceral ptosis, for such would require too much time and be confusing, but to direct attention to that class of Glénard's disease in which the stomach is prominently displaced, and in which displacement and the incident secondary changes are resultant invalidism. Therefore, to gastroptosis. Further, I shall not enter into any very detailed description of the symptomatology, diagnosis and medical and mechanical treatments, (for this I would refer you to much modern literature), but to the newer, and I believe fast becoming more interesting and important, the surgical treatment, the operation of gastropexy.

Gastroptosis is the falling or descent of the stomach to a more or less vertical position, existing alone or in association with a similar descent of one or more of the other abdominal viscera.

Taking the aspect of all recent observers who have made a careful study of the subject of gastroptosis, this malposition of the stomach is to be considered a frequent disease, much more frequent than is generally appreciated, and a common cause of chronic invalidism. The frequency can be estimated from the recent publication of Steele and Francine, that 70 of these patients were observed and treated within a period of two years in one of the medical dispensaries of the University Hospital. Glénard found the disease 400 times among 1,300 patients, and the statistics of other writers show about this same ratio of frequency. It is a sufficiently common disease to warrant a careful physical examination for its detection in the patients who so often come to the practitioner complaining of the symptoms of atonic dyspepsia.

The etiology of the downward displacement of the stomach and the lengthening of the gastrohepatic and gastrophrenic ligaments to permit the ptosis is not definitely known. However, there are two sets of causes which are generally believed to exist. These are the predisposing and the exciting. The former consists of congenital weakness and hereditary predisposition, the patient with gastroptosis representing an almost characteristic type of individual. From my personal observation, from the viewpoint of the surgeon, and considering the anatomy of the ligamentary supports of the ptosed stomach as seen at operation and the fact that they are simply of abnormal length without demonstrable change in structure, it would seem that, at least in those cases which have come under my care, the condition is wholly congenital, existing undiscovered until secondary changes take place, symptoms arise and examination discovers its presence.

The exciting causes are thought to be tight-lacing, particularly in the wearing of the older makes of corset, rapid emaciation, and changes in the intraabdominal pressure, due to constricting bands or relaxation of the abdominal walls or diastasis of the recti muscles. But there is no proof to show that these exciting causes are truly active in the production of the displacement, indeed, there is much contradictory evidence. About three-fourths of the cases, and quite always the severer forms, have been observed in the female sex.

In gastroptosis there takes place a descent of the pyloric end of the stomach until the organ occupies a more or less vertical position in the abdomen. The cardiac end maintains proximately its normal position, while the pylorus is depressed downward and toward the median line. The shape of the ptosed stomach has been aptly compared by Kelling to a fishhook, of which the length of degree of curvature is variable. According to the degree of ptosis, whether the descent of the pylorus is incomplete or complete, two varieties are described, the subvertical and the vertical gastroptosis.

That the stomach ever descends as a whole is very questionable, although such is claimed by Riegal and others. In gastroptosis the gastrohepatic and gastrophrenic ligaments, mostly the former, are greatly lengthened or stretched out, possibly are congenitally of abnormal length, while the attachments of the duodenum remain about normal length. It is probable also that more or less kinking of the duodenum near the pyloric orifice takes place through the change in position of the stomach. This kinking forms an obstruction to the discharge of food through the pyloric orifice.

The fishhook shape of the stomach, the failure of the duodenum to descend with the stomach, with the dependent position of the pyloric end, it will be appreciated, must at once markedly modify and disturb the physiologic function of the organ. It becomes difficult for the peristaltic action in the muscular wall to carry or force the prepared food up the hill and out into the duodenum. In many cases, regardless of this difficulty and increased work, the stomach walls remain sufficient, no symptoms arise, and the patient continues in good health, regardless of the position of the stomach.

In other cases, the wall of the pyloric end of the stomach with the excessive work, increased demand upon the stomach muscle, loses its tonicity and becomes insufficient; the prepared food is very, very slowly forced out into the duodenum, it remains in the stomach an abnormal length of time and undergoes fermentation. There is present gastromotor insufficiency. In still other cases this motor insufficiency of the stomach wall is followed by a greater or less degree of dilation of the pyloric end of the stomach. There exists a primary gastroptosis with secondary dilation. It is believed also that a general dilation of the stomach occurs, mostly in men, as the primary condition and gastroptosis results, as the secondary condition.

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* Read before the Lycoming County Medical Society, Williamsport, Pa., March 11, 1904.

It should, therefore, be noted, that four classes of gastroptosis exist: 1. Gastroptosis with musculomotor sufficiency, the tonicity of the walls of the stomach being so great as to be compensatory; no symptoms result, and the patient remains in good health. These are common cases. 2. Gastroptosis with gastromotor insufficiency, and the production of symptoms of more or less severity. 3. Gastroptosis, with secondary dilation of the pyloric end of the stomach, gastromotor insufficiency, and the production of symptoms of generally a more severe type. 4. Primary general dilation of the stomach, with secondary gastroptosis, gastromotor insufficiency and again the production of symptoms. In the latter instance it is assumed that gastroptosis is an acquired condition.

The symptoms naturally are increased with the degree of motor insufficiency, and therefore usually with the degree of descent of the stomach and the amount of dilation.

The symptoms of gastroptosis are those of gastromotor insufficiency brought on by gastric and intestinal atony, by the mechanical disturbances caused by the descent of the organ just described, and neurasthenia. When food is taken into the stomach and prepared by the process of gastric digestion, the motive power of the gastric walls being insufficient, particularly at the pyloric end, it is not carried up the hill and out through the pyloric orifice. The stomach wall is physically unable to accomplish this physiologic task, at least only with prolonged and difficult effort. The food, therefore, remains in the stomach an inordinate length of time, undergoes fermentation, and is a marked factor in the production of the symptoms of which the patient complains. Hypochlorhydria is usually present.

The patient comes to the physician complaining of a sense of pressure and fulness in the epigastric region. The sensation of pressure and fulness is often the chief symptom complained of, and present to such a degree as to cause the patient to be unable to assume the erect position for any great length of time. There is often abdominal distention and flatulence. There is pain (gastralgia) coming on at irregular intervals and independent of the digestive act or quality or quantity of food. Eructations are usual, and nausea and vomiting frequently complained of. There are numerous pains during bodily exertion. Intense lumbago is a frequent symptom. The patient is usually and often profoundly neurasthenic. The neurasthenia in the cases I have observed has always been induced by the gastroptosis. The nausea and vomiting in the more severe cases occur several times each day, little food is retained, the patient becomes more and more emaciated, neurasthenic, feeble, and anemic, even bedridden and a confirmed invalid. A small percentage dies as a direct result of the disease.

The picture, in a few words, is that of chronic severe atonic dyspepsia, with neurasthenia and increasing emaciation. The patient, even in the milder cases—I refer to those in which symptoms are present—is always ill, unfit for social, domestic or business duties; nervous and unhappy.

The diagnosis of gastroptosis is made by careful physical examination, chiefly by inflation of the stomach and outlining its position by means of auscultatory percussion. The type of individual suffering from this condition, as stated, is often characteristic. They are usually emaciated and often anemic, as is seen in other severe disturbances of the gastrointestinal tract. They are long-waisted, and have an indescribable but characteristic appearance. The abdomen is usually flat, but may be pendulous or even fat. In some cases the abdominal walls are relaxed.

Inspection shows abnormal flatness in the epigastric region, with fulness below and about the umbilicus, the fulness representing the displaced organ.

With practice and experience, the patient in the recumbent position, light percussion of the abdomen will usually permit the examiner to outline more or less definitely the undistended stomach. Beginning below and proceeding upward the more tympanitic note (gastric tympany) is recognized as the lower border of the stomach is reached, and the absence of this same note as the upper border or lesser curvature is passed; the lateral borders are recognized in a similar manner. Often, the stomach being partially filled with retained food, a splash is detected as percussion is practised over the position of the stomach, and as soon as its borders are reached. In this way, with practice and care, marking the point of beginning of gastric tympany with the pencil, even the undistended ptosed stomach may be often satisfactorily outlined. This method, however, is subjected to error, should only be employed to suggest the presence of gastroptosis, and must always be followed by one of the methods of inflation of the stomach and auscultatory percussion. This is particularly true when the abdominal walls contain much fat.

The stomach may be inflated by one of two methods —by carbondioxid gas, or by air introduced through the stomach tube.

The inflation by carbon dioxid gas is an old method, but is still employed to some extent. It has the advantage that the stomach-tube does not have to be employed and it is a quick method, but it has the very great disadvantage that the amount of distention cannot be controlled, and that the gas escaping quickly, little time is permitted for an accurate examination. The method is briefly as follows: Four grams (1 dr.) of sodium bicarbonate and 2 gm. (30 gr.) of tartaric acid are dissolved separately in small amounts of water. The patient drinks first the soda and then the acid solution. Excessive distention will not occur with these amounts of the reagents. The larger quantities recommended by Meinert, 8 gm. (2 dr.) and 6 gm. (1½ dr.) of soda and acid respectively, I feel are dangerous, on account of the risk of overdistention.

The method of inflation which is generally practised in this country and is found most satisfactory, is the introduction of the stomach-tube and distention by forcing air into the stomach by a syringe apparatus. This procedure should be practised at least two hours after a meal and should be preceded by lavage. The stomach-tube should be introduced and the stomach twice filled with normal salt solution and emptied. A Davison syringe, or better, the bulb of an ordinary atomizer apparatus, to which is attached a small nozle, is then inserted into the stomach-tube. The air should be pumped into the stomach at first rapidly, so as to cause a spasm of the pylorus and prevent the escape of air into the intestine, and then slowly until the stomach is inflated just short of producing a sense of fulness. It is found this degree of distention will remain for the greatest length of time and permit a thorough examination.

Inspection at once determines the position of the stomach, also the organ may be palpated through the abdominal wall. To outline the stomach accurately, auscultatory percussion is necessary. With this procedure you are of course familiar.

Auscultatory percussion is often very much facilitated by being practised while the inflation is in progress or, rather, is slowly continued. By forcing the air through the tube, a peculiar metallic ring can be heard with the stethoscope placed over the stomach. When the bell of the instrument is moved along beyond the stomach limits the sound instantly loses its metallic character.

The illuminating method of Einhorn, called the gastrodiaphane, I mention simply to say that it is impractical, and the instrument is expensive and has no advantages over the method just described.

By these methods, we are always able to determine accurately the presence of gastroptosis, to outline definitely the stomach, and thus discover the presence or absence of an associated dilation. The diagnosis of dilation of the stomach is not an easy matter, the stomach being dilatable and not dilated. Thus in most of the cases in which I have operated and in which a dilation had been diagnosed I was surprised to find the organ of normal size.

Appreciating the anatomic changes taking place in gastroptosis, and the course of the symptoms, the indications for treatment would naturally be as follows: An attempt to restore the position of the stomach; restore the tonicity of the gastric wall and thus lessen the dilation; to prevent fermentation of food; and support the abdominal walls.

Tight-lacing and the hanging of heavy clothing from the waist-band should be absolutely forbidden. The patient, if a woman, should be recommended to wear the modern straight front corset, which exerts pressure over but the lower portion of the abdomen, and this corset should be fitted with an arrangement by which the weight of the clothing is supported from the shoulders. The conduct of the patient's life should be rigidly scrutinized and corrected. Rest for at least an hour after meals in the recumbent position, with the clothing loosened, is a very useful measure. It acts by giving the stomach an opportunity to force the food into the duodenum with lessened effort. The patient should take but small amounts of food and at frequent intervals. The diet should be easily digestible and suited to the conditions of the gastric secretions, and should be so arranged that the food may be rapidly rendered fluid, and so easily discharged into the duodenum. Any stated diet cannot well be given, but the character of the food must depend upon the amount of hydrochloric acid secreted, and also upon the presence or absence of dilation.

The two important measures in the medical treatment, are that the amount of food be small and that the patient rest after eating. The abdominal wall, and to some extent the stomach, must be supported by a properly selected, adapted, and accurately fitting abdominal binder; so arranged as to exert pressure from below upward and backward. The ordinary elastic abdominal supporter is best for this purpose. This binder has for its object the support of the abdominal walls, increase of intraabdominal pressure, relief of splanchnic congestion, support and slight elevation of the stomach, and relief of the sensation of weight. The patient is always greatly relieved by its application.

In a few cases, systematic lavage is of value, but if the mechanical support is correctly applied it will be found unnecessary. Strychnin and other tonics may be of value in the particular case. Massage, electricity, cold water applications, and abdominal gymnastic exercises to strengthen the abdominal muscles and increase the intraabdominal pressure, have been advised, but I believe are of little if any value. The medical and mechanical treatments when skilfully and persistently applied in a large proportion of cases give much, sometimes complete symptomatic relief, and the patient is able to live on in more or less comfort. The patient remains constantly under observation, and is never, it must be admitted, restored to excellent health.

These treatments are those popularly and extensively employed throughout the world today, and are believed to be satisfactory. In a considerable percentage of cases, those associated with severe symptoms, these treatments give little or no relief, the dyspeptic symptoms continue severe, the neurasthenia is profound, and the emaciation continues; the patient seems destined to chronic invalidism, and the physician is at his wit's end to discover a remedy which can promise any relief. In a few such cases the operation of gastroenterostomy has been performed. This brings me to the consideration of the surgical treatment of gastroptosis.

The surgical treatment of gastroptosis is of recent development; the first operation was practised by Duret,[1] of Lille, in 1894. This operation, that by Davis, in 1897, and until the time of that devised and practised by myself, in 1898, were instituted and practised for the elevation of the stomach in the rare cases of gastroptosis in which the suffering was so great that medical and mechanical treatments gave no relief, and imperative measures were necessary to save the patient's life. In other cases the relief and comfort gained by the medical and hygienic measures described were deemed sufficient.

For the understanding of the application, the principle and value of the surgical treatment, it is necessary that I briefly describe to you the method of surgical procedure practised by the few who have up to the present time performed this operation of gastropexy.

In the case operated upon by Duret, the patient was a married woman of 51, who had suffered for three years with the severe symptoms of gastroptosis; she was extremely emaciated, and weighed but 84 pounds. The greater curvature of the stomach was outlined four fingers' breadth above the symphysis. The operation which Duret practised on this patient consisted in passing a continuous fine silk suture from right to left, through first the fascia, muscle and the peritoneum of the abdominal wall, the serosa and muscularis of the stomach near the lesser curvature, then twice at intervals through the parietal peritoneum left intact in the incision and the serosa and muscularis of the stomach, following the line of the lesser curvature, and finally through the peritoneum, muscle, and fascia of the abdominal wall of the opposite side. This suture was placed in the wound just below the xiphoid cartilage. When the suture was knotted, the stomach was elevated and the lesser curvature firmly fixed to the abdominal wall. Two years afterward the patient's health was greatly improved and she had gained 25 pounds in weight. There is no report of a second operation.

Davis[2] next, in 1897, operated upon two patients, attaching the lesser omentum near the lesser curvature of the stomach to the parietal peritoneum in the same position by means of fine silk interrupted sutures. There were numerous adhesions in one, enteroptosis in both cases, and the operation was supplemented by shortening the mesentery of the small intestine in both, the gastrocolic omentum in one, and gastrorrhaphy was performed in the other. There was apparently no improvement.

During the years 1897 and 1898 the late Dr. William Pepper and Dr. Alfred Stengel had under their care a patient suffering with the severe symptoms of gastroptosis, in which every medical and mechanical treatment, including a prolonged rest cure, had been faithfully applied without distinct benefit. The patient was a chronic invalid. At this time (March, 1898) Dr. Pepper suggested to me that some operative procedure might be undertaken to restore the stomach to normal position in this patient. We were not aware that the surgery already described (the operation of Duret and Davis) had been applied in this condition. After a careful study of the anatomic relations and the ligamentary supports of the stomach on the cadaver, and considering the importance of the preservation of the physiologic mobility of a hollow viscus, particularly the stomach, I devised and practised for the first time on April 19, 1898, the following operation:

Operation.—The patient, after having been prepared for the operation of celiotomy and anesthetized, was placed upon the Bolt operating-table in a position opposite to that employed for operations through the lower portion of the abdomen. The object of this position was to permit the elevation of the chest and upper portion of the abdomen, which would allow gravitation of the intestines and stomach out of the field of operation and give the greatest operative space, in order to gain every advantage of the Trendelenburg position. The skin of the abdomen was then scrubbed with ether, alcohol, and mercuric chlorid solutions, and surrounded by sterilized towels. An incision about three inches in length was made through the linea alba, midway between the xiphoid cartilage and the umbilicus. The tissues were separated in the usual manner and the peritoneal cavity opened, exposing a small portion of the lesser curvature and cardiac end of the stomach, the gastrohepatic ligament or omentum, gastrophrenic ligament, and the lower portion of the left lobe of the liver. The table was then elevated to the Trendelenburg position, and the stomach displaced still further downward and out of the wound by means of gauze sponges. This procedure caused the gastrohepatic and gastrophrenic ligaments to be slightly stretched and separated from the underlying structures, which permitted an accurate determination of the length of these ligaments, and very much facilitated operative manipulations. The gastrophrenic ligament was seen well developed, and evidently formed a strong support to the cardiac end of the stomach. The joining portion of the gastrohepatic ligament was composed of thin, delicate peritoneum, increasing in thickness and strength toward the right or pyloric end of the stomach. Retractors were introduced and the liver held aside by placing a gauze sponge beneath a retractor. Three rows of interrupted sutures were then introduced so as to plicate and thus shorten the gastrohepatic and gastrophrenic ligaments in the following manner: The first row, beginning in the gastrophrenic ligament and extending across the gastrohepatic ligament to almost opposite the pyloric orifice and hepaticoduodenal ligament, was introduced so as to form a plication in the center of these ligaments, and included from above downward or vertically about 4 cm. of tissue (Row No. 1).[1] They were practically mattress sutures, including sufficient of the delicate tissue (1 cm.) to insure against their tearing out. Five sutures about an inch apart, were introduced from right to left, and caught in hemostatic forceps. The next row (Row No. 2) of sutures was introduced in the same manner, but 2.5 cm. above and below the first row. Then a third row (Row No. 3) was introduced below, just above the gastric vessels, and above, a short distance below the diaphragm and liver. The suturing was strictly confined to the normal ligamentary supports, and the distance between the rows from left to right was increased with the length of the ligaments, being greater toward the right. The gauze sponges were then removed, and the first, then the second, and finally the third row of sutures secured, the stomach, particularly the pyloric end, being elevated to a little above the normal position. The abdominal wound was closed by suturing the peritoneum with catgut, fascia with catgut, the skin by an intracutaneous silk suture, and three reinforcing mass silkwormgut sutures passed through the skin and fascia.

The wound was dressed by two layers of sterile gauze held in position by antiseptic collodion, covered with several more layers of sterile gauze. In order to assist in giving support to the stomach and aid in preventing traction upon the sutures during the early part of the convalescence, a large compress of gauze and cotton was placed over the lower two-thirds of the abdomen, and the dressing and compress held in place by a many-tailed flannel binder. Fine silk (No. 3) was employed for suturing the gastrohepatic and gastrophrenic ligaments. The needles were small, curved, and round-pointed. This particular needle was selected to prevent tearing of the tissue in the introduction of the sutures. Care was taken to place the sutures evenly and accurately without causing tension. Each suture also caught the greatest possible amount of tissue practicable, in order to give the greatest strength and form a wide adhesion.

After the operation, which continued for 40 minutes, the patient's convalescence was normal, the suffering being not greater than after a simple exploratory celiotomy. After the first five hours the pulse was never more frequent than 78, and the temperature but once reached 100° F. She was given nothing by the mouth for 24 hours, except small quantities of hot water. The usual postoperative treatment was followed, except that the lower end of the bed was elevated. The bowels were open at the end of 48 hours. The patient was kept on small amounts of liquid food, frequently administered for a week, and confined to bed in the recumbent position for four weeks.

The principle of this operation is that by placing three rows of interrupted silk sutures from above downward, and from right to left through the gastrohepatic and gastrophrenic ligaments, a single, broad, transverse fold or plication is formed in the ligaments, shortening these ligamentary supports and elevating the stomach to normal position. The normal ligaments are shortened and the stomach elevated to position without in the least disturbing the physiologic mobility of the organ. I have since operated upon 4 additional patients by this method; Dr. Edward Martin, of Philadelphia, 2, and Dr. Charles Mayo, of Rochester, Minn., 3, making in all 10 patients operated upon.

A brief history of my own cases follows:

CASE I.—M. A., aged 25, single, white, no occupation, home in New Jersey, was admitted to the University Hospital April 2, 1897. She had good health until April, 1893. She complains of eructations of wind after eating, pain and fulness over the epigastrium, attacks of nausea and vomiting, is much emaciated, very nervous, and an invalid. Physical examination determined a floating right kidney. On inflation and auscultatory percussion the stomach outlines reached from a half inch above the umbilicus (lesser curvature) to a point two-thirds the distance from the umbilicus to the pubes (greater curvature). The operation of nephropexy was performed by Dr. J. William White on April 21, 1897, and after the convalescence the patient left the hospital. She was admitted for the second time on October 9, 1897, complaining of the same symptoms, having received no benefit from the nephropexy. The position of the stomach was unchanged. During several weeks following, every medical and mechanical treatment and a prolonged rest cure were faithfully applied by Dr. Pepper, but without benefit. She returned to her home. She was admitted for the third time on April 11, 1898, complaining as before. At this time operation was suggested and performed as described, on April 19, 1898.

November 10, 1898: The patient stated she had gained 10 pounds in weight and was considerably improved in health. The lower curvature of the stomach was found a half inch below the umbilicus.

March 14, 1899: The patient states she is very much better, and has gained 19 pounds in weight. Position of the stomach unchanged.

June 23, 1902: Patient's physician writes that she has excellent health, takes any character of food, and has gained 40 pounds in weight since the operation. He believes the stomach to be in good position.

CASE II.—K. V. S., aged 36, married, primipara; two miscarriages; housewife, home in Philadelphia, was admitted to the Gynecean Hospital on October 12, 1901. She had good health until 11 years ago. She complains of loss of appetite, eructations, pain over the epigastrium, only relieved by vomiting. Symptoms worse each year, vomiting several times each week, fainting attacks for six months, and for three months has lived on nothing but ice-cream. Weight 102 pounds. Lesser curvature of the stomach at umbilicus. No diastasis of the recti muscles. Medical and mechanical treatments applied by Steele, Artelt, and others, for a year and a half. Operation October 17, 1901. Convalescence normal.

July, 1902: Reported in excellent health, free from all previous symptoms, takes any character of food, is attending to her own household duties, and has gained 23 pounds in weight.

December, 1903: Is the mother of a child. Excellent health continues.

CASE III.—M. D., aged 54, white, no occupation, multipara, home in New Jersey, was admitted to the Bridgeton, N. J., Hospital, May 1, 1902. Indigestion for a number of years. She complains of eructations; is able to take only small quantities of food, often no food for several days; nausea and vomiting two or three times each week. The patient is very nervous, greatly emaciated, and weighs 78 pounds. Medical and mechanical treatments applied by Dr. E. S. Fogg, of Bridgeton, for a year and five months. Lesser curvature outlined one inch below umbilicus. Operation May 8, 1902. Convalescence normal.

June 8, 1902: The patient feels well, and food causes no distress.

November 15, 1902: Takes any sort of food, has gained 18 pounds in weight, and is completely relieved of all previous symptoms.

CASE IV.—Miss K. D., aged 23, no occupation, home in New Jersey, admitted to the Gynecean Hospital, January 2, 1903. She had suffered for nine years, was profoundly neurasthenic, and practised lavage daily. She had had medical and mechanical treatments for a year, including six weeks' rest treatment, practised by Dr. John H. Rhein, with no benefit. This patient, regardless of the symptoms, was not emaciated. The stomach was in the subvertical position. It was a question as to whether she was not suffering more from an essential neurasthenia than gastroptosis, and we therefore feared operation would not greatly benefit her. Operation was performed on January 4, 1903. For four months there was no improvement, but in November of last year, 10 months after operation, she came to my office to say she was greatly improved, had discontinued lavage, and was going to work.

CASE V.—R. M. D., aged 36, a physician in Baltimore, had suffered with gastroptosis for 12 years. The symptoms were severe, and he was very neurasthenic. He had for a long time been under the care of Hemmeter, of Baltimore, then Osler, and had consulted a number of the stomach specialists of New York City. He had persistently tried every known method to gain relief, but without success. Seeing the last publication of the description of the operation I have described, he wrote asking that arrangements be made for him to enter the hospital for operation. The operation was performed in July, 1903, at the Presbyterian Hospital. A letter from him in January states that he is completely relieved of all previous symptoms, has taken up the practice of medicine for the first time in years, and has gained 14 pounds in weight. He now takes food of any character.

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[1] See illustration, University of Pennsylvania Bulletin, February, 1903.

The two patients operated upon by Martin, gained 20 and 25 pounds in weight, and are relieved of the previous symptoms. Those operated upon by Mayo, I have no report of.

Since the description of my first case (1900), Bier,[3] of Greifswald, Germany, has reported four cases operated upon in a somewhat similar manner. Three or four sutures were placed through the gastrohepatic ligament from right to left so as to form two plications, one above the other, in the ligament. The first suture attached the serosa and muscularis of the pyloric end of the stomach, at the lesser curvature, to the capsule of the liver, the others including only the ligament. Also, in two cases the shortening of the gastrohepatic ligament was supplemented by passing two sutures through the serosa of the lesser curvature of the stomach, and then through the capsule of the left lobe of the liver.

These cases were as follows:

Case I.—Frau, aged 36. She had continued pain in the stomach, loss of appetite, and for four years vomiting. Worse for two years, vomiting increasing; emaciation; weight 84 pounds; cachexia. Medical and mechanical treatments applied without relief. Lesser curvature at umbilicus. Two years and four months after the operation she gained 25 pounds in weight (110), and was relieved of all symptoms. Greater curvature a finger's breadth above umbilicus.

Case II.—Frau, aged 43; multipara, previously operated upon for gallstones and floating kidney. She complains of pain on eating, pain in epigastrium, little food taken, emaciation, and general weakness; weight 100 pounds; lesser curvature midway between umbilicus and symphysis. Operation. One year later pain relieved, feels well, and gained 12 pounds. Greater curvature three fingers' breadth below the umbilicus.

Case III.—A man, aged 59. Ill eight years, dyspepsia, nausea, vomiting, and pain in the epigastrium. Emaciated; weight 123 pounds; greater curvature four fingers' breadth below the umbilicus. Operation. Five months after the operation symptoms relieved, and had gained 14 pounds in weight.

Case IV.—Frau, aged 28. Multipara. She complains of pain after eating and fulness in the epigastrium. Nausea and vomiting. Emaciation; weight 115 pounds; lesser curvature midway between xiphoid and umbilicus. No diastasis of recti muscles or abdominal relaxation. Operation. Two months later was relieved of pressure symptoms and has gained 11 pounds in weight.

Rovsing,[4] in 1899, reported having operated upon three greatly emaciated women who had suffered severely because of descent of the stomach, for from 8 to 25 years. The operation was performed as follows:

> The parietal peritoneum was left intact in the upper 4 cm. of the incision. Three rows of interrupted silk sutures were passed through the serosa and muscularis of the anterior wall of the stomach, parietal peritoneum, and abdominal wall from right to left, and one above the other. The first row was placed just below the lesser curvature, the second row 2 cm. below this one, and the third 3 cm. above the greater curvature. The stomach wall and parietal peritoneum were scarified. When the sutures were secured, a broad surface, 6 cm., of the anterior wall of the stomach was thus firmly fixed to the abdominal wall near the xiphoid cartilage. The sutures were removed at the end of three weeks. Nephropexy was performed in each case. The first patient, after seven months, was in excellent health, and had gained 30 pounds; the second, after three months, was well; the third complained of pain for a short time, but was later much improved.

Hartmann,[5] in 1899, in a case of dilation and vertical dislocation of the stomach, after plicating the pyloric end of the stomach with fine silk sutures, fixed this end of the stomach to the parietal peritoneum of the diaphragm beneath the left ribs, with the plication sutures. The patient was relieved, and after four months had gained 29 pounds in weight.

Coffey[6] recently, in two cases of gastroptosis, each associated with adhesions, appendicitis, disease of an ovary, and displacement of the uterus, separated the adhesions and elevated the stomach by suturing the greater omentum at a point an inch below the attachment to the transverse colon to the anterior abdominal wall, about an inch above the umbilicus. He reports both patients as being much improved in health.

Webster, of Chicago, in 1901, advised and practised the resection and suture of the fascia of the recti muscles in those cases of enteroptosis and gastroptosis associated with diastasis of the recti abdominalis. I am unable to find any statistics upon this operation.

In the operation of Duret and Rovsing, particularly in the latter, the stomach was firmly fixed to the abdominal wall by passing sutures through the serosa and muscularis of the stomach and the various layers of the abdominal wall. In that of Hartmann, the anterior wall over a considerable portion of the pyloric end of the stomach was firmly fixed to the diaphragm. Carrying the pyloric end to the diaphragm beneath the left ribs, of necessity caused great distortion of the stomach. In the operation of Duret, introducing the suture as a puckering string along the lesser curvature of the stomach and securing it in the median line, very much increased this curve and distorted the stomach. The operation of Davis, attaching the lesser omentum near the lesser curvature of the stomach to the anterior abdominal wall, would seem a somewhat better procedure, yet the principle of securing a strong abnormal attachment was the object. The same, with some improvement, may be said of Coffey's operation, the stomach being swung as in a hammock.

The operation performed by Bier shortened the normal ligaments, but in addition the first suture secured the serosa and muscularis of the pyloric end of the stomach to the capsule of the liver, and in two cases, further to the left, the serosa of the stomach wall at the lesser curvature was attached to the left lobe of the liver. Here, too, there was thus a fixation of the stomach practised.

The operation practised by these five operators, the securing of the stomach to the abdominal wall by adhesions, must destroy completely the physiologic mobility of the organ, and would be very apt to result in the production of the severe painful affections we frequently see associated with adhesions to this organ. I am informed by a colleague that he has for several months had under his care a case in which an operation of this character was performed in a neighboring city, and as a result the patient has suffered constantly with nausea and vomiting and severe pain in the epigastrium. She is many times worse than before the operation. Also, in one of the cases reported by Rovsing, severe pain followed operation for a short time.

These operations, or any procedure which, in close contact with the stomach attached it to the abdominal wall are a fixation of the stomach, and would be subject to the same danger, at least in a considerable percentage of the cases; and because they elevate the organ by abnormal adhesions must be considered conducive to disturb the physiologic function and are surgically not ideal. It should be noted, however, that regardless of these factors in the cases reported by these operators, every patient is described as being improved in health, and many as having gained a number of pounds in weight. The operation performed by Bier attempted to carry out the correct principle, but probably, with the feeling that the supporting ligaments were not sufficiently strong, the supplementary sutures were introduced between the stomach and the liver.

The operation which I have devised simply shortens the natural ligamentary supports of the stomach, and the normal mobility and physiologic functions are completely preserved. No abnormal adhesions are formed between other structures; there is no fixation of the stomach, and the operation must be considered physiologically and surgically ideal. With the formation of a broad surface of adhesion between the surfaces plicated, secured by the introduction of three rows of sutures, sufficient strength is gained in the shortened ligaments to maintain the stomach permanently in normal position. That this is true, is determined by the physical examination of one patient 3½ years and 1½ years after operation. Further, the investigations of Scarpa and Hutsche[7] have determined that a single layer of peritoneum can maintain from 7.5 to 22 kilograms of weight.

Including Bier's four cases (for the purpose of study, and since the principle of his operation is similar) and the two cases of Martin, 11 patients of which we have a report, have up to the present time been operated upon by the plication of the gastrohepatic and gastrophrenic ligaments.

All had suffered from 5 to 15 years with the characteristic and very severe symptoms of gastroptosis. In two a right kidney had been operated upon without relief of the symptoms. All but one were emaciated, weighing between 78 and 120 pounds. In every instance the form of gastroptosis was the subvertical and pronounced. In five cases the upper curvature of the stomach was at or just below the umbilicus, in one, two inches below the umbilicus, in one, two inches above the umbilicus, and in three, midway between the umbilicus and xiphoid cartilage. In three, an associated dilation of the stomach was the diagnosis, but not demonstrable at operation. In none was there diastasis of the recti muscles or relaxation of the abdominal walls, although four had borne children. Certainly, in every case, the severe symptoms of gastroptosis rendered the patients chronic invalids and incapacitated them for any occupation or social duty. All had been treated faithfully for a great length of time with medicine, hygiene, diet, bandages, and the rest cure, and in the five cases reported by me the physicians insisted that they were unable to give relief, and the patients themselves were at once willing, because of their suffering, to risk the danger of operation for the sake of a possible cure.

The convalescence in each case following operation was normal and easy. The patients were kept in bed in the recumbent position for four weeks after operation, and on a special diet.

All of these 11 patients have now been observed from eight months to six years after operation. In every case the improvement in health has been most remarkable, and the relief of symptoms complete; the dyspeptic and neurasthenic symptoms are entirely relieved, food of any character is taken without restriction. All except one have gained markedly in weight, and this gain has been lasting and gradually increased with time, one after three and a half years having gained 40 pounds, and one after one year, 25 pounds. Further, the gain in weight began immediately upon leaving the hospital, the least gain in two months being 10 pounds, and the greatest 19½ pounds. In no instance, regardless of the time which has elapsed since operation, has the stomach changed in position. In, three the line of greater curvature is from one to two inches above the umbilicus, and in the other four, one to one and a half inches below the umbilicus.

The immediate and lasting complete relief of symptoms, improvement in nutrition, and gain in weight in the case of every patient thus far operated upon by the shortening of the gastrohepatic and gastrophrenic ligaments would seem to prove that the dyspeptic symptoms were induced by the abnormal position of and secondary changes in the stomach in gastroptosis, and that the neurasthenia is not an essential but an induced neurasthenia. Also, the remarkable lasting effect of the simple shortening of the ligaments gives rise to the conclusion that the anatomic cause of gastroptosis is a lengthening of these ligaments. The completeness of the relief again, and to my mind extraordinary restoration to excellent health of these eleven patients who had suffered for years, the simplicity of the operation (which restores the stomach to normal position by shortening its natural ligaments, without removal of tissue or the formation of abnormal adhesions), and the fact that it is practically free from danger (we would estimate the danger as being not greater than a fourth of 1%), must strongly recommend this operation in every case of gastroptosis in which the suffering is great. The medical and mechanical treatment at best secures only partial relief of symptoms, does not restore the position of the stomach (the cause of the illness), and entails constant treatment, diet, and the wearing of a cumbersome bandage, while the operation promises to restore at once, completely and permanently, the patient's health.

It is true that the patients thus far operated upon represent but one class, those with gastroptosis and without relaxation of the abdominal walls or diastasis of the recti muscles. Experience alone can teach what influence the operation will have when the relaxation of the abdominal walls is active in the production of the displacement of the stomach.

Reasoning from the influence of ventrosuspension or Alexander's operation in retrodisplacement of the uterus, under the same conditions the plication of the ligamentary supports of the stomach would ever and alone be efficient. If, however, the contrary, after a greater experience were determined to be true, the operation might easily be supplemented by the resection of the abdominal fascia as recommended by Webster. A necessary adjunct to the operation in which a floating kidney is present is the operation of nephropexy.

Finally, I wish to point out again, that there exists in gastroptosis a physical displacement of a most important organ; the whole cause of the patient's illness results from this displacement. The gastromotor insufficiency, the dilation and their symptoms are the direct result of the malposition of the stomach. The mechanical and medical treatments described give relief in a large percentage of cases, the severer symptoms disappear, and the patients are, we might say, comfortable. This relief is gained by continued careful dietetic feeding, regulated rest after taking of food, and the wearing of a cumbersome binder. With the removal of the binder, the taking of food of normal amounts and character, and the assuming of the daily duties of the average person, the symptoms gradually return, for the cause of the suffering is in no sense corrected. The patient to remain comfortable is destined to the constant application of the treatment, is constantly under the care of a physician, lives on a diet, wears a binder, must give up a certain amount of time each day to rest, and although from the medical standpoint is comfortable, is he not unhappy and still a chronic invalid? Would any one of us be willing to spend the rest of our lives under these restrictions if a remedy unassociated with any great degree of danger to life gave promise of a permanent complete relief and restoration to health?

Realizing this as a fact, for it must be admitted in the full sense to be a fact, it would seem to me, considering the complete results in the 11 cases treated by gastropexy just referred to, that the surgical treatment of gastroptosis is the only logical one, that it must in time replace the makeshift medical and mechanical treatments.

The treatment of gastroptosis, I believe, is now passing through a period of development similar to that of floating kidney when the medical and mechanical treatments were applied for its relief, similarly too, when retroversion of the uterus was sought to be corrected by the introduction of a pessary. These treatments here too were makeshifts, and that of election today has become the surgical, in the one case the operation of nephropexy, in the other the operation of ventrosuspension. It would, therefore, seem reasonable to prophesy the same will happen as regards the treatment of gastroptosis, the treatment, even in the milder cases, being the application of such a surgical procedure as I have devised and have had the pleasure of describing to you.

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THE DIFFERENTIAL DIAGNOSIS OF GASTRIC ULCER.[1]

BY

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To Drs. Samuel Fenwick and W. Soltau Fenwick much credit is undoubtedly due for insisting upon the sharp clinical distinction which should be made between acute and chronic ulcer of the stomach. That the "acute perforating ulcer of adolescents" is a primary disease, running an acute course, and only occasionally becoming chronic; that its etiology and symptomatology are different from those of the chronic ulcer; and that, in the future, the two diseases must be considered separately for the purpose of statistical, pathologic and clinical analysis, are the very important conclusions which these writers draw in their recently published masterly work on "Ulcer of the Stomach."

Acute primary ulcer of the stomach occurs in over 90% of all cases in women, usually between the ages of 15 and 25; in three out of every four cases the first symptom is hematemesis, while perforation of the stomach may be the first indication of local disease. In the absence of these two dramatic incidents, the clinical history is usually a very indefinite one, being marked by more or less pain after meals, and by occasional vomiting.

Gastric pain, occurring in anemic girls or young women, coming on regularly a few minutes after the ingestion of food, and accompanied by amenorrhea, should always give rise to the suspicion of acute ulcer. Should the physical examination reveal the presence of a circumscribed spot in the epigastrium, near or to the left of the median line, exquisitely tender to gentle pressure, the existence of an ulcer may be assumed. The tender spot may be just to the left of the spine, on a level with the tenth to the twelfth dorsal vertebras. The increase of pain on the ingestion of hot or coarse food, its subsidence on a milk diet, or the administration of orthoform, are valuable confirmatory symptoms.

A somewhat similar state of gastric sensitiveness is often found in anemic girls, even when no ulcer is present. These patients, however, are not relieved by a milk diet; they do not have the characteristic circumscribed pain points, but rather a diffuse tenderness; orthoform does not relieve their pain, which is almost surely dispelled by iron and arsenic. An analysis of the gastric contents cannot help us here, as the acute ulcer is not regularly accompanied by hyperchlorhydria. The occurrence of occult hemorrhages can be detected by an examination of the gastric contents and of the feces, and this discovery is of the greatest importance. It will be discussed more fully in connection with the diagnosis of chronic ulcer. In many cases we must remain long in doubt, and must await the results of our therapeutic efforts. It not infrequently happens that a sudden hemorrhage from the stomach will clear up the diagnosis.

Upon the occurrence of hemorrhage it becomes our duty to discover its source. Hematemesis is, as a rule, easily distinguished from hemoptysis. Blood from the stomach is vomited, not coughed up; it is usually dark and clotted, mixed with food particles and acid gastric juice; the vomiting is preceded by faintness and nausea, and is usually followed by melena. In hemoptysis, the blood is coughed up—it is bright red and frothy; the previous history usually points to pulmonary disease, and for hours or days after the hemorrhage the patient coughs up bloody sputum. Other minor points of differentiation are given in all the textbooks.

We must not be deceived by hemorrhages from the gums, nose or pharynx; by the juice of berries, by drugs, bile or other possible coloring matters. We must also distinguish a real hematemesis from the bloody vomitus, which may occur after excessively violent retching.

Acute perforation of the stomach is always announced by sharp, agonizing pain. The patients almost invariably become collapsed, the degree of collapse varying with circumstances. The muscles of the upper part of the abdomen become rigid, and the most exquisite sensitiveness to pressure arises. Vomiting occurs in from 30% to 40% of all cases. After 6 to 10 hours a mild reaction sets in, and the symptoms of diffuse purulent peritonitis gradually replace those of collapse.

We are helped to a diagnosis by the previous history of gastric disturbances, obtainable in about 90% of all cases. The localization of the physical signs to the upper part of the abdomen is only suggestive. Sometimes the rigidity and sensitiveness occur in the right iliac fossa. It many such cases the diagnosis of appendicitis has been wrongfully made.

Pelvic hematocele or the rupture of an extrauterine pregnancy can usually be differentiated by the history of the case; by the localization of symptoms in the hypogastrium rather than in the upper abdominal segment, and by vaginal examination. The presence or absence of liver dulness is a symptom upon which little reliance can be placed.

The diagnosis of chronic ulcer, when possible, will depend upon the existence of certain definite symptoms and physical signs. These are: 1. Pain. 2. Vomiting. 3. Hemorrhage (either visible or occult). 4. Hyperchlorhydria. 5. Tenderness to pressure, localized, and limited in extent.

When these symptoms and signs are combined, the diagnosis is made with ease and certainty. In the majority of instances the diagnosis will rest upon the coexistence of two or more of these cardinal symptoms.

Most constant of these symptoms, rarely missed from the history in any case, in typical instances, so characteristic as almost to warrant a diagnosis—is pain.

As a rule, the pain occurs shortly after the ingestion of food and disappears with the emptying of the stomach. It is usually limited to a small area in the upper part of the epigastrium. In cases of prolapse of the stomach it may be lower. The pain in the same patient is almost invariably referred to the same place, and the periodicity of its return is noted by the patient himself.

It is incremental in nature beginning more or less mild, and increasing with more or less rapidity until a maximum is reached; this maximum may be maintained for several hours, but should vomiting occur the pain is almost invariably greatly relieved and usually wholly removed. The pain of gastric ulcer is simulated by few other conditions, most often by cancer, by simple hyperchlorhydria and by gastralgia or hyperesthesia, and by some forms of arteriosclerosis. The differentiation between ulcer and cancer I shall discuss later. The pain of simple hyperchlorhydria has many points of resemblance to the pain of ulcer. It occurs periodically after the taking of food, is usually referred to the upper epigastrium or to the substernal region, it begins as a more or less mild gnawing or burning sensation, and steadily increases in intensity; it is relieved by lavage, or vomiting, or alkalies, and is usually associated with constipation.

These close resemblances undoubtedly have led to many mistakes in diagnosis and there is no doubt that many cases of ulcer are overlooked, the patients being treated more or less successfully for simple hyperchlorhydria.

Our textbooks are singularly lacking in candor on this subject. In typical cases the differentiation is easy. Simple hyperchlorhydria is not accompanied by vomiting, never by hematemesis; the epigastrium may be somewhat tender, but the typical pain points are absent; the dorsal pain points are never present. Except in the severest cases the pain in hyperchlorhydria does not begin until one and a half to three hours after the ingestion of food, and frequently occurs at night. Nervous influences more obviously stand in causal relation to the pain; and the pain is relieved by the ingestion of milk or eggs or other albuminous food with far more certainty than in ulcer. On the other hand, orthoform is far more likely to relieve the pain of ulcer (Murdock). Simple hyperchlorhydria responds with almost mathematic sureness to a correct diet and the administration of alkalies one hour after meals.

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[1] Paper read at the seventh annual meeting of the American Gastroenterological Association, Atlantic City, June 6, 1904.

Thus it would appear probable that under the observation of careful clinicians these two conditions would be rarely confounded. Nevertheless, I am certain that an ulcer is often overlooked because its most obvious symptoms are those of hyperchlorhydria, and are for the time being relieved by treatment directed to this abnormality. An ulcer should be suspected in every case of apparently simple hyperchlorhydria when the symptoms do not yield readily to the usual appropriate treatment, when the pain occurs within the first half hour after the ingestion of simple food or when the patient has frequent and unaccountable relapses.

Gastric hyperesthesia may under certain conditions be mistaken for gastric ulcer. It is a distinct sensory neurosis of the stomach; and occurs most frequently in chlorotic girls or women. In men it may result from sexual excesses, to overindulgence in tobacco, or prolonged mental strain; and it may be the most prominent symptom of neurasthenia or hysteria. When the condition is well established, its two most striking symptoms are pain after eating and vomiting, and these naturally suggest the presence of an ulcer. Both of these symptoms, however, present well-marked differences from the corresponding symptoms in cases of ulcer. In a well-marked case of gastric hyperesthesia the discomfort or pain usually follows immediately upon the ingestion of food, and the quality of the food, coarse or fine, hot or cold, is usually without influence. In ulcer, on the other hand, pain rarely occurs after the taking of food without an appreciable interval (there is an exception to this rule when the ulcer extends to the lowest part of the esophagus), and the blander the food the less likelihood is there for the pain to occur at all. The localized spots are not present in gastric hyperesthesia, though the whole epigastrium is often tender to pressure.

The vomiting in cases of hyperesthesia is subject to many more and unaccountable variations than the same symptom in ulcer. In hyperesthesia the vomiting may occur after every meal, and at very irregular intervals; often only a part of the food is ejected; and the general nutrition of the patient is marvelously maintained; vomiting often fails to give relief. The gastric contents usually do not present excess of HCl; and hyperchlorhydria when present is usually of moderate degree. Lastly, the usual treatment for ulcer does not bring prompt relief in cases of hyperesthesia and mental suggestion, bromids, iron and arsenic are necessary to bring about a cure.

Another condition closely allied to gastric hyperesthesia is nervous gastralgia, and these two terms are often used interchangeably without sufficient exactness.

Gastralgia is a term used to designate certain paroxysmal attacks of pain, apparently localized in or referred to the stomach or solar plexus. The gastric crises of locomotor ataxia may suggest, but can rarely simulate gastric ulcer; myelitis and disseminated sclerosis may be accompanied by similar attacks. Malaria, syphilis, lead-poisoning, and starvation, are familiar causes of gastralgia. Diseases of the genitalia, in both men and women, and prolonged or excessive eyestrain, may produce paroxysmal stomach pain. Certain features connected with all of these forms of gastralgia allow a ready differentiation from gastric ulcer. They are, briefly, as follows:

In gastralgia the attacks of pain are not directly excited by the taking of food, nor are they in any way affected by the food; firm pressure usually affords some relief; vomiting may or may not occur, but does not stop the pain; hyperchlorhydria is usually absent; a milk diet does not benefit the patient; the typical pain points are absent; hematemesis does not occur, and lastly, the digestive process as such may proceed in a perfectly normal manner.

The gastralgia associated with gallstones requires special mention. No difficulty, as a rule, should be experienced in distinguishing biliary colic from the pains of gastric ulcer, but it should not be forgotten that the two conditions may be associated (Hemmeter), and in rare instances a differentiation may be exceedingly difficult (Fenwick).

It is easier to mistake an ulcer of the duodenum for gallstones, and Mayo reports three cases in which operation was done by himself, and in which this error was made.

Biliary colic is sudden in onset; it begins many hours after a meal; the pain is excruciating, and radiating in character. It is commonly referred to the right hypochondrium. Retching and vomiting afford absolutely no relief, the pain continuing long after the stomach is empty. In the intervals between the attacks, digestion may be perfectly normal, and the patient may enjoy perfect health.

So much for typical cases.

The experience of recent years has taught us, however, that gallstones and cholecystitis are in a large proportion of cases not accompanied by such typical attacks of colic, nor by jaundice or other symptoms pointing to the liver, but that the only distress they occasion may be referred to the stomach. There is no doubt that the intense paroxysmal attacks of gastralgia, described in the textbooks as an idiopathic gastric disease, are in the vast majority of instances due to gallstones or cholecystitis. An examination of the gastric secretions in the intervals between pains often reveals hyperchlorhydria.

We may be led to suspect ulcer in this connection, but may be saved from this error by noting that the digestive process as such is normal; that the attacks of pain occur independent of the ingestion of food, or the quality of the food; that the ulcer pain points are absent, and that the paroxysms are usually brief and are followed by long periods of good health.

There is one other condition in which pain, immediately after the ingestion of food is a prominent symptom, and that is the peculiar symptom-complex to which Einhorn has given the name erosions of the stomach. In this disease (and those who have seen typical cases can scarcely doubt that this is a disease sui generis), the pain is never very intense, but the entrance of any food into the stomach causes at once diffuse distress, which lasts one or two hours and then gradually disappears. These patients lose weight and feel weak and depressed. The most striking peculiarity of this disease is the constant exfoliation of strips of gastric mucosa, a third to an inch long and of a reddish color. These strips always appear in the wash-water, if lavage is practised in a fasting state. Erosions may be distinguished from chronic ulceration by means of certain peculiarities.

The erosions usually are the result of a chronic catarrhal gastritis, and the HCl is usually found in less than the normal quantity; the blandest food causes pain as well as coarse food; the constant appearance of strips of mucosa is itself pathognomonic of erosions, and the patients improve under the use of silver nitrate without any special restrictions of the diet.

A chronic ulcer of the stomach can be clinically distinguished from ulcer of the duodenum only under the most favorable circumstances. Vomiting is not a common symptom of duodenal ulcer; when it occurs it bears little or no relation to the ingestion of food; it does not relieve existing pain. The pain in cases of duodenal ulcer usually, but by no means invariably, comes on one or more hours after meals; it is often referred to the right hypochondrium; the anterior pain point is usually to the right of the median line; the dorsal pain point is never present. Not enough data are at hand from which to conclude whether hyperacidity is usually present or not. If the foregoing symptoms are present, the occurrence of melena without an accompanying hematemesis, especially if the patient be a male, would warrant the diagnosis of duodenal ulcer. On the other hand, hematemesis frequently occurs independent of melena or coincident with it in cases of duodenal ulcer, and this diagnosis, while it has sometimes been made correctly, is more commonly a conjecture than an assured diagnosis.

A form of epigastric pain sometimes accompanies arteriosclerosis. Elderly patients complain of a crampy feeling just beneath the ensiform cartilage, coming on after meals when any exercise is taken. Even walking may arouse the pain, which ceases as soon as the patient stands still or sits down. The peculiarities of this symptom are that it affects only those who are advanced in years; that it is most troublesome during the two or three hours which follow the ingestion of food; that it is not accompanied by local tenderness; that the digestion itself is slightly or not at all impaired, and that the symptom is very obstinate, lasting for months or years despite treatment.

Vomiting.—The importance of vomiting as a guide to diagnosis has usually been overrated. Brinton stated that vomiting occurs in the great majority of cases, being rarely missed from the history of any chronic case. Einhorn states that it is nearly as frequent a symptom as pain. These writers undoubtedly overrate the frequency of vomiting. Fenwick found a record of vomiting in 72% of his clinical cases. Moynihan, in a recent report of 100 operations for gastric ulcer records vomiting as a prominent symptom in 44. Mayo says that vomiting is rare, unless obstruction exists at the pylorus. This is certainly understating the case. The characteristic vomiting of gastric ulcer occurs at the height of the pain, one to two hours after meals; rarely later than that, unless dilation with pyloric obstruction exists. An ulcer at the pylorus may cause great intolerance of food, and the stomach may absolutely reject all the ingesta for days.

When vomiting is a prominent symptom we must rule out pregnancy, hysteria, gastritis, uremia and cancer. Hysteric vomiting is usually unaccompanied by pain; it occurs almost at once after every meal; only a part of the food is vomited; the nutrition of the patients does not suffer; characteristic hysteric stigmas are often present, local tenderness is absent, and liquids are more regularly ejected than solids. Rest and a milk diet are not of benefit.

Uremic vomiting can easily be mistaken for cancer or for ulcer of the stomach. Uremia is not infrequently the cause of intense gastralgia, and when vomiting sets in, the symptom-complex may closely resemble that of ulcer. Error can be avoided by a study of the urine, and the detection of the signs of uremia, especially the very dry tongue, slight fever, slow or irregular pulse, and a booming first sound at the apex of the heart.

Chronic gastritis will give rise to error only in very exceptional cases. The pain of chronic gastritis is rarely localized—but is rather a diffuse heaviness, and bloating coming on several hours after meals. The tongue is foul or coated (nearly always red and clean in ulcer); the vomited material contains mucus, and is rich in fermentation acids but poor in HCl. This is a sign of the greatest importance; and it should always be clearly borne in mind that the vomiting of gastric contents containing an excess of HCl occurs in very few conditions, most commonly in gastric ulcer, but also in gastric hypersecretion, certain secretory neuroses associated with pyloric obstruction, and far less commonly in certain relaxed states of the stomach (chlorosis, ptosis, atony).

The differentiation of ulcer from cancer of the stomach is ordinarily very easy. Confusion, however, may arise from two sources—(1) the ulcer by causing a thickening of the pylorus or by forming adhesions may present a tumor leading to pyloric obstruction and occasioning profound cachexia; (2) a cancer may develop from the base of the preexisting ulcer.

In the absence of these complications there should be little difficulty in discriminating between the two affections. In cancer the general debility and loss of weight often precede any prominent local symptoms; the pain of cancer is far less dependent on the food, more frequently occurs at night, may be absent altogether or resemble merely a dull heaviness. Bad breath and anorexia are early symptoms in cancer. Hematemesis, if it occurs in cancer, is much more moderate in quantity than in ulcer; and vomiting is far less apt to relieve any existing pain.

The gastric juice in cases of cancer is nearly always of poor quality, containing little or no HCl, little or no pepsin, and often containing lactic acid. The bad-smelling, yeasty stomach contents, showing the Oppler bacilli, and containing poorly digested fragments of food, are too familiar to require further characterization.

Recurring to the sources of confusion referred to in the foregoing, there is no doubt that the diagnosis becomes more difficult when an ulcer leads to the formation of a tumor at the pylorus or to secondary dilation of the stomach. We have now to consider three possibilities: 1. Is there a primary carcinoma at the pylorus? 2. Are we dealing with an ulcer with benign complications? 3. Has a cancer developed on the base of an ulcer at the pylorus? In the great majority of instances these questions can be correctly answered by a careful study of the history of the case and the signs and symptoms present.

Primary cancer limited to the pyloric ring is rare. Usually the cancer arises in the pyloric region and extends gradually to the pyloric orifice. Under these conditions, by the time a tumor is palpable the other symptoms and signs of cancer are sufficiently developed to render the diagnosis easy.

When the carcinoma does develop within the pyloric ring, the history of the onset is of the greatest diagnostic importance. The first symptoms are usually those of obstruction. Without a history of previous dyspepsia and without apparent cause, the patient begins to feel uncomfortable after meals, cramp-like pains arise in the stomach, and after a short period the food is vomited. If the patient is thin, peristaltic waves can be seen after each meal passing from left to right. The vomiting is repeated after each meal and emaciation is always rapid.

This history is in itself so characteristic that when it arises in a patient who has passed middle age it is almost pathognomonic of cancer. The only other cause of such symptoms is an ulcer within the pylorus or extending to it. In the case of ulcer, pain is a far more prominent symptom and the signs of obstruction are not so absolute, being largely due to spasm of the pylorus. In other words, the signs of obstruction subside on a bland diet, while in cancer the obstruction progressively increases.

If an ulcer patient is placed upon a milk diet or abstinence cure for one or two weeks, the spasmodic stenosis due to the ulcer disappears even after a more generous diet is allowed. In cancer, the symptoms of stenosis may persist even on the milk diet, and are sure to be prominent as soon as coarser food is ingested.

Regarding the differential diagnosis in more chronic cases, when pyloric obstruction has led to gastric dilation, the best aid under such circumstances, aside from the history of the patient and the results of a correct therapy, is chemic analysis of the gastric contents. Notwithstanding all that has been written to the contrary, the chemic test is a most valuable though not an absolute criterion. In about 90% of all cases of carcinoma, the gastric contents contain no free HCl, and this is true of a still greater percentage in the late stages when dilation has occurred. Chronic ulceration of the stomach is almost always accompanied by hyperchlorhydria, and in the vast majority of cases of benign stenosis of the pylorus, free HCl is found in at least normal quantity in the gastric contents.

The clinical history is of the greatest importance. Ulcer does not lead to marked dilation of the stomach without having produced pronounced symptoms for years. In case of ulcer stenosis the dilation comes on gradually; during this period the symptoms are characteristic enough; frequently there has been a record of hematemesis; and the emaciation and asthenia have progressed slowly, and in direct proportion the gastric embarrassment. The appetite, in cases of benign stenosis with dilation, is usually promptly restored by lavage, and under appropriate treatment the condition of the patient is usually markedly ameliorated. In primary cancer the dilation usually comes on in the course of a year or less, and is rarely extreme. A history of protracted gastric disturbance, extending over a period of years, is usually wanting. Notwithstanding lavage, the appetite is not restored, and the patient continues to lose weight and strength.

Given then a case with protracted clinical symptoms, extending over a period of years, during which time extreme dilation of the stomach has occurred; if, upon lavage, the gastric contents are rich in HCl and pepsin, and if in response to systematic treatment the tongue clears, the appetite returns, the nutrition of the patient improves, during a period of several weeks, we are fully justified in making a diagnosis of benign stenosis depending upon ulceration or scarring at the pylorus. A real difficulty arises when the question presents itself—has a cancer developed on the base of a preexisting ulcer? And, from a clinical standpoint, this is a question which is at times most difficult to answer. Sometimes a correct answer cannot be given, and even after an exploratory laparotomy, mistakes have been made by experienced surgeons.

Even in these cases, however, a correct diagnosis can usually be made. The diagnosis is made from the progress of the patient, and from a change in the physical signs. Usually, the first symptom which marks the development of a cancer is the increase of the pain. Under appropriate treatment, dilation of the stomach, dependent upon an ulcer in the pyloric region, is not accompanied by much pain. The increase of pain, especially if accompanied by sudden progress of the emaciation and cachexia, is a very suspicious symptom. In some cases, though by no means in all, as the cancer develops, the secretion of HCl diminishes, and the gradual or rapid diminution of HCl is a most important sign, when present. In some cases, the secretion of HCl continues unabated until the end. Under such circumstances we must be guided largely by other symptoms. A rapid increase in the size of a pyloric tumor, its irregular or nodular surface, speak for cancer. Progressive loss of weight and strength out of all proportion to the quantity of food, which actually passes the pylorus, is also a very valuable sign. Enlightened clinical experience, however, is necessary in order to draw conclusions from this feature of the case.

Hemorrhage.—The occurrence of hematemesis has cleared up the diagnosis in many a doubtful case. It is the most characteristic symptom of chronic gastric ulcer, and occurs in a large proportion of all cases. The mere vomiting of blood does not justify a diagnosis of ulcer of the stomach. The blood may come from the gums or upper air passages; it may trickle into the stomach from an aortic aneurysm which has perforated the esophagus; it may result from the rupture of small vessels during excessive retching; it may be a symptom of purpura hemorrhagica, hemophilia, or splenic anemia. It is not a very rare symptom of cirrhosis of the liver, and is then usually due to the rupture of the lower esophageal veins or of gastric veins near the cardia.

In some cases of hemorrhage a differential diagnosis between ulcer of the stomach and cirrhosis of the liver cannot be made. The hemorrhage may occur as an early symptom of either disease; the preexisting symptoms may have been very vague and indefinite. If the patient recovers from the hemorrhage, the further course will usually make the diagnosis clear; but at times the patient is so far restored after the hemorrhage that the cause of the bleeding may remain forever in doubt. As a rule, however, cirrhosis of the liver will betray itself by the enlarged spleen, morning vomiting, the nervous symptoms of hepatic insufficiency, and by piles, while the ulcer will present some of its own characteristic signs or symptoms.

Occasionally enormous and even fatal hemorrhages may occur in certain septic conditions, such as smallpox, erysipelas, septicemia, and the autopsy in these will reveal superficial erosions of the gastric mucosa. In fact, death may occur from hemorrhages which remain latent, the stomach and bowels filling with blood which is not ejected. Sudden collapse in the course of septic diseases should at least suggest the possibility of internal hemorrhage from the stomach.

Recently, attention has been called to gastric hemorrhages in which the amount of blood lost is so small that it escapes ordinary observation. These hemorrhages can be detected by a chemic examination of the gastric juice or of the feces, and have been termed "occult hemorrhages" by Boas. Several reports have appeared since 1901 in which the clinical significance of occult hemorrhages is discussed. Examination of the gastric juice is deceptive as even the most careful use of the stomach tube may be accompanied by slight bleeding.

After two or three days' dieting, during which time meat, fish and green vegetables are forbidden, the feces are examined daily for hematin, by means of Weber's modification of the van Deen guaiac turpentine test. The reports so far published by Boas, Boas and Kochmann, Rossel, Schmilinsky, and Hartmann would seem to justify (provisionally) the following conclusions:

In cases of simple hyperchlorhydria and gastritis and in neuroses no blood is ever detected in the feces; in cases of pyloric obstruction with marked stagnation of the gastric contents the reaction is often positive; in nearly every case of cancer of the stomach, hematin is regularly found in the feces; in simple chlorosis no blood is lost by the bowel; in the irritative or active stage of gastric or duodenal ulcer blood can always be detected in the feces; and possibly in every case of latent ulcer if the stool is persistently examined for several weeks. Schmilinsky considers the discovery of occult hemorrhages to be the greatest addition to our diagnostic resources made during the past decade. My own experience is so far limited but leads me to attach very great value to this test.

Localized Tenderness.—Localized tenderness is a very important physical sign. Brinton called attention to its diagnostic value. The area of tenderness usually corresponds to the site of spontaneous pain. It is rarely far from the median line. In cases of acute ulcer its presence is of the utmost value. In chronic ulcer it is often absent, especially if the ulcer be situated on the posterior wall. The tender area remains constant as to location, but varies in the degree of tenderness. Boas lays special stress on the diagnostic importance of the posterior painpoint, to the left of the median line opposite the tenth to twelfth dorsal vertebras. He says it is present in a third of all cases.

The anterior area is usually just below the ensiform cartilage, and in the majority of instances, just to the left of the median line.

The significance of localized epigastric tenderness can easily be overestimated. Deep pressure will often be painful in cases of chlorosis, solar plexus neuralgia, and allied conditions. Inflammatory conditions in the transverse colon may be accompanied by local tenderness in the epigastrium and may be mistaken for gastric ulcer. When the liver is congested, the epigastrium often becomes very tender. It must not be overlooked that pericarditis is often ushered in by pains apparently localized in the epigastrium and easily simulating gastric pain.

Aggravated cases of gastritis may be accompanied by intense sensitiveness of the stomach to pressure, and may be falsely diagnosticated as cases of ulcer.

THE MILD AND ABORTIVE FORMS OF TYPHOID FEVER.

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At the present day, with definite conceptions possible in regard to the infectious diseases, our ideas of the dramatic unities of medicine are much better satisfied by the consideration of identical causes than of identical effects. To the older clinicians, a "zymotic" disease was primarily a symptom-complex, with a more or less vaguely guessed at underlying cause, to be sure, but still depending for its accurate recognition mainly upon the appearance in the same individual of a large number of loosely related phenomena. Today, any diagnosis, in the majority at least, of the infectious diseases, which rests solely upon the noting of symptoms and their correlation, is in a sense but tentative, and for its absolute confirmation waits upon the direct or indirect demonstration of a specific cause, whether bacterial, protozoan, or animal. It was 50 years after Louis that *Bacillus typhosus* was demonstrated by Eberth as the cause of typhoid fever—and it is not one of the least important things to the credit of the clinical acumen of the men of that time that they should have recognized the mildest forms of typhoid infection without the aid of the Widal reaction, and should have been able to connect them so certainly, purely by clinical reasoning, with the classic typhoid fever, with its markedly differing symptomatology. Especially is this true in view of the very general recognition of Wunderlich's[14] dictum, that any case of fever without obvious cause, in which the temperature between the fourth and sixth days did not reach 103.2°, was certainly not typhoid.

In the acute infectious diseases in general, the occurrence of the mild and mildest forms, in considerable numbers, seems to be a necessary corollary of the theory of their bacterial or other organized cause. In 1873 Jürgensen[17] said, "I believe the proposition to be fully justified that the whole theory of the infectious diseases, as held at the present day, is untenable, if the existence of the milder forms cannot be shown. In other words, if an attack of disease is to be regarded as arising from infection, transitions from the most slightly developed to the severest forms must be demonstrated." Although the existence of such forms is less a subject of discussion now than it was 30 years ago, and we admit them freely enough in theory, how little weight attaches to them in practice, and how rarely, in the case of typhoid fever especially, is the diagnosis made with sufficient positiveness to serve as any protection to the community! There is little enough statistical evidence on this subject—in various epidemics observed in England and Germany the proportion of the very mild cases to the total number seen of all kinds, has been as high as 25%, and there is a possibility that the very mild forms may have occurred with almost as great frequency among our own troops in camp during the Spanish war. Twenty percent of Lebert's[6] cases of typhoid fever in Zurich were of the abortive variety, though this author's interpretation of the term abortive leads him to place in this category many cases that would be rejected by most authorities. Letulle,[28] considering 1,161 cases of typhoid fever collected from various sources, found that 17.4% belonged to the abortive group of infections. Weil, out of 500 cases of all sorts, saw 25 that were of the very mild type. Gordon-Martins[31] quotes Potain as noting a great increase in the number of cases of this type coming into his service at the Charité. Woodruff[44] notes the frequent occurrence of these forms in our Western States, where many of them appear to be disguised under the diagnosis of "mountain fever." The five cases of mild and abortive typhoid here reported were seen in the course of an epidemic during which altogether 17 cases of typhoid fever came under my own observation. It is altogether probable that mild typhoid is affecting a large number of people in this latitude every autumn and winter, and it is certain that in the majority of instances it fails of recognition. The reasons for this are sufficiently obvious. Very few of the patients in question present themselves for hospital treatment; while in private practice the absence of striking features in this type of the disease accounts for its attracting less attention than the much rarer fulminant, hemorrhagic, and other extraordinarily severe forms. The paucity of symptoms makes thorough physical examinations and frequent collections of blood for Widal tests seem as unnecessary as the diagnosis of "febricula, and let it go at that" is satisfactory, in the majority of instances, to both physician and patient.

Griessinger[10] first demonstrated, and Jürgensen emphasized, the connection of these mildest forms—"gastric fever," "febricula" in many cases, "synochus," "forme muqueuse de la dothienentérie"—with the classic type of typhoid fever, though Louis[8] remarks on latent cases terminating abruptly with intestinal perforation, and says that "they make one have his doubts of every slight case of febrile disturbance." Wegelin,[5] a pupil of Griessinger, gave in a Zurich thesis of 1854 the first good published account of these fevers. Murchison[16] also recognized their nature, though without fully appreciating their number or importance. A host of continental writers have made extensive contributions to the subject. On this side of the Atlantic, M'Phedran[33] has called especial attention to abortive typhoid, and has emphasized the importance of its exact diagnosis in the general prophylaxis of the disease. Reed, Vaughan, and Shakespeare[48] note the prevalence of the milder forms in the camp typhoid among our troops during the war with Spain, and the frequency of the diagnosis of malaria in these cases. This report and Woodruff's account of the fever among the troops in Montana, are the only extended studies of these febriculæ made in this country with the aid of the Widal test. All observers who have studied epidemics with this point in mind are at one in the opinion that the mild unrecognized cases contribute a large share of the total amount of general sickness at the time of greatest prevalence of recognized typhoid fever.

Regarding the typical infection with *Bacillus typhosus* as one which produces fever lasting for three weeks or more, we may arbitrarily designate those cases ending in recovery in which febrile temperatures have persisted for 15 to 18 days or less, as "mild typhoid." The nomenclature and classification have been varied. Laveran[15] considered every case with defervescence before the nineteenth day as "febricule typhoide," Hildenbrand having described the febricula of exanthematic typhus as early as 1810. Liebermeister[20] separates the "complete" from the "incomplete" forms of typhoid infection, and among the incomplete forms distinguishes typhus levissimus, typhus abortivus, and typhus levissimus abortivus. Grisolle[19] speaks of "formes frustes," in which the patients recover before they can come under the care of a physician. Bäumler[12] called all cases of less than 18 days' duration abortive, following Griessinger and Jürgensen. Lebert included under the term abortive typhoid, many cases of the usual duration, but presenting mild symptoms throughout their course, while he considers in his paper cases in which the diagnosis of typhoid fever is, to say the least, dubious. Trousseau,[13] Jaccoud,[11] Niemeyer,[25] Sarda,[30] Lapponi,[22] and the later writers in general, follow Liebermeister. With mild typhoid we must not class the true apyretic typhoid, a form of the disease which may show marked severity and run a prolonged course, as has been well shown by Étienne[49] and by Vallin.[18] In regard to the socalled latent or ambulatory form of typhoid fever, Jürgensen's opinion is noteworthy, that this form is nothing else than typhus levissimus unduly prolonged by repeated errors in diet, and Curschmann[52] recognizes the fact that many of the very mild cases contribute their share to the statistics of the afebrile and ambulatory varieties. The simplest plan of classification seems to be to consider all cases with a maximum duration of 18 days or less, as "mild typhoid," and under this head to distinguish the mildest cases, "typhus levissimus," characterized both by brevity of course and mildness of symptoms, from the cases of true "abortive typhoid," in which the general symptoms may exhibit at any time a high degree of severity, but a rapid defervescence occurs, and is complete by the middle of the third week.

An opportunity has recently presented itself of studying a small and definitely localized epidemic of typhoid fever at a large secondary school, under such conditions that not only the sick, but also the presumably well members of the community were under my daily observation. At the first outbreak, a majority of the people connected with the institution went to their homes; among these, all supposed to be well when they left, some 25 cases of fever developed, which were diagnosed by different physicians as typhoid. Among those remaining, including the attendants upon the original cases, there were altogether 17 individuals who suffered from typhoid infections. All of these undoubtedly acquired the disease from the same source, and all at about the same time, with the exception of one patient, who was probably infected directly from a patient with whom he came in close contact. Of the 17 cases under my own care or observation, 12 suffered from attacks of moderate or of great severity, showing only those variations from the usual course that would be probable in that number. The remaining five cases, however, belong indubitably in the category of mild typhoid—two of them certainly in the group of typhus levissimus abortivus, the infection producing only sufficient symptoms and febrile reaction to just attract attention—and these cases form the basis of this paper. This proportion of the mildest forms in the total number surely infected —nearly 30%—is worthy of remark, and of comparison with the figures of large general hospitals in this country. Herrick,[36] in a review of nearly 1,000 cases seen at the Cook County Hospital, merely remarks having seen several cases with fever lasting only 10 to 20 days. I am at present engaged in a study of the typhoid cases admitted to the Johns Hopkins Hospital in the last 15 years, with a view to determining the proportion of these cases. It will be remembered that Wilson[21] considered these mildest forms to be much less frequent in this country than in Europe, but it is open to question whether this opinion would be altogether justified, were all or even a majority of the cases of slight autumnal febrile disturbances seen by physicians.

CASE I.—J. N., a girl, aged 15, had been drinking infected spring water up to two weeks before the onset of the disease. Her family history and previous history were unimportant, she had never had malaria, nor any continued fever. On March 26, the patient felt perfectly well, though her bowels did not move, and she went to bed feeling in perfect good health. The next day she awoke with a slight headache, had no appetite, and "felt badly," languid and tired. During the morning and afternoon she felt slight chilliness several times, but there was no definite rigor. Constipation continued. There was no epistaxis, no cough, and no abdominal pain. There was only slight headache, general in distribution. I saw her first at 5 p.m. of this day. She was flushed, the eyes were bright and the conjunctivæ injected, the expression rather dull, the tongue lightly coated, and the throat quite clear. The patient complained of nothing but slight headache, there having been no chilly sensations for some hours. The temperature was 103.2°, the pulse 24 to ¼ regular, and not dicrotic. Physical examination was entirely negative. The heart and lungs were clear, the abdomen was soft and natural, there were no rose spots, and there was no enlargement of the spleen. Castor-oil was ordered, the sudden onset having misled me into thinking the diagnosis of typhoid improbable. On March 28, the temperature at 8 a.m. was 100.8°, at 6 pm. it was 102.4°. The patient appeared sicker, she complained of considerable general malaise, the expression was listless, the tongue was quite heavily coated, in spite of the oil having been effectual, and the area of splenic dulness on percussion was distinctly increased. On the succeeding day, the third since the onset, the soft, enlarged spleen was easily palpable, and there was a crop of six or eight rose spots scattered over the upper abdomen and lower chest—the temperature did not rise above 100.2°, and was never afterward over 100°, the 8 p.m. temperature being 98.4° or below from the sixth day. On the sixth day the spleen was no longer palpable, but there was a fresh crop of typical spots on the lower thorax. Increase of the area of splenic dulness could only be demonstrated until the eighth day. The tongue cleaned rapidly, anorexia disappeared with the fever and the patient made a rapid and uneventful recovery, showing very little loss in weight or strength. The Widal reaction was found positive by Dr. Cole on the third day of the disease.

CASE II.—F. B., aged 27. The patient drank certainly infected water up to 21 days before the invasion. Family history and previous history were unimportant. She had been an "eczema baby" and her skin was rough, harsh, and scaly. She had never had typhoid, malaria, nor any continued fever. Just before her illness the patient had taken an overnight railway journey; she was unusually intelligent, and was certain that she had been perfectly well, up to and including March 22. On March 23 the patient woke with a sore throat and slight headache, felt "feverish" and occasionally chilly throughout the day, and had no desire for food. There was no bleeding from the nose, the bowels were constipated, and there was no abdominal pain. I saw the patient first on the evening of this day. She was then much excited, the face was extraordinarily flushed, the pulse 120 and regular, the temperature 102.8°. The tongue was lightly coated—otherwise the physical examination was absolutely negative. The fauces were slighly injected, but the pharynx and tonsils were clear. The next morning the patient was no longer flushed, the pulse was 100 and not dicrotic, the temperature 100.4°; there had been no further chilliness, there was practically no sore throat, and anorexia was less absolute than on the preceding day. Splenic dulness was increased, but the spleen could not be felt; 8 p. m. temperature was 101.6°. On the third day the tongue had become heavily furred, there was increasing headache, but no sore throat, and no cough, though there were a few medium and coarse moist rales audible at both bases. The edge of the spleen was just palpable on deep inspiration. Two definite roseolæ had appeared on the chest. The temperature remained between 99° and 100.5° until the tenth day, when it came down definitely to normal. Spleen was palpable until the tenth day, the patient having very little abdominal self-consciousness, and the area of splenic dulness was increased until the thirteenth day. No fresh spots appeared, but those on the chest pursued a typical course, fading and leaving slight brownish stains. The tongue remained coated for ten days, and the bowels constipated, and though the patient never had a toxic look, she was dull and typhoidal. Recovery was rapid and uneventful. No further chills. Blood negative for malarial parasites.

This patient's blood did not give the Widal reaction. In view of the exact knowledge of the exposure in her case, of the acute and rapidly subsiding splenic tumor without any local signs suggestive of a hardly possible infarction, and in view of the typical rose spots, I think we are forced to consider this as a case of typhoid fever, in spite of the negative blood reaction.

CASE III.—C. P., aged 15. This boy had been exposed by drinking infected water up to March 12, and since that time had been frequently in the room where his mother was ill with typhoid, and had used a presumably infected bath room. Family history and previous history unimportant; no malaria nor any continued fever. Up to and including April 26, patient had been perfectly well. His blood had been examined late in March, for reasons connected with the prevailing epidemic, and at that time gave no Widal reaction. On April 27 the patient felt chilly and dull, complained of some headache and constipation, and was obliged to come home from school. There was no bleeding from the nose, no cough, and no abdominal discomfort. Castor-oil was given with effect. At this time his temperature was 100.4°. He stayed about the house, feeling listless and sick. April 29 the afternoon temperature was 102.4° and there were repeated slight rigors, which have not recurred since. Since April 30 there has been little headache, but the bowels have remained constipated. A curious "mousy" body odor was noticed by the boy's father, and when I first saw him the characteristic typhoid odor was unusually pronounced, disappearing quickly in the course of a few more days. On May 1 the spleen was palpable and rose spots were seen. The patient was brought 80 miles to Washington, where I saw him first on May 2. He then looked slightly dull, but was quite clear mentally, and had a temperature of 99° and a pulse of 84 after his journey. The tongue was coated and the breath foul. There was no cough and the lungs were clear. The abdomen was soft and flat, the spleen was readily felt, and there was much gurgling, but no sensitiveness on pressure in the right iliac fossa. In the right flank were four or five typical rose spots. The Widal reaction was positive in a dilution of 1 to 50. On the ninth day the spleen could no longer be felt; the rose spots were fading, no fresh ones having appeared. The patient had practically no symptoms—his appetite was good, he had no more headache, his tongue cleaned rapidly, and on May 8, the twelfth day of the disease, the temperature came down to normal, and has remained at that point or below. Convalescence has been rapid, and the patient has lost but little in weight or strength.

CASE IV.—G. L., aged 19. Patient drank infected water up to a few days before the invasion. Family history and previous history negative. He thinks he has had "malaria," but never had any continued fever. Was in his usual health up to March 10, on which day he felt "headachy" and languid, and had a rather profuse epistaxis. He had no chill, but thinks he was feverish. He is certain that none of these symptoms had been present at any earlier date. From the day of onset the patient stayed indoors continuously, and was in bed after March 12, with increasing malaise, constipation, and a feeling of general dulness, with some headache. There was no cough and no abdominal pain. Patient was first seen on March 18. At that time his temperature was just above 100°, the pulse was slow and not dicrotic, the expression was dull and stupid, and the patient looked decidedly sick. The tongue was heavily coated and the breath was foul. The throat, lungs and heart were clear, there was no headache. The general abdominal examination was negative; the spleen could not be felt, though the area of splenic dulness extended almost to the costal margin, but there were several very characteristic spots scattered over the abdomen. The Widal reaction was positive. The temperature did not rise above 99.2° on the tenth day, and was 98° on the evening of the eleventh, from that time on being subnormal, in association with a slow pulse during three weeks after defervescence. The tongue cleaned rather rapidly, the general stupor disappeared with the fever, and no fresh roseolæ were seen. The spleen was no longer perceptibly enlarged after March 21, three days after the first examination, and the patient made an uninterrupted, though not specially rapid recovery.

CASE V.—L. A., aged 18. The patient was a young woman who was known to have been exposed to typhoid infection. Family history unimportant, though it was very interesting that both the patient's father and her stepfather had died of "heart failure" in the course of typhoid fever. Previous history negative—there was no history of any continued fever, and the patient had never had articular rheumatism. She had always been neurotic, and the mother had been told that her daughter had "heart trouble." During February and the early part of March, the patient complained of feeling tired, and of some headache, but as these complaints were thought to be only an exaggeration of her usual neurotic state, but little attention was paid to them. There was no bleeding from the nose, no diarrhea, nor other intestinal symptoms, and no cough or rigors. On March 10 "some fever" was noted by her mother, and general malaise and lassitude increasing, the patient went to bed, and stayed there off and on, getting up frequently, and eating a varied though not very large diet. Patient was first seen on March 20. At that time the temperature was normal, the pulse 100, regular, and not dicrotic; there was considerable furring of the tongue, and the large soft spleen was readily felt. There were no rose spots, but the Widal had been positive two or three days before. On March 22 the patient, who had persisted in getting up to stool, showed a temperature of 100°, and looked quite ill. From that time on her temperature rose steadily, and she passed through a characteristic relapse of 16 days' duration. Defervescence from this attack was hardly complete when the fever again appeared, this time without any obvious cause, and the patient suffered a very severe relapse of 30 days' duration, in the course of which she became very toxemic, had to be given 51 tub baths and 19 sponge baths, and developed a loud apical systolic murmur, with tachycardia. Recovery was naturally tedious, though no complications appeared other than those mentioned.

This case is included in the series, in the absence of any precise data as to the primary attack, from a conviction that the attack could have been nothing else than one of typhus levissimus, and as an example of the very serious nature of the symptoms that may develop in the relapse consequent upon the neglect of these very mild cases—a neglect which is far from being intentional, but which is a necessary consequence of the failure to recognize the disease in its incipiency. The history of the onset in this patient was much obscured by the accounts of her hysteric flushings and "algias," but it was certainly unlike the other cases of this series in regard to the extended character of the prodromes, the shortening of the prodromal stage, in the epidemic during which the case occurred, having been a very marked feature. In any event, the tenth day of March must be reckoned as the first of her disease. Twelve days later her temperature was normal. In all human certainty, had she been on a strict typhoid regimen from the day she first went to bed, at which time the true diagnosis was certainly in the hands of any one who cared to make it, the temperature would never again have been elevated, and neither relapse would have occurred.

From a study of these cases, and a review of the pertinent literature, it is possible to develop fairly definite conclusions regarding the general clinical features of the mildest typhoid infections, keeping in mind that we are dealing with the cases of short duration only, and without reference to those having two and a half weeks or more of fever, no matter how insignificant their symptoms. It seems best to take up the clinical course in some detail, and to discuss the symptomatology when possible in agreement with the principal authorities, entering as little as may be into minor and disputed points.

Onset.—In a majority of instances this is sudden, and even at times with very severe symptoms, all but a very few of the patients being able to give quite definite accounts of the first invasion. The prodromal period, usually so characteristic of the disease under consideration, is in its mildest forms more often absent than not. Jürgensen noted that of 35 cases ending on the tenth day or earlier, all had a sharp and well-defined onset, while in the more prolonged cases, approaching the average or usual types, the proportion of definite onsets was less, in 85% only, of cases lasting from 10 to 16 days, was the patient able to name definitely the first day of the disease. The more sharply a case of typhoid fever sets in, in the absence of any unusual localization of the virus, the more likely is the case to prove abortive (Lapponi, Stillman[41]), though Pepper and Stengel[46] have called attention to the occurrence of sudden onset in cases pursuing a regular course, and have warned against the error in diagnosis likely to result therefrom. Rilliet and Barthez[8] call attention to the special frequency of this sudden invasion in the typhoid fever of children, among whom, according to Brouardel and Thoinot,[39] the mild and abortive forms would appear to be especially frequent. Bernheim,[26] Bernard,[51] Gordon-Martins, and others of the European writers, deny the frequency of the abrupt onset in these forms; but in this they are in opposition to all those who have reported the larger series of cases, from the days of Griessinger to the present time, as well as to the evidence of the large majority of the occasional and isolated cases to be found in the literature. Of my cases, four had a sudden, sharply marked onset. Rigors or chilly sensations are apparently very frequent, being a feature of the onset in three of my five cases. Sarda denies the frequency of the initial rigor, and of the sudden form of onset as well, and it is probable that in these respects, as in so many others, individual epidemics vary very widely. Weil, quoted in Brouardel and Thoinot, among 32 cases of this type, saw only four in which there had been even slight prodromes; while there were only six of his cases in which the onset had not been attended by chilly sensations or definite chills. Headache and constipation are nearly constant features at this stage. Epistaxis has been noted in a large proportion of the reported cases; it was a feature in only one of the present series. As to the temperature, its rise is usually rapid, and the patient with abortive typhoid is apt to be incapacitated at a period when those with typical infections are still up and about. It is probable that any or all stages of the usual march of the disease may be shortened, and no one type of this abbreviation can be recognized as necessary, though Curschmann thinks that considerable shortening of the initial stage and critical decline of the fever occur more frequently in cases of abortive typhoid than in those of the mildest variety. Of my cases, I and II are especially noteworthy. The patients were under my personal observation for some days before they became sick. In both of them the appearance of symptoms and the rise in temperature were very rapid, taking place and reaching a maximum in 24 hours. In Case I, there was no fastigium, and defervescence was practically critical. In Case II, there was very rapid decline of the temperature to subfebrile levels, and the persistence at this level for a week was the only sign of the fastigium. Of all the cases, three certainly reached the acme of their subjective discomfort in two or three days.

General Symptoms; Pulse.—The symptoms, as might be expected, are of no great intensity, though cases may become afebrile as early as the twelfth day, which have shown evidences of very marked toxemia. The temporary headache, the slight hebetude, lassitude, and perhaps an insignificant degree of mental confusion, correspond to the general features of the typical attack, reduced to their lowest terms. In none of my cases was there even the slightest suggestion of nocturnal delirium. The diminutive character of the phenomena corresponds very well with the term "febricula." The face is lightly flushed, the expression bright, the tongue nearly always coated, and the breath unpleasant. It is interesting that in Case III the peculiar typhoid odor was more pronounced than one often finds it in typical cases of long duration. The general characters of the cases here recorded agree closely with those described by Fisk,[37] in Denver.

The pulse-rate is rarely disturbed to any great extent. In one or two instances it was observed that during the first few days of normal temperature the heart would become rapid whenever the patient made the slightest unusual exertion—on the other hand, in Case III, the patient traveled 80 miles by train with a pulse-rate constant at 84, and this before defervescence had occurred. Dicrotism is noted by many authors, but was not present in any of the cases reported here. Sarda goes so far as to say that an early appearance of dicrotism of the pulse is especially characteristic of the abortive forms, and that it may be an aid in the prognosis of early defervescence. It seems hardly worth while to ascribe so great significance to what is in no sense a specific feature of typhoid fever. In none of my cases was the lowering of the arterial blood-pressure, so characteristic of the vascular condition in fully developed cases, at all evident. The slight degree of hypotension observed in one or two cases was probably entirely due to the rest in the recumbent posture.

The Eruption.—Roseolæ are present with as great frequency as in the typical forms, if they are carefully sought. Lebert saw spots in only 8% of his cases, but they were noted in over 50% of Sarda's observations, and in a majority of Griessinger's and of Bernheim's. Their number is usually not large, and naturally enough the appearance of successive crops is not often observed. Occasionally the rose spots are very numerous and widely distributed. Corresponding with the abbreviation of the initial stage, the eruption tends to appear earlier than in typical infections, as was first pointed out by Griessinger, though they may not be seen until after the temperature has become normal. In all of my cases rose spots were seen. In three cases that were under continuous observation from the beginning, the spots appeared on the third day in two, on the fifth day in one; in only one case was there a second crop, and that on the sixth day.

Notta[24] holds that the eruption is in these cases the most valuable and often the only available datum for the establishment of the diagnosis of typhus levissimus. He is especially impressed with the diagnostic force of the appearance of the eruption at the typical time later than the end of the first week. He reports two cases, in both of which the roseola made its appearance at about the tenth day, and does not seem to have seen cases with a very early eruption. The date of the eruption can have little significance in diagnosis, when it is anticipated, and the character of the spots themselves is of far more importance.

Abdomen.—Enlargement of the spleen seems to be quite as common in the mildest as in the most severe forms of the disease, the number of cases in which it is found being, as in the case of the eruption, in direct proportion to the number in which it is sought. Some of the authors who have dealt with these fevers do not appear to have examined the spleen in any case. Liebermeister noted acute splenic tumor in 71 out of 100 of his cases; Jürgensen in 92% of his material. The majority of writers also agree that the splenic tumor makes its appearance earlier in this form than it does in the usual varieties of the disease. The occurrence of acute swelling of the spleen in connection with mild febrile disturbances in adults may be the most valuable indication of the typhoid nature of their infection. Its occurrence in such clinically insignificant fevers in adults, due to any other cause than the typhoid bacillus, is so rare as to be almost negligible in the consideration of the differential diagnosis. I consider it of more value than any other point, except the serum reaction. In all of my cases there was wellmarked enlargement of the spleen, appearing early, soon reaching its maximum, and vanishing as rapidly.

The *bowels* are quite generally constipated. We know the diarrhea of typhoid fever to be in large part due rather to the general catarrhal condition of the bowel wall than to the specific lesion in Peyer's patches, and what little pathologic evidence there is, indicates that this diffuse process is either absent or of very low grade in the milder infections. Some cases in the literature, it is true, have set in with and been characterized by mild diarrhea. Most of these patients, however, if their intestinal lesions are respected, will give no trouble in this regard. In all of the cases of my series the patients were constipated, and two of them remained so, in spite of "initial purgation" with castor-oil.

Gurgling and slight tenderness in the right iliac fossa may be present in the mildest cases; abdominal pain, and any but the slightest degree of tympanites, are very rare.

The Blood.—No special systematic studies of the blood in these fevers are recorded in the literature. Naturally enough, no marked anemia is produced. In the few observations noted, the leukocyte count has shown normal figures, or leukopenia of slight degree. In three cases in which I have made blood counts the leukocytes ranged from 6,000 to 8,000 to the cubic millimeter. No differential counts were made.

The Serum Reaction.—Agglutinating substances are sometimes present in the blood of these patients at an early date, in one of my cases appearing on the third day, and developing at some time in the course of the disease in all but one. Foucher[43] gives the notes of a case very closely resembling Case I of the present series, defervescence having occurred on the fifth day. The Widal reaction was found strongly positive on the third day, was positive only in lower dilutions on the fifth day, and was negative on the thirteenth day. Roux,[47] reporting 13 cases of a febrile affection with an average duration of 10 days, occurring among French soldiers, obtained a positive Widal reaction in 10 of the patients. Of Woodruff's 35 cases, most of which belong to the milder variety, all but one gave a positive serum reaction. Woodruff found that the milder the case, the more imperfect was the serum reaction until quite late in the disease, and so he concludes that the Widal test is generally of less value in the early recognition of typhus levissimus than in the usual forms. He suggests that the agglutinins are formed very slowly and in small amounts in these cases. Courmont[42] also found that the blood in the very mild cases had a very low agglutinating power with reference to the typhoid bacillus, and thought that parallel with this went a special liability to relapse. The report of the United States Army Commission shows that the Widal reaction is present in a large majority, at least, of the milder cases. It is probable that the agglutinating power of the blood is not retained as long after these brief fevers as it is in patients who remain in bed with fever for many weeks.

Complications and Sequels.—These are rare indeed. Fairly well-marked bronchitis is reported by many of the European authors. It was not present, nor did any complications occur in any of my cases. That serious complications may arise has been shown by Vallin, though his observations have more to do with the apyretic forms than with those which we are considering. Brouardel and Thoinot quote Vulpian as having seen femoral arteritis, and Sorel as having observed right-sided hemiplegia with aphasia, both accidents following typhoid fever with a pyrexial period of only 13 days. In this connection a case reported by Lapponi is surpassingly interesting, and is worthy of relation. His patient had passed through a typical attack of typhus levissimus, the temperature having reached normal eight to ten days after the onset. On the thirteenth or fifteenth day of the disease, the patient was feeling perfectly well, and very hungry. He eluded observation long enough to eat rapidly an excessive meal of solid food. Within four hours there was sudden, severe abdominal pain, and all the symptoms of perforative peritonitis appeared. The surgical daring of that day was not as great as it is in ours, and within 24 hours the patient was dead, ice to the abdomen having failed to improve his condition. At autopsy there was found slight infiltration of two Peyer's patches low down in the ileum. Through one of these softened areas—ulceration does not appear to have taken place—the perforation had occurred, and general peritonitis had developed. Typhus levissimus is not always contemptible.

Relapse.—All authorities recognize the great tendency to relapse, of patients who have passed through mild attacks of typhoid fever. Whether this holds good with reference to the mildest forms is not certain. Bernheim observed relapse in 8% of his cases, Weil in 15%, Letulle in 8.5%. Relapse is probably, judging from the material at hand, not unduly frequent after these very mild infections of short duration—always provided that the patient is as carefully guarded during convalescence, with respect to food and exertion, as if the temperature had become normal during the fourth instead of the first week. Of the present series, only one patient suffered from relapse (Case V), undoubtedly as the result of improper feeding and exertion while still febrile—in this instance the secondary attacks were prolonged and of marked severity. This is all the more striking since the epidemic in which these cases occurred was characterized by an unusually large number of relapses and recrudescences among the individuals with infections of the regular type. Of 12 of these, four had relapses. The patients with the very mild infections are not so hungry as those who have suffered from more extended illnesses, and in this respect are more easy to control during the empty ten days that should precede their first real meal.

Treatment.—The indication is given when the diagnosis is made. It is largely a question of precautions—we can do little that is good for these patients, but we can keep them from doing a great many things that are bad for them. Few of them will need any antipyretic measures, though an occasional sponge may make them more comfortable. It is my impression that purgatives, at least castor-oil, can be given with impunity in these cases, and with positive good effect. The essential point in the treatment is preventive, however—to insist on the patient accepting the usual typhoid regimen, to give even pedantic care to the details of feeding during convalescence, and to carry out a stringent isolation—this is the main duty of the medical attendant. If a strict rule were not adhered to, if we followed the lead of the patient's feelings and desires, and were willing to take a few chances, it would be possible to have most of these people up on their feet and eating solids within the week following defervescence, and without evil results. The possibility in any instance, however insignificant the febrile disturbance may have been, of a repetition of Lapponi's case, is enough to discountenance any haste.

Pathology.—There have been, of course, but few postmortem examinations made. In those that are recorded the characteristic lesions of the disease were found in the intestine. Infiltration of Peyer's patches probably always occurs, except in the rarest instances, though it may affect but one or two patches low down in the ileum. The infiltration has not been massive in any of the cases brought to section, and it is doubtful whether sloughing and ulceration occur, the infiltrative material disappearing either by absorption or by superficial molecular disintegration. In those abortive cases which have shown severe symptoms, it is thought that though infiltration of the intestinal and mesenteric lymph-nodes is as marked as in the typical infections, it is the sudden resolution of the lesions without ulceration which constitutes the anatomic basis for the early and permanent fall in temperature. What part a hypothetic specific cytolysin may play in this resolution, and how far cytolytic processes in general may serve to explain these atypic clinical pictures, is a problem that must be attacked in the laboratory.

Etiology.—Even before the discovery of the typhoid bacillus, an attenuated virus was assumed as the causative factor in these milder forms of infection. Bernheim regarded the type of the disease clinically as more a matter of the character of the germ than that of the soil, but the repeated observation of cases of the mildest type infected with the same material as patients suffering from severe and fatal illnesses, and the well-established fact that the curve of prevalence of the mildest forms is about parallel with typhoid fever in general, make it unnecessary and indeed unjustifiable to assume any peculiar characters on the part of the infecting organism. That it should be a question of dosage seems almost equally improbable—in four of the cases reported in this paper the patients drank frequently and in large amounts of the same water that was the source of three fatal infections, and that during the period when it was most profoundly contaminated. It is far more likely that the cases of mild and abortive typhoid occur among those persons who have a low individual susceptibility to this particular microorganism; though Chantemesse[35] is authority for the opinion that these forms are the result of infection with small quantities of a specially mild virus, basing this view largely on the observation that the cases occur especially frequently during the terminal periods of typical epidemics. Curschmann quotes the same observer as surmising that in the abortive forms the bacillus does not penetrate deeply into the tissues, since he failed to find the organism in blood obtained by puncture of the spleen in such a case. Whether there is any force in this explanation awaits further investigation—there is no record of any blood cultures having been attempted in cases of this type, and *a priori*, it does not appear likely that bacilli would be found in the blood of patients in whom febrile reaction may manifest itself for only a week or less. As there are persons known to have an absolute, if, perhaps, only temporary, insusceptibility to infection with the typhoid bacillus, it is quite reasonable to suppose that the cases with which we are dealing represent merely transitions between these individuals and those who when they are exposed, contract a severe illness. A much quoted remark, original with Jaccoud, is that "abortive typhoid bears the same relation to the ordinary typhoid that varioloid does to smallpox." The reference is, of course, to a similar divergence of clinical features, but it is interesting that of the cases here reported none had ever had a previous attack of typhoid fever, nor any illness which could by a stretch of the imagination be interpreted as such. The hypothesis of a precedent "typhoid vaccinia" as the basis for the development of these mild forms remains to be made.

It is interesting that some observers, notably Lebert and Stillman, should have described a prolonged and rather tedious convalescence, as the rule after cases of these very mild typhoid infections. Griessinger, on the other hand, found the convalescence rapid and certain. In none of my cases was the recovery of weight and strength delayed, and all of the patients made much more rapid progress than we usually see after even moderately severe attacks of the disease. The patient in Case IV was the only one who would have been suspected from his appearance during convalescence to have passed through an attack of typhoid fever, and this boy had always been of the lean and hungry type.

Probably no one of the common infectious diseases has so many points of interest for us, both as citizens and as physicians, as has typhoid fever. If its prevalence is a measure of the sanitary intelligence of a community, its recognition and isolation are no less a test of the skill and prophylactic conscience of the members of the medical profession. Cole has called renewed attention to the commanding position occupied by the practitioner with regard to the prevention of a disease which annually costs our country thousands of lives, a position which depends for its value upon accuracy in diagnosis as well as thoroughness in disinfection of dangerous material. Many an epidemic of typhoid fever, whose origin is officially traced to a perfectly constructed water-supply system, should rather be laid at the door of the medical attendant upon the early, often imported, cases, who has been satisfied with a purely formal disinfection of stools and urine, either taking the most superficial precautions, or recommending the use of disinfectants of notorious inefficiency. Still more frequent must be the broadcast distribution of typhoid bacilli from the bodies of patients who have suffered from the fever and from a mistaken diagnosis at the same time. Too often it is only the textbook case which is recognized—and textbook pictures are not seen in practice with very startling frequency. If this is at all true with regard to infections producing a real and often lengthy illness, what must be the situation with respect to these almost insignificant disorders, inducing in the mind of the patient rather a tolerant contempt for the doctor who insists on keeping him in bed, than anything else? A diagnosis of "simple fever," or of a gastric upset, is fatally easy to make, especially as in most instances no immediate unpleasant consequences will force attention to one's error. Hathaway[34] noted the occurrence of very large numbers of cases of "simple continued fever" in India, during the time of greatest prevalence of recognized typhoid, and he does no more than strongly suggest their identity. Physical examinations take time, and do not seem vitally necessary in a patient who has had no prodromes, who has hardly felt it necessary to call a physician, and whose temperature is normal after a few days' rest—but it is just the second examination which alone can discover splenic tumor or roseola, and give the motive for blood-examination. It has been satisfactorily shown that active typhoid bacilli may be carried about in the intestine of perfectly healthy people, may multiply and be distributed during a considerable length of time, and all without producing any symptoms on the part of their host. How much more dangerous to the community than these unpleasantly healthy people, must be the victims of "seven day typhoid," in whom the bacillus has really had an opportunity of developing in numbers and in virulence? There can be no doubt of the relatively great numbers of cases of typhus levissimus occurring every year, even in this country, where they seem to be less common than in Europe (Osler), and the proportion of such cases seen in this recent epidemic is a suggestive indication. It is certain that we can never carry out a successful national campaign against typhoid fever unless these mildest cases are recognized, and their harmlessness as conveyers of infection assured by the most rigid precautions.

But it is not alone as a peril to others that such cases deserve special attention—the patient himself is a proper subject of solicitude. A false diagnosis means too early feeding, exertion, the thousand and one noxa that induce relapse, an event that is certain to magnify a hundredfold the severity of the initial attack in these patients. We can never be sure that the bowel lesion is as slight as the fever—Peyer's patches cannot be seen on a temperature chart—and Lapponi's patient, who died of perforation after an eight-day attack, would be an unpleasant memory for his attendants, had they been in any way to blame by injudicious confidence in the integrity of his bowel wall. No matter how mild or how short the course of typhoid fever, it is always typhoid, and as such can be safely managed in only one way—by being properly and intelligently afraid of it.

The occurrence of the mildest and abortive types of typhoid fever in such relatively large numbers as those here reported, while under what we may call the classic treatment, is of value in giving a *point d'appui* for the estimation of certain therapeutic plans and measures, for which a great deal has been claimed in their effect in modifying the course of the disease. Certainly, if these patients had all received from the beginning the Woodbridge treatment, or had they been given acetozone in huge quantities of water, I for one would have found it difficult to refrain from going over into the other camp, and admitting that by means of drugs it was possible to "abort" typhoid. Typhoid fever deserves the adjective "protean," if that term is merited by any disease beside lues, and we cannot be too cautious in ascribing wonderful virtues to drugs, especially when their apparent results have been unusual.

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PENETRATING GUNSHOT WOUNDS OF THE ABDOMEN, WITH REPORT OF CASES.[1]

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My first knowledge of gunshot wounds of the abdomen dates from childhood. A neighbor, a valuable citizen, undertook to remove the breechpin from an old-fashioned muzzle-loading shotgun, by heating the butt end of the barrel in a forge. The gun was supposed to contain no load, at least no powder; but with the breech heating in the forge and the other end held in the man's hand, pointing directly toward his abdomen, the inevitable happened, and the buckshot riddled the poor fellow's body. The shock, the awful agony of pain, the rapid yet slowly developing peritonitis, the devotion, yet helplessness of the attending physicians, the autopsy —all made an impression on my youthful mind that serves yet to enshroud every case of penetrating gunshot wound of the abdomen with all the horrors of extreme suffering and speedy dissolution.

Frequency.—The frequency of penetrating gunshot wounds of the abdomen is estimated by Serrier at 6.6% of all wounds, and by Otis at 4.28% in field hospitals, referring of course to military practice. Douglas, in his recent most excellent work on "Surgical Diseases of the Abdomen," says: "In civil practice it seems safe to make the statement that wounds of the abdomen occur in greater relative frequency" than the percentages just quoted. This is largely accounted for by the pistol-carrying habit, especially in the South and West. Be that as it may, every practitioner is liable to be called to attend a case of gunshot wound of the abdomen. How we should deal with such a case is the purpose of this paper.

Penetration.—In every case of abdominal wound the first question to be decided is, has the missile penetrated the abdominal cavity? This is not always easy to determine. Ordinarily the relative positions of the assailant and his victim, the obliquity and powder stain of the wound of entrance, and the location of the wound of exit enable one to decide the matter; but these aids are often lacking or deceptive. One of my own patients was shot through the right arm near the shoulder. The bullet left the arm and entered the chest. Three months later it was found in the abdomen, having probably passed through the diaphragm. Again, we often fail to take into account the arch of the diaphragm. In a recent case seen by myself the bullet had entered the left side of the chest about the ninth rib. No operation was done, but autopsy showed wounds of entrance and exit in pleura, diaphragm, and stomach.

It is probably true that a majority of wounds of the abdomen do not penetrate the cavity. Douglas quotes Finkelstein as saying, "of 132 abdominal wounds, 70.4% did not penetrate the peritoneal cavity." I have seen a goodly number of this kind.

A former associate, Dr. W. C. Kluttz, was called to a negro, who had been shot in the abdomen two inches to the left of the umbilicus. The obliquity of the wound of entrance showed the ball to have ranged outward and backward. By means of the röntgen rays the ball was located just beneath the liver and near the tip of the eleventh rib. An incision showed it to be just outside the peritoneum. Another interesting case was seen by me some 15 years ago. The victim had been overpowered by his assailant and shot twice while on the ground struggling. One ball broke the right femur, while the other bullet struck him in the abdomen just to the right of the umbilicus and ranged downward. Two weeks afterward the ball was found in the middle of the corpora cavernosa.

These cases might be multiplied; however, it is the 30% that do penetrate the abdominal cavity that specially interests us.

A penetrating wound of the abdomen is so serious, its results so almost universally fatal, that we cannot afford to make a mistake touching the question of penetration. Therefore, every abdominal wound should be explored with antiseptic precautions, of course, by a free incision, either under cocain or general anesthesia, following carefully the track of the bullet until its course is determined. Under no circumstances should the wound be probed with an instrument or finger. When it is found to have entered the abdominal cavity, a section should be done immediately. The track of the bullet is easily followed when it is situated in the anterior or lateral walls of the abdomen. In those cases in which the wound of entrance is through the back, pelvis, or chest, and in which there is any reason to believe the abdominal cavity has been invaded, an abdominal section should be promptly done. [When I reached home after reading this paper, I found waiting for me a patient whose only visible wound was in the scrotum, which looked so innocent that it was pronounced by a physician who saw the patient, as "nothing more than a briar scratch." On opening the abdomen there were found two perforations through the bladder, one in the small intestine, and widespread peritonitis.] If the bullet has entered through the upper portion of the back, or the chest, do not forget the arch of the diaphragm.

The best rule is to regard every wound that could possibly penetrate the abdomen as having done so, till the contrary appears. This gives the patient the benefit of the doubt.

Penetration without Perforation.—Considerable has been written about bullets entering the abdominal cavity, or even passing entirely through the body without perforating any of the viscera. This is possible, but not believed to be true in more than 3% of cases. Hunter McGuire, Oliver, Stimson, Senn, and many others report instances of this kind. The absence of perforation was proved by operation, or in Senn's cases by the hydrogen test. All the patients recovered. Fenner reports a case in which the patient was not operated on, and at autopsy the bullet was found lying free in the abdominal cavity, but no viscus was injured.

The following case was probably primarily an instance of penetration without perforation:

> A young man becoming involved in a fracas with a traveling showman, was knocked down, and while in the act of rising was shot through the right arm near the shoulder. The bullet passed out of the arm and entered the chest. The young man was not greatly inconvenienced by his wounds. In a few days he was out again. Three months later he was brought to me by his physician, Dr. G. H. West, of Newton. His only complaint at this time was a sense of uneasiness in the right side, located especially about the lower edge of the ribs. The patient was 5 feet 8 inches in height, weighed 180 pounds, and had, barring the distress mentioned, every indication of perfect health. A röntgen ray examination easily located the bullet almost exactly beneath McBurney's point.
>
> At operation the bullet was found lodged between the inner side of the caput coli and a coil of small intestine, imbedded in adhesions. From the bed of the bullet a small opening entered into the small bowel. This perforation was probably caused principally by pressure necrosis and not by the impact of the bullet, since had it been due to the latter, the patient would unquestionably have had some abdominal symptoms at the time of the injury, three months before operation. The bullet was removed, the adhesions separated, the perforation repaired, the abdomen closed without drainage, and the patient made an uneventful recovery.

Abdominal Section.—Statistics touching the value of operation for gunshot wounds of the abdomen are rather disappointing, and to the uninitiated confusing. This confusion arises largely from the fact that many patients shot through the abdomen recover without operation. The recovery under the old expectant plan is variously stated as from 5% to 50%.

The latter percentage, while seemingly sustained by the facts, is misleading. It should be remembered that

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[1] Read before the North Carolina State Medical Society, at Raleigh, May 24, 1904.

70% of abdominal wounds do not even penetrate the abdominal cavity, while at least 3% of the wounds that do penetrate the cavity are not accompanied by perforation. It is in military practice especially that statistics seem to favor noninterference. But it must be remembered that the soldier on the battle-field usually has empty bowels, often has diarrhea; besides, the bullet is steel-clad, small, nonexplosive, and travels with great momentum—all of which favor a small, clean-cut hole, with chances for the collapsed bowel to escape injury.

I believe that 5% of recoveries in genuine cases of perforation of the bowels is more nearly correct in cases in which operation is not done. At any rate, it shall be my practice in every case of gunshot wound of the abdomen, when seen early enough, to explore for penetration, and if found, to boldly lay open the abdomen and deal with conditions as I find them.

Time to Operate.—In dealing with cases of penetrating gunshot wounds of the abdomen, the most important item, next to a correct technic, is the time to operate. When called to a patient with strangulated hernia, I make it a rule never to go home till the strangulation is relieved. The same rule of action should apply here. Bryant says to operate in the first five hours gives by far the best chance of recovery. Douglas quotes Seigel, who in 1898 compiled a list of 736 operations, with a mortality of 51.6%. Of the patients operated on after 12 hours, 70% died; while of those operated upon in the first four hours only 15.3% died. There can be no question of the value of early operation.

Penetrating Gunshot Wounds of the Abdomen.

No.	Name.	Race.	Age.	Location.	Lesions.	Treatment.	Remarks.
1	H.	W.	50	One wound right upper quadrant; one wound 2 inches west umbilicus.	Two perforations in gallbladder; one in lobus quadratus; eight in ileum; two in colon.	Operation 4 hours p. tr. Shock and semicoma before operation.	Death 13 hours p. tr., probably due to hemorrhage from liver.
2	W. B.	W.	20	Right lower quadrant.	Nineteen perforations in small bowel; two in bladder.	Operation 3 hours p. tr. Resection of 18 inches of bowel.	Death in 4 days, probably due to overlooked bladder perforations.
3	X.	C.	22	Left ninth rib.	Two perforations in pleura; two in stomach; two in diaphragm.	No operation.	Death 12 hours p. tr. Autopsy—general peritonitis; extravasation of stomach contents; food in pleura.
4	G.	W.	23	Right arm and chest.	Perforation in ileum.	Operation 3 months p. tr.	Recovery very prompt. Bullet lodged between cecum and ileum.
5	L. W.	C.	27	Left upper quadrant.	Five perforations in small bowel; two in colon; two in mesentery; one artery severed.	Operation 12 hours p. tr.	Recovery.
6	C. H.	C.	28	Left upper quadrant.	Three perforations in jejunum.	Operation 7 hours p. tr.	Recovery very prompt.

Viscera Injured.—The small intestine is by far the most liable to injury. In one of my cases the small intestine contained 19 perforations from a single shot. The smallest number of perforations in the small bowel in any case under personal observation was three. The next in order of frequency to sustain injury are the large bowel, mesentery, stomach, liver, omentum, bladder and smaller structures.

Counterindications to Operation.—Lack of proper facilities such as obtain on the battle-field or in remote country districts, insufficient assistance, or impending dissolution must all be regarded as unfavorable conditions for an operation. If the patient is first seen after 24 hours, and he is doing badly, it is scarcely worth while to operate; and if he is doing well, he stands a better chance to recover if let alone.

Operation.—When the abdomen is open, pick up gently the first coil of intestine that shows itself, examine it carefully, push it aside or follow the bowel in the seeming direction of the injury. The most important things to be looked for are bleeding vessels and perforations. It is well to secure them by suitable clamps as they come into view, till all are found. This is important since the hemorrhage must be stopped, and handling the intestines, more than anything else, causes an extravasation of their contents. The next thing in order is to gently and carefully sponge out the cavity, taking care that no blood or extravasated matter is overlooked. If perchance the whole peritoneum is already soiled, flushing with normal salt solution must be resorted to at this time or later. The methods of closing the perforations are familiar to all surgeons. It is my custom to employ the Halsted suture and to cover the first row with a continuous suture just sufficient to approximate the serous covering. If there are several perforations close together, or if even one has damaged the gut enough to make its repair impracticable, resection should be done. In such case, approximation can be secured by the Murphy button, or, preferably, end-to-end suture anastomosis. Either method is quickly applied by one who is thoroughly familiar with the technic and is a deft manipulator. Case 2 of the appended series illustrates this as well as a number of other points involved in the surgery of penetrating gunshot wounds of the abdomen.

B., aged 20, while in an altercation with a negro, was shot in the right iliac fossa. Dr. J. Stephen Brown, of Salisbury, was called. About an hour later I saw the patient, and had him conveyed to the hospital. Within three hours from the time of the injury, operation was begun. The incision was made near the wound. Hemorrhage had been very profuse. Nineteen perforations were found in the small intestine; 9 of them were so close together and the bowel so greatly damaged that it was deemed best to resect 18 inches of the bowel. The ends were approximated by silk sutures. The other 10 openings were repaired by suturing after the Halsted method. The bullet, or its course after leaving the intestines, could not be found, although a most diligent search was made. There was considerable extravasation of fecal matter. The cavity was carefully flushed with normal salt solution and superficial gauze drains used. Hypodermoclysis was freely employed. The boy left the table in fair condition. The first urine passed was tinged with blood; afterward it was free from blood. After 24 hours the dressings had a urinous odor. This persisted, and it was feared that a ureter must have been injured. The patient died in four days with evidences of toxemia.

The autopsy showed the upper and middle portions of the abdomen to be in good condition. The anastomosis and the perforations, with possibly the exception of one, were all holding securely. The pelvis was full of urine and two openings were discovered in the bladder. The bladder wound of entrance was in the very bottom of Douglas' culdesac, the bullet having passed through the base of the bladder and lodged by the side of the rectum.

Remarks.—The resected portion of the bowel clearly showed how impossible it would have been to repair the perforations. Had the bladder perforations not been overlooked, the probabilities are that this young man would have recovered.

One of the most difficult intestinal perforations to deal with is one situated at the mesointestinal juncture, with the gut opened on one side and a mesenteric artery severed on the other. Just before the mesentery reaches the bowel its two layers separate, leaving a small triangular space bounded on two sides by peritoneum, and on its base by bowel. In this space is contained the intestinal vessels and nerves. Murphy has shown by experiments on dogs that if as much as a half-inch of the parallel artery contained in this space and its terminal branches are destroyed, gangrene will result. Therefore the maintenance of the arterial supply is of prime importance.

June 28, 1903, L. W., a young mulatto man was shot in the left upper quadrant, by the son of his paramour. The weapon used was a 38-caliber pistol at close range. The patient walked two squares after being shot and fell. This occurred about midnight.

Dr. W. L. Crump saw the patient and asked me to join him at 3 a.m. The boy's temperature was 98°, and his pulse 80, with plenty of volume. Shock was evident, but was not profound. He was resting quietly under the influence of a hypodermic of morphin. An operation was advised, but was not agreed to until 10 a.m. The patient was then removed to the operating-room of my office and the operation begun as expeditiously as possible 12 hours after the injury. A free incision was made along the outer edge of the left rectus muscle. The abdomen was found full of blood from a severed mesenteric artery close to the bowel.

There were found five perforations in the small intestines, one in the colon and two through the mesentery. The perforation severing the artery damaged the bowel wall also, and was dealt with as an intestinal perforation. The bleeding artery was ligated and the edge of the mesentery snugly approximated against the bowel. The usual suturing of the remaining perforations and toilet of the peritoneum were done and a gauze drain placed against the lateral wall. The bullet could not be found.

The subsequent history of this case is interesting. For six days the patient was not given any medicine, because he did so well that none was needed. During the second week he developed some fever and excessive abdominal griping. These symptoms continued, and on July 18 the patient's abdomen was again opened, this time in the median line, in the hope of finding the cause of the fever and griping. Nothing abnormal was found except a band of omentum adherent to a coil of small intestine. This was ligated and released. The repair of the perforations was observed to be perfect and especially was it gratifying to see in the newly grown tissue, at the site of the mesointestinal perforation, the thumping stump of the recently severed and ligated artery. The recovery from this operation was very prompt, the wound healing by first intention without a drop of pus, despite the presence of the old drainage wound. After this operation there was no more painful peristalsis which was evidently due to the omental adhesion, but the fever continued. It seemed plain that the fever was due to sepsis from the region of the bullet.

Later, by means of the röntgen rays the bullet was located in the crest of the left ilium, and was removed August 5. After this there was no more fever, or any other interruption to a perfect convalescence.

Remarks: The special features of this case are the nearly normal pulse and temperature, with eight perforations and the belly full of blood; the perfect repair of the mesenteric artery at the mesointestinal juncture, and the recovery following an operation 12 hours after the injury.

In addition to the lesions found at operation, vexatious problems often confront us. The following case is one in point:

H., aged about 50, a convict guard, was shot in the abdomen twice by one of his fellow guards. One bullet entered the right upper quadrant, while the other penetrated the abdomen two inches to the right of the umbilicus. He was conveyed as quickly as practicable to his home a mile distant, and the operation begun four hours after the injury. One bullet had made eight perforations in the small intestine and two in the colon. The upper bullet had torn the gallbladder and lobus quadratus literally into shreds. The mistake was made of trying to repair the gallbladder when it should have been extirpated. The damage to the lobus quadratus was probably not handled in the best way, since it is feared that hemorrhage continued from this injury. The intestinal wounds were easily dealt with. This man had bled a great deal, and was profoundly shocked and semicomatose when the operation was begun. Death occurred about 13 hours after the injury. This was the first case of the kind in which I had operated, and it occurred before my experience in general abdominal work was very large.

One more case by way of illustrating certain points. This one may be justly considered an ideal case of penetrating gunshot wound of the abdomen.

February 19: C. H., a negro employe of the Armour Packing Company, got into an altercation with another negro, who shot him in the left upper quadrant of the abdomen, at almost the identical spot that President McKinley was wounded. He walked to the company's office, then to Dr. A. B. Fortune's office, perhaps 500 yards. From there he was sent home in a carriage. I saw the patient with Dr. Fortune, and we had the patient conveyed to the Greensboro Hospital. Operation was done seven hours after receipt of the injury. The ball was found to have ranged backward and slightly outward, instead of upward and inward, as in the President's case. Three perforations of the jejunum were found and repaired. The omentum was drawn over the site of the perforations, and a small gauze drain placed next to the lateral wall. The operation was done at 10 p.m. The patient slept all night like a typical negro, scarcely arousing from the anesthesia. The next morning he was carried to his own home and left in the care of his negro friends. At the time of the operation his temperature was 100° and the pulse 100. Afterward he had practically no fever, no pain, no nausea—nothing to indicate that he was or ever had been in a desperate condition. On the fourth night, his nurses being asleep, he got up to relieve his bowels, though he declares he did not go out of the house. To this day he does not realize that he was in a critical condition.

I recognize the fact that six cases are too few to generalize from, but even so small a number shows something of what may be done by timely surgery. Three recoveries out of five operations is not a bad showing; and I almost entertain the belief that if cases similar to the two in which death resulted after operation were again to fall into my hands, I might give them a better chance of recovery. The points worthy of consideration are:

1. Consider all abdominal wounds as penetrating till the contrary is proved by exploration.
2. Consider all penetrating wounds as having injured the viscera, and operate.
3. Operate promptly, at the first possible moment.
4. Inspect carefully every viscus that could possibly be injured.
5. Make a careful toilet of the peritoneum.
6. Use salt solution freely in the abdomen, under the skin, and in the bowel.

DILATION OF THE STOMACH, WITH SPECIAL REFERENCE TO 48 CASES.*

BY

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In a clinical sense, a distinction is made between a large stomach, "megalogastria" and dilation. The former signifies an enlargement of the organ, in which the motor powers are still normal, it does not cause any symptoms, and is always found by chance; while the latter term is applied to a permanent increase in the size of the stomach with "motor insufficiency," and, it is to this condition that the term "ectasis" of the older authors is still employed.

There are cases of motor insufficiency which is a perversion of function, not only without dilation of the stomach, but the stomach may be relatively smaller than normal; however, the severe degrees of motor insufficiency are usually accompanied by dilation. Again, there are cases on record of motor insufficiency of high degree in which the size of the stomach was not increased.

Motor insufficiency may be absolute, when the muscular wall of the stomach is weakened, or relative, in cases of obstruction in the region of the pylorus. In the former, the propulsive powers of the stomach are reduced, in the latter the propulsive powers may be normal or increased, but in each condition the ultimate effect is the same. The obstruction increases the amount of work to be performed, and this is not done in the normal way, therefore, the ingesta is not propelled from the stomach within the normal time. An anatomic examination, alone, is not sufficient to differentiate the diseases of the stomach, and as Rosenbach has pointed out, it is absolutely essential to determine carefully the functional powers of the stomach, as well as its boundaries. We speak of motor or mechanical insufficiency of the stomach as incapable of propelling the ingesta into the intestines within the normal time. Those cases in which there is abnormal resistance to the exit of ingesta at the pylorus or in its vicinity, whether caused by carcinomas, cicatricial contractions, adhesions, displaced organs, newgrowth, etc., are not, strictly speaking, insufficiency proper, but are classified under this heading because the condition is characterized by a period of prolonged digestion, delayed propulsion of ingesta, and a tendency to dilation. The muscular wall may be hypertonic in these latter cases, whereas there is atony in the primary muscle—weakness.

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The origin of ectasis, as pointed out, is either atonic or hypertonic. Atony, or myasthenia gastrica, as it is termed by Boas, may be produced by a primary loss of muscle power, or the amount of work to be done may be increased, causing direct impairment of the muscle. This may be transitory in acute dilation, following indiscretions in diet or overloading of the stomach with indigestible food, as frequently occurs. J. Friedenwald[1] reports two cases of this kind, and Pepper and Stengel[2] also report an interesting case of acute dilation of the stomach. Eating too fast, excessive drinking of coffee, beer, alcohol, soup, and particularly beverages that contain a great amount of gas, may cause the condition. Some authors claim that the gas generated from retained ingesta in the stomach has a tendency to produce dilation. Acute dilation has been frequently observed in children, particularly in those who have been bottle fed. Cooper[3] reports a case in a well-nourished child of 11 months, who had been previously healthy. The child, after partaking of its bottle, was laughing and playing on its mother's knee, when suddenly it seemed to stop breathing and died. The postmortem examination showed the stomach to be greatly dilated and containing 19 fluidounces of a fairly thick fluid. The heart muscle was pale and flabby and the cavities dilated. This condition, the author believes, was brought about by overfeeding, as the normal capacity of the stomach in a child of that age is nine ounces.

It is of the greatest importance that the underlying cause of the ectasis be established, for the success of the treatment and the prognosis depend upon that factor. Many predisposing factors, *i. e.*, overeating, irrational clothing, sedentary habits, etc., are given by various writers as the cause of atony in primary reduction or loss of muscle power. In certain families a socalled weak stomach appears to be hereditary, seeming to be a congenital muscular weakness transmitted from parent to child; however, it is probable that the method of feeding is responsible for that condition in the majority of instances. There is undoubtedly a congenital weakness in certain individuals, and Stiller has called attention to the floating tenth rib, etc. Atony is frequent in acute and chronic gastritis, nervous dyspepsia, and in hypersecretion (Riegel) in constitutional weakness, following the infectious fevers, *i. e.*, typhoid, influenza, and scarlet fever, etc. Allbutt believes dilation of the stomach is associated with the infectious fevers more commonly than supposed, and if not recognized, may cause delayed convalescence or lead to permanent ill-health.

Atony may be present in neurasthenia, cholelithiasis (Boas), and in the sudden emaciation in pulmonary tuberculosis.

Allbutt[4] has seen a stomach fall in emaciation and subsequently rise again on improvement. This author believes that some women starve themselves into dilation of the stomach and gastroptosis; and mentions a case of intercostal neuralgia, in which the stomach became dilated during the attack and returned to normal in the interval. According to some authors, anemia, acute and subacute peritonitis, and hernias may also lead to motor insufficiency; ulcer of stomach (Ewald) by destruction of motor nerve fibers producing paralysis. A number of cases are on record following trauma, surgical interference, shock, emotional excitement, sudden strain by athletes, and the use of corrosive poisons, which produce fatty degeneration of the muscle and atony. Atony may be toxic in origin from excessive use of tobacco, etc., or from altered functions in the body, as in chronic nephritis, etc. Stockton[5] says another cause of the disease is found in a sudden paralysis of the muscle of the stomach, the result of poisoning of the nerve centers. In disease of the heart, a dilated or flabby stomach is sometimes present. Occupation does not appear to have any particular bearing in the cause of dilation, but, probably, individuals who are overworked and poorly nourished show a greater tendency to it. Musser and Steele[6] report eight cases of dilation of the stomach as due to myasthenia, in seven of their cases the eyes were at fault, and the use of proper glasses had a beneficial effect. Repeated pregnancy at short intervals may predispose to dilation, being brought about by the omission of the abdominal binder or by arising too soon from bed. Riegel believes that repeated pregnancy primarily leads to postural anomalies of the stomach, and only secondarily to atony and ectasis.

In another group of cases there is no real loss of tone of the muscle, but on the contrary, an increase, and to this class belongs stenosis at or in the vicinity of the pylorus. There are a number of cases on record of congenital stenosis of the pylorus, in some of which the stenosis was so great that the infant died a few days after birth. Stenosis may follow ulcer, carcinoma, hyperplasia of the musculature following severe gastritis, old peritonitis giving rise to cicatricial bands surrounding the pylorus, or neoplasms arising from the liver, gallbladder, omentum, pancreas. Theo. Tieken[7] reports a case of annular pancreas in which a marked dilation and hypertrophy of the stomach was present. Gallstones, tumors of hepatic flexure of the colon, diseased retroperitoneal glands, displaced liver, and according to a few writers, displaced right kidney, may cause dilation of the stomach.

Bartels was the first to express the opinion that floating kidney of the right side, by exercising pressure on the duodenum, quite frequently leads to gastrectasis. Oser, Nothnagel, Leube, Ewald, Stiller, Allbutt, and others, regard the movable right kidney as a coincidence. The condition of the abdominal walls has much to do with the facility with which we can palpate the kidneys, particularly when the abdominal wall is thin and relaxed we may be able to palpate the kidney in its normal position. A relaxed abdominal wall is not uncommon in patients with dilation of the stomach.

Out of 637 stomach cases in Dr. Sailer's clinic at the Polyclinic Hospital, Philadelphia, there were 48 cases of dilation, 7.5% of the total number. Of these, 2 patients gave a history of typhoid fever; 3 of influenza, 2 of these dating the beginning of their stomach trouble from the time of the attack of influenza; 1 of pertussis; 1 of scarlet fever; and 1 of rheumatism. Four are neurasthenics.

Sex and condition in 48 cases: Women, 25; men, 23. Of the women, 23 were married, but only 11 of these had been pregnant.

The disease is most common between the ages of 20 and 50; the youngest of these patients was 18, the oldest 70; the average age of 23 women was 37, and of 23 men 35.

RIGHT KIDNEY ALONE MOVABLE.

Females:	
First degree	4
Second degree	2
Third degree	3
Males:	
First degree	3
Third degree	3
Total	15

BOTH KIDNEYS MOVABLE.

Males:	
First degree	1
Females:	
Second degree	1
Right, third, left, second degree	1
	18

Total cases of dilation with ptosis of kidneys.....18, or 37.5 %
Total cases of dilation with ptosis of liver......... 2, or 4.33⅓%

CASES OF DILATION WITHOUT GASTROPTOSIS.

Males	12
Females	2
Total	14

CASES OF DILATION WITH GASTROPTOSIS.

Females	21
Males	11
Total	32
Cases of doubtful gastroptosis, did not return	2
Total cases of dilation	34
Dilation due to carcinoma (male)	1
Dilation due to carcinoma (gastroptosis), female	1
	2
Splashing:	
Present	9
Not detected	1
No record	38
Change of weight:	
Loss	11
No change	4
No record	33
Bowels:	
Constipated	25
Regular	9
No record	14
Heart murmurs:	
Mitral systolic	3
Mitral presystolic	1
Aortic systolic	1
Movable heart	1
Hematemesis	1
Errors of refraction uncorrected	1

STILLER'S SIGN OF MOVABLE TENTH RIB.

Patients examined	22
Present in	10
Females	6
Males	4

WEBSTER'S SIGN (DIASTASIS OF THE RECTI ABDOMINALIS MUSCLES.)

Patients examined	23
Present in	10
Females	9
Male	1

Gastroptosis and enteroptosis are not uncommon in dilation of the stomach. Steele and Francine,[8] in a study of 70 cases of gastroptosis, report dilation present in all. Steele[9] reports 60 cases of gastroptosis in which dilation was present.

CASE I.—A pronounced degree of gastroptosis with dilation following carcinoma of the pylorus. The patient, a female, white, aged 45, is married, and a housekeeper. She has had no pregnancies. Her bowels are constipated, and she has lost 26 pounds in weight in three months. Thirst is excessive. The lesser curvature of the stomach is below the umbilicus, and the greater curvature extends to the symphysis pubis. Vomitus amounted to eight liters.

CASE II.—Female, colored, aged 26, servant. The patient has been married three months. There is no history of pregnancy. She had rheumatism several years ago. Has complained of her stomach for the past five days; bowels are constipated. Examination shows systolic murmur at apex, greater curvature of stomach three inches below the umbilicus; right kidney, third position; left kidney, second position; diagnosis, gastroptosis.

In Case I, it will be noted that the patient complained three months, and in Case II the patient complained for a period of but five days.

Symptomatology.—The most important symptoms are those caused by motor insufficiency, and these must be distinguished from those caused by the primary disease. Many patients give a history of suffering from the stomach, from a few hours or days in the acute, to 5, 10, 15 years or longer in chronic dilation. Nearly all show loss of weight in various proportions, and a few become very much emaciated. It is at times surprising, the short time a patient complains of his stomach, in cases in which dilation has probably existed for a long time.

To determine that the motor power of the stomach is insufficient, it is necessary to make a direct examination of that function, and for this purpose the old procedure of testing the time of digestion, as advised by Leube, is still the best and most reliable method we possess (Riegel). This consists in administering a test-meal of a plate of soup, beefsteak and a roll. If the stomach is found empty after seven hours, and if nothing can be washed out by lavage, we assume that the time of digestion is normal. Riegel washes out the stomach in the evening, and instructs the patient to eat a simple supper. The next morning before breakfast the stomach is again washed out, and the organ will be found empty if there is only a slight degree of motor insufficiency.

Einhorn gives a supper of soup, meat, potatoes, bread and rice, and upon lavage the next morning, the rice is readily recognized in a case of motor insufficiency. The amount of food residue withdrawn approximately indicates the degree of motor insufficiency present. Some clinicians employ the salol test of Ewald and Sievers, or Huber's modification of that method, for determining the motor power of the stomach.

Splashing, which is elicited by tapping over a stomach that contains liquid and air, is of value when other signs of motor insufficiency are present. If heard over the stomach when nothing has been taken for six or seven hours, it indicates that the organ is not empty at a time when it normally should be. The exact location of the succussion should be noted, for this may show the presence of dilation or gastroptosis, or both. In order to be certain that the succussion is heard over the stomach, it may be necessary to empty the stomach by using the tube. Succussion is also heard over the intestines when air and liquid are present, and in that case the stools are liable to be loose and watery.

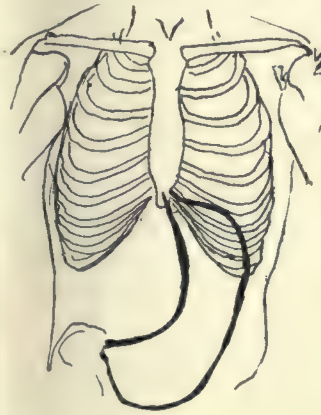
Fig. 1.

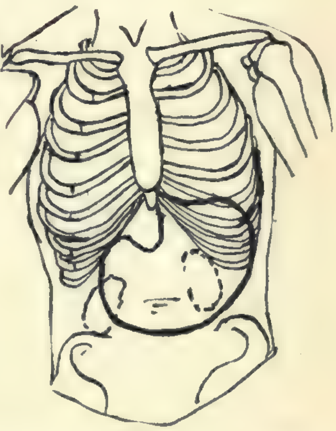
Fig. 2.

Fig. 1.—Pronounced degree of gastroptosis with dilation following carcinoma of the pylorus (Case I.)

Fig. 2.—Gastroptosis with dilation (Case II). Limits of stomach, solid black lines; position of kidneys, dotted black lines.

Inspection in simple motor insufficiency reveals nothing, but in cases of dilation, in which the organ is distended, the outline of the stomach can frequently be seen. The greater curvature is most conspicuous, particularly if the abdominal walls are thin and relaxed. The lesser curvature of the stomach cannot be seen if the organ is in its normal position. The stomach rarely occupies a vertical position to the left of the median line, first described by Kussmaul, but under such circumstance the lesser curvature can be seen. Under close inspection peristaltic waves may be noticed, passing from left to right toward the pylorus. These become more pronounced by tapping over the stomach. Their presence argues against atony and indicates stenosis of the pylorus, in which case the walls of the stomach are working harder than normal. Pulsation of the abdominal aorta is frequently observed in patients with neurasthenia.

Palpation is important in determining if the stomach is abnormally large or displaced, the presence of tumors, the resistance, and any points of tenderness. The stomach-tube or sound may be introduced, and palpated through the abdominal wall, but this method gives only the lower boundary and is not free from danger.

By percussion you may determine the boundaries of the stomach and it is also of some value in motor insufficiency, in showing that the stomach is not empty at a time when it normally should be. The position of the stomach changes slightly with a change of position of the patient. The result of direct percussion is not always reliable, for in cases of gastroptosis it is occasionally misleading. This is due to the fact that when you percuss over the region occupied normally by the stomach, you get a tympanitic note, which might cause a mistake of the lesser for the greater curvature. I believe auscultatory percussion is more satisfactory, and this is performed by using preferably a double stethoscope, placing the bell of the instrument below the ensiform cartilage, and while gently tapping over the stomach, moving the bell downward and upward, when you get a change of note, it probably marks the limitations of the organ.

Artificial inflation of the stomach with air or carbon dioxid is essential in making a diagnosis of dilation. This procedure gives us the most positive information in regard to the position of the lesser curvature, as well as to the position, size, form, and distention of the organ. It also materially assists in locating the position of tumors in relation to the stomach. If a tumor is palpable before inflation and cannot be felt when the organ is inflated, it may be assumed that the tumor is not of the anterior wall.

To inflate with air, an ordinary stomach-tube is introduced, and after washing out the stomach the tube is connected with a Davidson syringe, or a bulb and piece of tubing of a hand atomizer will suffice. Air is then slowly pumped into the stomach, which becomes distended; if auscultation is practiced at the same time, the entrance of air is heard, and will be limited to the boundary of the stomach, unless the air escapes through the pylorus. At the time when using the tube a knowledge of the position of the greater curvature is obtained, which is accepted to be about 60 cm. (24 inches) from the central incisor teeth, in the normal individual. By inflation with the tube one has control over the amount of air necessary to distend the organ, and if the patient should experience too much pain or discomfort, the pumping of air into the stomach should cease and the air be allowed to escape before withdrawing the tube, but the objection to it is the tube. Inflation with carbon dioxid accomplishes the same purpose, in making the outlines of the stomach distinct for percussion, palpation, and more visible on inspection. For this purpose a divided Seidlitz powder minus the Rochelle salt is given; each salt is dissolved in about a half glass of water and given separately. Some prefer to give the soda first, others the tartaric acid. The stomach will be seen to protrude immediately in most cases, but there are a number of cases, in which this does not occur. In very obese individuals it fails, or if, with an increase in the size of the stomach, there is not sufficient gas to inflate the organ. In that case you can give a larger Seidlitz powder the next time an examination is made. Meinert recommends a Seidlitz powder that contains 8 gm. (120 gr.) sodium bicarbonate and 6 gm. (90 gr.) of tartaric acid. By exercising a little judgment and not giving it when inflation is counterindicated no ill-effects should follow. The stomach-tube may be held in readiness, if desired for emergencies, to allow the escape of the gas, which usually passes off without discomfort. Hemorrhage, ulcer, carcinoma, and aneurysm of the aorta are counterindications to inflation. I have never seen any bad effects from the use of the Seidlitz powder in inflation. Behrend[10] reports three fatal accidents from its use.

There are a number of other methods for determining the size, position, and capacity of the stomach; *i. e.*, Dehio's, Penzoldt's, Schreiber's and others. Einhorn uses and recommends transillumination in dilation of the stomach. The patient is given two or three glasses of water to drink, after which Einhorn's gastrodiaphane (electric light) is introduced into the stomach. Kemp[11] recommends a solution of fluorescin to be used as a medium in transillumination of the stomach, and is as follows: The patient is given a glass of water (8 oz.) in which 15 gr. to 20 gr. of sodium bicarbonate are dissolved to neutralize stomach acidity. This is then followed by another glass of water (8 oz.) in which are dissolved 15 gr. to 20 gr. of sodium bicarbonate, 1 dr. of glycerin, and ½ gr. of fluorescin. The patient is then taken into the dark room, and the Lockwood electric light (gastrodiaphane) is introduced like the stomach-tube. This gives a brilliant light, and by some manipulation you are able to determine the lower margin of the stomach and the relation of the lesser curvature to the diaphragm. Absolutely no disagreeable results followed. It is unnecessary to aspirate out the fluorescent medium, unless a belt is to be applied, in which event it is preferable, as it is more comfortable to the patient." Kemp has devised a stomach whistle for outlining the boundaries of the stomach. A point of differential diagnosis between simple dilation and gastroptosis is that in simple dilation the lesser curvature holds its normal relation to the diaphragm.

It may be difficult to differentiate the boundary of the stomach from the transverse colon, particularly if the latter is distended; under these circumstances it will be necessary to inflate, or radiograph the colon.

Valuable information is obtained by an analysis of the gastric juice. A Boas-Ewald test-meal, two small slices of bread and two glasses of water, is given on an empty stomach, and at the expiration of 40 minutes the stomach contents are aspirated. The result will depend upon the cause of the atony, or the stenosis. If no free hydrochloric acid is found, but a large quantity of lactic acid in a case of stenosis, carcinoma would be suspected; on the other hand, a large quantity of free hydrochloric acid and the gastric juice separating into three layers would suggest that the stenosis is benign. Microscopically in carcinomas there are usually a number of well-preserved meat fibers, and Boas-Oppler bacilli. In benign stenosis, with an increase of the gastric juice, undigested starch, sarcinæ and yeast cells are found.

Gaseous fermentation, with belching, occurs in stagnation of the stomach contents. The abdomen is distended, fulness and distress after eating, headache, tinnitus, floating spots before the eyes, heartburn, eructations, etc. Appetite is variable; as stated, the symptoms will depend upon the cause of the atony, or the stenosis.

Thirst is marked in advanced cases, the propulsion of fluid into the intestines is impeded, with a resulting dryness of the skin and all the other tissues. The urine is diminished in quantity, of a high color and high specific gravity, reaction is frequently alkaline, and on standing a white sediment forms. Vomiting in advanced cases is quite characteristic, and in some instances the patient vomits much more than the amount ingested in 24 hours. The vomitus may be frothy and separate into three layers. Vertigo, palpitation, insomnia and nervousness are sometimes noted. Blood changes depend upon the cause of the disease. The bowels are frequently constipated, and the movements are hard and dry from lack of water in the tissues.

In closing I wish to express my thanks to Dr. Joseph Sailer.

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LESSONS LEARNED IN ABDOMINAL POSTMORTEMS.

BY

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One learns from abdominal autopsies the position and color of the viscera, and the pathologic contents of the abdomen. It also becomes apparent that many death certificates are inaccurate. An abdominal autopsy does not mean, as the socalled practical surgeon proclaims, 200 lines of discussion and two meager lines of treatment; but it reveals useful objects for future practice, be it physiologic, anatomic, or pathologic.

One of the best tests of a physician's practical knowledge of the peritoneal viscera is aptly demonstrated by his method of conducting an autopsy. With the abdominal viscera completely exposed by maximum parietal crucial incisions, it will quickly dawn on one's mind that it requires the most comprehensive knowledge of medicine to interpret correctly physiologic, anatomic, and pathologic visceral lesions. To perform or witness abdominal autopsies induces a physician to be less dogmatically positive, to exercise more care and wisdom in diagnosis, to be more charitable to his colleague's opinion; in short, to be a more useful abdominal physician.

Abdominal autopsies are an invaluable stimulant to the investigator, instructive and useful to the practical physician, and a check to the hasty, unsafe, and dangerous commercial fellow. A diagnosis of the abdominal viscera is more difficult than that of any other serous cavity, hence its autopsic revelations are more instructive and valuable. These necropsies frequently reveal what might have been.

For 15 years I have pursued with satisfactory interest gynecology and abdominal surgery as a specialty, during which time I have performed over 600 autopsic abdominal inspections. Theories may come and theories may go, but the interest of the abdominal necropsy goes on forever.

An autopsy is of value and interest when it reveals some object of practical use. It indicates the nature and location of the disease. It familiarizes the physician with pathologic landmarks—the habitat of disease. The maximum interest occurs when the physician who treated the living patient is present during the revelations of the dead. However, since our country is not sufficiently advanced in civilization to have regular necropsies, the attending physician is not apprised of his errors. Our necropsies are chiefly performed on alleged criminals or paupers—in both cases an inferred slur of disgrace.

Autopsies should reveal the value of individual or select methods of treatment. They impress one with the utility, protection, and habitat of an organ. The maximum value of abdominal autopsies arises when the specialist witnesses, or better, performs the last examination of the organs to which he has devoted his life's efforts. This should be done under the direct guidance of a competent general pathologist. At present the profession is in need of careful abdominal postmortems to check the ruthless and dangerous surgery of visceralpexy. The socalled practical surgeon loves not to consider the unphysiologic and dangerous factor of fixing mobile organs. Relatively few surgeons witness or perform abdominal autopsies, and hence do not realize what mischief and distortion their hands and visceralpexies have wrought among the poised abdominal organs, as well as the irreparable damage to the delicate peritoneum.

The surgeon who performs abdominal autopsies learns to respect the functions and protective infectious capacity of the peritoneum. He learns to harbor an aseptic conscience in his fingers. No one can be more indelibly impressed that unclean and traumatic hands produce ruin and desolation in the peritoneum. They teach the physician the significance and usual locations in 95% of the cases of peritonitis (peritoneal adhesions) occurring in the adult. It will be evident from inspection that (1) the peritonitis arises from accidental perforation, or invasion of bacteria or their products from the intestinal tract (gastroduodenum, appendix, biliary ducts, pancreas); from genital tract (oviducts, uterus); from urinary tract (kidney, ureter, bladder); (2) from muscular trauma on intestinal tract, genital tract, urinary tract, inducing the bacteria or their products to migrate, traverse through the visceral mucosa, muscularis, and into the serosa, causing peritoneal adhesions. Within the range of traumatic action of the right psoas muscle can be noted over 70% of peritoneal adhesions immediately adjacent to the ileocecal appendicular apparatus. Over 80% of peritoneal adhesions can be observed in the mesosigmoid immediately within traumatic range of the left psoas. Of perisplenic peritoneal adhesions, 95% may be recognized immediately within traumatic range of the diaphragmatic muscle. Of peritoneal adhesions, 40% may be found immediately adjacent to the duodenum and biliary channels, which are within range of the muscular trauma of the diaphragmatic, ventral, abdominal, and right psoas muscles. In 80% of adult pelvic peritoneal adhesions, muscular trauma (levator ani) is only one factor in the invasion of the infection through the unique mucoserous channel, the oviduct. Muscular trauma plays its maximum role in causing peritoneal adhesions when the visceral channel contains virulent pathogenic microbes.

Ten years ago I operated on the abdominal viscera of over 200 dogs, and later in almost every instance performed the autopsy on the operated dog. I found that over 80% of the animals possessed numerous well-organized peritoneal adhesions immediately within the range of trauma and infection on the peritoneum during the surgical intervention. Human autopsies present similar conditions and results.

Abdominal autopsies teach that peritoneal operations should be performed within as limited area, duration, and trauma (manipulation) as possible. The peritoneum is a jealous organ, guarding with persistent vigil the liberty of visceral motion, isolating with precision infectious organs by exudates, introducing anatomic and physiologic rest where and when most required.

The abdominal autopsy demonstrates that the mesogastrium, the great omentum, is the greatest of life protectors to the peritoneum. It is like a man-of-war, ready at a moment's notice to sail to invaded ports. It is the unerring policeman, the sentinel, of the abdomen. It is the surgeon's friend, not only concealing the mischief his hands have wrought, but closing visceral perforation. It is a diagnostician, indicating the lesion by anchoring itself to the infected port, establishing collateral circulation.

Peritoneal necropsies vividly demonstrate that the abdominal cavity is a gigantic blood reservoir, a governor, regulator of the blood stream to other corporeal regions. When the portal and systemic veins lie distended before the observer in the exposed peritoneal cavity, it becomes evident not only how other regions of the body are extensively robbed of blood, but how one can actually bleed to death in his own abdomen.

Abdominal autopsies teach the vulnerability of organs, the weak visceral segments, the organs which resist disease the least, the probable diagnosis. It becomes automatic for the experienced autopsist to direct his attention to invading disease from the distal ends of the oviduct, the appendix or the gallbladder.

Autopsies on the abdominal organs teach the signification of splanchnoptosia, that organs have a varied range of movement within the zone of health, a changing residence, and that visceral range of motion increases with every decade of life subsequent to 30 years of age—that the fixation of any single organ destroys the anatomicophysiologic poise, the delicate balance of the others.

For a dozen years I have advocated that every medical college should have a chair of applied abdominal visceral anatomy, as nearly half of surgery is in the domain of the abdomen. The instruction should consist of two hours weekly, extending through the junior and senior years, with each student personally engaged on the material. The method of teaching should be physiologic, anatomic, comparative, and experimental, with classes limited to 12 or 15.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

October 1, 1904. [Vol. XLIII, No. 14.]

1. Pleural Effusion in Heart Disease. J. DUTTON STEELE.
2. Prolonged Delirium in Pericarditis and Endocarditis: Report of a Case. EDGAR MOORE GREEN.
3. The Limitation of Digitalis in Mitral and Aortic Regurgitation. FRANK JONES.
4. Some Points in the Acoustics of Respiration. CHARLES E. QUIMBY.
5. Intracranial Neurectomy for Trigeminal Neuralgia: Cases and Comments. HARRY M. SHERMAN.
6. Physiologic Extirpation of the Ganglion of Gasser: Further Report on Division of the Sensory Root for Tic Douloureux Based on the Observations of Four Cases. CHARLES H. FRAZIER and WM. G. SPILLER.
7. Osmic Acid Injections for Relief of Trifacial Neuralgia. JOHN B. MURPHY.
8. Blood-pressure and Pulse-rate: As Influenced by Different Positions of the Body. O. Z. STEPHENS.
9. Treatment of Fractures of the Patella by Lateral Sutures. JOSEPH A. BLAKE.
10. The Etiology of Hay-Fever: The Relation of the Chemistry of the Saliva and the Nasal Secretions to Diseases of the Mucous Membrane of the Mouth and Upper Respiratory Tract. D. BRADEN KYLE.
11. Poisoning by Wood Alcohol: Cases of Death and Blindness from Columbian Spirits and Other Methylated Preparations. CASEY A. WOOD and FRANK BULLER.
12. Fatal Poisoning Due to Skin Absorption of Liquid Shoe-blacking (Nitrobenzol): With Autopsy Report. WILLARD J. STONE.
13. Splenectomy for Splenic Anemia. J. H. CARSTENS.
14. Röntgen Ray Therapy in Leukemia: A Preliminary Report with Special Reference to Lymphatic Leukemia. JOSEPH A. CAPPS and JOSEPH F. SMITH.

1, 2, 3.—See *American Medicine*, Vol. VIII, No. 1, p. 8.

4.—See *American Medicine*, Vol. VIII, No. 2, p. 49.

5, 6, 7.—See *American Medicine*, Vol. VIII, No. 3, p. 94.

8.—See *American Medicine*, Vol. VIII, No. 1, p. 10.

9.—See *American Medicine*, Vol. VIII, No. 5, p. 182.

10.—See *American Medicine*, Vol. VII, No. 25, p. 974.

11.—See *American Medicine*, Vol. VIII, No. 6, p. 228.

12.—Fatal Poisoning from Shoe-blacking.—W. J. Stone has found no other case in which a fatal result could be attributed to skin absorption. The patient soaked the cloth uppers of his patent leather shoes with a polish in which pure nitrobenzol nearly equalled the total amount of blacking, had put these on before they were dry, and danced in them through the evening. At 12.30 a.m. he began to feel ill, and died in collapse at 4.45 a.m. The symptoms are almost identical with prussic acid poisoning, except that death may be delayed from 15 minutes to three hours or longer. Death is usually stated to be due to paralysis of the respiratory centers, but in this case the heart stopped beating five minutes before respiration ceased. The kidneys and liver showed extensive parenchymatous degeneration, probably due to attempted elimination of the poison. Since death occurs from narcotic action, a prompt emetic should be given or the stomach-tube used, no matter whether the poison is ingested, inhaled, or absorbed, as it may be excreted into the stomach or intestines. Coma should be combated with exercise, flagellation with wet towels, etc. Atropin and cocain may be given hypodermically for cardiac and respiratory stimulation. Hot salt solution by rectum or intravenously would assist elimination by the kidneys and possibly by the bowel. Pilocarpin is too depressing as a diaphoretic. The use of nitrobenzol in shoe-blacking, cheap soaps, confections, etc., should be more strenuously prohibited. Poisoning has occurred from breathing the vapor. [H.M.]

13.—Splenectomy for Splenic Anemia.—J. H. Carstens reports a case in a man of 38 in which the spleen weighed 14 pounds, with marked reduction in the number of leukocytes, and an enormous increase in the proportion of lymphocytes. Eight months after operation the blood was practically normal. His weight increased from 97 to 193 pounds, and he was the picture of health in every way, except for a slight bulging at the line of incision which incapacitated him for hard physical labor. Splenic anemia is slow in development, and is but slightly relieved or retarded by treatment. Splenectomy seems to offer the only chance for permanent cure. [H.M.]

Boston Medical and Surgical Journal.

September 29, 1904. [Vol. CLI, No. 13.]

1. Disease of the Myocardium. HENRY JACKSON.
2. Abscess of the Liver following Abdominal Infections with a Report of Four Cases. DANIEL FISKE JONES.
3. Conclusions from a Series of Measurements of Blood-pressure in Fevers, before, during, and after the Administration of Strychnin. RICHARD C. CABOT.
4. Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. (Continued.) PERCY MUSGRAVE.

1.—Disease of the Myocardium.—H. Jackson states that in heart disease there is suffering only when the myocardium becomes involved. Many with "heart disease" have no valvular trouble. Diseases of the myocardium are acute and chronic. In most acute diseases depending on bacteria there is found fatty or granular degeneration of the heart muscle. The cardiac weakness of diphtheria, scarlet fever, etc., is absolutely curable. As a rule, dilation cannot be certainly diagnosed by percussion. It would be found oftener in infectious diseases if sought for with care. It is probably due to muscular degeneration. Abscesses may be found in the myocardium in general septicemia. Acute malignant myocarditis is not rare. The acute forms of myocardial disease, except abscess, may present only the symptoms of the primary disease but in severer form. In chronic disease we are consulted for symptoms of heart disease. The size of the heart having been ascertained by percussion, the character of the pulse and presence or absence of chronic passive congestion will determine whether enlargement is due to dilation or hypertrophy. In many cases of myocardial disease there is mitral regurgitation without disease of the valve. Diagnosis depends on the absence of diseases, which usually lead to a mitral endocarditis, and the presence of signs causative of myocardial disease. Postmortem, the heart is found enlarged, due to fibrous growth. Myocardial disease may arise from sclerosis of the coronary arteries, from general arteriosclerosis, or rather the toxemia causing this; from renal disease, abuse of alcohol, hard physical labor, and causes unknown. [H.M.]

2.—Abscess of the Liver following Abdominal Infection.—Daniel Fiske Jones reports 4 cases in detail and gives a general review of the literature on the subject. Statistics show abscess of the liver to be a complication of appendicitis in 1% or 2% of all cases that come to autopsy. Phipp, in 57 autopsies on cases of perforate appendix, found 11 cases of pylephlebitis; Langheldt, in 112 autopsies, found 4 cases of pylephlebitis, 2 of abscess of the liver, and 2 of suppurative hepatitis; Calley, in 200 autopsies, found 2 cases of abscess of the liver; Libman, in 48 cases of appendicitis, found suppurative lesions in the mesenteric and portal veins in 6 cases, in 4 of which there was simple abscess of the liver; Jones has found 114 reported cases of abscess of the liver following abdominal infection. Of these, the diseased appendix was the focus of infection in 100 cases; salpingitis or pelvic cellulitis in 11; and perforate gastric ulcer in 3 cases. In the 114 cases the abscess was in the right lobe in 50%; in both lobes in 44%, and in the left lobe alone in 6% of cases. The cause is anatomic; the right lobe is larger and the drainage of the portal vein to this lobe continues in a direct line. Though there may be many ways for the infection to reach the liver from the abdomen, the portal vein is undoubtedly the path followed in practically all cases. [A.B.C.]

3.—Blood-pressure in Fevers and Strychnin.—R. C. Cabot gave strychnin by mouth in 32 cases and in 18 subcutaneously. The total daily dose was usually an eighth of a grain, sometimes a sixth of a grain. The records were kept for days and occasionally for weeks before and after the drug was given. The measures were taken with Stanton's modification of the Riva-Rocci instrument. The total result was negative. The observations included 5,000 measurements. While strychnin and whisky seemed entirely without influence on blood-pressure the sight of the dinner tray or the prospect of getting up produced a most obvious though transient rise. The writer does not wish to be construed as asserting that the drug is of no value. [H.M.]

Medical Record.

October 1, 1904. [Vol. 66, No. 14.]

1. A Critical Review of the Study of Cancer. ANNA M. GALBRAITH.
2. Electricity in Medicine. A. D. ROCKWELL.
3. The Idea of Gross Cleanliness in Surgery, and Its Harmful Results. ROBERT T. MORRIS.
4. Traumatic Apoplexy. PEARCE BAILEY.
5. The Indications for Surgical Intervention in Chronic Gastric Ulcer. FRANK H. MURDOCH.
6. Peculiar Nervous Symptoms Following Operation. W. R. BLAILOCK.
7. Some Thoughts Concerning Two Recent Cases of Ectopic Gestation. A. BROTHERS.
8. Esophageal Diverticulum: Diagnosis Confirmed by Röntgen Ray Examination. H. A. BERNSTEIN.

1.—A Review of the Study of Cancer.—Anna M. Galbraith reviews the history of the study of cancer in reference to: 1. The clinical study of cancer dating from Hippocrates. 2. The pathologic study of cancer beginning with the discovery of the combined microscope in 1830. 3. The surgical treatment of this disease from the establishment of antiseptic surgery in 1881. She says some of the striking features of this review covering the last 200 years are: 1. Cancer is almost totally absent in the tropics. 2. Cancer is very rare among savage races. 3. With the advance of civilization and the increased prosperity of the nations, there has been a steady and marked increase of cancer. 4. This disease is more prevalent among the well-to-do and wealthy than it is among the very poor. 5. It is more common among women than among men. 6. It is a disease particularly of the climacteric. 7. It is hereditary. 8. In order for tumors to become malignant, a lessened physiologic resistance of the local tissues or of the body in general is necessary. With our present ignorance of the cause and cure of cancer, the first step taken must be in the direction of prophylaxis; when a women reaches the age of 40 she must be placed in the best possible condition, locally and generally, for the resistance of this disease. Should cancer make its appearance, an immediate operation is imperative. [A.B.C.]

3.—The Harmful Results of Gross Cleanliness in Surgery.—Robert Morris says: Along with the teaching of scientific cleanliness in the schools at present, there is developed the idea that wound discharges in general are unclean, and are to be removed. The application of the idea is full of harmful consequences. Trained nurses and the assistants on the hospital staff are so imbued with the idea of keeping wounds clean that it is difficult to teach them the advantages of skilful neglect. He considers in detail three classes of cases: Those in which we are to have epithelial repair, those undergoing connective-tissue repair, and cases in which we are to have endothelial repair. A case representative of the first class would be an open incised wound of the arm; though the wound may be bathed in pus, if this is wiped away or washed away with antiseptics or even with sterilized water, the result is harmful, rows of young epithelial cells are disarranged or destroyed, and repair is delayed. If we use physiologic salt solution with care, no harm is done, except in a mechanical way. A case representative of the second class would be furnished by a fecal fistula. Here repair is conducted by grouping up young connective cells and delicate granulation tissue and gradual contraction of the sinus takes place. We are guilty of gross cleanliness if we irrigate such a sinus, distend its walls, and prevent contraction. One of the third class would be furnished by a perforated appendix with peritoneal infection. With the appendix quickly removed, we give nature the best chance, but efforts to wipe off the infected intestine in the peritoneum will result in harm. [A.B.C.]

4.—Traumatic Apoplexy.—Pearce Bailey says there are three varieties of vascular disturbance occurring after injury to the head, in which cause and effect are close and indisputable. These are: 1. Apoplexy occurring simultaneously with the injury. 2. Apoplexy occurring shortly after the injury. 3. Apoplectiform symptoms occurring some time after the injury. In the first instance usually a blow is received on the head, but is not severe. The symptoms are those of spontaneous apoplexy and may quickly prove fatal. The explanation consists in a preexisting weakness of the cerebral bloodvessels or miliary aneurysms, which, when the vessel is subjected to a rise in blood-pressure, give way. Under the second class the hemorrhage, which is fatal, takes place in the neighborhood of the fourth ventricle, and occurs a few days or even weeks after the head injury. The injury is invariably to the head: it may not even cause unconsciousness. After a few days or weeks there begin headache, somnolence, and coma, with paralysis of the extremities or the cranial nerves and an apoplectic stroke may occur without warning. Under the third class the symptoms point to a slow increase in functional occlusion. It is generally seen in fracture of the skull with extensive laceration of the brain, the increase in symptoms beginning after a lapse of many years. [A.B.C.]

5.—Indications for Surgical Intervention in Chronic Gastric Ulcer.—Frank H. Murdoch states that the hemorrhage in acute ulcer is a common occurrence, but it seldom recurs because the edges of the ulcer are soft and yielding, the wounded vessel readily contracts, and the hemorrhage ceases spontaneously. Hemorrhage, however, in chronic ulcers is more serious for the reason that the edges of the ulcer are fibrous and unyielding, the wounded vessel lies like a rigid pipe, and contraction does not take place to prevent further bleeding. It occurs in about 18% of chronic cases, and frequently recurs. Therefore, when hemorrhage occurs in chronic ulcer, operation should not be too long delayed; when perforation occurs, of course operation is demanded. The author quotes Mansell Moullin, who maintains that every chronic ulcer of the stomach that persists aud causes serious pain and vomiting in spite of a thorough trial of the ordinary methods of treatment, should be exposed, examined, and treated surgically. The question which Murdoch asks is: To what extent should the ordinary medical treatment be carried? He outlines his own plan in detail. He states that three of his own patients, and three others seen in consultation, were operated upon with a mortality of 1 (16.2%). This is higher than the mortality from chronic gastric ulcer and, therefore, our advice for operations should depend on the condition which we believe to be present at the site of disease. [A.B.C.]

7.—Ectopic Gestation.—A. Brothers reports two cases in detail. In a patient suffering from symptoms of ectopic gestation, laparotomy was performed and the unruptured tubal sac, with its corresponding ovary, was removed. In reviewing the case, the following facts pointed to ectopic pregnancy: 1. The six years of sterility succeeding the birth of her first child. 2. The preexisting pelvic disease, which required a curetage five years previously. 3. The suspension of menstruation for a period of seven weeks. 4. The succeeding uterine bleedings during an entire month. 5. The attack of general abdominal cramps, suggesting a beginning tubal abortion and accounting for the black clots found in the peritoneal cavity at the time of operation. 6. The tendency to syncope during this attack. 7. The localization of the pain, for the most part in the left pelvis. 8. The discharge of probably decidual tissue a week previous to operation. The condition was overlooked by the family practitioner for three reasons: (1) Because it did not occur to him to think of ectopic gestation in this individual case; (2) because, for certain unknown reasons, he was unable at the time to map out the pelvic tumor; (3) because of the fact that, with the exception of one or two days, this patient was not confined to bed and suffered little. The second patient was a woman of 39, who had never before been pregnant, though married twice. Oncoming symptoms pointed to an ectopic gestation, and on the left side a tumor, apparently the size of a baseball, was felt. A laparotomy was performed and a ruptured ectopic sac was found. He holds that in certain instances a patient with an ectopic pregnancy may recover by one of three methods: (1) Either the ovum dies in the tube, choked off in its own clot, and the hematosalpinx subsequently becomes absorbed; or, (2) after a tubal abortion the escaped ovum or embryo perishes in the hemorrhagic intraperitoneal effusion; or, (3) the same result follows after a tubal rupture. [A.B.C.]

New York Medical Journal.

September 24, 1904. [Vol. LXXX, No. 13.]

1. Summary of an Experimental Research into Strychnin in Shock and Collapse: With Illustrative Protocols. G. W. CRILE.
2. Some Unusual Forms of Acute Myelitis. B. SACHS.
3. Ready Methods of Formulating Modified Milk Mixtures. E. KIRKLAND SHELMERDINE.
4. The Present Condition of Tenontoplasty. PROFESSOR VULPIUS.
5. Some Causes of Menstrual Disorders in the Girl. R. S. HILL.
6. Immunity. ANNA M. STUART.

2.—Acute Myelitis.—B. Sachs reports unusual cases in detail. The first case was one in which, from the clinician's point of view, there was every reason to make the diagnosis of an acute transverse myelitis, and yet the autopsy failed to reveal the first sign of any inflammatory process. The affection from which the patient died cannot be interpreted otherwise than a general degeneration of the substance of the spinal cord, due to the affected blood supply. The second is one which was thought to be a case of streptococcic myelitis from which recovery had been at least unusual, but by no means complete. [C.A.O.]

5.—Menstrual Disorders.—R. S. Hill reviews the antenatal and postnatal factors predisposing to an imperfect development of the uterus and ovaries, and then takes up what he considers the two most frequent sources of evil in the development of these organs, viz., school life and tight lacing. The mental taxation to which many girls are subject during school life, with the small amount of time allotted for physical exercise, is shown to be detrimental to their development. At the very time of life when the uterus is in need of a proper supply of foodstuff, as it were, in the form of good rich blood, to develop and prepare itself for the assumption and discharge of its characteristic functions, the system of the girl is often enfeebled and cannot supply the demands made on it by this and its associated developing structures. As a natural consequence, the growing organs fall short of acquiring the power of properly discharging their duties, and the effort to do so results in abnormal manifestations. In tight lacing we have, in the opinion of the author, a factor second to none as a cause in the unfitting of the female sex for the duties of life. [C.A.O.]

Medical News.

October 1, 1904. [Vol. 85, No. 14.]

1. A Case of Tumor of the Spinal Cord. GEORGE WOOLSEY.
2. The Need of Efficient Public Health Work in the Suburbs. GEORGE A. SOPER.
3. A Contribution to Cytodiagnosis in Pleural Effusions, with Especial Reference to the Tuberculous Form. HERBERT SWIFT CARTER.
4. An Analysis of 42 Cases of Venous Thrombosis Occurring in the Course of Typhoid Fever. W. S. THAYER.
5. The Treatment of Simple Rectal Fistula by Excision and Suture without Cutting the External Sphincter Muscle. HOWARD A. KELLY.
6. Observations on the Blood and Circulation in Uncinariasis. W. G. HARRISON.
7. Our Aims. S. J. MELTZER.
8. Report of a Case of Obstinate Phosphatic Diathesis Cured by Systematic Dilations of the Posterior Urethra. GEORGE THEODORE MUNDORFF.

1.—Tumor of the Spinal Cord.—Woolsey reports that a woman of 34 presented the following symptoms which were gradual in onset: 1. Pain across shoulders and back of neck, slight all the time, worse in the morning and when sitting up without support. No severe shooting pains for the past month. 2. A girdle sensation across the upper abdomen, getting worse. 3. Tingling in hands, like electricity, more marked in left. 4. Difficult motion of the left upper and lower extremities. 5. She is most comfortable lying on the left side; contractions are worse on the right side. 6. Left fingers and toes straighten out and draw up painfully when she tries to sit up. Other symptoms are enumerated in detail. A diagnosis of tumor of the spinal cord, localized at the sixth cervical segment, was made. The patient became worse, and could not walk, stand, nor raise herself. At operation the spines and laminas of the cervical vertebras from the fourth to the seventh, inclusive, were removed, two posterior nerve roots were cut central to the ganglion, a dark tumor, intradural, was found and removed. It was 2 cm. long, 1¾ cm. wide, and 1¼ cm. thick. The patient is much improved, but at the time of writing had not fully regained her normal condition. [A.B.C.]

3.—Cytodiagnosis in Pleural Effusions.—H. S. Carter publishes in detail his observations on cases of effusion of proved and others of probable tuberculous origin, and on still others following lobar pneumonia. He tabulates his observations on pleural transudates. He reaches these tentative conclusions: A true pleural effusion has a specific gravity over 1,010, usually much higher, the average being about 1,017.9; a high fibrin and albumin content. A pleural transudate averages about 1,008; a small fibrin and albumin content. An almost certain diagnosis of tuberculous pleurisy can be made by the morphologic examination of the fluid alone, and rests on its having a high specific gravity average 1,018.6; a large amount of fibrin and albumin, with an accompanying leukocytosis. There is usually a rise of temperature at the outset averaging 103.4° F. According to some, one may find a polymorphonuclear leukocytosis before the third or fourth day of a tuberculous pleurisy, in which case subsequent examinations will be necessary to establish a positive diagnosis. A diagnosis of postpneumonic serous effusion lies in its high specific gravity, averaging 1,016.5; large fibrin and albumin content, with a polymorphonuclear leukocytosis, averaging 71.7%. The temperature is usually much lower than in the tuberculous cases, unless complicating an active pneumonia, averaging at the outset about 101° F. A differential diagnosis between a transudate and a tuberculous pleurisy cannot rest alone on a differential cell count, as they both show a lymphocytosis, but must rest on a more complete examination, including the specific gravity and the amount of fibrin and albumin. [H.M.]

4.—Venous Thrombosis in Typhoid Fever.—W. S. Thayer presents an analysis of 42 cases. The onset occurred almost invariably in the third week or later. Local pain and fever were usually the first symptoms. In 28.2% there were chills. In several instances this preceded the localizing symptoms. Venous thrombosis in typhoid is usually associated with an increase in leukocytes, the number depending on the extent of their lesion, sometimes reaching 20,000. In mild cases leukocytosis may be absent. Thrombosis is commonest in the lower extremities, especially on the left side. The femoral vein is involved with particular frequency. Venous thrombosis in the lower extremity is a serious complication. Although the immediate danger is not great the after-results are often grave. In thrombosis of the femoral and iliac veins the extremity is usually considerably enlarged, with disability, extensive varices, often resulting in ulceration, marked weakness, and frequent cramps in the muscles. In thrombosis of the popliteal or deep veins of the calf alone, the permanent changes are much less severe, though the leg always remains much larger than the other. In thrombosis of the femoral vein blood from the affected extremity is often carried up by the iliac vein of the opposite side, the current crossing the abdomen through anastomosis in the hypogastrium, resulting in a characteristic triangular area of varicose veins. [H.M.]

5.—Rectal Fistula Treated by Excision and Suture without Cutting the Sphincter.—Howard Kelly says to employ this treatment successfully the fistula must be simple and direct, as ascertained by exploring it with a probe, or, better, by a careful palpation of the lower periphery of the bowel between the thumb and the index finger. He empties the bowel thoroughly, having the patient under observation for at least two days before the operation. The rectum is dilated under an anesthetic and a pack is inserted within the ampulla. The external orifice of the fistula, which must be free from surrounding infiltration, is then circumcised, and after being grasped with forceps, the fistulous tract is dissected out, up to its abutment on the mucous surface of the bowel, in the region of the internal sphincter muscle. The rectal orifice is now very carefully excised through the wound, so as to make a transverse opening parallel to the sphincter fibers, when the excision is completed, and the fistula removed. The external portion of the wound is closed with silkwormgut or silver wire, and the opening within the bowel is closed with fine silk. Kelly has had three successes in treating five patients after the above method. [A.B.C.]

6.—Observations on the Blood and Circulation in Uncinariasis.—W. G. Harrison, from his observation of a number of cases, draws the following conclusions: Uncinariasis through its extreme anemia causes apparent increase in the size of the heart (most likely dilation), heaving pulsations, relative insufficiency, thrill and murmurs. There may be accentuation of the pulmonic second sound. These conditions rapidly disappear when the cause of anemia is removed. The murmurs are mostly aortic, soft and blowing, but are both systolic and diastolic, which suggests that they may be hemic or caused by relative insufficiency due to dilation. That the area of heart dulness seemed to diminish after relief of the anemia suggests a marked dilation, especially as blood-pressure rose in one case from 120 to 150, in another from 104 to 156, etc. The blood cell changes merely indicated a marked anemia. No megaloblasts were found in the cases reported in this paper, although this has been the rule in previous work of the writer. Even in the most desperate cases we may confidently promise rapid improvement immediately after the removal of the worms. [H.M.]

8.—Obstinate Phosphatic Diathesis cured by Systematic Dilation of the Posterior Urethra.—Mundorff reports that a man of 38, with heavy responsibility and addicted to mental worry suffered from the constant presence of a heavy deposit of phosphates in an alkaline urine. There was no pathologic condition about the genitourinary apparatus to account for the condition. Many remedies, in addition to rest, sea-bathing, dieting, etc., all failed to relieve the condition. Finally resort was had to dilation of the posterior urethra. Dilation was performed, together with irrigation of the bladder with boric and silver solutions, once a week. Within eight weeks the urine was absolutely clear and at the end of 12 weeks the patient was discharged cured. [A.B.C.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Pancreatic Infantilism.—B. Bramwell[1] reports the case of a boy of 18, who, when he came under observation, looked to be no more than 11; he was perfectly formed, bright and intelligent, however. For nine years he had been afflicted with chronic diarrhea, having from five to six stools in the 24 hours; his abdomen was always swollen and tympanitic. He was 52 inches high and weighed 87 pounds. The epiphyseal lines, which should ordinarily close between 16 and 18, were found to be still open. The urine was free from sugar. The pancreatic secretion was found to be defective or completely absent by three tests: The stools contained undigested fat, which diminished considerably after the administration of pancreatic extract. On a milk diet the phosphate in the urine was greatly below normal, but increased after the ingestion of pancreatic extract. On a milk diet, caseinogen is the source of phosphorus in the urine; the gastric juice breaks it up into paranuclein and a proteid. Paranuclein contains 4% of phosphoric acid, but is insoluble; the pancreatic juice splits it into paranucleic acid and albumose, which are soluble. Capsules containing iodoform, surrounded by a glutoid substance, insoluble in the gastric and intestinal secretions, but soluble in the pancreatic secretion, were given. (Sahli's test.) It dissolves the wall of the capsule and liberates the iodoform, which then, in the form of free iodids, can be demonstrated in the saliva by testing with chloroform and nitric acid; a pink color results. If no iodin reaction is obtained, it shows that either has the capsule not passed from the stomach or the pancreatic juice is inactive. In this case the capsule was found undigested in the stool, showing that it had passed through the stomach, but no iodin reaction could be detected in the saliva. When pancreatic extract was given two hours after meals, the saliva gave the iodin reaction one hour later. Bramwell considered the diarrhea and the infantilism due to a defect in the function of the pancreas. For three years he has been given glycerinized extract of pancreas, with excellent results. The patient now averages only two stools daily, and one of these is formed. He has grown 5⅜ inches in the time since the treatment was begun, while during the eight years previous he had not grown at all; he also increased in weight 28 pounds. His sexual organs have grown from infantile size to normal; he has pubic hair; appears to be as old as he really is, and his childish voice has become low-toned and rough. This is the first case of pancreatic infantilism described. [E.L.]

Anasarca Complicating Acute Malaria.—Ferruccio Schupfer and G. Baccelli[1] call attention to the occurrence of anasarca in chronic malaria, when the spleen and liver are seriously affected, but consider it rare to find acute attacks of malaria the cause, even indirectly, of edema, general or local. Concato, in 1873, reported a case, yet in this instance the man, aged 45, was intemperate and broken down by dissipation. The trouble began with obstinate diarrhea. Albumin appeared in the urine. But in spite of the occurrence of anasarca and dangerous pyrexia, the disease relented, albuminuria became polyuria, and in time a cure was reached. There is a distinct difference in prognosis between an acute anasarca so occurring and the anasarca in the course of the cachexia of paludism. Many writers have seen circumscribed anasarca in the former conditions do well. They do not, however, see many cases of general edema, and an account is here given of such a case in the personal notice of the authors. The patient finally recovered. In addition, other cases are cited, and the question of treatment opened. The etiology, which is obscure, will be considered in a succeeding article. [T.H.E.]

Etiology of Appendicitis.—J. Lucas-Championniere[2] says appendicitis is not an old disease but must be regarded as a new affection; typhlitis and its congeners of earlier times were of rare occurrence, while appendicitis is frequent. Influenza appears to have been the origin of appendicitis, but even when due to that disease it is found almost wholly in countries where the use and abuse of meat as food is practised. It is always more grave in those who use meat to excess. The only remedy for appendicitis is operation, but the disease may be prevented by a semivegetable diet and by the periodic employment of purgation. Observations in France show the rarity or entire absence of the disease in vegetarians and its presence to the extent to which they eat meat. In Roumania there is one case of appendicitis to every 22,000 vegetarians and one to every 221 meat eaters. Other countries furnish practically the same statistics. In prisons, convents, and other places where people are aggregated and influenza is frequent but few cases of appendicitis are found if the diet is mainly vegetable. Two conclusions are drawn: 1. Appendicitis is not a disease rendered necessary by the anatomic structure of the parts involved. The presence of foreign bodies in the organ is not sufficient to cause inflammation. The disease is of recent epoch and appears to be due to influenza. 2. Meat diet plays a considerable part in its development and modification of this is indicated as prophylaxis, this being quite sure to protect even those who have had influenza. Finally, purgation is a preventive of great importance. [A.G.E.]

Pseudoleukemia (Lymphosarcoma) in a Young Child.—John J. Redfern[3] reports the case, with notes by William Hunter. The patient was a female child, 2 years and 9 months old. She had several swollen glands in the left side of the neck, and some less swollen in the right side. They were firm, enlarged, and somewhat elastic, not painful or tender on pressure; no other glands were swollen; respiration was normal. At a certain time it was noted that the patient suffered from dyspnea and the glands of the neck became larger; the dyspnea increased, the glands increased in size, evidently pressing upon the trachea. It was noted that the anterior mediastinal glands were increasing in size, as shown by percussion, and extended to the right of the sternum. Eight weeks from the onset of dyspnea, the child died. No necropsy was permitted. Notes by Hunter stated that this patient was the youngest in whom he had ever noted this disease. A month after the onset of symptoms of dyspnea, the blood count was as follows: Red corpuscles, 4,080,000, and leukocytes, 8,000; lymphatics, 20%; hyaline leukocytes, 10%; polynuclear cells, 68%; eosinophile cells, 2%. The cases of pseudoleukemia recorded as running an acute course have all occurred in children under 15 years of age, and the duration varied from 11 days to four and a half months. In the majority of cases the leukocytes are normal or diminished in number, and there is a tendency toward relative lymphocytosis. [A.B.C.]

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[1] Scottish Medical Journal, April, 1904, 321.

[1] Il Policlinico, July 3, 1904.

[2] Revue de Chirurgie, September 10, 1904.

[3] The Lancet, September 10, 1904.

Influence of the Alpine Climate upon Nephritis and Cyclic Albuminuria.—To test the influence of the Alpine climate upon nephritis, P. Edel[1] sent four patients suffering from the disease, and whom he had previously observed from the standpoint of the action of mountain climbing on their general condition, to a town in the Alps 4,000 feet above the level of the sea. Subjectively they improved, but their blood-pressure was higher at rest. When climbing the mountains it rose much higher and did not return to the normal even after return to the level land. The Alpine climate he finds unsuitable therefore for nephritics and individuals suffering from conditions associated with high pressure. In cyclic albuminuria, however, he had favorable therapeutic results in this climate; this is because in this condition the blood-pressure is too low, the heart is doing insufficient work, and the tendency to weariness is very great. Conditions presenting the appearance of cyclic albuminuria, but without the albumin in the blood, such as Basedow's disease, are also favorably influenced by the Alpine climate. The conditions indicating the Alpine climate are those in which there is subnormal tonicity and too wide arteries. [E.L.]

Diazo Reaction in Typhoid.—Leonida Canali[2] states that this reaction is of greater value than the Widal reaction, since the latter is difficult for the practitioner to manage. The writer draws attention to the reports of many others who unite in asserting how rarely in typhoid the diazo is absent. If present in the urine, the patient's condition is one of disease, most probably enteric fever, yet possibly one other of the few conditions giving the reaction. But the history and clinical signs will draw the differential, and the ease of the test is a strong recommendation. [T.H.E.]

Epidemic of Infantile Paralysis.—R. B. Wade[3] reports 34 cases of what was the first recorded epidemic of this disease in Sydney. It occurred during two of the summer months. Of the 34 patients, 16 were males. The ages ranged between 13 months and 7 years, nearly half of the patients being between 18 and 30 months. The attack began suddenly with anorexia, fever, and vomiting, in the majority of cases. Fever was not severe, persisting for four to ten days. The most prominent symptom was pain in the affected limbs; tenderness was also marked in the muscles involved, and lasted for three weeks to two months. Paralysis appeared at varying times from immediately to the fourteenth day. The muscles of the limbs which were involved in all cases, belonged to the extensor groups, and were the trapezius, supra and infraspinatus, deltoid, triceps, and extensors of the fingers in the upper limb and in the lower, the quadriceps, peronei, and extensors of the foot. The affected muscles became limp and flabby, but wasting to an appreciable extent did not occur. A certain amount of recovery is the rule, but in every case there are some muscles or groups of muscles that show no indication of it. The superficial skin reflexes and the knee-jerks were present or not, according as their corresponding muscle was affected. Kernig's sign was present in three cases. During the acute attack the chief diagnostic point is tenderness of the muscles; after the onset of paralysis it is distinguished from multiple neuritis by its acute onset, lack of symmetry, and permanency of the paralysis. W. F. Litchfield saw 25 cases which he treated by warmth, massage, and measures to prevent deformity, splints being necessary in some instances. [A.G.E.]

Comparison of the Excretion of Methylene-blue and Urea.—After equalizing the amount of nitrogenous substance ingested and excreted in a number of individuals through a certain diet, Achard and Paisseau[4] gave them for five days every day 0.05 gm. ($\frac{3}{4}$ gr.) of methylene-blue and 20 gm. (5 dr.) of urea. Under these conditions the curves of excretion showed a parallel behavior in these individuals. In healthy individuals the curve rises rapidly, retains its height for some time, and then diminishes until the ingestion of the substance ceases. In Bright's disease the rise and fall of the curve are slow, and the drugs accumulate; each new dose is added to the unexcreted amount of the preceding doses; in spite of the excretion of apparently large amounts, an insufficiency of the kidneys may exist. The permeability of the kidneys for urea cannot be determined by comparing with it the amount of urea ingested during 24 hours with the food, but requires a special procedure. [E.L.]

Chancre of the Nasal Septum.—Gaetano la Rosa[1] reports the case of a boy of 18, who had a swollen gland in the submaxillary region for 40 days; later he felt some discomfort in the left nostril; examination showed an ulcer on septum, the size of a bean. The patient had general glandular enlargement and a roseolar eruption; no other primary lesion could be discovered. [T.H.E.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

EDITORIAL COMMENT

Chronic Stomach Troubles and the Ligature Methods of Gastroenterostomy.—In recent years it has been becoming more and more evident to progressive practitioners that many of the diseases of the stomach result from mechanical obstruction, and consequently can be relieved only by surgical treatment. The success of such treatment is shown by the large series of cases reported by individual surgeons who have taken up this line of work. Chronic digestive troubles are so common and so distressing that when people find that they can be relieved by any means, they flock in large numbers to the clinics of such men as Mayo and Ochsner in this country, and to Mikulicz and Mayo Robson in Europe. The operation of gastroenterostomy has been the one most generally used in these cases, and great improvements have been made in the operation in recent years. The old and complicated suture operations have been, to a large extent, displaced by simpler methods of suturing; by the Murphy button, and other mechanical contrivances, and by the use of the elastic ligature. It seems that Gaston, of Atlanta, was the first to suggest the use of the elastic ligature, which is more commonly associated with the name of McGraw. There are several advantages of this method, among which the great rapidity with which the operation can be performed, and the safety from leakage are perhaps most important, and during the past few years the elastic ligature has been rapidly coming into favor. With the original method, the operator did not have control of the lateral size of the opening as well as over its longitudinal diameter, and to obviate this disadvantage a quadrangular or triangular stitch has been suggested. Maury[2] has done very satisfactory experimental work in this line, and has found that twine or a strong fishing line will answer equally as well as the elastic ligature for these operations. He operated on 13 dogs, and found that in every case a large opening was produced by tissue necrosis, as well as with the elastic ligature. The advantages of twine for this operation are, that it is always at hand; it is inexpensive; easier to introduce than the elastic ligature; it does not deteriorate with age, and can be used with any needle. The introduction of the twine can be accomplished in less than a minute and a half, and it is then encircled with a row of sutures to make absolutely certain that leakage is avoided. This experimental work, and more especially the large number of satisfactory results reported by Ochsner, seems to prove the value of this method. The rapidity with which the operation can be done, makes it especially suitable in the case of much weakened patients, particularly those suffering from carcinoma of the stomach, and it no doubt widens the boundaries for operative relief in the cases of many other patients who are in very much run down condition from gastric troubles. There can be little doubt that the improvement in modern methods and the more general recognition of the possibility of operative treatment will lead to a more careful study of these cases by the profession in general, and that a large number of the chronic stomach troubles of the future will be permanently relieved by surgical means.

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[1] Münchener medicinische Wochenschrift, 1904, li, 836, No. 19.
[2] Il Policlinico (Rome), November 28, 1903.
[3] Australasian Medical Gazette, July 20, 1904.
[4] C. R. de la Soc. de Biologie, 1904, May 28.

[1] Gazetta degli Ospedali, 1904, April 17.
[2] Journal of the American Medical Association, September 17, 1904.

REVIEW OF LITERATURE

Ruptured Urethra: Treatment by Combined Drainage.—Henry Rutherford,[1] six years ago, reported in detail three cases of rupture of the urethra. In the present paper he reports four additional cases, making seven in all. The only case of the seven in which sutures were applied, except after resection, developed stricture, and the author states that, while suture may not be the cause of stricture, he believes it produces an unnecessary complication of the healing. From the employment of Rutherford's method, where the divided ends of the urethra lie in contact on a soft catheter when the patient's limbs are extended, there is no great tendency of the torn ends to retract. Puncture of the bladder in its distended condition after rupture of the urethra, is easily done, and this is the first necessity of the patient to relieve his distress and to drain the extravasation of urine, while it makes possible retrograde catheterization. But if difficulty should be experienced in finding the proximal end of the urethra in the perineal wound, the presence of a large catheter, he is convinced, is a valuable means of bringing the divided ends into proper contact and keeping open the lumen during the process of healing. Perineal wound is to be packed or only sutured so far as to support the torn urethra in the proper position; drainage is essential to the rapid recovery of the bruised tissues. The four cases are reported in detail. [A.B.C.]

Associated Cases of Staphylococcus Infection.—G. E. Beilby[2] reports four cases of severe infection by *S. pyogenes aureus*, the special points of interest being the virulence of the attacking organism together with its feeble pigment-producing power; the close association of the cases, occurring in the same institution, though not in boys residing in the same building or coming in actual contact with each other; and the variety of the infectious processes and the tissues attacked. The cases occurred during a period of little more than two months. In the first patient a boil was followed by suppurative periostitis of the lower end of the femur, later extending to the knee-joint and necessitating amputation of the thigh, with a persistent sinus of the stump. The second boy had an infected finger, amputated later, with abdominal symptoms that demanded laparotomy; the latter showed no lesion. This patient had 15 chills in 14 days, the temperature twice being above 107°, and eight times above 106°; recovery is proceeding slowly. The third case was fatal, there being suppuration of finger, thigh, toes of both feet, right elbow, and lymph-nodes of neck and thorax. The fourth case was an infection of the lungs. The organisms from all the cases in culture developed pigment only after two or three weeks, though the pus was of the usual type, thus being contrary to the usual rule of virulence being associated with intense pigment-producing powers. [A.G.E.]

Acid Sodium Phosphate and Adrenalin in Vesical Diseases.—W. I. de C. Wheeler[3] continues the history of a case first reported in September, 1903. The patient was 85 and had a violent hemorrhage after the residual urine was drawn off. This continued for six days, the patient passing water every 10 minutes, laden with blood, notwithstanding rest, morphin, calcium chlorid and ergot. In a similar attack later the writer washed out the blood clots and injected a half fluidounce of adrenalin chlorid to one fluidounce of warm water. After this there was no further trouble. He remains now for three or four weeks without blood, then has a severe hemorrhage which is checked again by three or four injections. He suffers in the intervals with chronic cystitis with ammoniacal, purulent urine and, as in two similar cases, the writer has found acid sodium phosphate ($Na\,H_2\,P\,O_4$) is most beneficial. Care must be taken that the pharmacist does not use official sodium phosphate ($Na_2\,HPO_4$.) It should be combined with a urinary disinfectant as in the following formula: Acid sod. phosphat, 8 gm. (dr. 2); urotropin, 4 gm. (dr. 1); add infus. uvæ ursi, 180 gm. (fl.oz. 6). Sig. Tablespoonful three times a day. [H.M.]

Medical and Surgical Considerations Regarding Pyopericarditis.—J. A. Scott and R. G. LeConte[1] report four cases of this condition and give a general review of the subject. They conclude that it is frequently overlooked in pneumonia and other septic states, its presence modifying the preexisting disease to a considerable extent. In diseases with high temperature the presence of purulent pericarditis depresses the fever range and increases the respiratory and pulse-rate. It is yet to be proved that the heart, in case effusion is present in the pericardium, is always dislocated backward and upward. The only treatment is incision and thorough drainage. Exploratory puncture is essential for diagnostic purposes; this should be made in the fourth or fifth left intercostal space, as near the sternum as possible, with a fine needle. Pericardial dilation does not alter the relations of the pleuras to the anterior thoracic wall. Incision under local anesthesia is the preferable operation in the majority of cases. When incision fails to give adequate drainage, Robert's chondroplastic flap is preferable to an ordinary excision of costal cartilages. [A.G.E.]

Treatment of Rectal Prolapse by Submucous Injections of Paraffin.—Arthur H. Burgess[2] reports 18 cases treated after this method. The ages ranged from 3 to 48 years, and the size of the prolapse from 1½ in. to 5 in. in length. In all of them, previous to operation, the prolapse descended with almost every action of the bowels, and remained down until replaced. The results of the operation have been satisfactory in all cases; not a single redescent of the prolapse has occurred. Burgess' method of injecting the paraffin is given in detail. He states that the chief methods at present employed in the operative treatment of prolapse are: (1) Linear cauterization; (2) excision of the elliptic folds of the mucous membrane; (3) excision of the prolapse; and (4) colopexy, either sacral or abdominal. In comparison with these, the method which the author advocates has the following asserted advantages: (1) It is a simpler procedure, except perhaps linear cauterization, and can be more rapidly performed; (2) it entails practically no risk to life; (3) no prolonged after-treatment is required, merely keeping the patient in bed for a few days; (4) the benefit obtained is apparent immediately the paraffin has set and does not depend on any subsequent vital phenomena, nor does it make any demand on the reparatory powers of the patient; (5) it offers a much greater probability of permanent cure; and (6) even should it fail, the patient's condition is no worse off than before, and the procedure may be repeated. [A.B.C.]

Surgical Treatment of Varicose Veins.—C. H. Mayo[3] describes the operation now employed in St. Mary's Hospital for the relief of varicose veins, the essential feature being the removal of the long saphenous vein by means of a specially devised ring vein enucleator and hollow-bladed forceps. The vein is severed in the upper third of the thigh, and the proximal end ligated. The lower end is held by a clamp after the ring or forceps has been slipped over it; the latter is then pushed down the vein for 15 cm. to 20 cm. (6 in. to 8 in.), tearing off the lateral branches, when the point of the instrument is forced against the skin from beneath, and a small incision made to the forceps, which are withdrawn after the vein loop is lifted out. The forceps are again placed over the vein, and the process repeated as many times as necessary to remove the desired length of vein. Hemorrhage is avoided first by position, the leg being placed on an ordinary gynecologic standard. Should any branches cause more than momentary hemorrhage they can be checked by a small pack. When erroneously and irregularly dilated veins prevent this operation, the Bristol torsion method is employed as an adjunct to the enucleation treatment. Should there be persistent eczema after a week's treatment previous to operation, the latter is proceeded with as usual, the ulcer being excised before enucleation of the vein. The ulcerated area is skin-grafted, and the eczematous tissue painted with compound tincture of benzoin, which seals the surface until the incisions are healed. Patients are allowed to get up in 12 days, wearing for a few months an elastic porous bandage for support. [A.G.E.]

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[1] The Lancet, September 10, 1904.
[2] Albany Medical Annals, September, 1904.
[3] Medical Press and Circular, June 29, 1904.

[1] American Journal of the Medical Sciences, September, 1904.
[2] The Lancet, September 10, 1904.
[3] St. Paul Medical Journal, September, 1904.

GYNECOLOGY AND OBSTETRICS

Wilmer Krusen Frank C. Hammond

REVIEW OF LITERATURE

Polymastia in Japan.—T. Iwai[1] presents a very complete review of this subject and reaches these conclusions: 1. In the Japanese, contrary to the rule in Occidental peoples, supernumerary mammas are situated above the normal glands, usually on the anterior border of the axilla. 2. Those situated below the normal glands possess a certain coloration, this being darker in males. 3. The summary of all obtainable statistics shows polymastia in 1.47% of males and 4.71% of females. The supernumerary gland is most often on the left side. 4. The greatest number found in one person was six. 5. It is certain that polymastia is hereditary, and in many cases is transmitted by the mother. 6. In a completely developed supernumerary mamma, secretion of milk begins at the time of parturition and in some instances persists during six months. 7. The existence of a close relation between polymastia and multiple pregnancy is very probable. 8. It is also probable that a close relation exists between polymastia and tuberculosis, especially pulmonary tuberculosis. [A.G.E.]

Remarks on Pyosalpinx.—E. Stanmore Bishop[2] reports in detail 23 cases. Comparison is made between the present method of treating pyosalpinx and pelvic abscess, as compared with the method a decade ago. Now rarely are Keith's glass tubes used for purposes of drainage; they are practically useless, unless in the most dependent part of the abdominal cavity, necessitating the patient lying in one position, and even then they frequently produce fecal fistula by pressure. Lately we have learned a great deal about the ability of the peritoneum to take care of itself. Muscatello demonstrated by observation that foreign material was removed from the peritoneal cavity by peritoneal currents which carried it toward the lymphatics of the diaphragm; that particles of carmin, for instance, injected into this cavity could first be recognized in these lymphatics and next in the mediastinal glands. The question of how to treat collections of pus in the pelvis is still before the profession and the present tendency is to avoid laparotomy if possible, especially in acute cases, for here the danger of spreading infection to the remainder of the peritoneal cavity is great; drainage through the vagina is more and more employed. Shock is one of the great dangers in operations upon these patients and the author has sought to combat this by using a hot-water mattress upon the operating table. He advocates this mattress strongly. [A.B.C.]

Operation for Cancer of the Uterus and Results.—Ernst Wertheim[3] claims for the abdominal operation that not only may the primary tumor be removed thereby, but the lymph-nodes in its vicinity may thus be reached also. He found the lymph-nodes in the neighborhood of the cancer involved in 27% of the cases. He believes it is doubtful whether extirpation of the lymph-nodes produces a lowering in the number of recurrences. He is convinced that the preferable method is the abdominal operation. [J.H.W.R.]

Intestinal Obstruction as a Result of Vaginal Salpingectomy.—Violet[4] reports a case in which a unilateral vaginal salpingectomy was done, the operation being followed by the formation of a fecal fistula. This healed completely, and the patient subsequently underwent a normal pregnancy. About a year and a half after the operation, the patient was readmitted to the hospital with symptoms of intestinal obstruction. The seat of obstruction was found, on operation, to be the sigmoid flexure. A wound of the intestine, made at the previous operation, had caused a cicatricial contraction, which divided the sigmoid flexure into two pouches, communicating by a small opening. [B.K.]

Cases of Early Menopause.—M. A. Schalit[1] reports the case of a woman in whom the menopause occurred at 21. Menstruation began at 14, and was regular until 17, when the patient was married. Pregnancy was followed by irregular hemorrhages, both before and after delivery. Some months later abortion at two months occurred. The next year a pregnancy went to term, hemorrhage being severe during the first three months and at labor. The principal point of interest in the case is the fact that the patient's maternal grandmother ceased menstruating at 35, though she enjoyed good health until she was 74. Three confinements were difficult and attended by free hemorrhage. In the mother the menopause occurred at 48. Schalit can find no cause but heredity, or rather atavism, to account for the early menopause in his patient, but finds no similar case to lend support to this view. Further study of the daughter, who is now 14 and menstruating regularly, may possibly throw some light on the subject. [A.G.E.]

Rupture of the Urethra During Labor; Laparotomy; Recovery of Mother and Child.—Elgar Down[2] reports the case. The patient was a woman of 38, who had been married 13 years and had several miscarriages toward the latter part of term, though three pregnancies resulted in the birth of a living child, while the fifth and sixth pregnancies terminated in abortion. The seventh pregnancy went to term, but the child was stillborn. It was in the eighth pregnancy that the special conditions herein mentioned developed. The patient came into labor, and being especially desirous of a living child, every effort was made to bring about a successful delivery. Attempt at version and also forceps delivery were unsuccessful; finally it was thought that the cephalotribe would have to be used, but before proceeding to this extent it was observed that the presenting part receded and there was marked hemorrhage from the vagina. Examination revealed an extensive laceration of the uterus. Rapid laparotomy was performed and a living child was delivered. The rent through the anterior wall of the uterus was sutured, the abdominal wound closed, and the patient made a good recovery. The child lived and at last account the mother and child were doing well. [A.B.C.]

Goldspohn's Operation.—Kossmann[3] maintains that by means of this operation the uterus can be drawn so far forward that the sides and part of the posterior surface of this organ can be palpated and adhesions separated. With two fingers in the vagina, a greater portion of the posterior surface can be made accessible to the finger in the inguinal canal, the tubes and ovaries can be freed from adhesions, and even ovarian cysts can be evacuated through this route if the new formations first be drawn into the inguinal canal. If, however, the wound does not heal by first intention, there is always danger of hernia developing. [J.F.]

Unusual Ovarian Condition.—L. Schooler[4] operated for left-sided tubal disease in a woman who had miscarried. He found the uterus dragged upward and to the left by the ovary and fimbriated extremity of the enlarged tube which were firmly adherent to the lower margin of the spleen; the latter organ was at least six times its normal size, and dark in color as an old blood clot. The tube was divided between ligatures, and the abdomen closed. The patient recovered, but later required operation for intestinal obstruction caused by bands along nearly the entire descending colon. At this time, two and a half months after the first operation, the uterus was found normal in size and position, as was also the spleen. The latter organ was normal in color, instead of being intensely black, as at first. Previous to the second operation, Schooler regarded it as a floating spleen, but does not now do so. How the appendages became adherent to the spleen he is at a loss to explain. [A.G.E.]

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[1] Archives de Med. Exper. et d'Anat. Pathologique, July, 1904.
[2] The Lancet, September 17, 1904.
[3] Wiener klin. Woch., 1904, No. 29, p. 783.
[4] Lyon Médical, August 28, 1904.

[1] Australasian Medical Gazette, August 20, 1904.
[2] The Lancet, September 10, 1904.
[3] Berliner klin. Wochenschrift, 1904, No. 25.
[4] American Journal of the Medical Sciences, October, 1904.

American Medicine

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The complete papers of the Congress of Arts and Sciences will be found of exceptional value and interest. The abstracts which we or other journals can publish will prove especially unsatisfactory. This is because the entire essays are necessarily highly condensed statements of the views of the authors; and second, because at the meetings each "speaker" was limited to 45 minutes, and consequently could read but a part, and often but a small part, of what he had written. The greatness of the splendid plan; the efficiency with which it was carried out; the authoritativeness of the statements made; the unity of object prescribed and followed by each essayist; the heartiness of accord and good will shown at every meeting—these are most noteworthy, and it is now coming to our national consciousness that we have done something unique and of the profoundest importance in science. At least, to some extent foreseeing the great value to our profession from the meetings of the medical sections, we early put forth especial exertions to secure the principal papers to be read, and have been successful beyond expectation. We begin this week their publication, and shall print them as fast as we are able. The official reports of the Congress will probably not be printed for a long time.

Tendencies in Medicine as Revealed at the International Congress of Arts and Sciences.—To one privileged to participate in this notable Congress from the vantage point of a listener, some interesting points developed, indicating the trend of medical thought. The curious dominating attitude of nonmedical scientists as to medical research was the first and most obvious impression. Beginning with the keynote struck by the principal speaker in biology, the meeting was characterized by the remarkable assertiveness on the part of biologists, chemists, and physicists to their preeminence in the solution of the problems now confronting medical investigators. Indeed, this tendency was apparent in the program of the Congress. Taken at full value, one would be forced to conclude from this demonstration that the day of the laboratory worker and bed-side worker in medicine had expired, unless he chose to busy himself with the problems devised, and following methods prescribed by the biologist, the physiologic chemist, and the physicist. The magnificent edifice of scientific conquest in medicine ascribed almost exclusively to the labors of physicians seemed about to be appropriated by those engaged in kindred sciences, and the door to be shut unless entered by a portal guarded by these devotees. Unaccountable, unless through the force of suggestion, this drift seems to have imparted itself to some of the leading speakers in medicine.

Modern Methods of Research.—Thus it was enthusiastically proclaimed that the limit of advance in pathologic anatomy had been reached and that the mysteries of disease were hereafter to be elucidated by the aid of physiology, chemistry, and physics. In other words, the announcement was that the confines of normal and abnormal morphology had been attained. Coming at a day when cytology is still a new science with light constantly shed through morphologic investigations, when a multitude of problems as to the coarse and fine architecture of the nervous system still confront us, when each passing month develops some improved or new method of morphologic or parasitologic research, when the field of microscopic vision promises to be extended, when new parasites or new intermediate hosts are annually announced, this inconsiderate talk about the abandonment of morphologic inquiry strikes one as too ultra. Such tendencies are deplorable. The cool, conservative heads of those aloof from the glamour cast by a few dominating biologic-chemic-physicists must not be turned by this temporary wave of reaction else progress along tried and true lines of medical research will cease. The honest, patient, painstaking, and cautious plodder who will not abandon his beloved microscope, microtome, dissecting case, and reagents, but who will continue his arduous studies along any of the many lines still open to him, need not fear of finally overtaking the hare, whose presence was so manifest throughout the deliberations at St. Louis. He may find his communications in disfavor, or at least out of fashion for a period. He may find himself occupying a secondary place on programs and a rear seat at meetings. But the ring of true gold will not be eliminated from any solid and substantial fact which he contributes to medical science by any of these temporary obstacles. Nor should all this haze obscure the viewpoint or discourage the efforts of other specialists in legitimate fields of medicine, whether clinical, educational, medico sociologic, or medical-politic. The reward for honorable achievement in any of these directions is quite as certain as in any other field of human endeavor. It is as assured today as it was before what one ebullient speaker at the Congress styled the "modern renaissance" of medicine.

The Price We Pay.—We doctors have our faults, for example our dissensions that so long have afforded amusement to the public and the press. But it is not denied that we have some virtues. One, our greatest, is not fairly recognized. The observation is not new, but is at this time recalled to attention by the mirth of some newspapers at a recent incident in Chicago—a city which has this year enjoyed remarkable general health. A doctor in court appealed to that fact to mitigate the consequences of failure to pay a debt. The incident was trivial, but the cartoonists and humorists made much of it. They failed to see the hidden but very real significance of a genuine circumstance of this sort. As a profession, we devote our best energies to the prevention of all varieties of disease, with varying, but definite and increasing, success. Because our profession gains in numbers at a more rapid rate than does the general community and because *pari passu* therewith the total amount of illness in the community decreases, it evidently follows that there is ever less and less work for us to do. As has often been said, we are the only body of men the world has ever seen who are constantly striving to destroy our means of livelihood. For this the world is our debtor; but it, for the most part, fails to recognize the debt. Even then we continue to do our duty, and this is as it should be. The position of our profession is a proud one, and will one day be more or less fully recognized.

What of the Individual Doctor?—His position in the present stage of our development is many times burdensome and mortifying. Always more doctors, and ever less cases to go around. Instances of near destitution are not so infrequent as they should be. We all know these things, and repetition would do no good were it not that it is necessary to keep actively in mind the remedies that must at once be applied to prevent widespread poverty among us. In this feature, if properly understood, the public and press certainly could find no mirth. The self-impoverishment of a large number of men in order that the world may be happier, is surely a situation full of pathos. We can wait for recognition and reward, but it is our immediate duty to lessen the number of suffering units. On the one hand it is little short of a crime to continue the education of more physicians than can possibly earn a living under present conditions, and on the other hand, the suicidal practice of our clinics and hospitals giving free treatment to many who can afford to pay at least a little must be abated. This latter phase of our unhappy state is no less than disgraceful. There must yet be fewer medical colleges and fewer medical students. This accomplished, both the comfort and the morals of the profession will be enhanced.

A model medical practice act has been thought out and worked out by that veteran in the struggle for regulating the legal status of physicians, Dr. S. D. Van Meter, of Denver, Colorado. He has aimed to incorporate in it the following praiseworthy features:

1.—Unquestionable constitutionality.

2.—Nonsectarian Board.

3.—Subjects of examination limited to those upon which all schools agree. This solves most practically the objectionable feature of separate boards for each school. Number of subjects, however, are adequate to determine most thoroughly an applicant's educational qualifications.

4.—Wide discretionary power of Board in examinations, and in granting, refusing, or revoking licenses. Board may use any method they deem most practical in arriving at a decision of an applicant's qualifications. Such power enables a Board to extend reciprocity when and where it should be, without being compelled to by statute.

5.—Unequivocal definition of what constitutes "the practice of medicine" and "practising medicine without a license"—absolute essentials in the practical administration of a medical practice act.

All who wish to amend the faulty laws under which they may be practising, or to bring about conditions of practical reform may with profit correspond with Dr. Van Meter. The gist of the matter in these disputes usually relates to the definition of the term "the practice of medicine." That offered is as follows:

> SECTION II. Any person shall be regarded as practising medicine, within the meaning of this Act, who shall in any manner hold himself out to the public as being engaged within this State in the diagnosis and treatment of diseases or injuries of human beings; or who shall suggest, recommend, or prescribe any form of treatment for the intended palliation, relief, or cure of any physical or mental ailment of any person, with the intention of receiving therefor, either directly or indirectly, any fee, gift, or compensation whatsoever; or who shall maintain an office for the reception, examination, and treatment of any person suffering from disease or injury of body or mind; or who shall attach the title of M.D., Surgeon, Doctor, or any other word or abbreviation to his name, indicative that such person is engaged in the practice of medicine as hereinbefore defined.

Public Support of Medical Schools.—It is strange how slow the wealthy are to see the great need which exists for the support of those agencies which prevent rather than only cure the individual and expensive evil results of our social habits. Of all the ways of prevention, none is so evident and so demonstrable as those of preventive medicine. Most of the usual, falsely-called, charity ends finally in fixing the necessity of recure and thus perpetuating the very evil it would remedy. It is not so in medical education, and yet money, almost in abundance one might say, is to be had for endowing every sort of school or college, except that which is needed most of all—that, namely, for training men to battle with and prevent the diseases which most handicap the energies and frugalities of the people. A great physician has lately said:

> The wealthy of this city have not yet been persuaded to give this work enough endowment to pay a quarter of the expenses. During the last year most of the money that has sustained this work has been given by members of the medical profession. I have personally stood in the offices of several wealthy men in the last year, to beg money for this charity, which is as much their charity as it is that of any physician, and have received the reply that times were so bad that they did not feel able to give a dollar. I suspect that every one of them was suffering from the misfortune of having a million or two that was not bringing them in a cent of interest. They could not give a dollar to the relief of the hundred thousand patients that were treated last year at Twenty-sixth street and First avenue.

True and timely, surely! But how much more true is it that in their relations with their patients, physicians may do a greater service to their profession and the world by keeping before their minds the need of supporting and endowing medical colleges.

The Pathologically -ically Characteristic.—An unamerican American recently appealed to England for a decision against what a contemporary calls the "mutilation" of our "sacred English language," consisting in the dropping of the unnecessary *-al* in certain adjectives. The answer of the excellent authority, Dr. Henry Bradley, has been made publical. But it can hardly be very comforting to the remonstrants. The old and wellknown, well-exploded, and utterly disused distinction is made that the *-ics* should be used in one way and the *-icals* in another. For instance, "physiologic phenomena" and "physiological theories," "geologic periods" and "geological treatise," etc. "Of course," it is added, "very often the two meanings so run together that on this principle it would not practically matter which word were used." As to this it may be urged that it is quixoticly impossible to ask the world of writers and speakers to make the subtle distinction here resuggested. Fact, history, common practice, have all shown the attempt has ended in universal failure. Not even the experts in literary workmanship, least of all the indignant remonstrants, pay any attention to the subtle and impracticable law or rule. But the complete reduction to the absurd is shown by the fact that the great mass of such adjectives has already been curtailed of their redundant second tail by the iron law of habit and accomplished fact. Not even the staunch defenders of holy English, they who usually write most ungrammaticly and unclearly, would now, at least publically, use *publical*, *pubical*, *domestical*, etc. Knowing nothing of etymology they make easy though suicidal fun of "medic," "surgic," etc., which none uses or recommends. On the same page in which the learned editor of the *Medical Record* exclaims against "mutilation" and "the *-ic* habit," he speaks of "the choric symptoms of nervous school children." We did not know these choreical children were pathologically practising either song or dance. What shall be done with the thousand scientifical words which in historic and in historical times have been docked of their supernumerary tails? Shall we say and write hydrochlorical, ascitical, cyanotical, dicrotical, splanchnical, splenical, homeopathical, extrinsical, intrinsical, anabolical, katabolical, atrophical, septicemical, lithemical, thermical, hemical, hepatical, encephalical, laryngoscopical, diphtheritical, phrenical, esophorical, rheumatical, cystical, chorionical, specifical, pathognomonical, prognostical, prolifical, tonical, cardiacal, hypodermical, hydriatical, hypnotical, soporifical, galvanical, faradical, statical, franklinical, diagnostical, anesthetical, plastical, caustical, borical, prussical, acetical, nitrical, malical, carbolical, and so on, and so forth? Heaven forbid!

Abolition of Prisoners' Stripes.—More than 100 years ago, Tuke in England, Pinel in France, and Rush in America, contended that chaining maniacs with riveted iron bands, in dungeons, often in darkness, and always in filth, was neither medicine nor humanity. It took a life-time to effect partly their reform, and even today it is not entirely completed, so slow is human progress, and so long does it take sensible views to become practical. In penology there is a still more powerful wall of prejudice to be razed before our prisoners and criminals can be treated with justice either to themselves or the community. In many of our States there is a hideous continuation of medieval cruelties and barbarism which increase the taxpayer's burdens, which not only prevent reformation of the criminal, but which increase crime and irrevocably confirm the criminal in his habit. New York State has at last made a great step in advance by doing away with striped clothing for the first offenders in its four State prisons. It has been ordered that 2,384 prisoners are to take off the garments of degradation and don a neat gray uniform, which will not tend to destroy their self-respect and to confirm them in their lives of crime. Slowly but surely our prisons are becoming the true reformatories they should be, instead of factories for making criminals. The abolition of the lock-step and of the cropping of hair, and now the abolition of the seventeenth century garments—all mark a progress sure to pay for itself in dollars and cents, to say nothing of the men and women saved for lives of usefulness. It is also noteworthy that Gen. Booth, of the Salvation Army, has asked the government to turn over to his society social wrecks as they drift into the hands of the law for the first time. He would care for them in homes, asking merely the necessary expenses, and then only if the results prove satisfactory. His views have made a deep impression, because no one can deny his assertion that the ordinary methods of dealing with crime and poverty are largely futile.

Foreign Doctors' Extortion.—According to the *New York Times*: The case of George Crocker, of New York, against the noted French specialist, Professor Doyen, to recover an alleged exorbitant fee is attracting indignant expressions from members of the American colony here against the practice of making excessive charges in the case of Americans. Another and similar incident, which has not yet reached the courts, occurred recently. A prominent citizen of Pittsburg entered the hospital of a leading specialist in order to be operated upon. When the operation had reached a critical stage the American was required to pay $4,000, which was done under protest. A number of French physicians condemn the practice. One of the foremost of these recently performed a heroic operation upon a little Brooklyn girl, remaining by her bedside continuously for 36 hours. Thereafter, learning that the family had only moderate means, the physician declined to accept any remuneration. The Crocker case is expected to lead to action on the part of the medical societies concerning the questions of professional ethics involved. The case will come up at the January term of the Tribunal of the Seine. George Crocker, it was announced September 28, had begun a suit in Paris to recover $20,000 paid to Professor Doyen for attending his wife.

AMERICAN NEWS AND NOTES

GENERAL.

Bequests to Charity.—New York: By the will of James R. Willets, of Manhasset, L. I., $5,000 is left to the Temporary Home for Children for the endowment of a free bed, and an equal sum to the Friends' Academy, Locust Valley, L. I.—**Philadelphia**: By the will of Amos Wert, of Philadelphia, $5,000 reverts, on the death of the wife and daughter of the deceased, to the Methodist Episcopal Hospital, to endow a free bed.

Physical Tests for Railway Employes.—At the next meeting of the American Railway Association, to be held in Philadelphia, the Safety Appliance Committee will recommend that employment in the operating department of railroads be made dependent upon a rigid physical examination. After employment, periodic examinations are to be recommended, and there will be a requirement that the employes shall keep up to a physical standard. While the recommendations of the committee will create considerable discussion, it is believed that they will be approved by the association, as many railroad officials have been considering this method of raising the physical standard of the operating employes.

Doctors as Book Buyers.—The largest part of a doctor's equipment is his books. Physicians usually keep more closely up with the procession, from the viewpoint of books, than lawyers. The doctors have to do it, because much of their reputation among their associates depends upon the accuracy and the modern finish of their knowledge. A lawyer can more easily dispense with new law books than a doctor with the late medical books. An up-to-date doctor has a much more expensive library, as a rule, than a minister, and it is almost as expensive as a lawyer's, the difference being that a lawyer's whole equipment is books, while a doctor must have a laboratory and a full complement of instruments.—[*Louisville Courier-Journal.*]

New Species and Generation.—Great interest has been aroused in the International Congress of Arts and Sciences by a proposition advanced by Professor Hugo DeVries, professor of botany in the University of Amsterdam, who combats Darwin's theory of the origin of species, and advances a new one of his own, to the effect that an entirely new species may be developed in a generation or two. Professor DeVries asserts that no two of the same species of animal, from the lowest stages to man, are alike in any important particular, and that heredity does not transmit distinguishing features. Heredity is the main element of the Darwinian theory, and Darwinists claim that by passing from generation to generation, the peculiarities of the primogenitor finally result in a new species.

Borax Output in 1903.—According to statistics compiled by the geologic survey, the United States last year produced 34,430 short tons of crude borax, valued at $661,400. The production in 1902 was 17,404 short tons of refined borax, valued at $2,447,614, and 2,600 short tons of crude borax, valued at $91,000. Of the refined borax 862 short tons, valued at $150,000, were boric acid. Had the valuation in 1903 been taken on the refined instead of the crude product, the figures would have been $2,735,000 instead of $661,400. The amount of borax, borates and boric acid imported into the United States in 1902 was 1,694,251 pounds valued at $63,236. In 1903 the amount imported was 909,251 pounds, valued at $47,018. The United States Geologic Survey has issued a report showing that in 1903 the United States consumed 37,758 short tons of graphite, valued at $1,598,589. The value on the total home production was only $225,554.

Miscellaneous.—Philadelphia: Professor Phillipovitch, of the University of Vienna, was recently visiting in Philadelphia and was given a dinner at the University Club by Dr. C. W. Macfarlane.—**Telephone wires** are to remove the barrier between the suffering inmates of the Municipal Hospital and their friends in the outside world. Director of the Department of Public Health and Charities Dr. Edward Martin has just completed arrangements whereby a complete telephone system is to be installed in the Municipal Hospital with 'phones in each ward, so that direct communication between without and within may be had.—**Pennsylvania**: Dr. C. L. Stevens, of Athens, Pa., has been elected editor and publisher of the *Pennsylvania Medical Journal*.—**General**: Dr. William A. Edwards, of Coronado, Cal., has been elected to the chair of pediatrics in the medical department of the University of Southern California, at Los Angeles, and will remove to that city.

Railway Casualties.—The *Philadelphia Ledger* says: In 1903, 9,840 persons were killed and 76,553 injured on American railways. From 1895 to 1903 inclusive, 67,148 were killed and 194,668 injured. Since 1895 the loss of life has been increasing year by year. In 1903 the number of fatalities exceeded those of the previous year by nearly 1,300. Of the killed, 355 were passengers, and 3,606 were railway employes. Thousands of the casualties were undoubtedly due to preventable causes. The Washington correspondent of the New York *Herald*, reporting interviews with members of the Interstate Commerce Commission, notes that this year's record is likely to exceed the forbidding record of 1903. Members of the commission discover causes of the increasing number of disasters in the increase of traffic beyond the capacity of railway equipment; the effort of railway managers to give service beyond facilities; carelessness of employes, due in many cases to overwork; badly constructed railways and single track.

Campaign against Malaria in the Roman Campagna.—*Public Health and Marine-Hospital Reports* state that during the antimalarial campaign that the Italian Red Cross organization is making in the Roman Campagna, there were in the month of July, 1904, 180 relapses of malarial fever and 55 primary cases among 8,164 individuals to whom quinin was distributed. July is the month in which the density of population in the Roman Campagna is at the maximum. The 180 relapsing cases were old sufferers from malaria, who are under treatment only during their sojourn in the Campagna, and who, returning to their native places, discontinue treatment. The 55 primary cases, considering the large number of persons to whom quinin was administered, represent a low figure. This is especially notable this year because, since the beginning of the season, malaria has been present in a grave form. There were 103 examinations of blood made with 49 negative results, 5 of which were in persons affected with enteric fever.

Health of the Army and Epilepsy.—In his annual report Surgeon-General R. M. O'Reilly shows that the general health of the army has improved during the past year, the hospital admission rate per thousand having been 1,451.13 against 1,716.51 in the preceding year. From an average strength of 19,029 American troops in the Philippines, 1,074 were invalided home, a rate of 56.44 per thousand. There were 271 deaths among the troops in the Philippines, so that the losses by death and invaliding amounted to 70.67 per thousand. The Philippine soldiers again demonstrated their freedom from drunkenness, as only three hospital cases from that cause were recorded. The surgeon-general believes that it is possible to cure leprosy. Decidedly favorable results have followed the treatment of the leper soldier now held in isolation at one of the southern army posts. Free use is made of the röntgen ray in treating this case, and the man is now permitted to wander about the island at his will, provided he does not enter any building save his own, or approaches any one nearer than eight feet.

Sour Milk for Long Life.—According to an interview with Professor Eli Metchnikoff, of the Pasteur Institute, which appears in the October number of the Pall Mall Magazine, the nearest approach to the elixir of life is sour milk. Any person desiring to attain a ripe old age is recommended by the professor to follow the example of the Bulgarians, noted for their longevity, and consume large quantities of this cheap and easily obtained beverage. The following statement is accredited to the professor: "Sour milk contains a large bacillus remarkable for the great quantity of lactic acid it is capable of producing. This microbe does not exist normally in the human body and can be introduced with very great benefit to the health, as it preys on the hundreds of thousands of microbes which infest the large intestines. It has been noted that there is a great similarity between old age and disease. A study of certain diseases has proved that there is no difference between the mechanism of senile atrophy and that of atrophy caused by a microbe or poison; in fact, on the approach of old age a veritable battle is waged in the innermost part of the body.

The Preservation of Eggs.—The *London Lancet* gives the following testimony respecting the preservation of eggs by the use of silicate of lime or water-glass: Water-glass owes its preservative effects to the formation of a hard, glassy silicate of lime within the substance of the shell, forming, so to speak, a perfect envelope of glass. It is wellknown, further, that water-glass possesses a powerful antiseptic action. Eggs treated in this way are said to preserve their fresh character and to be indistinguishable from an egg taken straight from the nest. This water-glass ought to be found at any well-equipped drug store or could readily be made by any bright drug clerk and should not cost over 75 cents per gallon. The liquid should be mixed with 15 parts of warm water, the eggs placed in a stoneware jar, and the solution thus diluted poured over them until they are well covered. As the water evaporates the jar should be refilled so that none of the eggs are uncovered. The same solution can be used again. When the eggs are taken out they should be washed in cold water and dried, and it is said that it would be impossible to distinguish between them and fresh-laid eggs.

Plans to Check Tuberculosis.—Preventive legislation was discussed at the International Congress of Tuberculosis. The speakers made suggestions for legislation compelling State and national governments to closely inspect not only public buildings and vehicles but also tenement districts and schools. It was also advanced that beneficial results would be attained by the segregation of the tuberculous insane in asylums and hospitals. Resolutions were adopted as follows: That it is the imperative duty of all civilized governments to take immediate action for the arrest of the spread of tuberculosis; that every government should appoint a commissioner of the public health with a seat in the Cabinet, endowed with sufficient means properly to fight the scourge; that it is the duty of health boards to report cases; that to facilitate the early diagnosis of the disease, it is the duty of every municipality to provide laboratory facilities for the examination of sputa, and that systematic efforts be made for the education of the public in relation to the curability of tuberculosis, through the circulation of pamphlets, the holding of health conventions and the organization of local and State societies for suppression of the disease.

Prevalence of Pneumonia.—The Bulletin of Chicago's Health Department says: In the current volume of the American Year-Book of Medicine appears the following item: "Since 1900 pneumonia has caused the death of an eighth of all persons dying in Chicago—a third more than tuberculosis, and 44% more than all the other contagious and infectious diseases combined." Completed returns—not available when the above was written—show that in 1900 there were 24,941 deaths from all causes reported in Chicago, of which number 3,389, or 13.5% of the total, were from pneumonia. During the intervening three years (1901 to 1903, inclusive) there have been 79,775 deaths from all causes reported, of which total 11,189, or 14.03%, were from pneumonia. Of the total 28,914 deaths reported last year, 4,629, or 16% of the total, were from pneumonia. This is an increase of 18.5% in the pneumonia deathrate since 1900. Pneumonia caused the death of nearly a sixth—instead of "an eighth"—of all persons who died in Chicago last year. The 2,599 deaths from phthisis (tuberculosis) in 1900 formed only 10.4% of the total mortality, or 23% less than the pneumonia ratio. The 2,869 deaths from tuberculosis in 1903 formed 9.9% of the total mortality, or 38% less than the pneumonia ratio. The decrease in the tuberculosis deathrate between 1900 and 1903 is 4.8%. The increase in the pneumonia deathrate during the same period is 18.5%.

EASTERN STATES.

Munificent Gift to Hospital.—It was learned recently that by the will of Miss Mary Terry, who died at Venice a month ago, the Hartford (Conn.) Hospital will receive approximately $500,000.

NEW YORK.

Number of Typhoid Cases Increase.—According to the *New York Evening Post*, there were 1,261 deaths in New York City last week, October 1, making a deathrate of 17.14 per 1,000, against 15.57 for the same week last year. The rate in Queens was remarkably low, 13.22. Eighteen deaths were caused by typhoid fever, and 136 new cases were reported, the second largest number in the last three months.

St. Luke's Hospital, in the city of Utica, which for the past 20 years has been a private hospital of 50 beds, is to have a new building on a new and better site, the gift of **Mr. and Mrs. Frederick T. Proctor**, of Utica. The new building, which is now nearing completion, is to have 80 beds, and is a fire-proof structure of brick, stone, and steel, of the most approved modern type. The entire expense of the building and furnishing is borne by this one family, and the structure completed is to be turned over to the present Board of Trustees of St. Luke's Home and Hospital. This is the largest single gift that has ever been made for philanthropic and charitable purposes in this part of the State.

PHILADELPHIA, PENNSYLVANIA, ETC.

Diphtheria in Chester.—It is reported that there are 30 cases of diphtheria in Chester and the fear of an epidemic is entertained.

New Vaccination Ruling.—The Board of Education's Committee on Hygiene determined recently to admit to the public schools all children presenting physicians' certificates of successful vaccination.

A Mild Epidemic of Typhoid Fever Exists at Pitcairn, Pa.—Fearing that the water-supply is infected, Dr. Benjamin Lee, of the State Board of Health, has been called in and a sample of the borough drinking water is now in his hands for analysis. The epidemic started four weeks ago and there have been nine deaths.

To Improve Insane Asylum.—The Schuylkill County Insane Asylum, denounced repeatedly by the State Board of Charities and by numerous grand juries, one of the latter going so far as to designate it as "worse than Dante's Inferno," is to undergo important improvements. The County Commissioners have issued a call for plans for a new addition to the asylum, which will be built at once. This will give more room for the treatment of patients. It will also permit, to a certain degree, of the classification of the patients, so those whose minds are slightly affected will not be confined with the hopelessly insane and idiotic.

SOUTHERN STATES.

Medical Society of Virginia.—The thirty-fifth annual session of the Medical Society of Virginia will be held in the hall of Masonic Temple, Richmond, Va., beginning at 8 p. m., Tuesday, October 18, 1904. The meeting will continue the three succeeding days. The corresponding secretary is Dr. J. F. Winn, Richmond, Va.

Johns Hopkins' New Surgical Building.—On October 6 the new surgical building and clinical amphitheater of the Johns Hopkins Hospital was formally opened with appropriate exercises. The surgical building, which is four stories high, was erected at a cost of $150,000, and in general appearance it conforms with the other buildings connected with the hospital and medical school. It has been equipped with the most modern surgical appliances.

FOREIGN NEWS AND NOTES

GENERAL.

British Insane.—One of the most startling features of the annual report of the Commissioners in Lunacy is that part which shows how steady has been the increase of insanity in the country. On the first of January last, no fewer than 117,199 persons in England and Wales were certified as insane. This was an increase of 3,235 on the figures for the same day in 1903, which in turn had shown an increase of 3,251 on those of the preceding year; in fact, during the last ten years there has been an average annual increase of 2,513. Taking the period covered by charts in the report, the increase appears to have been continuous for nearly half a century. Here for instance, are some remarkable figures: Insane (all classes), 1859, 36,762; 1904, 117,197. Since 1859, therefore, the number of lunatics has about trebled. Reverting to the figures for last year, we find that the main increase, amounting to 2,540, or 78.5%, occurred among persons now detained in county and borough asylums, and that the increase in the Metropolitan District Asylums has been 688—figures which suggest considerable additional cost to ratepayers. Altogether there were on the first day of the current year, 106,771 pauper patients, whose maintenance has to be defrayed wholly or in part out of the rates. There were besides 877 criminal patients detained chiefly at Broadmoor, and 9,551 private patients.—[*London News.*]

OBITUARIES.

Joseph N. Henry, formerly of Philadelphia, surgeon in the U. S. Army, at Devon, Pa., October 3. Dr. Henry was in the Philippine Islands with his regiment for several years, and came to Philadelphia to recuperate, expecting to return to the army. He was a brigade surgeon with the rank of major, and was closely associated with General Lawton. His body was sent to Indianapolis and buried with military honors.

Merrick Bemis, at his home in Worcester, Mass., October 3, from Bright's disease, aged 84. Dr. Bemis, for 15 years prior to 1872, was superintendent of the Worcester Hospital for the Insane, and was widely known as an expert on insanity. He graduated from the College of Physicians and Surgeons, New York City, in 1852. Of late years he had conducted a private institution for the insane.

John Jackson Selman, at his home in Bloomfield, Ia., September 25, aged 86. He was said to be the oldest physician in Iowa; was a member of the committee that framed the constitution of the State; was one time State Senator and president of the Senate. He graduated from the Medical College of Ohio, Cincinnati, in 1838.

Charles Burr, at his home in Carbondale, Pa., September 19, aged 89; a graduate of Berkshire Medical College, Pittsfield, Mass., in 1839. He had been for fifty years a practitioner in Carbondale. He was one time president of the Luzerne County Medical Society and the Lackawanna and Carbondale Medical Associations.

Thomas Devereux, a native of Minnesota, at Manila, P. I., from acute tuberculosis, September 24; a graduate of the Minneapolis College of Physicians in 1901, and of the Army Medical School in 1903. He held the rank of first lieutenant and assistant surgeon, U. S. A.

J. Lively Johnson, at his home in Louisville, October 4, from typhoid fever; a graduate of the University of Louisville, medical department, in 1884; a member of the Mississippi Valley Medical Association and of various medical societies.

Israel P. Clingensmith, at his home in Blairville, Pa., September 27, aged 54; a graduate of Jefferson Medical College in 1875; member of the American Medical Association, of the British Medical Association, and of various local medical societies.

Edward P. Catlin, from Bright's disease, at his home in Rockford, Ill., September 27, aged 67; a graduate of Rush Medical College, Chicago, in 1865; assistant surgeon in the Federal service during the Civil war.

George R. Reynolds, was struck and killed by a moving train near his home at Plymouth, Ind., September 25, aged 68; a graduate of the University of Michigan, Ann Arbor, in 1867.

George H. Williams, at his home in Jefferson City, September 27; a graduate of St. Louis Medical College, in 1882, and for eight years physician to the Missouri State Penitentiary.

Albion Westley Johnson, formerly of Kittery, Me., at the Cottage Hospital, Portsmouth, N. H., September 19, aged 76; a graduate of the University of Vermont, Burlington, in 1861.

Henry C. Wheeler, at his home in Carbondale, Pa., aged 54; a graduate of Jefferson Medical College in 1877. He established a hospital in Carbondale in 1899.

Wallace M. Purcell, of Cummings, Ind., at the home of his daughter in Parke county, September 24; a graduate of Jefferson Medical College, in 1862.

Robert H. Daintree, at his home in Lewiston, Me., October 3, aged 53; a graduate of the Eclectic Medical College, of Philadelphia (extinct), in 1875.

Carl F. W. Kordenat, at his home in Reedsburg, Wis., September 21, aged 50; a graduate of the College of Physicians and Surgeons, Chicago, 1887.

William D. Vaughan, at his home in Norwood, Cincinnati, September 23, aged 29; a graduate of Rush Medical College, in 1897.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 7, 1904:

	Smallpox—United States.		Cases	Deaths
Illinois:	Chicago	Sept. 25-Oct. 1	3	1
Louisiana:	New Orleans	Sept. 25-Oct. 1	1	
Massachusetts:	Fitchburg	Sept. 25-Oct. 1	1	1
	North Adams	Sept. 25-Oct. 1	2	
New York:	Buffalo	Sept. 25-Oct. 1	1	
Ohio:	Cincinnati	Sept. 23-30	1	
Pennsylvania:	Philadelphia	Sept. 25-Oct. 1	1	
Tennessee:	Nashville	Sept. 25-Oct. 1	2	
Wisconsin:	Milwaukee	Sept. 25-Oct. 1	1	
	Smallpox—Foreign.			
Brazil:	Bahia	Aug. 27-Sept. 3		1
France:	Paris	Sept. 10-17	16	
Great Britain:	Glasgow	Sept. 16-23	1	1
	London	Sept. 10-17	1	
	Manchester	Sept. 10-17	7	
	Newcastle-on-Tyne	Sept. 10-17	6	
Italy:	Palermo	Sept. 10-17	17	1
Mexico:	City of Mexico	Sept. 3-17	7	4
Russia:	Moscow	Sept. 3-10	4	1
	Warsaw	Aug. 6-13		23
Turkey:	Beirut	Sept. 10-17	Present	
	Constantinople	Sept. 11-18		22
Venezuela:	La Guayra	Sept. 10-17	Present	
	Yellow Fever.			
Mexico:	Tehuantepec	Sept. 18-24	2	2
Venezuela:	La Guayra	Sept. 17	Present	
	Cholera.			
India:	Bombay	Aug. 31-Sept. 6		18
Turkey:	Bagdad and vicinity	July 31-Aug. 20	423	392
	Plague.			
Africa:	Cape Colony	Aug. 20-27	3	1
	Tring (German East Africa)	Jan.-Mar.	47	41
Brazil:	Bahia	Aug. 27-Sept. 3		6 Verified
Chile:	Arica	Sept. 3	Present	
Egypt:	Achmun	Aug. 26-Sept. 2	1	1
	Alexandria	Aug. 26-Sept. 2	5	3
India:	Bombay	Aug. 31-Sept. 6		51
	Karachi	Aug. 28-Sept. 4	5	4
Peru:	Callao	Aug. 27-Sept. 3	1	
	Chiclayo	Aug. 27-Sept. 3	2	1
	Eten	Aug. 27-Sept. 3	3	2
	Lima	Aug. 20-Sept. 3	13	4
	San Pedro	Aug. 27-Sept. 3	3	3
Turkey:	Smyrna	Sept. 5-7	2	

Changes in the Medical Corps of the U. S. Army for the week ended October 8, 1904:

SMART, First Lieutenant ROBERT, assistant surgeon, now at the Presidio of San Francisco, Cal., is relieved from further duty in the Philippines Division, and will report to the commanding officer, Third Squadron, Ninth Cavalry, to accompany that command from the Presidio of San Francisco to Jefferson Barracks. Upon the completion of this duty he will proceed to Fort Dupont for duty.

BRITTON, ELMER J., sergeant first class, Fort Washington, will be sent to Washington Barracks to relieve Sergeant First Class Walter Blumenthal. Sergeant First Class Blumenthal will report to the president of the Army Medical School, Army Medical Museum, for duty.

FISHER, Major HENRY C., surgeon, is granted leave for twenty days, from about October 1.

DAVIS, OSCAR F., contract surgeon, is granted leave for one month, from about October 15.

GREENE, EARL F., sergeant first class, is relieved from further duty aboard the transport Sumner, New York Harbor, and will be sent to Fort Jay for duty.

KELLER, First Lieutenant WILLIAM L., assistant surgeon, is relieved from duty at Fort Riley and will proceed not later than October 12 to Fort Leavenworth and report to the commanding officer, Second Squadron, Fourth Cavalry, to accompany that command to the Presidio of San Francisco. Upon completion of this duty he will report for assignment to duty at the U. S. General Hospital, Presidio of San Francisco.

BILLINGSLEA, First Lieutenant CHARLES C., assistant surgeon, is relieved from duty at the U. S. General Hospital, Presidio of San Francisco, Cal., and will proceed not later than November 1 to the Presidio of Monterey, and report to the commanding officer, First Squadron, Ninth Cavalry, to accompany that command to Fort Riley. Upon the completion of this duty he will report in person to the commanding officer of the latter post for duty.

FULLER, Captain LEIGH A., assistant surgeon, is granted leave for twenty-one days.

The following-named officers are detailed to represent the medical department of the army at the thirteenth annual meeting of the Association of Military Surgeons of the United States, to be held at St. Louis, Mo., October 10 to 15: Lieutenant Colonel Louis W. Crampton, deputy surgeon-general; Major Richard W. Johnson, surgeon; Captain Llewellyn P. Williamson, assistant surgeon.

USHER, Captain FRANCIS M C., assistant surgeon, is granted leave for one month, from about October 1.

Changes in the Medical Corps of the U. S. Navy for the week ended October 8, 1904.

STEELE, JOHN M., surgeon, ordered to the Naval Station, Baltimore, Md.—September 30.

LEDBETTER, R. E., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant, from October 19, 1903—September 30.

IDEN, J. H., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant, from May 4, 1904—September 30.

SEAMAN, W.; RICHARDSON, R. F.; ASSERSON, F. A., passed assistant surgeons, commissioned passed assistant surgeons with rank of lieutenants, from May 18, 1904—September 30.

BALCH, A. W., passed assistant surgeon, commissioned passed assistant surgeon with rank of lieutenant, from June 22, 1904—September 30.

SUTTON, R. L., assistant surgeon, ordered to the Naval Hospital, New York, N. Y.—September 30.

MCDONELL, G. N., assistant surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.—September 30.

STRITE, C. E.; SMITH, H. W.; CLIFFORD, A. B., assistant surgeons, appointed assistant surgeons with rank of lieutenants (junior grade), from September 27, 1904—September 30.

STRITE, C. E., assistant surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.—September 30.

CARPENTER, D. N., surgeon, ordered to the Naval Hospital, New York, N. Y.—October 1.

ORVIS, R. T., passed assistant surgeon, detached from the Naval Hospital, New York, N. Y., October 4, and ordered to the Chattanooga —October 1.

RICHARDSON, R. R., passed assistant surgeon, detached from the Wabash and ordered to the Navy Yard, Mare Island, Cal.—October 1.

DUNN, H. A., assistant surgeon, detached from the Naval Proving Ground, Indian Head, Md., and ordered to the Naval Hospital, Newport, R. I.—October 5

JUDA, H. W., acting assistant surgeon, ordered to the Naval Proving Ground, Indian Head, Md.—October 5

Changes in the Public Health and Marine-Hospital Service for the week ended October 5, 1904:

BANKS, C. E., surgeon, granted extension of leave of absence for 12 days from September 27—October 1, 1904.

RICHARDSON, T. F., passed assistant surgeon, to proceed to Eagle Pass, Texas, for special temporary duty—October 4, 1904.

TROTTER, F. E, passed assistant surgeon, relieved from duty at Plague Laboratory, San Francisco, Cal., and temporarily assigned to exclusive duty in connection with the examination of aliens at San Francisco—September 29, 1904.

LORD, C. E. D., assistant surgeon, relieved from duty in connection with the exclusive examination of aliens at San Francisco, Cal., and directed to proceed to Ellis Island, New York, N. Y., and report to Surgeon G. W. Stoner for temporary duty—September 29, 1904.

BOGGESS, J. S., assistant surgeon, granted leave of absence for 15 days from October 16—October 4, 1904.

RUCKER, W. C., assistant surgeon, bureau letter of September 12, granting Assistant Surgeon Rucker 14 days' leave of absence from September 15, amended so that said leave shall be effective September 16; and bureau telegram of September 26, granting Assistant Surgeon Rucker three days' extension of leave of absence, revoked —October 3, 1904.

COLLINS, G. L., assistant surgeon, granted leave of absence for three days from September 30, 1904, under paragraph 191 of the regulations.

TUTTLE, JAY, acting assistant surgeon, granted leave of absence for four days from September 19—October 4, 1904.

WINN, C. K., acting assistant surgeon, granted leave of absence for 14 days from September 25—October 3, 1904.

MCDONALD, JEANETTE, medical inspectress, granted leave of absence for three days from September 25, 1904, under paragraph 210 of the regulations.

LAGRANGE, J. V., pharmacist, granted leave of absence for seven days from September 26, 1904, under paragraph 210 of the regulations.

SOCIETY REPORTS

INTERNATIONAL CONGRESS OF ARTS AND SCIENCE.

Held at St. Louis, Mo., September 19 to 25, 1904.

[Specially reported for *American Medicine*.]

[*Continued from page 623.*]

SECTION ON PSYCHIATRY.

This section held its session on September 22.

Psychiatry: Its Relation to Other Sciences.—This paper was read by Dr. Charles L. Dana, of New York. Dr. Dana indicated the directions from which psychiatry must look for help, and first of all he designated clinical medicine, clinical pathology, and physiologic chemistry, so that complete records might be obtained, and also the clearest possible insight into cases and types coming under our observation. Second, the elementary principles of psychology must be thoroughly known. Third, pathologic anatomy must lend its aid, but rather in the direction of teratologic anatomy, than of gross anatomy. The study of congenital defects, particularly of the nervous, circulatory, and secretory systems was of special importance. Looked at from the viewpoint of custodial science, State medicine and economics would lend their aid, and in the prevention of insanity also these sciences could render material assistance. The methods of living, and particularly as regards marriage, must be subjects of special education of the people. The vast increase of urban life, also, had its special evils, as well as the abuse of alcohol and the spread of venereal disease, and these again must be met by popular education. Anthropology and its allies, as well as law and forensic medicine, had their relations to psychiatry. A proper study of these subjects might reduce the increase of insanity by half. The earlier recognition and more prompt treatment of insanity would lead to a greater percentage of cures. In consequence of a more perfect recognition of the type of disease, the treatment could be better indicated and the prognosis more definitively made; so that the acutely and curably insane could be properly treated in hospitals, while the chronic cases and those hopelessly insane could be treated on the colony plan. The insane would come more and more to be considered in the light of sick persons, and every branch of medical science would take part in their relief, for a sane mind was the most precious thing in the social organization. [This paper will be published in a future issue of *American Medicine.*]

The Progress of Psychiatry.—Dr. Edward Cowles, o Boston, referred to the increasing importance attached to comparative physiology and pathology. A physical disorder of function underlay every true mental disease. More mental pathology and physiology was needed by the psychiatrist than could be given by psychiatry itself. But there was an extensive range of functional disturbances unaccompanied by organic irregularity and the problems of psychiatry lay in the functional psychoses. The use of the words psychosis and neurosis in the normal as well as in the pathologic sense led to confusion, for the word psychosis now included mental disease both functional and organic. Where the line was to be drawn between the functional and the organic symptoms was still in question. Disease was not a state of disturbed activity, but the results of such a state. The speaker protested against the thraldom of names, and said that there should be an emancipation from the whole matter of names, and it should be understood that all that was known of function was simply through its disturbances. The forms of activity demonstrated by psychology were all to be included in the category of reduced functional activity. [This paper will be published in a future issue of *American Medicine.*]

SECTION, INTERNAL MEDICINE.

This section held its session in the afternoon of September 23. Prof. F. C. Shattuck, of Harvard University, in the chair. Prof. T. Clifford Allbutt, F.R.S., of the University of Cambridge, England, delivered an address upon the Historical Relations of Medicine and Surgery. The period beginning with the year 1864 marked an era of aggression upon each other's domains by the followers of the hitherto strictly limited arts of medicine and surgery. In that year the medical portion of the staff of the Leeds General Infirmary solemnly assembled to discuss the propriety of the administration of drugs by means of a needle. On the other hand about the same period certain fellows of that strictly medical organization, the College of Physicians of London, began to undertake the performance of abdominal operations in defiance of the traditional sentiment that enveloped those sacred halls. Then the surgeons began to upbraid the "pure" physicians with unjustifiable dilatoriness in temporizing by means of medical treatment with cases of twisted bowel, etc., till the time for effective surgical treatment had long gone by; and they demanded urgently that all cases of that character should be handed over to the surgical side of the hospital from the outset. They went even further, and demanded that such cases as those of tuberculous peritonitis, empyema, and tumors of the cerebellum should be dealt with in like manner. Thus it happened that one by one all the organs, once the sacred province of the devotee of pure medicine, came under the sway of the surgeon. In this way the achievements of "pure" surgery advanced more and more in glory, until not only the man in the hospital, but even the man in the street, began to discuss the progress of surgery, and, *per contra*, the retrogression of medicine, until it was only the sweetness of their tempers that kept the man of intermal medicine and the surgeon at amity. The present time was a most critical one in the relations of medicine and surgery; and particularly was this so in England, where there was such a complete separation between the two branches of the healing art as to give them externally the appearances of two separate professions. The duty, then, was incumbent upon them today of contemplating medicine as a unity and of aiming to form a rational ideal as to its methods and aims. In 1894 Professor Virchow had asserted, in an address delivered at Rome, that medicine was remarkable on account of its unbroken development for 2,500 years. After a methodical review of the progress of medicine from the era of Hippocrates up to the sixteenth century, Prof. Allbutt stated that at the last-named period medicine had taken a new lease of life and surgery a new foundation, based respectively upon a new physiology of the blood and lymph circulations and a new anatomy. Medicine had not suffered this division up to the time of Avicenna, surgery being considered simply as an alternative mode of dealing with diseases, which the physician could reach with his hands. The "cleavage of medicine" was not due to a natural and essential subdivision, but was an arbitrary distinction pandering to a false pride, and it resulted in a loss of vitality in both divisions and in a fantastic medicine. Up to the seventeenth century "pathology was a factitious schedule and medicine a farrago of receipts," most of them harmful, many filthy, all mischievous, either directly in themselves or indirectly as an indication of false therapeutics. By the division of medicine the physician loosed his hold on the inductive method; and by depriving his brain of that most subtle machine in the world, the human hand, he lost touch with things in general. On the other hand, there was the danger of reducing education to the narrowed ideas and the stationary habits of the mere artisan. Medical education should aim at such development as would deliver the profession from crawling empiricism on the one hand and from fanciful imaginings on the other. The infinitely delicate possibilities of touch were almost more inconceivable than was the compass of the imagination itself. But whatever solution of this problem the future might hold, it behooved them now to take heed that energy should not be permitted to accumulate exclusively about either one or the other pole. [See page 669 of the present issue of *American Medicine.*]

Progress in Medicine during the Past Century, was the subject and title of a paper by Prof. William S. Thayer, of Johns Hopkins University. Dr. Thayer called attention to the fact that in the middle ages medicine was to a great extent a matter of faith, consequently any attempt to bring it to the touchstone of reason instantly became heresy. When in course of time the clouds of medical tradition began to break, the study of the natural sciences was followed with a zeal greater than ever before. In medical instruction the clinical method replaced the traditional learning of recognized authorities. Diagnosis was defective and vague; treatment empiric. Indeed, in 1789, medicine was declared by the French Academy to be a conjectural art. The introduction of vaccination was an early instance of the use of scientific methods, and little by little came a scientific foundation for anatomy and physiology, and a more scientific character was bestowed upon clinical diagnosis. The microscope, the introduction of cellular pathology, the sphygmograph, the clinical thermometer, the stomach-tube, etc., aided in the development of diagnosis as an art. Physiologic chemistry followed, and the extension of medical knowledge to the nervous system, resulting in what seemed almost occult powers of diagnosis. The introduction of bacteriology placed the subject of prophylaxis on a scientific basis and also led to the development of antiseptic or aseptic surgery. But while these two branches were widening, the power of grappling with diseases did not seem to advance much beyond the point it occupied in the beginning of the century. In a few short years, however, the wide investigation of the problems presented by the subject of immunity had given rise to a mass of knowledge, the vast and far-reaching importance of which was not even yet fully appreciated. This knowledge was enabling us to relapse with scientific, preventive, and curative measures, the bleeding, vomiting, purging, and other empiric and heroic methods of old-time medicine. The consequence of all this was that the physician's training needed today a different basis from what it did 100 years ago. The firmer foundation of science had replaced the more nebulous basis of speculative philosophic investigation. The methods of today replaced the theories of the past. Prof. Thayer stated that many in this country seemed to think that the years of academic training might be better given to practice, and that many a man who might become valuable in a professional capacity was kept out by the long course of study. In order to avoid this, it was proposed to exclude the humanities from the academic course, a fact which very many deplore. A recent critic had stated that strict training in scientific research had impaired the reasoning faculty. Dr. Thayer spoke approvingly of classic studies, and said that they afforded a training which it was difficult to obtain in any other way. One might search for a long time among the greatest names in medicine and hardly discover one who was unfamiliar with the classic learning. Much complaint was made in certain quarters of the time "wasted" in giving experience adequate to the formation of a competent practitioner; this was a mistake. The greatest part of the physician's success depended upon his personal influence, his power of persuasion and inspiration, and these things prevailed more in the case of men of thorough education. If the students were taught better and earlier—had a better general education—less time would be lost and more time gained for the production of professional men of greater caliber.

[*To be continued.*]

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-fourth Annual Meeting Held at Pittsburg, September 27, 28, and 29, 1904.

[Specially reported for *American Medicine.*]

[*Continued from p. 625.*]

Address in Neurology.—WILLIAM K. WALKER (Dixmont) said in part as follows: When any cause interferes with the protoplasmic activities, concerned in general or in nerve metabolism, there may be concomitant disturbance among the delicately constituted colloidal materials represented in the cortical cells and fibers; disorder then occurs among the "ingredients" of which the mind is composed. This may be manifested in the highest intellectual faculties or in the emotional and lower instinctive spheres. From the highest to the lowest there is to be noted an order in mechanism as definite as that which underlies the development of the better understood bodily diseases. Upon the subjective side they are represented by peevishness, irritability, apprehension, fears, and all sorts of undisciplined impulses, with accompanying disorder and perversion among ideas. These may be preceded by subjective bodily sensations connected with any organ or system of organs. Paralleled by the objective signs of motor restlessness, by a tendency to activity in innumerable directions without efficient action in one; or by a listlessness or incapacity for exertion; by a lack of endurance, or by failure in certain special activities requiring for their performance fine coordinations and adjustments of associated groups of muscles; the highly specialized manipulative functions of the hand, for instance; of speech, or even of locomotion. The vasomotor and secretory results of this outgoing tendency may be as evanescent as the blush, the pallor, or dryness of the mouth, etc., which accompany transitory agitation; or as manifold and severe as to constitute complexes of symptoms obscuring, and often hiding from view their source in mental commotion. They may be connected with any organ or system, now one, now another, showing preponderating involvement, according to inherited or acquired vulnerabilities. Variously labeled as neurasthenic, hysteric or hypochondriac, such are often causes of perplexity to physician as well as to family and friends; they are to be regarded as "prodromal stages, abortive types—shadowy imitations of the greater psychosis insanity;" and they may readily cross the border line, where, through their transformation into bizarre and violent acts, they exhibit a degree of mental disorder apparent to the most casual observer. As diseases of the body explain themselves by their increase, so mental disorders explain themselves by their increase from earliest deviation in idea and emotion to later transformation into violent deed. These earliest indications of mental disorder are not always regarded as such, because they are not associated in the minds of observers with the bodily antecedents of anatomic defect or of gradual failure in the body's nutritive processes. A systematic study of character—of the individual's mode of reaction to the vicissitudes of his environment—is of inestimable value, not only as an aid to promptness and accuracy in diagnosis when he is subjected to the dangers which threaten mental integrity in the critical periods of life, but to more purposive procedure in obtaining the desired preventive and curative results. Recent attainments in psychiatry have thrown light upon this unity of the individual and by so much upon the darker bypaths of clinical medicine. As practitioners of the art, whose highest function is the prevention of disease, we should ever remember that "in mind, as in body, man is an organic mechanism, though the mental mechanism undoubtedly implies a yet inscrutably fine and complex physics; his mind is sound when its mechanism is sound, lame when it is lamed, lost when it is destroyed."

THIRD SESSION.

The President's Address.—WILLIAM B. ULRICH (Chester) discussed the instruction of children in matters relating to health. By the appointment of a committee on textbooks for use in our public schools, he says the society showed that it appreciates the fact that a responsibility rests upon the medical profession with regard to the proper teaching of physiology and hygiene. The object is to aid the efforts that are now being made to educate the children on these important subjects, and especially upon the effects of narcotics and stimulants and the injury that results to health and vigor from excessive indulgence in tobacco and alcohol. The medical temperance education laws have incidentally brought into our public schools a systematic study of physiology and the general laws of health. The result must inevitably be to lead to improved personal hygiene, to a steadily growing sentiment in favor of public sanitation and to the popularization of sanitary science. The speaker urged the instruction of the people, and especially the children, in regard to the cause of health and disease; how to gain the former and avoid the latter. He then called attention to the advantages to the profession and to the public of medical organization. It results in increased harmony and mutual regard among medical practitioners; in the advancement of medical practice and mutual improvement. The preparation and reading of papers has a decided educational influence. Organization leads to the elevation of the standards of medical education, to an increased influence of physicians in the community, and to an improvement in medical literature. The public health has been greatly advanced by medical organizations, through the securing of medical legislation, establishing Boards of Health, Medical Examining Boards, health instruction in schools, etc. The advancement of medical science by medical organization has led to the more intelligent and scientific control of disease; and the successful treatment of conditions that were formerly beyond the ability of the profession to relieve. The protection of the sick, in a large degree at least, from the sad effects of ignorant and unskilled treatment, has been one of the objects attained by medical organization. Dissemination of medical and physiologic information by medical organizations, among the people at large, has been of immense service in the past, and is capable of rendering even greater service. Not only has this influence been manifested in obtaining legislation for higher standards of medical education and for the protection of the public health, but it has also been repeatedly shown in advocating and accomplishing improvements in the water-supply, the supervision of dairies, the prevention of the adulteration of food, and drugs, and in many other ways. In conclusion, Ulrich appealed to all physicians to be loyal to their local medical societies and to the American Medical Association.

Drugs vs. Other Methods of Treatment.—T. W. GRAY-

SON (Pittsburg) in this paper treated of the present tendency among physicians to give more and more attention to the use of diet, electricity, massage baths, hygienic measures, ventilation, rest, and active or passive exercise in the treatment of disease, and not to depend so exclusively as formerly on drugs alone. Our books show this and we see it illustrated when we consider how in the past few decades much beside drugs has come into use in the treatment of tuberculosis, gastrointestinal diseases, malaria, rheumatism, and typhoid fever. The author did not wish to be classed among the "therapeutic nihilists," but emphasized his thought that often a certain drug may suit the case quite well, but a better remedy is found in correction of faulty habit or in the use of hygienic measures much harder for the physician to find and prescribe, and more troublesome to the patient to use, than a bottle of medicine or a few tablets.

Indicanuria Complicating Typhoid Fever.—JUDSON DALAND (Philadelphia). This article will appear in a future number of *American Medicine.*

Asthma: Its Varieties and Their Treatment.—S. S. COHEN (Philadelphia) pointed out that asthma is a symptom group, not an independent affection. Cardiac dyspnea, uremic dyspnea, cardionephritic dyspnea, pulmonary tuberculosis, with recurrent dyspnea, are not asthma. Points of differentiation were shown. Asthma has four wellmarked clinical varieties: 1. Vasomotor relaxation. 2. Spasm of bronchial muscles, and sometimes obstruction of bronchial vessels. 3. Asthma, associated with chronic bronchitis and emphysema. 4. Asthma, associated with nasopharyngeal irritation and turgescence. In each of these there are individual subvarieties. Sometimes the varieties are intermingled. Treatment must be devoted: 1. To the underlying liability. This is usually hygienic, hydrotherapeutic and the like. 2. To avoidance of exciting causes. 3. To abort paroxysms or mitigate them. The measures appropriate vary with the underlying conditions and with the patient. In vasomotor ataxics, and especially in cases associated with paroxysmal nasal turgescence, suprarenal preparations are useful locally and constitutionally, though not by stomach administration. In spasmodic cases, nitrites, nitrous oxid, chloroform and the like, are palliative. In chronic bronchitis, iodids and blisters in the intervals are useful. Various other remedial and palliative agents were enumerated, among them aspidospermin, atropin, ergot and strychnin, and the indications were set forth for their use. In cases of chronic bronchitis, in spasmodic cases, and in some cases of emphysema, inhalation of compressed air and exhalation into rarefied air were lauded, especially the latter.

The Diagnosis of Major Hysteria.—THEODORE DILLER (Pittsburg) says that the diagnosis of this condition is of the utmost importance; without it, treatment is apt to aggravate rather than to improve the condition. Among the failures to recognize it are the too limited conceptions of its manifestations; a too great insistence upon crying or laughing spells or convulsions as expressions of the affection; the failure to recognize that the symptoms may change little and persist for years, and that the disease may be thoroughly chronic; the failure to recognize the disease is not rare in men, and rather common in children; and the failure to recognize the great diagnostic value of sensory changes (hyperesthesia, analgesia, etc.) seen in the disease. The diagnosis would be more frequently made if the suspicion of the presence of disease were more frequently entertained. The suspicion must precede a definite and orderly search for the symptoms. The manner in which the patient relates his symptoms is often highly characteristic of hysteria, and should lead to the suspicion of its presence. Cloudiness, haziness, indefiniteness, and prolixity on the part of the patient constitute a highly significant characteristic of the mental state which belongs to hysteria. Often the facts that an air of drama and mystery surrounds the patient, and that he and his friends regard his case as a most baffling one to physicians, is a very significant point. A clear recognition of hysteria and a definite and positive statement to patient and friends that the disease is well understood constitutes the first step in treatment. In damage cases great injustice is done the sufferer from major hysteria by the jury who regards it as a trifling or ephemeral matter or a species of fraud.

Amnesia.—C. C. HERSMAN (Pittsburg) reported the following case: A. G., aged 40, German, born in Austria. In 1892 he left home without cause. He thought he was going to the Atlantic coast, but instead went to Cleveland. He returned in four days and wanted to start at once for his home in Austria. He was treated in a hospital for two weeks, and at his home for three or four weeks. Recovery seemed complete, after which time he followed different occupations successfully. In 1903 he left the city not knowing where he went. Does not know where he first came to himself. He left Boston for Jamaica. He was under different names which condition he thought was imperative. He felt as though he was undergoing a transformation, and that all his past was blotted out. A part of the time he thought he was dead, and could not understand himself. Much of the time is almost a blank. He returned in six months, placed himself under treatment, and again made a complete recovery.

Treatment of Skin and Glandular Diseases by the Röntgen Ray.—RUSSELL H. BOGGS (Pittsburg) says that in the treatment of many of the skin and glandular diseases the röntgen ray is an effective remedy and so far the rays have proved to be superior to the older methods. However, to be effective the rays must be applied by an experienced operator, and as much care and judgment used as when strychnin or any other poisonous drug is prescribed. The irritation caused by the röntgen ray is deeper than that produced by the stimulating drugs, and this may be the reason why a cure is effected where the other methods fail. Lupus vulgaris, epithelioma, carcinoma of the breast and glands, tuberculosis, acne, eczema and other skin diseases have been successfully treated by the röntgen ray. Many of the cases so far treated by the röntgen ray are cases which have resisted all other methods. In the treatment of carcinoma, the combination of surgery and röntgen ray offers better results than either method alone.

The Röntgen Ray and Radium Therapy.—M. K. KASSABIAN (Philadelphia) has conducted a number of experiments to ascertain the relative therapeutic value of the röntgen ray and radium by exposing one portion of the lesion to the röntgen rays and another portion of the same lesion to the radium. He is satisfied that radium did not produce any noticeable improvement so it was discarded. All cases are now under the röntgen ray treatment. Kassabian illustrated his case with photographs and lantern slides taken before, during and after treatment. He obtained most satisfactory results. The best results were obtained in epitheliomas of the eye-lids, nose, lips, etc. In carcinoma of the breast he recommended a course of röntgen ray treatment following the operation to prevent recurrence. In several cases of deep carcinoma of the stomach and intestine the life of the patient was prolonged. He has treated 20 chronic senile leg ulcers with gratifying results. Fifteen epileptics have been treated with the result of diminishing the number and severity of the attacks. The patients are still under treatment.

The Treatment of Malignant Diseases of the Breast.—C. L. LEONARD (Philadelphia) says that our knowledge of the etiology and pathology of malignant disease is very limited. The natural benignity of atrophic scirrhus is apparently explained by certain pathologic changes that show an attempt by nature to retard the progress of malignant disease. The results produced by röntgen ray treatment are practically identical with this natural process, but are more complete, showing a power over the malignant cells themselves. Conservative surgery tends toward a nonoperative treatment of hard cancers (atrophic scirrhus) and their treatment by röntgen rays. Early radical removal by surgical operation is indicated in all other primary growths and operable recurrences to be followed by early röntgen treatment. Postoperative röntgen treatment has been shown to have great value. It should be employed to supplement all operations. Immediately after operation it gives the advantage of one method supplementing another. The beneficial results of this, as with all other therapeutic measures, are proportionate to the knowledge and skill of the person employing them. These factors must be taken into consideration in judging the results of any method of treatment.

[*To be continued.*]

MEDICAL AND CHIRURGICAL FACULTY.

Semi-annual Meeting, Held at Ocean City, Md., September 9 and 10, 1904.

[Specially reported for *American Medicine.*]

[*Concluded from page 626.*]

At the evening session VIRGIL P. GIBNEY (New York) made an address, entitled **Is Not the Treatment of Congenital Clubfoot Begun too Early? A Plea for Infantile Hygiene and Feeding.** He expressed his dissatisfaction with the results of his own experience, and that of others in the results of treatment begun as early as possible after birth in cases of congenital clubfoot. He said that his own notebooks contained records of many cases in which active treatment during early infancy interfered with the development of the child, and did not yield such a degree of improvement as justified the prolonged restraint and irritating manipulations. Many of his own cases, supposed to have been cured, relapsed, and not a few patients believed to have been relieved by other surgeons, had come under the speaker's observation with deformity as great as that originally presented. Sometimes mechanical treatment brought on symptoms so severe as to cause the abandonment of treatment, and when, after an interval, treatment was resumed, the same conditions recurring, would again compel the abandonment of rigid dressings and forcible manipulation. Altogether, he was convinced that time is lost instead of saved by interference before the child is able to sustain its own weight. These views were illustrated by many case histories, and the speaker made an earnest plea for the best possible nursery hygiene and the postponement of active treatment until the age of weight-bearing.

The address was discussed by WINSLOW, BLOODGOOD, and RUHRAH, all of whom expressed gratification at the author's views.

Symposium on Nephritis.

A paper on **The Pathology of Nephritis** was read by HENRY C. HYDE.

Nephritis as a Factor in Mental Disease.—EDWARD N. BRUSH.—Nephritis might be expected to have a demonstrable influence upon the origin, progress and termination of mental disease, but the observed facts do not show any such influence. According to certain classifications of mental diseases, nephritis might appear as a cause of insanity. But a rational classification of mental diseases now in process puts an end to our former misconceptions concerning the nature and varieties of mental disease. We have lately strengthened our grasp on an idea by no means new, though lately made vital, namely, that insanity is not disease but symptom. The relations of renal disease to insanity are symptomatic. Forms of mental disease are found in relation with arteriosclerosis and renal insufficiency. For example a man may have first a period of indefinitely impaired health, merely below par. Then may follow a period of introspection and self-examination. Next he may become despondent. Mental confusion may at length excite the attention of friends and in this condition he may be brought to the hospital for mental disease. At hospital such a patient is anxious, perhaps suspicious, but he is not depressed as a case of advanced melancholia, and he has not systematized delusions as in paranoia. Mental confusion is the leading symptom and such a patient may die in hospital of chronic interstitial nephritis. Alienists and the assistance of general practitioners in studying the early symptoms of mental disease, and nothing can be more important for those who have started in the obscure and often long route toward insanity than to be in the care of physicians who can recognize danger signals promptly upon their appearance. In patients having depression, hypochondria, mild suspicion, slight mental confusion, careful study of nutrition and of the excretions may enable one to avert disaster.

The Eye Complications of Nephritis.—The retinitis associated with kidney disease is not uncommon and is by far the most important of the eye complications. The time of onset is most irregular. Sometimes albuminuric retinitis is the first symptom noted. In other cases it may be one of the latest symptoms. For instance a policeman aged about 30 believing himself in perfect health except that his vision was slightly impaired was found to have the characteristic retinitis of Bright's disease, and died 14 months later. Here failing vision was the very first sign of which a man was made aware that he was sick. In another instance a young married woman after suffering intense headaches for two and a half years, during which time she had one severe illness, developed an albuminuric retinitis and died of Bright's disease 11 months later. It is rare that a nephritic lives two years after nephritis appears. The knowledge that kidney disease is often accompanied by eye disease is widespread among the people, and it is quite common after an examination of the eyes to be asked: "Are my kidneys all right?" It is also quite common for ophthalmologists to urge general practitioners to familiarize themselves and to keep familiar with the use of the ophthalmoscope, but after having a great deal of such advice myself, and seen some general practitioners try to become proficient in ophthalmoscopic examinations, I believe it is extremely difficult if not impossible without daily practice to have any practical skill in the examination of the eye grounds. The albuminuric retinitis of pregnancy is most important. It is always grave, and often of fatal significance. On the appearance of marked retinitis in a woman pregnant six months or less, interference is always demanded. Later than six months one may sometimes temporize, but the danger to vision and to life should be kept constantly in mind.

The Nephritis of Infectious Diseases in Children.—JEFFRIES BUCK. Nephritis in childhood is very rarely caused by exposure to cold. Toxic nephritis of one sort or another is the nephritis of childhood. Nephritis seldom follows variola, measles, rubella or whoopingcough. It sometimes follows influenza, chickenpox, dysentery, and summer diarrhea. It is common after diphtheria and scarlet fever. The onset of nephritis in cases of diphtheria may be so masked by the primary disease that it may be overlooked. There is no extensive edema as in scarlatinal nephritis and the complication is less grave than in cases of scarlet fever. The use of antitoxin is the best prophylactic against nephritis as against the other complications of diphtheria. The nephritis of scarlet fever is a very important disease. Some epidemics are characterized by complications; nephritis in as many as 70% of cases. In other epidemics no more than 5% of cases may have nephritis. The occurrence of nephritis is not dependent upon the severity of the scarlet fever attack, but is as apt to follow very mild as very severe cases. Sometimes the origin of a case of nephritis may be explained by looking for signs of recent desquamation, for the attack of scarlet fever may have been so mild as to escape notice. Sudden rise of temperature in a child convalescent from scarlet fever should always raise the suspicion of nephritis. Nausea and vomiting are early symptoms of scarlatinal nephritis. In severe cases complete anuria may occur. If it persist for 48 hours it is usually fatal. The edema and general anasarca of scarlatinal nephritis are characteristic. Abdominal and pleural effusions are not uncommon. Authorities differ as to the prognosis, but it is certain that grave cases should not be given up. Those symptoms, which are of such fatal significance in the nephritis of adults, such as total anuria, uremia, and convulsions, are borne much better by children.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

DUST DISEASE.

BY

ROBERT KINGMAN, M.D.,

of New York City.

To the Editor of American Medicine:—In connection with your recently published article by Dr. Hessler on the subject of dust disease, a most admirable and suggestive review of conditions frequently presenting themselves to the physician in our modern cities, with their dust-laden streets and house-ridden populations, I desire to record an experience of my own which I had already ascribed to the direct agency of dust. Some 10 years ago I began keeping a medical scrapbook for the filing away of miscellaneous articles; the book used for this purpose was an old ledger of the year 1863, which since that date had been stored for various periods in several dusty attics and cellars. My practice was to collect as they came to hand a number of articles suitable for preservation, and then on some leisure day to spend a number of hours in inserting and indexing the same. These periods were at intervals of several months, and sometimes of several years. From 12 to 24 hours after such work I invariably experienced a train of symptoms as described under the respiratory and gastric types of Dr. Hessler. They were at first set down to a coincident coryza, but after a number of attacks, the direct sequence suggested to me that they could be due to nothing else than the dust inhaled while handling the ledger. The dusty, musty odor of the latter caused an immediate irritation of the nares and a bitter taste in the posterior pharyngeal wall. About 18 hours thereafter began a subacute rhinitis, with furred tongue and a biting irritation of the nasopharynx; at the same time there were anorexia, fleeting nausea, flushing of the face, and a temperature elevation of 1° or 2°, but with the sensation of considerable fever. With this were general muscular soreness, and marked depression of spirits. These symptoms obtained their fulness in the course of two to four days, and then gradually subsided during a period of six to eight days more. After several attacks had been thus experienced, I learned to anticipate another after each handling of the book, and was never disappointed, until finally I exposed the book to the sunlight for some time, after thoroughly beating it out and wiping the covers, binding, etc., with a mercuric bichlorid solution, since which time it has been handled with impunity and without a single succeeding attack.

The modern house, with its curtains, rugs, carpets, and draperies for catching the dust, and its brooms and dusters for effectually stirring up and distributing it, affords numerous opportunities for watching the direct causation and course of dust disease to an intelligent and observant person, be he physician or layman.

In accord with the facts stated by Dr. Hessler regarding the occurrence of these disorders in countrymen on visiting centers of population, I might also add that some two years ago while with a railroad survey party in Northwest Territory, Canada, I was informed by some of the men that they never slept in a town house without a similar disorder resulting. These men had been accustomed for years to sleep in the open or under tents in the pure air of the Pacific Coast mountains and prairies to the east of that region. Under such conditions they never had what they termed a "cold," but occasionally when it was necessary for them to sleep in a building while passing through a town or village, they invariably came down with a cold which rendered them miserable for the succeeding week or two, and they had learned to dread the experience of house sleeping accordingly. Two men with whom I was associated had just spent the winter under canvas in a temperature varying from 30° to 50° below zero, and with continued good health. Fresh from this experience, they spent one night with myself in an attic of a hotel in Regina, Assiniboia. The next day we left for camp on the prairie, and both developed an attack of dust coryza or respiratory dust disease. This they affirmed to have been their constant experience after one or two days of town life.

ORIGINAL ARTICLES

THE HISTORICAL RELATIONS OF MEDICINE AND SURGERY.[1]

BY

T. CLIFFORD ALLBUTT, M.D., D.Sc., LL.D., F.R.S., ETC.

Regius Professor of Physic, University of Cambridge, England.

It was, I think, in the year 1864, when I was a novice in the honorary staff of the Leeds General Infirmary, that the unsurgical division of us was summoned in great solemnity to discuss a method of administration of drugs by means of a needle. This method having obtained some vogue, it behoved those who practised "pure" medicine to decide whether this operation were consistent with the traditions of purity. For my part, I answered that the method had come up early, if not originally, in St. George's Hospital, and in the hands of a house physician, Dr. C. Hunter; that I had accustomed myself already to the practice, and proposed to continue it; moreover, that I had recently come from the classes of Professor Trousseau, who, when his cases demanded such treatment, did not hesitate himself to perform paracentesis of the pleura, or even incision of this sac or of the pericardium. As for lack not of will, but of skill and nerve, I did not intend myself to perform even minor operations, my heresy, as one traitorous in thought only, was indulgently ignored; and we were set free to manipulate the drug needle, if we felt disposed to this humble service. About this time certain Fellows of the London College of Physicians, concerned with the diseases of women, had been making little operations about the uterus, and meeting with but slight rebuke, they rode on the tide of science and circumstance, encroaching farther and farther, until they were discovered in the act of laparotomy; and, rather in defiance than by conversion of the prevailing sentiment within those walls, they went on doing it.

Meanwhile the surgeons, emboldened by great events in their mystery, wrought much evil to the "pure" physicians; accusing them with asperity of dawdling with cases of ileus and the like until the opportunity of efficient treatment had passed away: nay, audacious murmurs were heard that such "abdominal cases" should be admitted into surgical wards from the first. Then, by dexterous cures growing bolder and bolder, the surgeons went so far as to make a like demand for cases of tuberculous peritonitis, of empyema, and even of cerebral tumour. As thus the surgeons laid hands on organ after organ which hitherto had been sacred to "pure" medicine, and as indeed the achievements of surgery became more and more glorious, not only the man in the street but the man of the Hospital Committee also, began to tattle about the progress of surgery and the diminution of medicine, until it was only by the natural sweetness of our tempers that the surgeon and the inner mediciner kept friends. At a dinner given, on June 30 last, to Mr. Chamberlain, in recognition of his great services to tropical medicine, this vigorous statesman said, "I have often heard that while surgery has made gigantic progress during the last generation, medical science has not advanced in equal proportion;" then, while modestly disclaiming the knowledge to "distinguish between the respective claims of these two great professions," he generously testified that "medical research assisted by surgical science has thrown a flood of light on the origin of disease, and that this at any rate is the first step to the cure of disease." Now Mr. Chamberlain is the first of English statesmen to ally himself actively with our profession; the first with imagination enough to apprehend the great part which medical science is playing in the world already, and to realise that only by medicine can vast surfaces of the earth be made habitable by white men, and those "great assets of civilisation," the officers of our colonies, be saved alive. It seems to me, then, that the present is a critical moment in the relations of medicine and surgery, especially in England, where the two branches of the art have been separated so radically as to appear to be "two professions;" a moment when it is our duty to contemplate the unity of medicine, to forecast its development as a connected whole, and to conceive a rational ideal of its means and ends. But this large and prophetic vision of medicine we cannot attain without a thoughtful study of its past.

If, as from a height, we contemplate the story of the world, not its pageants, for in their splendour our eyes are dim, but the gathering, propagation, and ordination of its forces, whence they sprang, and how they blend this way and that to build the ideas and institutions of men, we may wonder at their creative activity, or weep over the errors and the failures, the spoliation and the decay, which have marred or thwarted them; and if we contemplate not the whole, but some part of men's sowing and men's harvest, such a part as medicine, the keener is our sorrow and disappointment, or our joy and our hope, as we admire the great ends we have gained or dwell upon the loss and suffering which have darkened the way. "In the development of medicine," said Helmholtz, "there lies a great lesson on the true principles of scientific progress."

Pray do not fear, however, that to fulfil the meaning of the title of this address, I shall describe to you the history of medicine and the history of surgery, and on this double line compare and combine my researches; in the time allotted to me no such survey is possible. In the seventeenth century the handicrafts of anatomy, chemistry, and physiology so penetrated medicine that the separate influence of surgery is less easily discernible. My purpose, therefore, is to pass in review certain eminent features of the history of these departments of knowledge up to the end of the sixteenth century, and to compare them with a view to edification; your fear will be rather that I may tell my story with the unrighteousness of a man with a moral.

In his address on "Morgagni," at Rome, in 1894, Virchow said that medicine is remarkable in its unbroken development for 25 centuries; as we may say, without irreverence, from Hippocrates to Virchow himself. The great pathologist's opinion, however, seems to need severe qualification; if it be so the stream has more than once flowed long underground. The discontinuity of medicine from Egypt to Crotona and Ionia is scarcely greater than from Galen to Avicenna; during which period, in spite of a few eminent teachers in the Byzantine Empire, it sank, in the West at any rate, into a sterile and superstitious routine.

Classical medicine, the medicine of the fifth century, B.C., is represented for us by the great monument of the scriptures collected under the name of the foremost teacher of the age, Hippocrates; in genius perhaps the greatest physician of all past time. The treatises of the Canon may be divided into medicine, surgery, and obstetrics. The medical treatises, when read in an historical spirit, command our reverent admiration. Written at a time when an inductive physiology was out of reach, we are impressed nevertheless by their broad, rational, and almost scientific spirit. Medicine, even when not dominated by contemporary philosophy, has always taken its colour from it; and the working physiology of Hippocrates was that humoral doctrine, originally derived from Egypt and the East, which, as enlarged by Galen, ruled over medicine till recent times. Hippocrates, while distinguishing between the methods of outward and inward maladies (*φανερὰ καὶ ἄδηλα νοσήματα*), taught that even for the inner, by careful sight and touch, laborious inspection of excretions, and so forth, many facts are accessible to methodical investigation; yet, as in inner diseases the field for inference is more spacious, the data even of direct observation fell the more readily into the scheme of the four humours, and by this doctrine were so coloured that, although observed with a rare clinical insight, they were set in the frame of a fictitious pathology.

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[1] Delivered at the International Congress of Arts and Science, Universal Exposition, St. Louis, September 23, 1904.

How was it then that the speculative side of the medicine of Hippocrates embarrassed him so little? Because the clinical method of the school was soundly based upon the outward maladies, where direct induction was practicable. No sooner indeed does an inward affection—an empyema for example—work outwards than the mastery of Hippocrates becomes manifest. What we separate as surgery, surgery which, from Guy to Paré, by clerks, faculties and humanists was despised as vile, and from Paré to Hunter as illiberal, was in the age of Hippocrates, as in all critical epochs of medicine since that age, its saviour.

If then our admiration of the inner medicine of Hippocrates, great as it is, is a relative admiration, an admiration of the historical sense, of his outer medicine our admiration is instant and unqualified. Little as the fifth century knew of inward anatomy, as compared with Alexandria about two centuries later, yet the marvelous eye and touch of the Greek physician had made an anatomy of palpable parts—a clinical anatomy —sufficient to establish a medicine of these parts of the body of which our own generation would not be ashamed.

In respect of fractures and luxations of the forearm, M. Pétrequin pronounces Hippocrates more complete than Boyer; in respect of congenital luxations richer than Dupuytren. Malgaigne again admires his comparison of the effects of unreduced luxations on the bones, muscles, and functions of the limb in adults, in young children, and before birth, as a wonderful piece of clinics. In Littré's judgment, the work of Hippocrates on the joints is a work for all time. On wounds Littré pronounces that the Hippocratic books must be pondered with deep attention; for they are founded on a wide experience, minute and profound observation, and an enlightened and infinitely cautious judgment. Permit me to call your attention, however, to certain of his counsels: That a wound be let bleed, in order to prevent inflammatory consequences; that if in fresh wounds healing by first intention may take place, suppuration or coction is the usual, and in less recent and in contused wounds the normal course; also that wounds should be treated with linseed and other poultices: counsels which, as we shall see presently, were to be as hotly contested in the thirteenth and fourteenth centuries as in the nineteenth. From amputation of the larger limbs he flinched, as did most if not all responsible surgeons down to Paré; for inner anatomy was ill-known, and ligature, even in wounds, made slow way, indeed, before Celsus, seems to have been unknown. Caries was not definitely distinguished from necrosis, but a case of disease of the palate with fallen nose irresistibly suggests syphilis. Of eye diseases we find much of interest; of obstetrical practice I must be content to say that it had reached a high standard; and to state once for all that when surgery flourishes obstetrics flourish.

It is by comparison of one part of the Hippocratic Canon with another that we learn how a strong grasp of inner medicine was attained by way of intense devotion to its inductive or surgical side. And this not by a mere empiricism; for it may have been from Hippocrates that Aristotle learned how by empiricism (ἐμπειρία) we perceive a certain remedy to be good for this person or for that—for Socrates, let us say, or for Callias—when he has a certain fever; but that by reason we discern the characteristic common to all these particular persons, wherein they react alike. In his "Book of Precepts" Hippocrates tells us that τριβὴ μετὰ λόγου is the basis of all medical knowledge. Now τριβὴ is primarily a grinding or rubbing; so the student must rub and grind at nature, using his reason at the same time; but his reason must be a perceptive and interpretative not a productive faculty, for he who lends himself to plausible ratiocination (λογισμῷ πιθανῷ προςέχων) will find himself ere long in a blind alley; and those who have pursued this course have done no enduring service to medicine. How soundly, for the time, this lesson was learned we see in the theoretical appreciation of these several faculties in the first chapter of Aristotle's *Metaphysics* and in the Sixth Book of the *Ethics*, where the senses, it is urged, cannot really be separated from the mind, for the senses and the mind contribute each an element to every knowledge. I am disposed to suggest that this method of observation, experience, and judgment was established first in medicine, because medicine is both practical and imperative; and, as Aristotle points out, concerned with the individual patient: to our art, then, may belong the honour of the application of positive methods to other sciences.

The chief lesson of the Hippocratic period for us is that, in practice as in honour, medicine and surgery were then one; the Greek physician had no more scruple in using his hands in the service of his brains than had Pheidias or Archimedes; and it was by this cooperation in the fifth century that the advance was achieved, which in our eyes is marvelous. As we pursue the history of medicine in later times we shall see the error, the blindness and the vanity of physicians who neglected and despised a noble handicraft. The clear eyes of the ancient Greeks perceived that an art is not liberal or illiberal by its manipulations, but by its ends. As, because of its ends, the cleansing and solace of the lepers by St. Francis and Father Damian was a service of angels, so Hippocrates saw no baseness even in manipulations, which obtained for his followers the name of *coprophagi;* where there is no overcoming there is no victory.

Between Hippocrates and Galen, an interval of some five centuries, flourished the great anatomical and medical schools of Alexandria. Our only important source, however, for the medicine of the Alexandrian period is Celsus, who lived in the reign of Augustus. In Celsus we find that the surgical and obstetrical sides of it had made farther and substantial progress. Celsus, perhaps not himself a practitioner, is sometimes vague in detail; still, beyond the Hippocratic surgery, we read of treatment in piles, fistula, rodent ulcer, eczema, fractures, and luxations; the nasal passages were cauterised for ozæna; dropsies were systematically tapped; hernias were submitted to radical cure; plastic operations were undertaken, and the larger limbs were deliberately amputated, though only in extreme need, and often with fatal results by secondary hæmorrhage and otherwise.

How active surgery was from Celsus to Galen, and how honourable and progressive a part of medicine, we know from the scanty records of Archigenes of Apamea, who also practised in Rome, in the reign of Trajan. Galen calls him an acute but too subtle a physician; such of his subtleties, however, as are known to us—his distinction between primary and consequential symptoms for instance—are to his credit. He applied the ligature in amputations, and Antyllus applied the method to the cure of aneurysm, which indeed Rufus seems to have done before him. Galen tells us where he got his "Celtic linen thread" for the purpose, namely, "at a shop in the Via Sācra between the Temple of Rome and the Forum." We learn also, from Oribasius, that Antyllus practised extensive resections of bone in the limbs, and even in the upper and lower jaw.

Galen came to Rome under Marcus Aurelius. In the biological sciences this great physician stands to Harvey, as in physics Archimedes stood to Galileo and to that other great physician, William Gilbert; Galen was the first, as for many centuries he was the last, to apply the experimental method to physiology. He embraced the ancillary sciences, he opened out new routes, and he improved the old. Unhappily, his soaring genius took delight also in speculation; and it was not the breadth of his science, nor the depth of his methodical experiment, but the height of his visionary conceits which imposed upon the middle ages. Galen did not himself forget the precept of Hippocrates: To look, to touch, to hear (κᾶι ἰδεῖν, και θιγεῖν, και ἀκοῦσαι); but he did not wholly subdue himself to the πεῖρα τριβεκὴ—this toilsome conversation with troublesome facts. Galen did not make any great mark on surgery; his tracts on the eye are lost; but, so far as we know, his surgery was adopted in the main from the Alexandrians and from Soranus. However, Galen successfully resected the sternum for caries, exposing the heart; and he excised a splintered shoulder-blade: moreover, with all his bent to speculative reason, we have no hint that he fell into the medieval abyss of regarding surgery as unfit for a scholar and gentleman.

After Soranus and Galen medicine came to the evening of its second day, to the long night before the rise of the Arabian, Italian, and French surgeons of the twelfth, thirteenth, and fourteenth centuries.

In spite of the docile industry of Greek physicians of the Byzantine period, medicine gradually sank not into sterility only, but into degradation. The wholesome discipline of practical surgery had fallen off. Eastern folk, who bear heaven sent sores with fatal stoicism, shrunk from the profane hand of man; and the tradition of Galen made for a plague of drugs which were least mischievous when merely superfluous. Rhazes, Albucasis, Avicenna the Arabian Galen, had entered by the door of the East into a great scientific inheritance, and, if they did little to develop surgery, it still was with them a grave and an honourable calling; with them medicine had not yet lost her right arm. The small benefits of the Church to medicine issued in a far greater treachery. The Greek of Ireland, and of England in the time of Bede, was banished by Augustine and the Benedictine missionaries; and the medicine of Monte Cassino, itself a farrago of receipts, in the monkish hostels of the West fell lower and lower. We have reason, however, to believe that even in the cloister some fair surgery was making way, when it was finally abandoned to the "secular arm" by the Council of Tours, in A.D. 1163; and books on surgery and midwifery began to disappear from the clerical libraries. The University of Paris excluded all those who worked with their hands; so that its students of medicine had to abjure manual occupation, and to content themselves with syllogisms and inspections of urine, often indeed, without any inspection of the patient himself. From the University the Faculty of Medicine took its tone, and the Surgical Corporation of St. Come aped the Faculty. But by the expulsion of surgery from the liberal arts, and the societies of learned men, medicine herself was eviscerated; thus was made the pernicious bisection of medicine which has not yet spent its evil; the inductive foundations of the art were removed, and the clergy and the faculties, in France and England at any rate, devoted all their zeal to shoring up the superstructure. Surgery saw its revenge, its bitter revenge; but in the ruin of its temple. In the thirteenth and fourteenth centuries surgery, hated and avoided by medical faculties, scorned in clerical and feudal circles, began in the hands of lowly and unlettered men to grow from a vigorous root; while inward medicine, withdrawing itself more and more from the laboratory of nature, hardened into the shell which till the seventeenth century was but a counterfeit. The surgeons of the thirteenth, fourteenth, and fifteenth centuries, reared in humble apprenticeships, not illiterate only, but forbidden the very means of learning, lay under heavy disadvantages; yet, such is the virtue of practical experience, inductive method, and technical resource, that by them the reform of medicine was made. Towards the end of the fifteenth century, indeed, this progress had slackened; soon to be reinforced, however, by new and urgent problems, not of the schools, but of direct rough and tumble with nature. Of these new problems, of which Paré became the chief interpreter, new epidemics and the wounds of firearms were the chief.

In medicine from the twelfth to the eighteenth centuries Italy led the world; in the schools of Salerno, Naples, Bologna, Padua, was contained a strong lay and imperial tradition which gave pause to clerical ascendancy. Bologna, until the predominance of her law school, was indeed a large and plenteous mother to medicine in its full orb; but already in Salerno far seeing men had begun to dread the divorce of surgery from inner medicine. The important Salernitan treatise of the end of the twelfth century, *The Glosses of the Four Masters on the Surgery of Roger and Roland*, edited by Daremberg and de Renzi, begins with a lament on the decadence of surgery, which they attribute to two causes; namely, the division of surgery from medicine, and the neglect of anatomy. By the wisdom of Bologna and Naples, where chairs of surgery were founded, this illstarred divorce was postponed; in his University of Naples indeed Frederick the Second made it a condition that surgery should be an essential part of medicine, should occupy as long a course of study, and should be established on anatomy "without which no operator can be successful."

Roger's *Practica Chirurgiae* was written in 1180, and though of course it rests upon the traditional surgery of his day, there are not a few points of interest in the book, such as certain descriptions suggestive of syphilis. For hæmorrhage Roger used styptics, the suture, or the ligature; the ligature he learned no doubt from Paul of Egina; but Roger, like most or all qualified physicians of the period, was a "wound-surgeon" only, that is, he did not undertake the graver operations. He was in favour, as a rule, of immediate extraction of weapons from their wounds; but in these wounds, even after extraction, he encouraged suppuration by stimulating applications within and around them, and dressed them with ointments on lint. To these points, especially to the promotion of pus, and the unctuous dressings, permit me again to draw your attention; for we enter now upon a surgical controversy which, pale reflexion as it may be of the great surgical dayspring of the nineteenth century, is, historically speaking, of singular interest.

Hugh, of Lucca, says Malgaigne, is the first of the surgeons of modern Europe whom we can cite with honour. This tribute is a little strained; we may say, however, that of these honourable ancestors Hugh seems to have been a chief. I say "seems to have been;" for Hugh is even a dimmer giant than Roger or Roland. We know that he was born of honourable family about the middle of the twelfth century; that he served as surgeon in the campaigns, and was present at the siege of Damietta; but of writing he left not a line. Such vision as we have of him we owe to his loyal disciple, probably his son, the Dominican Theodoric, Bishop of Cervia, and master of Henry of Mondeville. He completed his "surgery" in 1266, but his life was almost conterminous with the thirteenth century. What was Theodoric's message? He wrote thus: "For it is not necessary, as Roger and Roland have written, as many of their disciples teach, and as all modern surgeons profess, that pus should be generated in wounds. No error can be greater than this. Such a practice is indeed to hinder nature, to prolong the disease, and to prevent the conglutination and consolidation of the wound." In principle what more did Lister say than this? Henry of Mondeville made a hard fight for the new principle, but the champions of Galenism and suppuration won all along the line; and for five following centuries poultices and grease were still to be applied to fresh wounds, and tents, plastered with irritants to promote suppuration, were still to be thrust into the recesses of them, even when there was no foreign body to be discharged. If after all this, erysipelas set in—well, says Henry, lay it at the door of St. Eligius! Hugh and Theodoric for the fresh wound rejected oil, as too slippery for union; and poultices as too moist; they washed the wound with wine, scrupulously removing every foreign particle; then they brought the edges together, forbidding wine or anything else to remain within. Dry and adhesive surfaces were their desire. Nature, they said, produces the means of union in a viscous exudation, or natural balm as it was afterwards called by Paracelsus, Paré, and Würtz. In older wounds they did their best to obtain union by cleansing, desiccation, and refreshing of the edges. Upon the outer surface they laid only lint steeped in wine. Powders they regarded as too desiccating, for powder shuts in decomposing matters; wine, after washing, purifying, and drying the raw surfaces, evaporates. The quick, shrewd, and rational observation, and the independent spirit of Theodoric, I would gladly illustrate farther did time permit; in passing, I may say that he was the first to notice salivation as the result of administration of mercury in "skin diseases."

Both for his own merits, and as the master of Lanfranc, William Salicet was eminent among the great Italian physicians of the latter half of the thirteenth century. Distinguished in surgery, both as practitioner and author, he was also one of the protestants of the period against the division of the craft from inner medicine; a division which he justly regarded as a withdrawal of medicine from intimacy with nature. Like Lanfranc and all the great surgeons of the Italian tradition, and unlike Franco and Paré, he had the advantage of the liberal university education of Italy; but, like Paré and Würtz, he had also large practical experience in camp, hospital, and prison. His Surgery contains many case histories. He discovered that dropsy may be due to a "durities renum"; he substituted the knife for the abuse of the cautery by the followers of the Arabs; he pursued the investigation of the causes of the failure of healing by first intention; he described the danger of wounds of the neck; he forwarded the diagnosis of suppurative disease of the hip, and he referred chancre and gangrene to "coitus cum meretrice."

The *Chirurgia Magna*, of Lanfranc of Milan and Paris, published in 1295–6, was a great work, written by a reverent but independent follower of Salicet. He distinguished between venous and arterial hæmorrhage, and generally used styptics; white of egg, aloes and rabbit's fur was a popular styptic in elder surgery, though in severe cases ligature was used. Learned man as he was, Lanfranc saw the more clearly the danger of separating surgery from medicine. "Good God!" he exclaims, "why this abandoning of operations by physicians to lay persons, disdaining surgery, as I perceive, because they do not know how to operate . . . an abuse which has reached such a point that the vulgar begin to think the same man cannot know medicine and surgery. . . . I say, however, that no man can be a good physician who has no knowledge of operative surgery; a knowledge of both branches is essential" (*Chirurgia Magna*).

Henry of Mondeville, of whom we hear first in 1301, as surgeon to Phillip the Fair, was for the most part a loyal disciple of Lanfranc, and, aided as it would seem by Jean Pitard, also surgeon to the King, attempted for wounds to introduce the new methods of Hugh and Theodoric; for his pains he exposed himself to bad language, threats and perils; and "had it not been for Truth and Charles of Valois," to far worse things. So he warns the young and poor surgeon not to plough the sand; but to prefer complaisance to truth, and ease to new ideas. I may summarise, briefly, the teaching of Henry on the cardinal features of the new method: Wash the wound scrupulously from all foreign matter; use no probes, no tents—except under special circumstances; no oily nor irritant applications; avoid the formation of pus, which is not a stage of healing, but a complication; do not, as Galen teaches, allow the wound to bleed, with the notion of preventing inflammation, for you will only weaken the patient's vitality (virtus), give him two diseases instead of one, and foster secondary hæmorrhage; distinguish between oozing hæmorrhage, hæmorrhage by jets, and that which pumps out of an inward wound, using for the first, styptics, and for the two last the cautery, or, where practicable, digital compression for not less than a full hour; when your dressings have been carefully made, do not interfere with them for some days; keep the air out, for a wound left in contact with the air suppurates; however, should pain and heat arise, open and wash out again, or even a poultice may be necessary, but do not pull your dressings about—nature works better alone; if first intention fail, she may succeed in the second, as a jeweler, if he can solder gold to gold does so, if not, he has to take to borax; these resources, however, we learn well, not by arguing, but by operating. By the new method you will have no stinks, shorter convalescence, and clean, thin scars. In wounds of the neck he says that alterations of the voice suggest implications of the larynx. When using the word Nature, he freely admits that the word is an equivocal one, but he would speak of her allegorically as a luteplayer to whose melodies the physician has to dance. Again he says: "Every simple wound will heal without any notable quantity of pus, if treated on Theodoric's and my instructions. Avoid every cause of formation of pus, such as irritating applications, exposure to air, high diet, œdema, local plethora. Many more surgeons know how to cause suppuration than how to heal a wound." Now let me remind you that, until Hugh of Lucca, the universal doctrine was that suppuration or coction is necessary; and that if it does not set in, it must be provoked.

The greatest of the French surgeons before Paré was Guy of Chauliac, who flourished in the second half of the fourteenth century. He studied in letters and medicine at Toulouse and Montpellier; in anatomy at Bologna. The surgeon, ignorant of anatomy, he says, "carves the human body as a blind man carves wood." The Arabs and Paris said: Why dissect if you trust Galen? but the Italian physicians insisted on verification. Guy was called to Avignon by Clement VI. During the plague of 1348 he stayed to minister to the victims, and did not himself escape an attack, in which he was ill for six weeks. His description of this epidemic is terrible in its naked simplicity. He gave succour also in the visitation of 1360.

His "Chirurgia Magna" I have studied carefully, and do not wonder that Fallopius compared the author to Hippocrates, and that John Freind calls him the prince of surgeons. The work is rich, aphoristic, orderly and precise. Guy was a more adventurous surgeon than Lanfranc; as was Franco, a later Provençal, than Paré. He did not cut for stone, but he operated for radical cure of hernia, and for cataract; operations till his time left wholly to the wayfaring specialists. In Guy the critical spirit was awake. He scorns the physicians of his day "who followed each other like cranes, whether for fear or love he would not say." In respect of principles, however, Guy was not infallible. Too sedulous a disciple of Galen, he was as a deaf adder to the new message of Hugh, Theodoric, and Henry; and not only was he deaf himself, but, as the authoritative master of the early renascence, he closed the ears of his brethren and successors, even to the day of Lister.

This vigorous life which surgery gave to the medicine of the thirteenth and fourteenth centuries, was stifled in the West by the pride and bigotry which, culminating in the Council of Tours, had thrust surgery down into the ranks of illiterate barbers, reckless specialists, and adventurous charlatans. In Italy, however, the genius and bent of the people for art as well as for philosophy, and the ascendancy of the secular element in the universities, still kept surgery in its place as "the scientific arm of medicine."[1] Thus in Italy of the fifteenth century surgery did not droop as it did in the West; if it slumbered for a spell, it soon awoke again, refreshed in the new Hellenism. Pietro di Argelata (d. 1423), Doctor of Arts and Medicine, and professor of Bologna, wrote an excellent "Surgery" full of personal observation; and, perhaps for the first time, was frank about his own mistakes. Bertipaglia, another great Paduan professor, flourished a little after Argelata, but was a man of less originality. Argelata followed the lead of Henry and Guy in some bolder adventure in operative work as distinguished from mere wound-surgery; and was himself a learned and skilful practitioner.

In the midst of the mainly Arabist professors of medicine of the fifteenth century arose Benivieni, the forerunner of Morgagni, and one of the greatest physicians of the late Middle Ages. This distinguished man, who was born in 1448 and died in 1502, was not a professor but a Doctor of Medicine, a man of culture and an eminent practitioner in Florence. Although born in the new platonism, he was, like Mondeville, one of those fresh and independent observers who surrender to no authority, to Arab nor Greek. Yet for us Benivieni's fame is far more than all this; for he was the founder of the craft of pathological anatomy. So far as I know, he was the first to make the custom, and to declare the need of necropsy to reveal what he called not exactly "the secret causes," but the hidden causes of diseases. Before Vesalius, Eustachius, or Fallopius were born, deliberately and clear-sightedly he opened the bodies of the dead as keenly as any pathologist in the more spacious times of Morgagni, Haller or Senac, or of Hunter, Baillie and Bright. Among his pathological reports are morbus coxæ (two cases), biliary calculus (two cases), abscess of the mesentery, thrombosis of the mesenteric vessels, stenosis of the intestine, "polypus" of the heart, scirrhus of the pylorus, ruptured bowel (two cases). He gives a good description of senile gangrene. Thus necropsy was first brought into practice to supplement the autopsy which the surgeon had long practised in the living subject.

It would be unjust to forget that in the latter half of the fifteenth century Paris admitted some reforms; celibacy for physicians was abolished, and with it diminished the allurements of prebends and rectories, and the pernicious practice of the "médecins reclus" who did not visit patients nor even see them, but received visits from ambassadors who brought gifts and vessels of urine, and carried back answers far more presumptuous than the wellknown counsel of Falstaff's physician. Still not only was reform in Paris very grudging, but it was capriciously favoured and thwarted by the French court. The faculty denied to St. Come "esoteric" teaching, diagnosis and the use of medical therapeutics; a jealousy which ended in the physician being requested to do little more than write the prescription. Aristotle was quoted as unfavorable to the 'vulgarising of science.' Joubert was attacked for editing Guy in the vernacular. Fortunately the surgeons were carried into the field of battle, a far better school than the Paris Faculty.

Thus it was that in the opening of that great century in the history of the human mind, the sixteenth century, we find Italian medicine still in the van, until the birth of the great French surgeons, Franco and Paré, and of Gersdorff and Würtz in Germany.

Franco, like Paré, was no clerk; he came of a class lower even than that of Paré and the barbers, the wayfaring class of bonesetters, oculists, plastic operators, and cutters for stone and hernia; "runagates," as Gale calls them. Thus dangerous visceral operations, and those on the eye, which but too often were swiftly disastrous, fell into the hands of wandering and irresponsible craftsmen, men of low origin, and too often ignorant, reckless, and rapacious. As the truss was a very clumsy instrument, at any rate till the end of the seventeenth century, the radical cure of hernia was in great demand. It is not the least of the merits of Franco that he brought these operations within the lines of responsible surgery, and thrust them into the ken of Paré and Fabricius. This illustrious Provençal surgeon—"*ce beau génie chirurgical*," as Malgaigne calls him, in declining the task of entering upon so full a life—was born about 1503. He began as an apprentice to an operating barber and hernia specialist. He had no more "education" than Paré or Würtz, and he was spared the misfortune of a speculative intellect. He picked up some anatomy, educated himself by observation, experience, and manipulation, and as a simple operator or "Master," won considerable renown. As upright and modest as Paré, though he never attained Paré's high social position, he submitted to call in the physician, and took his quiet revenge in the remark that the physicians did not know enough to distinguish good surgery from bad. Nicaise says roundly, "No surgeon made such discoveries as Franco; for hernia, stone, and cataract he did much more than Paré." Whether from incapacity or the brutality of habit, during the Middle Ages and down even to the middle of the seventeenth century, it had been the custom in operating for hernia to sacrifice one or even both testicles, an abuse against which Franco took successful precautions, for he proved that the canal could be closed and the ring sutured without castration. In irreducible inguinal hernia he distinguishes between opening and not opening the sac, and describes adhesions of sac and intestine. From him, indeed, dates the rational operation for strangulated hernia, and in strangulated scrotal hernia he founded the method. Paré, and after him Petit, condemned the ablation of the testicle, which procedure, however, many surgeons thought quite good enough for priests; and Paré gives credit to Franco for these advances, though Fabricius does not even mention them. On the interesting subject of plastic operations, which attained a remarkable vogue in the Middle Ages, and were but restored by Tagliacozzi, I have not now time to speak.

The very eminence of Ambroise Paré encourages if it does not command me to be content with a few words of commemoration. Himself of humble origin, he won for surgery in France a social place and respect it had never attained before. Born in 1517, he became a barber's apprentice in the Hotel Dieu, whence he followed the campaign of Francis I against Charles V. As he could not write a Latin treatise, his admission to St. Come was of course opposed by the Faculty; but Paré stoutly declared that the vernacular tongue was essential to the progress of medicine. Riolan the elder, who had taken part in the opposition, wrote a tract on the other side, in 1577, with the following insolent title: *Ad impudentiam quorundam Chirurgorum qui medicis aequari et chirurgiam publicè profitere volunt pro dignitate veteri medicinae apologia philosophica.* Now at this time Paré was 60 years of age and surgeon to the King. If in comparison with Paré, Haeser treats Franco somewhat slightingly, and if in some respects Paré may not be lifted far above some of his great Italian contemporaries, such as Maggi, Carpi, or Botallo, yet taken all around the founder of modern surgery surely surpasses all the physicians of his time as an independent, original and inventive genius, and as a gentle, masterly and true man. Yet I am often surprised to see, even today, the invention of ligature of arteries attributed to Paré, whose surprise, if our journals have an astral shape, must be greater still, seeing that he himself refers the ligature to Galen. The attribution is of course a legend. Malgaigne discreetly claims no more for Paré than the application of the ligature from wound-surgery to amputations; but in my opinion even this claim goes beyond the truth of history. Celsus speaks of the ligature as an ordinary method in wounds; from Oribasius we learn that Archigenes of Apamea even tied vessels in amputation, after fixing a tight band at the root of the limb. It seems probable that, unless performed with modern nicety secondary hæmorrhage must have been frequent; indeed in 1773 Petit deliberately discarded the ligature, as Franco and Fabricius had done before him. Military surgeons considered even Paré's "ligature en masse" too delicate a method for the battle-field. It is a more intelligent service to this great man to point out that the ligature and other operative details were no singular devices, but orderly steps in a large reform of method in amputation, a reform made imperative by the ravages of firearms, ravages which could not be covered up with galenisms.

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[1] A phrase which Sir John Burdon Sanderson once used in my hearing.

It is the privilege of the historian to make light of time and space; and it is not easy to leave Paré and his times without some reflection upon the great German surgeons, Brunschwig, Gersdorff and Würtz, who, like him, were concerned with the effects of firearms. In Italy in the sixteenth century surgery was somewhat on the wane, but in Germany Würtz, in the freshness and originality of his mind and in his freedom from scholastic convention, reminds us of Paré.

Paracelsus (born 1491) was a surgeon and no inconsiderable one. Had this extraordinary man been endowed with a little patience he would have been a leader in wound surgery, though, like Würtz, he was not an operator. He pointed out not only the abuse of the suture by the surgeons of the day, but also that suppuration is bad healing, for, if left to herself, nature heals wounds by a natural balm, a phrase which Paré adopted. In his *Grosse Wündarznei* he says he began at the surgical because it is the most certain part of medicine, and time after time he rebukes those who withdraw medicine from surgery. Brunschwig was indeed the first surgeon to write upon the surgery of gunshot wounds with any fulness or precision. He held however, as Vigo after him, that a gunshot wound was a poisoned wound; and, to eliminate the poison by free suppuration, used the medicated tents, or in case of thorough penetration, the setons which were to arouse the angry antagonism of Würtz.

Felix Würtz, like Franco and Paré, had also the good fortune to escape a scholastic education; he was lucky enough, however, to enjoy the liberal education of Gesner's friendship, and to listen to the fiery disputes of Paracelsus. Gifted with an independent and penetrating mind, he is as fresh and racy as Henry of Mondeville had genius enough to be in spite of the schools. Like all his compatriots, he wrote in the vernacular; and for its originality and conciseness, Würtz's *Practica*, published in 1563, stands in a very small company. Had he known as much anatomy as Paré, his defect in which he bewails, he might have been as great a man, for his clinical advances were both new and important. He protests against the kind of examinations for practice held in some cities where candidates patter off cut and dried phrases like parrots, while apprentices "play upon the old fiddle the old tune continually." By setting his face against cataplasms and grease, he made for progress, though neither he nor Paré attacked suppuration in principle as Theodoric and Henry had done. His chief title to fame, a fame far less ripe of course than that of Sydenham, but, as it seems to me, not unworthy to be remembered beside it, lies in his clinical acumen, and especially in his conception of wound infections and their results. His description of diphtheria is especially remarkable.

While surgeons from generation to generation were making the solid progress I have indicated, what were the physicians about? Now, of the fantastic conceits they were spinning, of the gross and blundering receipts with which they stuffed their books, I have not time to speak; fortunately, history has but too well prepared you to dispense with this side of the story. One example I will give you: In the sixteenth century the air was rent by the clamour of physicians contending in two camps with such ardour and with such acrimony that the Pope, and even Charles the Fifth, interfered—and on what momentous principle? Whether, in such a disease as pleuropneumonia, venesection was to be practised on the same side as the disease or on the opposite side? Brissot, who questioned the Galenical tradition in this matter, was declared by the Emperor to be a worse heretic than Luther. Unfortunately for Imperial medicine, if indifferently for science and the public weal, it came out, on the recovery of the text of Hippocrates, that Brissot had happened to be on the side of the father of medicine.

England, if by England we mean no more than the Isles of Britain, makes no great show in medieval or renascence surgery. Arderne was probably a far better surgeon than Gilbert or John of Gaddesden; but he is little more than a name. Nor does it do to peruse Thomas Gale (1507–1586?) after Mondeville, Guy, Paré, Würtz, or Maggi. In the "Wounds Made by Gonneshot," the third part of his surgery, lies Gale's merit, that he also withstood "the gross error of Jerome Brunswicke and John of Vigo, that they make the wound venomous."

With the sixteenth century my survey must end; from this time medicine entered upon a new life, upon a new surgery founded on a new anatomy and on a new physiology of the circulation of the blood and lymph. These sciences, thus renewed, not only served surgery directly, but by the pervading influence of the new accuracy of observation, and the enlargement of the field of induction, also indirectly modified the traditional medicine of physicians unversed in methods of research, as we observe in the objective clinical medicine of Sydenham. Our physiologists tell us that destruction is easy, construction difficult; but in the history of medical dogma this truth finds little illustration. So impatient is the speculative intellect of the yoke of inductive research, so tenacious is it of its castles in the air, that no sooner did Harvey, by revealing the mechanics of the circulation, sap the doctrines of the schools, than some physicians instantly set to work to run up the scheme of iatro-physics; others to build a system of iatro-chemics, but upon Von Helmont rather than on Willis and Mayow; while Hoffmann and his school resuscitated the *strictum* and *laxum* syllogisms of the Greek Methodists.

In this sketch of the past, a sketch necessarily indiscriminate but not, I trust, indiscreet, we have seen that up to the time of Avicenna, medicine was one and undivided; that surgery was regarded truly, not as a department of disease, but as an alternative treatment of any disease which the physician could reach with his hands; that the cleavage of medicine, not by some natural and essential divisions, but by arbitrary paltering to false pride and conceit, let the blood run out of both its moieties; that certain diseases thus cut adrift, being nourished only on the wind, dried into mummy or wasted in an atrophy, and that such was medicine; while the diseases which were on the side of the roots, if they lost something of their upper sap, were fed from below, and that such was surgery.

Thus the physicians who were cut off from the life-giving earth, being filled with husks and dust, became themselves stark and fantastic. Broadly speaking, until the seventeenth century pathology was a factitious schedule, and medicine a farrago of receipts, most of them nauseous, many of them filthy; most of them directly mischievous, all of them indirectly mischievous as tokens of a false conception of therapy. A few domestic simples, such as the laxatives, are indispensable; for the rest we are tempted to surmise that mankind might have been happier and better if Dioscorides had been strangled in his cradle.

This is the truth I have tried to get home to you: That in the truncation of medicine the physician lost not only nor chiefly a potent means of treatment; he lost thereby the inductive method; he lost touch with things; he deprived his brains of the cooperation of the subtlest machine in the world—the human hand, a machine which does far more than manufacture, which returns its benefits on the maker with usury, blessing both him that takes and him that gives.

Pure thought, for its own sake, especially in early life, when the temptation to it is strong and experience small, seems so disinterested, so aloof from temptation of gain, that in the history of ideas, speculation and the construction of speculative systems have played but too great a part, and have occupied but too many minds of eminent capacity. We must assume then that they have served—and for aught we know may still serve—some good end. It seems hardly likely that age after age men would busy themselves to build up these vast constructions in idle exercise. That nature is wasteful we know but too well; yet she is wasteful by the way, not in the main direction of her work. If some of her seed falls on stony ground, if her rain falls on the just and on the unjust, yet the sowing and the rain are in the main fruitful and delightful. Peradventure, in our modern conviction of the efficiency of the inductive method we may be too ready to denounce other methods which, hard as it may be for us to conceive, may yet play some lasting part in evolution. Even in our own day we may become too analytical; on our good side we may be too exclusive. In the pale hue even of inductive analysis may we not get sick, lose resolution in too much deliberation, overlook the concrete, and forget that if by any mode of generalisation we lose hold of individuals in types, and of things in the negations and eliminations of abstraction we may fall ourselves into the very error of the "school-authors." If the search for entities was false, may there not be a sort of imposition in "laws?" When in the last analysis we attain to unresolved residua may we not err in giving even to a true residuum too solid a name? Whether it be the summation of phenomena or a vision of the imagination, an abstraction is an abstraction, and abstractions carry us a long way from deeds and things.

In the minds of academical teachers the notion still survives that the theoretical or university form and the practical or technical form of a profession or trade may not only be regarded separately, and taught in some distinction, which may be true, but in independence of each other; nay, that the intrusion of the technical quality by materialising, degrades the purity or liberality of the theoretical; that indeed if he had not to get his daily bread the high-minded student may do well to let the shop severely alone. Thus the university is prone to make of education thought without hands; the technical school, hands without thought; each fighting shy of the other. But if in a liberal training the sciences must be taught whereby the crafts are interpreted, economised, and developed, no less do the crafts, by finding ever new problems and tests for the sciences, inseminate and inform the sciences, as in our day physics are fertilised by the fine craft of such men as Helmholtz, Cornu and Stokes; and biology by that of Virchow, Pasteur, and Lister. At the commemoration of Stokes in Westminster Abbey, Lord Kelvin honoured in him the "combination of technical skill with intuition;" and Lord Rayleigh admired in him "the reciprocity of accurate workmanship and instinctive genius;" appreciations no less true of these two distinguished speakers themselves. If it be true, as I have been told, that the University of Birmingham has a coal mine upon the premises, I am ready to believe that the craft of coal getting, by carrying practice into thought, will fortify the web of theory.

There exists no doubt the contrary danger of reducing education to the narrow ideas and stationary habits of the mere artisan. By stereotyped methods the shopmaster who does not see beyond his nose, may cramp the prentice, and this prentice becomes shopmaster in his turn. If in the feudal times, and times like them in this respect, manual craft was despised, and the whole reason of man was driven into the attenuated spray of abstract ingenuity, in other times or parts of society a heavy plod of manual habit so thickened "the nimble spirits in the arteries" that man was little better than a beaver: on the one side matter, gross and blockish; on the other, speculation vacuous of all touch of nature. We need the elevation, the breadth, the imagination which universities create and foster; but in universities we need also bridges in every parish between the provinces of craft and thought. Our purpose must be to obtain the blend of craft and thought, which on the one hand delivers us from a creeping empiricism, on the other, from exorbitant ratiocinations. That for the progress and advantage of knowledge the polar activities of sense and thought should find a fair balance, is set forth judicially enough in modern philosophy, and is eminent in great examples of mankind. Moreover, it is apprehended in the reciprocal tensions of faith and works, of hypothesis and experience, of science and craft. In our controversies on theory and practice, on universities and technical schools, on grammar and apprenticeship, we see their opposite stresses. The unison is far from being, as too often we suppose, one merely of wind and helm, it is one rather of wind and wing; it consists not in a mere obedience of hand to mind, but in some mutual implication, or generative conjugation of them. How these two forms of impulse should live in each other, we see in the Fine Arts—in the swift confederacy of hand and mind in Dürer, Michael Angelo, Rembrandt, Velasquez, Watteau, Reynolds. The infinite delicacy of educated senses is almost more incredible than the compass of imagination. When they unite in creation no shadow is too fleeting, no line too exquisite for their common engagement and mutual reinforcement. Michael Angelo and Leonardo da Vinci, the greatest craftsmen perhaps the world has seen, were as skilful to invent a water engine, to anatomise a plant, or to make a stonecutter's saw, as to build the dome of St. Peter above the clouds of Christendom.

Solve the problem as hereafter we may, now we can take heed at least that energy shall not accumulate about one pole or the other. Our little children have a message to us if we would but hearken to them. Every moment they are translating action into thought and thought into action. Eye, ear, and hand are incessantly on the watch and in pursuit, gathering incessantly for the mind the forms of thought which as rapidly issue again in new activities. If, as we mature, we gain the power of restraint, it is not that we shall cease to act, that the mind shall depose the hand, but that these variables shall issue in a richer and richer function. If we forget the hands, that cunning loom which wove our minds, if thrusting them into our pockets, we turn our eyes inwards, will our minds still truly grow? That by virtue of the apposable thumb, monkey became man is no metaphor; in its measure it is sober truth. For the last millennium too much thinking has been the bane of our profession; we have actually made it a point of honour to ignore the hands out of which we were fashioned, and in this false honour to forget that the end of life is action, and that only by action is action bred. While we profess to admire Bernard Palissy or Jean Goujon, the medieval mason or the medieval goldsmith, we act nevertheless as if fine arts only are honourable, and mechanical arts servile; whereby we blind ourselves to the common laws of growth, which, knowing not these distinctions, deal out barrenness to those who make them. We begin even with our children to wean them from the life of imaginative eyes and of thoughtful fingers; and, instead of teaching them to rise from simple crafts to practical crafts, to scientific crafts, or to lovely crafts, and thus to pursue the mean of nature herself, we teach them the insolence that, except in sports, the mind should drop the acquaintance of the fingers.

Shall we wonder then that in this generation bold men call English people stupid; all stupid save those few men of genius or rich talent who, like Gilbert, Harvey, or Darwin, were great enough to be true to eye and hand, and to breed great conceptions by their intimate coition with the mind? Shall we wonder then that medicine fell into sterility when by most unnatural bonds surgery, her scientific arm, was tied behind her, and her sight was turned inwards from processes to formulas? Shall we wonder that even in the eighteenth century, when medicine had begun tardily to occupy itself in the crafts of pathology and chemistry, one visionary after another, striding in long procession athwart the barren wilderness of physic, wasted his generation in squeamish evasion of the things that happen, and in vain pursuit of vacuous unities! Yet, if to the high stomachs of our forefathers surgical dabblings were common and unclean, still there remained some eyes curious enough and some fingers dexterous enough to carry the art back to the skill of Hippocrates, and forward to the skill of Lister; but it was by the mouths of barbers and cutters, rather than of the pharisees of the colleges, that medicine breathed her lowly message to her children.

RELATIONS OF LARYNGOLOGY, RHINOLOGY, AND OTOLOGY WITH OTHER ARTS AND SCIENCES.[1]

BY

SIR FELIX SEMON, C.V.O., M.D., F.R.C.P.,

Physician Extraordinary to his Majesty the King.

Mr. President, Ladies and Gentlemen:—When Professor Newcomb's extremely flattering invitation reached me to deliver an address before the Section of Laryngology and Otology of the Congress of Sciences and Arts held in connection with this wonderful Exhibition, my first feeling was naturally one of sincere gratitude for the great honour done to me. This feeling was enhanced by the information contained in Professor Newcomb's letter that the invitation was extended on the nomination of a number of American representatives of medicine, whose names are household words on the other side of the Atlantic. I am deeply sensible, believe me, of the exceptional distinction thus conferred upon me, and my pleasure in accepting it is only marred by the consideration that I cannot pretend to be an aurist, and that the otological part of my task would no doubt have been infinitely better fulfilled by many European representatives of that branch. I dutifully mentioned this fact to the organizers of the Congress, but it was not considered an insurmountable obstacle to my undertaking the pleasant duty conferred upon me. Needless to say, I will do my best to do justice to the otological part of my address as well, but it will be intelligible to my hearers, and will, I trust, be pardoned by them that the lion's share of my remarks will be devoted to subjects rather of which I can speak from personal experience, than to questions with which my work is less intimately connected.

If my first feeling on receiving your invitation was naturally and properly a sense of gratitude for the high distinction conferred upon me, this feeling was run very close by the sincere pleasure I experienced in thinking that I should have been selected to co-operate in a work so entirely sympathetic to me as is this great undertaking. It was stated in Professor Newcomb's invitation that the object of this Congress was "to discuss and set forth the uniformity and mutual relationship of the sciences, and to thereby overcome the lack of harmony and relation in the scattered special sciences of our day."

I do not know whether I was selected as having upheld throughout my scientific career this leading idea, but I can say without fear of contradiction—and in proof thereof I may point to my literary work—that I have consciously and intentionally striven, wherever opportunity offered itself to me, to maintain the principle which animates the organizers of this Congress.

I should not be a specialist if I did not firmly believe in the necessity of specialism in medicine. The immortal aphorism, "Life is short, art is long, technique is difficult," applies today with even greater force than when it was uttered two thousand years ago by the Father of Medicine. Whilst the span of life has since his time remained very much what it was then, his art has been, and is, making giant strides. Economical considerations stand in the way of indiscriminately prolonging the time of medical study, and more and more work has to be compressed within the span of the few years which serve to prepare the future medico for his professional life. No wonder, then, that it has become extremely difficult, nay, almost impossible, to equip our students so thoroughly that they can enter practical life with full knowledge of their craft in every branch of medical thought and work. Even the few, who, endowed with good health and strength, with exceptional abilities, and with equally exceptional industry, succeed, during their students' career in mastering all the details of current medicine will, with very rare exceptions, find it practically impossible, when once they have plunged into practice, to keep abreast of the rapid progress which is the signature of the times in which we live.

Under these circumstances division of labour has become a logical and unavoidable necessity. The old line of demarkation between internal medicine and surgery, to which, at a somewhat later period, gynaecology and midwifery were added as independent branches, no longer suffices to carry on investigation and practice within their formerly strictly defined limits. Gradually one recognized specialty has developed after another, partly owing to the necessities of special training in a certain technique, partly because only men trained in that technique could promote further investigations.

The International Medical Congresses bear testimony to this unavoidable development of contemporaneous medicine. Their organizers desire nothing more than to limit the number of the Sections of the Congress, yet time after time is it found indispensable to create new sections. Thus, whereas at the International Medical Congress of Brussels in 1875, eight Sections sufficed to carry on the work, which was truly representative of the state of scientific medicine at that time, that number had been more than doubled twenty-five years later, when no less than seventeen Sections had to be formed at the International Medical Congress of Paris of 1900! Seeing the unexpected rise of so many branches formerly undreamt of within the memory of our own generation, he would be a bold man indeed who would dare to assert that the limit had been reached of further specialization of our science.

This progressive division of labor—the outcome, not of individual caprice, but of stern necessity—has certainly resulted, within the last fifty years, in greater progress of medical knowledge and power than has taken place at probably any corresponding period in the history of medicine. If we middle-aged men remember what medicine was when we entered upon our studies and see what it is today, and if we further reflect how much of all the progress achieved meanwhile is due to the labours of specialists, we have every reason I think to be grateful to the division of labour which has brought forth such splendid fruit.

But while this must be readily and ungrudgingly acknowledged, it cannot be denied that, as in almost every movement of a similar character, thus in this development of modern medicine there is one great and real danger, namely, the peril of over-specialization. Well do I remember, when I first selected a specialist's career, how incensed I was at the reproach then currently leveled at specialism, namely, that it engendered narrow-mindedness, and how ill-founded and unjust that reproach seemed to be to me. With longer experience and riper judgment I have learned that the danger of narrow-mindedness, accruing from too exclusive a devotion to specialism, is more than a mere phantom. Whether by natural turn of mind, or by want of steady connection with broader aspects of pathology, there is no gainsaying that the enthusiastic specialist is apt to see a local trouble everywhere, and to overlook disturbances of general health and other organs which in reality require the chief attention. The tendency which has become particularly marked during the last decade, namely, to confine research and discussion in special subjects to special societies and special journals, has materially increased that danger, the reality of which was foreseen nearly twenty years ago by my great teacher, Virchow, when in the address he gave at the jubilee meeting of the Berlin Medical Society on October 28, 1885, he spoke the memorable words, to which I have more than once referred, and which in verbatim translation are as follows:

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Amongst us has arisen the large army of specialists, and it would be useless, or at any rate fruitless, to oppose this development; but I think I ought to say here, and I hope to be sure of the consent of *you all* when I say it, that no specialty can flourish which separates itself completely from the general body of science; that no specialty can develop usefully and beneficially if it does not ever and ever again drink from the general fount, and if it does not remain in relationship with other specialties, so that we all help one another, and thereby preserve for science, at any rate, even if it should not be necessary for practice, that unity on which our position rests intrinsically, and, I may well say also, with regard to the outer world.

Under these circumstances it was certainly a happy thought to remind us again of the unity of Sciences and Arts, and to try thereby to overcome the lack of harmony and connection between the scattered special sciences of our day.

And I look upon it as a particularly characteristic sign of the times, and as a hopeful augury for the future, that the reminder should have come from the scientists of a country so eminently progressive as the United States of North America. If they, who are untrammelled by many of the traditions, formalities, and prejudices which so severely handicap us on the other side of the Atlantic, have found that it is high time to raise a warning word against the ever-increasing disruption of the unity of Science, surely this ought to make those pause who, with a light heart, consider every further step on the road to socalled "independence" as a practical gain to specialism. If today, by placing before you in rapid succession the intimate links which connect us with other arts and sciences I should succeed in convincing some of the more ardent protagonists of such independence, that laryngology, rhinology, and otology can only flourish and healthily progress by never for a moment losing sight of their close relationship with other often enough apparently remote branches of human thought, I conceive that I shall have contributed my mite towards the excellent object of this great Congress.

It is not a mere figure of speech when I say that the more I advanced in the preparation of this address the more did I become impressed with the magnitude of my task, and with the intimacy of unexpected or hardly-thought-of connections between laryngology, otology, and rhinology and other sciences and arts. These specialties have developed so much along characteristically independent lines that theoretically one might be inclined to think that they had comparatively little in common with other branches of medicine, let alone other sciences and arts.

Nothing could be better calculated to destroy such mischievous belief than the results of my inquiry. At every step during the preparation of this paper has it become clearer to me how much we owe to apparently remote lines of human thought, how much we have been and are benefitted in our special work by progress made in other distant fields, and how much more good we may expect to accrue to us from the advances achieved in territories of human thought, which a few years ago even the most fantastic visionary could not have brought into useful combination with our own occupation.

It will be my endeavor in this address to justify the foregoing statements by rapidly surveying the intimate connection of laryngology, rhinology, and otology—in addition to their relations with other branches of medicine—with physics, chemistry, mathematics, philosophy, history, biology, technology, and music, and I only regret that within the limit of time allotted to me it will be quite impossible to do full justice to my task.

I. Physics.

(*a*) *Light*.—Let us first take physics. The connections of that science with laryngology, rhinology, and otology are as manifold as they are interesting and important. The branches of medical science named have it in common that they deal with the investigation of the physiology and pathology of deep-seated cavities. Hence the question of their illumination for purposes of examination is of the greatest importance, and thus the chapter of physics dealing with the properties of light is a subject of immediate and pressing interest to us all. This applies with particular force to laryngology. Although of late, through the work of Kirstein, direct inspection of the larynx by means of depressing the tongue with suitable spatulas has been rendered feasible, this method of examination is only applicable in a certain fraction of cases, an examination of the larynx is still carried out universally by means of reflecting mirrors. The very foundation of laryngoscopy, as ordinarily practiced, depends upon the principle of physiological optics; that when rays of light fall upon a reflecting surface placed in a certain inclination towards the source of light, the angle of reflection is equal to the angle of incidence. Thus, if a small mirror be held at an angle of 45 degrees to the horizon just below the uvula, whilst a powerful beam of light is thrown horizontally into the throat of the person examined, the part just underneath the mirror, that is, the larynx, becomes illuminated by reflected light, and its image is in turn thrown back upon the mirror, and hence reflected into the eye of the observer, which is parallel with the rays thrown upon the reflecting surfaces. Exactly the same principle applies if, instead of the larynx, the naso-pharyngeal cavity has to be examined, and the law of physiological optics just described is as all-important for posterior rhinoscopy as it is for laryngoscopy. But in order to obtain a really good image of either the larynx, or of the naso-pharyngeal cavity it is necessary that the light, which is thrown upon the reflecting mirror, should be a powerful one. Hence every progress, which is made in concentrating and intensifying the light used for illumination for these parts is of the greatest interest for my branch of science. It sounds nowadays almost like a myth, that the progress of laryngology in its infancy should have been retarded for almost half a year, and that Professor Türck, of Vienna, who first utilized Manuel Garcia's epoch-making discovery of the laryngoscope for the investigation of pathological processes in the larynx, should have given up his studies for the time, because the winter of 1857 in Vienna was a very dark one, and because sufficient light for illumination of the larynx could not be obtained from the direct rays of the sun. Yet such was actually the case, and it was only, as Morell Mackenzie has tersely stated, through Professor Czermak's substituting artificial light for the uncertain rays of the sun, and using the large ophthalmoscopic mirror of Reute for concentrating the luminous rays that the initial difficulties were overcome. Thus already at this early stage, lenses, another achievement of physiological optics, were employed to help our young science. Ever since, every improvement in the way of light has been a subject of the keenest interest for laryngology and rhinology. What progress have we made from the *Schusterkugel*—a large glass globe filled with water, originally employed by Türck and Stoerk—until we have been actually enabled to introduce a small electric lamp into the cavities of the body themselves to illuminate them properly for purposes of diagnosis and operation, or to throw light into the œsophagus or the bronchial tubes, or to transilluminate the face for diagnostic purposes, as, for instance for the diagnosis of disease of the maxillary antra, or the frontal sinuses!

The employment of gas, recently followed by its new incandescent modification; the introduction of hydro-oxygen light, and, above all, that wonderful source of light now in general use, the electric, have formed so many steps in the way of improving our powers in laryngology and rhinology. Quite recently the invention of the Nernst lamp has proved a great boon to us, enabling those who had been accustomed to the, if excellent, rather cumbersome use of hydro-oxygen light, to get illumination almost equally good at infinitely less trouble.

As if this had not been progress enough within the comparatively short span of a quarter of a century Professor Roentgen's great discovery of the penetrating power of the ultra-violet rays, which now go by his name, has, at its very inception, been most happily utilized for the purposes of laryngology. When the extraordinary properties of the X-rays were made known I expressed a hope that by their help it might become possible to distinguish, owing to their different density, between benign and malignant growths. Although this has, unfortunately, not been realized so far, yet the medical attainments of these rays are surely wonderful. They enable us to discover the presence of metallic foreign bodies in the larynx, the lower air passages, the nose and its accessory cavities. When it is doubtful whether paralysis of a vocal cord is due to the presence of an aneurysm, or of a solid new growth in the chest pressing upon the pneumogastric or recurrent laryngeal nerves, the X-Rays again come to our aid and help us to make a differential diagnosis. A further very ingenious application of the Roentgen rays has been made by Dr. Spiess, of Frankfort-am-Main, who has suggested that the delicate and by no means dangerless probing of the frontal sinus may be controlled and thereby rendered innocuous if during the act of introducing the probe the picture of the patient's head be thrown on the screen, the operator being thus enabled to see whether the instrument is really on the right way into the frontal sinus.

Who will be bold enough to say that with such discoveries the resources of physics have been exhausted, and that possibly at some near future some other even more powerful source of light may not be introduced? Those who are unwise enough to believe in the finality of scientific progress need simply be reminded of the possibilities quite recently introduced through the discovery of radium with its as yet imperfectly-known properties.

Before leaving the subject of light I must refer to some other methods in which that branch of physics has been rendered useful to our specialties.

The Microscope.—The first of these is the use of the microscope. On this point I need say but little. The enormous value of the microscope in medicine is so universally recognized that it would mean carrying coals to Newcastle if I were to enlarge upon it. Our specialties have been benefitted as much in the understanding of the finer processes of normal and pathological anatomy of the throat, nose and ear, as any other branch of our mother science. It suffices to mention the help which the microscope gives us in the differential diagnosis between benign and malignant growths, in the recognition of tuberculous and diphtheric affections, in the differentiation of septic disease in general, to show the truth of my statement.

Stroboscopy.—Another, though much more restricted application of light for the use of laryngology, is stroboscopy. By an ingenious modification of the stroboscope, consisting of two rotary discs, the one perforated, whilst on the other figures are drawn, which are inspected through the perforation of the first disc, the late Professor Oertel has succeeded in constructing an apparatus by means of which the oscillation of the vocal cords can be accurately observed. Very interesting observations on the action of the vocal cords during singing have been made with the aid of this apparatus, as an example of which I may only mention that, according to Oertel, "the sounds of the chest register are produced by oscillation of the vocal cords in their entire length and breadth, whilst the sounds of the falsetto register are caused by the longitudinal division of the surfaces of the vocal cords into aliquot parts, nodules being at the same time formed on them."

Photography.—A further method to be mentioned in this connection is photography. I need not say that photographic reproduction of preparations illustrating the normal and pathological anatomy of the ear, the nose, and the throat is no exclusive property of laryngology, rhinology, or otology, but a special interest connects the former of these sciences with photography, inasmuch as by the aid of this method a number of most interesting observations have been made on the physiology of the larynx during the act of singing. The method has proved particularly useful in showing the absurdity of the preconceived ideas of some teachers of singing as to the extent of the individual registers. It has fully corroborated the views held by those most competent to speak as to the enormous variety in producing the singing voice, even in persons whose voices belong to one and the same category. The pioneer in this fascinating territory has been an American, my friend Dr. French, of Brooklyn, and to his enthusiasm and perseverance have been due the first reliable results of this most promising method of physiological investigation. Further studies in this direction have been made by Dr. Musehold and Professor E. Meyer, of Berlin. The last named gentleman has just, in co-operation with the celebrated mechanician, Zeiss, of Jena, constructed a very ingenious apparatus for demonstrating and photographing the larynx; but having seen the photographs obtained by its use, I am bound to say that the work done by Dr. French has not been so far surpassed.

Stereoscopy.—Finally, in connection with light, I must not omit to mention the ingenious application of stereoscopy for purposes of medical teaching made by my friend, Dr. Watson Williams, of Clifton, in the wonderful atlas which accompanies the second edition of his work on "Diseases of the Upper Respiratory Tract." It being often extremely difficult to obtain, for teaching purposes, really illustrative preparations of the accessory cavities of the nose, the employment of the principal of stereoscopy in order to substitute photographs, the plasticity of which truly rivals life, may fairly be described as a triumph in utilizing for our special purposes the achievement of an apparently very remote science.

The mention of electricity, the X-Rays, and radium, naturally brings to our minds the fact that the chapter on light is of interest to laryngologists and rhinologists, not from the point of view of the question of illumination alone. We are privileged to live in a time when the great healing powers of light have been discovered and are utilized in a class of cases in which there is much need for addition to our therapeutic armoury. The light of the sun, the electric light, the ultra-violet rays, and the emanations of radium are nowadays utilized with much success for the treatment of lupus, of rodent ulcer, and of some of the more superficial forms of malignant disease; and it may fairly be hoped that further progress may be made in the treatment of these cruel affections, even when they occur in parts not easily accessible to the effects of the various rays.

(*b*) *Sound.*—Whilst the chapter of physics dealing with light and its powers is, as I have just endeavored to show, of the very highest importance for laryngology and rhinology, the chapter on sound holds an equally high position with regard to otology. I need not elaborate that a science which is prominently concerned in dealing with the troubles of hearing is inseparably connected with the physics of sound. Thus the tuning fork is one of the most indispensable weapons of the aurist, and the question whether the sounds caused by its vibrations are more easily perceived by aerial or by bone conduction is of the highest diagnostic importance in a large number of ear affections. In the same category may be mentioned Galton's whistle for the testing of the hearing of high notes. Again, the question of the capacity for the perception of tune; the difference in perception according to whether the mouth is closed or open; interference phenomena; the estimation of the hearing capacity for speech; the audibility of different sounds; the differential diagnosis between affections of the sound conducting and sound-perceiving apparatus—are all questions intimately connected with the physics of sound, and it might be said without exaggeration that otology without constant close relationship with physics is an impossibility.

The Phonograph.—Speaking of sound, the phonograph, an invention due to American genius, must not be forgotten, although its possibilities in connection with our triad are still in their infancy. I may remind my hearers that very shortly after its introduction Dr. Mount Bleyer, of New York; Dr. Lichtwitz, of Bordeaux, and I, independently of one another, conceived the idea of utilizing its recording powers for the purposes of instruction. One does not always have a case of whoopingcough at hand if one lectures on that disease, and although it be easy and true enough to say that the peculiar cough connected with that disease was so characteristic that any one who had ever heard it, would never forget it, it is not so easy to practically demonstrate in what the characteristics of which one speaks consist. Here the phonograph comes to one's aid; let the child afflicted with that disagreeable affection cough a few times into the apparatus, and turn it on, when you have to lecture on whoopingcough, and have no illustrative case near. The whoop will come out true enough!

It need not be said that the investigation of different forms of cough and hoarseness is only one of the modes in which the discriminating powers of the recording mechanism of the phonograph could be utilized. Attempts have already been made by Dupont to investigate with its help modifications of speech in different forms of delirium, paralysis, multiple sclerosis, etc. More recently Flatau, of Berlin, has studied the various forms of vocal disturbances by means of Edison's phonograph, and has also utilized it for investigation of the finer mechanism of the singing voice. With further perfection of the apparatus it may justly be hoped that yet more valuable results may be obtained than those so far achieved, although even now they are anything but a negligible quantity.

The Sensitive Flame.—Finally, in this connection, it should be mentioned that König's sensitive flame has been utilized for the registration of sound waves produced by the human voice. The apparatus consists of a rapidly rotating cube, the four lateral sides of which are formed by mirrors, and of a membrane in the side of a gas chamber, connected with which is a small sensitive gas flame. If a note be sung on to the membrane the flame bobs up and down, and the waves seen on the mirrors are not simply up-and-down ones, but the primary large waves are complicated by smaller ones on their surface. The richer the voice the more numerous are the overtones of the harmonics represented on the reflecting sides of the rotary cube. (Halliburton.)

(*c*) *Electricity.*—The enormous progress of the science of electricity made within our generation has had the most useful effects upon the diagnostic and therapeutic powers of laryngology, rhinology, and otology. In fact, there are probably few collateral sciences in which our specialty is so keenly interested, and the progress of which so greatly benefits us, as electricity in all its different forms. It has already been stated that the illuminating power of the electric light is being utilized not only for ordinary, but also for transillumination of the cavities of the head and neck, and for the inspection of the lower air and food tubes. The constant and faradic currents are of the greatest help to us, both in diagnosis and in treatment. By means of the reaction of degenerations we are enabled to decide whether paralysis occurring in the mouth, the pharynx, or the larynx is of central or of peripheral origin. By employing both forms of current we succeed in many cases in curing paralytic disorders, more particularly when they are of functional character.

Again, electricity in the form of the galvano-cautery is of practically daily use in the hands of the laryngologist and rhinologist. It has superseded the employment of most other forms of caustics, and few laryngologists nowadays would care to be without it.

Yet another form of employment of electric force, namely, electrolysis, is highly extolled by some adherents who utilize it for the treatment of such troublesome affections as ozæna, naso-pharyngeal fibromata, reduction of irregularities of the nasal septum, etc. It must, however, be confessed that this method has never met with general adoption by the bulk of laryngologists.

Finally, in recent times the motor power of electricity has been largely used, and I do not think anywhere more than in the United States, as the driving force of such instruments as trephines, saws, drills, particularly in nasal surgery, and electro-motor masseurs in aural therapeutics. If the method has not yet met with general acceptance in Europe it is, I think, more from want of acquaintance with it than from any other cause, and I feel confident that the more general the domestic use of electricity will become, the greater role will the electro-motor play in our instrumentarium.

Even as it is now, however, the rapid sketch I have just drawn will suffice, I trust, to show the enormous importance of this branch of physics for our special field of research.

II. CHEMISTRY.

Whilst it cannot be said that chemistry, apart from its general relations with medicine, is so closely connected in its various branches with laryngology, rhinology, and otology as physics are, yet there are points enough of very great and immediate importance which link these two sciences together.

In the first place, synthetic chemistry gains every day in importance for us by enriching us with new and important pharmaceutical preparations. Need I remind you of orthoform, anæsthesine, adrenalin, iodoform, sozoiodol, peroxide of hydrogen—to mention a few only of the large number of new remedies which form, so to say, our present stock-in-trade, and for the introduction of which we are indebted to synthetic chemistry? Every day increases our power of doing good, due to the progress made in this collateral science, and we are therefore accustomed to constantly watch nowadays for further help in our therapeutical powers from that source.

Sceptics, it is true, may say with some show of reason that we had lately had and were still having a little too much of a good thing in the shape of new remedies, but I the more gladly leave that undecided, as chemistry comes to our aid not only with regard to therapeutics but also to diagnosis. It is mostly by means of the different chemical reactions of cerebro-spinal fluid, and of the ordinary serous secretion met with in vasomotor affections of the nose that we can differentiate between these two affections.

Finally, although this may perhaps be called "music of the future," I myself look forward to the day when further progress in physiological chemistry will enable us to recognize subtle differences in the composition of nerves and muscles. Should that hope be realized, physiological chemistry will perhaps enable us to solve that great problem, which for the last 25 years has occupied the minds of so many of us—namely, the cause of the greater proclivity of the abductor fibres of the recurrent laryngeal nerve, and, the muscles which they supply, to succumb sooner than the adductors, or even exclusively in cases of organic disease of the roots and trunks of the motor laryngeal nerves.

III. MATHEMATICS, INCLUDING STATISTICS.

Occasionally the resources of mathematics have to be laid under contribution by our specialities. Thus, for instance, it was necessary when I studied some years ago the position of the vocal cords in quiet respiration in man, to correct, when using graduated laryngeal mirrors, the considerable difference between the actual and the apparent length of the distance measured. This difference could be accurately expressed by a mathematical formula.

Similarly, in a recent paper on the aerodynamics of the respiratory passages, Dr. Gevers, of Leuven, measures mathematically the permeability of the nasal chambers. On the whole, however, it must be confessed that the connection between pure mathematics, and laryngology, otology, and rhinology is only a distant one.

But matters become very different if we look upon the science of statistics as a method of applied mathematics, and consider its employment in our literary work under the present heading.

More and more frequently of late years has the statistical method not merely been laid under contribution, but been allowed to have a decisive vote in questions of the greatest importance for laryngology, otology, and rhinology. It may, therefore, not be out of place to express on this occasion a devout hope that those who employ this method for the decision of controversial points in our own science, should make themselves first acquainted with the general principles of the method itself. The non-observance of this precaution has led in more than one instance, not only to fallacious scientific conclusions, but to deplorable practical results.

I will illustrate this by one example only.

In no chapter within the territory of our own specialties has the statistical method of late years been more frequently used than in that of cancer of the larynx. As a matter of fact, the usefulness or otherwise of the individual operations now practiced for the cure of that terrible disease is judged by most surgeons exclusively on the basis of statistics recording the results of various forms of operation. Unfortunately, however, a good many of those who have compiled such statistics have done so in a most empirical manner. They have simply registered under one and the same heading all operations of one and the same type ever performed without taking into consideration such indispensable distinctions as:

1. The period of our knowledge at which each of these operations was performed.
2. The individual and enormously different conditions present in each of the cases which were subjected to one and the same operation.
3. The progress of the technique of these operations as they gradually developed.

The outcome of this, as will be clear to everybody who has paid any attention to the principles of statistics, has naturally been lamentable. Most valuable forms of operation, such as thyrotomy, have been, and unfortunately still are, persistently discredited, because some compilers of these statistics will not or cannot see that a thyrotomy performed, say, in 1870, was a thing as different as heaven and earth from a thyrotomy performed in 1904 under altogether different conditions of diagnosis and technique. They accordingly put together all thyrotomies ever performed, without taking these all-important differences into consideration, and calmly proceed to register the net result. The natural outcome of such directly misleading statistics has been that the true value of thyrotomy in suitable cases has not nearly universally enough been recognized at the present moment, and those who have practiced it with excellent results in really suitable cases during the last fifteen years have even at this hour of the day to carry on an uphill fight against those who put their faith blindly in the unsatisfactory sort of statistics just described. The hope may, therefore, be justly reiterated on this occasion that every medical man who wishes to approach a medical question from the statistical point of view should make himself thoroughly acquainted with the standards of his measurements before applying the latter to the question which he intends to study.

IV. METEOROLOGY AND CLIMATOLOGY.

A few words only are requisite at the present state of our knowledge with regard to the connection between meteorology and laryngo-otology. The more we learn of the influence which climatic and meteorological conditions exercise upon certain diseases, the more necessary does it become to study these conditions in order to benefit our patients, and to avoid serious mistakes in sending them to localities which, however suitable in other affections, are not adapted for their particular case. This general rule applied to our specialties comes particularly into force with regard to laryngeal tuberculosis and to middle-ear catarrh. With regard to the former, I need simply mention that at present the opinions as to the suitability or otherwise of high altitudes in cases of laryngeal complications of pulmonary tuberculosis are extremely divided; with regard to middle-ear catarrh, one sees it frequently stated that seaside places exercise a distinctly unfavorable influence upon them. But the relation of meteorology and climatology to our branches is certainly a wider one than indicated in the foregoing illustrations, and well deserves—and will, no doubt, receive—further attention.

V. PHILOSOPHY, LOGIC, HISTORY, AND LITERATURE.

Of the connections of philosophy, logic, history, and literature with laryngology and otology I wish to say a few words jointly, because their relations to our specialties are similar in kind. They are not of that palpable and, if I may say so, tangential character, as those of physics, chemistry, and mathematics, and of the other branches of human intellectual activity to be touched upon hereafter, in that it is impossible to name individual distinct points in which their achievements touch equally distinct and individual points of specific interest for us. But although more subtle, their relations with the higher aspects of our work are no less intimate, and additionally, if I may say so, are all-pervading. The specialist who is endowed with a philosophical turn of mind will look upon his own work and upon the interests of his specialty from a much broader point of view than the man whose horizon is obscured by the limited and more or less narrow-minded doctrines of one individual school of thought. He will not be swayed by the fashionable currents of the moment, and will be consoled when he sees that not only the public but many within the ranks of his own confraternity periodically lose their heads over the latest sensational development, destined in the opinion of its creator and its disciples to bring about in our own times the millennium, by the remembrance of Ben Akiba's immortal dictum:

Alles schon dagewesen (Nothing new under the sun),

and by the reflection that in all probability in a very few years the same faithful ones will bow down and worship another golden calf. The man who has learned to think logically will not be caught, when he writes a paper, in glaring self-contradictions, and will carry, when following a chain of thoughts, that chain to its only possible conclusion. The author who does not confine his literary studies to the reading of exclusively medical productions, who has been brought up with a knowledge of all that is good in the literary productions of former as well as of our own times, and who has a warm heart for poetical and literary beauties in the literature of all nations, will make his own work attractive to readers, and will know how to give clear expression even to abstruse scientific questions. And, in conclusion, the laryngologist and otologist, who knows something of history in general and of the history of the development of his own specialty in particular, will have an infinitely higher standard of comparison of the achievements of the present day with those of our predecessors than the man for whom all that has been published ten years ago is merely "ancient history" not worth reading. Above all, he will have learned from the lessons of the past the one great truth that, however important a discovery he may imagine to have made, it behooves him to be modest in the face of what has been done before him.

It is extremely tempting to illustrate what I have just said by reference to the writings of some of our *confrères*, whose scientific productions are distinguished by literary charm, by limpidness of expression, by inexorable logic of thought and by profound knowledge of the history and literature of other subjects, but, apart from the question of the length of this address, which hangs over me like the sword of Damocles, the task, although enticing, would be somewhat invidious. Still, I hope that nobody will grudge it, if before leaving this part of my task, I refer with admiration to the work done by two American specialists, and illustrating the truth of what I have just said, namely, the excellent historical and literary researches of Dr. John Mackenzie, of Baltimore, which give quite a special *cachet* to several of his papers, and the recent magnificent medical history of laryngology and rhinology by Dr. Jonathan Wright, which, owing to a most unusual combination of all the philosophical, literary, and historical qualities of which I have spoken will, I feel sure, ever remain a classic in the literature of our specialities.

VI. TECHNOLOGY.

A few words must suffice to remind you of the great importance of every technological progress for those whose special practice lies in the treatment of throat, nose, and ear diseases. From year to year these specialties tend more and more to become branches of surgery, and the question of their surgical equipment therefore is constantly with us. Most of our instruments are no doubt invented by specialists themselves, but in not a few cases we are only able to give a leading idea to the instrument maker, and the success or otherwise of our idea depends upon the constructive talent of the latter. Nor is it rare that patients themselves devise improvements of existing instruments and apparatus. Thus, for instance, the most ingenious, and at the same time simplest, speaking apparatus which I have ever seen, used by patients condemned to wear for a time or for ever a tracheal cannula, was constructed by a watchmaker who had the misfortune of himself belonging to the class of patients in question. A glance at the innumerable "modifications" of instruments now in general use recommended in the catalogues of various instrument makers shows the intimacy and importance of our relations with technology, and I desire in conclusion of this reference only to remind you of the quiet revolution that has been going on in our tools of late years in proportion to the greatly increased importance of aseptic surgery, and in the course of which it has become the aim to have all our instruments fashioned out of metal, and to banish wood entirely.

VII. MUSIC.

Next we come to a most fascinating subject—the relation of the noble art of music to laryngo-rhino-otology. Of the intimacy of this relation there can be no possible doubt; without what is called a "musical ear" music is an impossibility altogether; without the possession of a healthy larynx, singing cannot be thought of. When I speak of a "musical ear" I mean, of course, the control exercised by the ear over the technique of executants; that music in its highest forms is completely, or at any rate nearly, independent of the power of hearing, has been shown by nothing more conclusively than by the case of deaf composers, whose "inner voice," to speak with Robert Schumann, elevated them beyond the apparently indispensable faculty of hearing. Beethoven was deaf when he wrote the Ninth Symphony, and nothing more pathetic surely can be imagined than, when his audience after its first performance rose to an indescribable pitch of enthusiasm, one of the singers had to turn the deaf Maestro round in his chair to see—what, alas, he could hear no longer—the applause with which the public of Vienna greeted this, probably the greatest musical composition of all times. But even in this exceptional case the close relationship of the art of music with the physical faculties of sound and hearing is characteristically illustrated. If the musical ear had come to the great composer's help in the final chorus, I cannot imagine that he would have written the soprano parts as he has done—too high to be reached without great effort by the voice, and not pleasing in its effect to the tympanum of the ordinary listener.

As to the connection of laryngology with singing, no more significant testimony could surely be adduced than the fact that the laryngoscope, upon which modern laryngology is based, has been the invention, not of a medical man, but of a singer, the venerable Senor Manuel Garcia, who has been spared by a merciful Providence to live in undimmed possession of all his mental and physical powers to the patriarchal age of 100, and whose 100th birthday we hope (D.V.) to celebrate in March of next year. The auspicious event will coincide, I may remark, with the jubilee of laryngology, his epoch-making paper, entitled Physiological Observations on the Human Voice, which he submitted to the Royal Society of London in 1854, having been published in the *Proceedings* of that Society (Vol. xii, No. 13) in 1855. Garcia was led to his discovery by the natural desire of an intelligent singer to supply the physiological properties of that most wonderful of all instruments, the human voice, by direct inspection of its constituent parts during the act of singing. Ever since manifold endeavors have been made to let the art of singing profit by the revelations given by the laryngoscope. Candor, however, compels me to say that those efforts have hitherto been less successful than one might naturally have expected. Pretensions have been, and are being, made as to the claim of the laryngoscope to lay down the law concerning most intricate questions arising in the production of the singing voice; but, as I have stated on a previous occasion, there exists no "superior wisdom" based upon laryngoscopic observations with regard to the teaching of singing. Now, as in bygone days, the teacher who founds his instructions upon the classical traditions of the art of singing, and who individualizes in every case entrusted to his care, will certainly be more successful than the theorist who, starting from preconceived notions, the correctness of which is anything but proven, forces the natural mechanism of his pupils' voices into his unbending formula, and thereby, in not a few instances, ruins them.

This warning is of course not intended in any way to deter both laryngologists and singing masters from joining forces in determining questions regarding the physiology of the voice, and recent work, such as that of Holbrook Curtis, Flatau, Bukofzer, and Imhofer shows how valuable the laryngologist's aid may be in assisting the task of the teacher of singing in such questions as, for example, the method of intonation—a point in which science and art very nearly touch one another. Future anatomical and physiological researches will have to solve the fascinating questions of the mutual inter-dependency of the centers and paths of audition and sound in the brain. The data at present at our disposal are not sufficient to fully understand through what kind of afferent and efferent fibers impressions are conveyed to and from these centers; how they are changed into volitional impulses, and how they produce the desired note of the voice.

For the purposes of this address the foregoing short remarks will, I trust, suffice to show that no better illustration of the mutual relationship of most various arts and sciences could be imagined than in the territory of music, and more particularly of singing. That noble art is inseparably interwoven with laryngology, otology, rhinology—for the accessory cavities of the nose are serving as resonators for the sounds produced in the larynx—anatomy, physiology, and physics.

VIII. BIOLOGY.

If we consider the relation of our branches to biology —excluding from the generic term thus used human anatomy and physiology—the same remark applies to their connection which I just used when speaking of the relation of music to our specialties; more might be expected from the future than has been achieved in the past. No doubt the study of comparative anatomy and physiology, particularly the developmental part of these sciences, has been very useful in making us understand the origin, the gradual development, and final composition of the complicated organs, with which we have to deal, and in not a few questions—more particularly in those relating to the nervous mechanism of the larynx —the lessons derived from experimental physiology have already been of the greatest importance in helping to solve the difficult problems with which we have to deal. Still, I am in no fear of contradiction when I say that a great deal more may be expected for the elucidation of many difficult questions with which we are confronted in laryngo-oto-rhinology from further biological studies.

IX. MEDICINE.

Finally—and, though last, not least—I have to discuss the relations of laryngo-oto-rhinology with other branches of our great mother science, Medicine. The subject is one so large that, to do it justice, not one, but a course of lectures would be required. At every step the specialist whose mind is open is reminded of the close connection of his limited field of achievement with other branches of medical art and science.

Anatomy, Physiology, Pathology.—He can do no good without an intimate knowledge of the anatomy of the organs entrusted to his care, and of their anatomical relations to adjoining and even more distant parts. In order to understand morbid conditions of the nose, throat, and ear, he must be thoroughly acquainted with the action of these organs in health, in other words, with their physiology. Wherever clinical observation is insufficient or at fault, he can appeal to no better helpmate than to the researches of pathological anatomy, and it may be truly stated that the conviction of this intimate association with the three sciences named is becoming more and more alive in our minds. We no longer leave the investigation of anatomical, physiological, and pathological problems pertaining to our specialties exclusively in the hands of professors of these branches; a large number of very valuable contributions towards the elucidation of such problems has been made of late years by members of our own specialties, and in not an inconsiderable number of instances the co-operation between laryngologists, rhinologists, and otologists with pure anatomists, physiologists, and pathologists has been productive of most valuable scientific results.

It suffices to mention the anatomic work of B. Fraenkel and his school, of Broeckaert, Onodi, Paul Heymann, Elsberg, Carl Seiler, Körner, Jelenffy, Killian, Politzer, Gruber, Urban Pritchard, Tilley, Logan Turner, Kanthack, Seifert, Siebenmann, Gouguenheim, and Lermoyez; the physiological researches of Schech, Grabower, H. Krause, Katzenstein, Klemperer, Fraenkel, Hooper, Bryson Delavan, Frank Donaldson, Jr., Desvernine, Réthi, Hajek, Zwaardemaker, Greville MacDonald; the pathological studies of Heinze, Grünwald, Kuttner, Seifert, Kahn, Heryng, and Butlin, and the joint work of B. Fraenkel and Gad, of Bowditch and Donaldson, of von Mering and Zuntz, of Mikulicz and Michelson, to which I hope I may add the researches undertaken by Victor Horsley and myself—to show that the above statements are not mere assertions, but based upon solid facts. On the other hand, we gratefully recognize the most important help that has come of late years to the aid of laryngological knowledge from such distinguished anatomists, physiologists, and pathologists as Luschka, Sappey, Zuckerkandl, Exner, Hermann Munk, Richard Ewald, Risien Russell, Bechterew, and others. And yet these are, I particularly wish to state, a few names only taken at random from one's recollection of those who have enormously improved our knowledge of the anatomy, physiology, and morbid histology of the throat, nose, and ear, within the last 20 years.

Bacteriology.—From pathological anatomy in general, there is but one step to the latest development of that science, bacteriology. Here again the close relationship of our specialties to this new science is evident everywhere. We learn from the bacteriological examination of the sputum in cases in which the clinical examination of the nose, pharynx, larynx, or ear, leaves it doubtful whether we have to do with tuberculosis, the true nature of the process that engages our attention; we differentiate with the help of the bacteriological examination between true diphtheria, Vincent's angina, and other forms of septic inflammations of the cavities of the mouth and throat; the employment of antitoxin enables us to deal infinitely more effectively than at any previous state of our knowledge with that scourge of humanity, diphtheria; we ascertain in those terrible, although fortunately rare cases, which I have grouped together under the name of "Acute Septic Inflammations of the Throat and Neck," the nature of the particular pathogenic micro-organism that is causing the disease in a given case, and although as yet by no means masters of the situation, we succeed in a certain number of these cases, namely, in those in which the streptococcus is producing the septic inflammation, in warding off by the employment of antistreptococcus serum the otherwise unavoidable fatal issue. As a matter of fact, an almost unlimited vista of further progress has dawned for our specialties in a number of previously most intractable affections from the rise and progress of bacteriology.

Internal Medicine.—On the connection of laryngology, rhinology, and otology with internal medicine, it is practically unnecessary to dwell. Whilst there is needless to say, a number of local diseases of these organs strictly limited to them, in another large and important number, the affection for which the aid of the specialist is sought is only part and parcel of a systematic disease, and, as I have endeavored to show on another occasion, it would seem high time that not only the public, which has rushed to the conclusion that all affections of the throat, nose, and ear ought to be treated locally, but also some enthusiastic specialists should come to understand that in such cases not so much local as constitutional treatment is indicated. There are numbers of cases of general anæmia, of periodical disturbance of the circulation, of general plethora, of nervous irritability, of gout, in which, without any actual changes existing in the throat, nose, or ear, unpleasant sensations are experienced in these parts, which can only be effectually treated by attending to the systemic conditions which underlie these local sensations. On the other hand, actual organic lesions occurring in these parts often enough are of the greatest importance for the diagnosis and proper treatment of grave general disease. To give but a few examples: paralysis of one vocal cord may for a long time be the only actual sign discoverable, with the means at present at our command, of aneurysm of the aorta, or of other mediastinal tumors, of affections in the posterior cavity of the skull, of pleuritic thickening of the apex of the right lung, or cancer of the gullet, and a host of other grave organic affections; certain laryngoscopic appearances may enable us to diagnose the existence of pulmonary tuberculosis at a time when all other signs fail; Killian's bronchoscopy, one of the most valuable modern additions to our diagnostic and therapeutic equipment permits us to remove foreign bodies from the interior of even smaller bronchial tubes—chronic obstruction of the nose undoubtedly exercises a very unfavorable influence upon the general health, a fact which is most clearly demonstrated by the surprising improvements of well-being which follow removal of adenoid vegetations in much-developed cases—a cerebral abscess is nowadays known to be much more frequently due than was suspected only a few years ago to diseases of the middle ear and mastoid process, and has become infinitely more accessible to treatment than one could venture to hope in previous times. I may further remind you of the frequency with which the throat, nose, and ear are affected in infectious diseases, such as measles, scarlet fever, smallpox, typhoid, and influenza; again of the manifestations of gout, rheumatism, and syphilis in these parts, and this list could be easily extended. The above examples, however, will suffice, I hope, to show the intimacy of the relations between our specialties and internal medicine.

Surgery.—If I just said that it was almost superfluous to insist on the intimacy of our relations with internal medicine, this certainly applies in an even higher degree to their connection with surgery, for indeed they are daily becoming more and more branches of surgery itself. I have on another occasion stated my own conviction, that it is in the nature of things when a part of the human body has been made more accessible to eye and hand by the progress of science, that the treatment of affections of that part should gradually change from the medical to the surgical side. So much has this been the case of late with regard to the development of laryngology, otology, and rhinology, that if there be any danger in its further progress it would certainly not be in the direction of under-rating, but of over-emphasizing the idea that the existence of an affection of the ear, nose, and throat must be invariably associated with the idea of surgical interference. However, this is a subject on which I have no wish to dwell again on this occasion, and I much rather recognize the brilliant progress made of late years—and, I may proudly add, mostly by specialists—in the surgical treatment of the early stages of laryngeal cancer by thyrotomy, of affections of the accessory cavities, and of deviations of the septum, of the nose, in the radical treatment of mastoid disease, and in the removal of foreign bodies from the bronchi and œsophagus. All these achievements belong to the veritable triumphs of contemporaneous surgery.

Children's Diseases.—The large proportion of children seen in the out-patients' room and at the private consultations of specialists for throat, nose, and ear affections bears eloquent testimony to the close association between diseases peculiar to childhood and affections of the auditory and upper respiratory tracts. Here, of course, in the first place, adenoid vegetations and their far-reaching influence upon general development have to be mentioned, an influence of which it may only be devoutly hoped that it should not be overstated. But there are additionally the infectious diseases of childhood, in the course of which complications on the part of the ears, the throat, and the nose play a large role. It is pleasant to note how much more attention is paid to the condition of the upper respiratory tract, and the ears of children by government and public health officers than was the case only a few years ago, and to read of the increased frequency of the examination of school children with regard to their hearing and breathing powers in different countries of the world. That is certainly the proper way to promote the health of the community.

Ophthalmology.—Whilst in this country for a number of years the specialistic treatment of affections of the throat, ear, and nose has frequently been combined in one hand, both in private practice and in hospitals, it is only comparatively recently that attention has been more prominently directed towards the close association of affections of the eyes and nose. The pioneer in this direction has undoubtedly been Dr. Ziem, of Danzig. But much has been learned regarding the importance of this connection since he published his first paper about twenty years ago. The reader who has not himself worked on this subject will be surprised to learn from the recent brilliant contribution to this question from the pen of Professor Schmiegelow, of Copenhagen, how much more has been done in this field since Ziem's first investigations were published and how much more remains to be done.

Dermatology and Syphilitic Diseases.—Here again the close connection between manifestations on the external integument and similar ones on the mucous membranes is a well-established fact. The chapter on syphilis of the throat, nose, and ear is one of the most important in our field, and the possibility of syphilis must be always kept in view in the event of our meeting with any obscure affection. On the other hand, eruptions on the mucous membranes of the pharynx, nose, and larynx not only accompany in a number of cases analogous skin affections, but may precede such external manifestations, or even remain for a long time limited to the mucous coverings. Thus lupus, herpes, pemphigus, lichen, and a host of other eruptions sometimes occur first in the parts entrusted to our care, and may baffle the specialist whose knowledge of skin diseases is limited.

Neurology and Mental Diseases.—When discussing the relations of our specialties with internal medicine I have already incidentally mentioned the significance of laryngeal paralysis for the diagnosis of some of the gravest intrathoracic diseases. It is, however, not only in connection with these, but with numerous affections of the central nervous system that laryngology is of the greatest importance for neurology. The discovery of a laryngeal paralysis may be for a long time the first sign of the existence of organic central nervous disease, and in no affection is this more clearly shown than in tabes dorsalis. Again, neuroses of the olfactory nerve not rarely accompany important intracranial affections. Thus anosmia may occur in hysteria, basilar meningitis, and locomotor ataxy, and parosmia may be met with in hysteria, epilepsy, hypochondriasis, or may precede mental disturbances of an even graver character. Affections of the inner ear and of the auditory nerve occur in many diseases of the central nervous system. Auditory hallucinations, such as the hearing of voices, may accompany, or even usher in, different forms of insanity, and symptoms of Ménière's disease probably come as often under the observation of the neurologist as of that of the aurist.

I forbear from entering upon a further enumeration of the branches of medicine with which our specialties have points of interest in common. My list is by no means exhausted, and I may, as a proof of this, remind you of the connection between them and dentistry, the point of contact being the affections of the antrum of Highmore, but in truth it may be said that there is hardly one single branch of medicine which does not occasionally come into touch with laryngological, rhinological, or otological interests.

In conclusion, I should have liked to dwell upon the relations of the three specialities to one another, a question on which I hold views of my own. But, apart from the need of keeping my own observations within the limits of the time specified, it would be out of place to introduce controversial matters into an address of this kind; and, further, I have on more than one previous occasion stated my opinions on this most important topic as clearly as I could.

And now, gentlemen, that I am at the end of my task let me say that nobody could be more painfully conscious than I am how incompletely I have fulfilled it. I had intended to bring before you a picture full of life, and on looking back I have to confess to myself that I have offered you little more than a framework, the details of which must be filled by your own knowledge and imagination. I had hoped to give you chapter and verse for every statement I have made, and I see that my paper is little more than a sort of catalogue, under the headings of which only indications but no elaborations could be given.

But, whilst unreservedly recognizing these shortcomings, I trust I may justly plead that the subject confided to me is one of such magnitude that, within the limit of time necessarily imposed upon me, it was well-nigh impossible to do full justice to it. Yet, incomplete as my exposition has been, I venture to hope that it has illustrated, by the demonstration of the intimate connection of laryngology, otology, and rhinology with human activity in so many other branches of Art and Science, the truth of Goethe's immortal dictum:

> Truly the fabric of mental fleece
> Resembles a weaver's masterpiece,
> Where a thousand threads one treadle throws,
> Where fly the shuttles hither and thither,
> Unseen the threads are knit together,
> And an infinite combination grows;

and that it has more than justified the warning words of my great teacher, Virchow, which I have quoted at the beginning of this address:

"That no specialty can flourish which separates itself completely from the general body of Science; that no specialty can develop usefully and beneficially if it does not ever and ever again drink from the general fount, if it does not remain in relationship with other specialities, so that we all help one another, and thereby preserve for Science, at any rate, even if it should not be necessary for Practice, that unity on which our position rests intrinsically, and, I may well say also, with regard to the outer world."

General Corbin and the Canteen.—General Corbin, of the regular U. S. Army, is credited with the following statement: "If it were possible by my act to absolutely stop the manufacture and use of intoxicating drinks of any kind, I would do so; if it were possible by my act to prevent the use by any person in the military service of intoxicating drinks, I would do so, but realizing that the impossible, however desirable, must give way to what is possible and practicable, I am firmly of the opinion that it would be in the interest of discipline to reestablish the canteen feature of the post exchange, recognizing that in this way the use of drink can be minimized.

THE IODIN TREATMENT OF SUPPURATION.

BY

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U. S. S. Prairie.

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In reviewing the literature written in the past few years upon the subject of suppuration, I was somewhat surprised to find the vast number of socalled antiseptics, germicides, etc., which have been brought before the medical profession for the treatment of this condition, and that comparatively little has been attempted with such a wellknown preparation as iodin.

During the past two years I have had experience with the newer preparations, and have studied them to a considerable extent to determine their relative powers. I have taken into consideration many of the preparations that have come from manufacturers and drug houses from all parts of the country, and find that most of them fall considerably below the limits of expectation.

As there are times when the annoying condition of suppuration cannot be prevented, constant endeavor is being made to find some way in which to check the onward march of the pyogenic organisms. While engaged on these lines I noticed the work done by Beck with iodin, and being dissatisfied with some of the newer preparations, I decided to use this treatment in a series of cases. The results were most encouraging.

As many of the recent preparations contain some iodin compound, it is readily shown that iodin is their foundation; many of these drugs are quite expensive, while pure iodin is relatively cheap.

In the service of a large institution many cases of infected wounds are seen, and many are remarkably resistant to treatment. In these cases I apply the iodin direct to the wound in the form of the tincture, applied by means of a small swab, made by twisting a piece of cotton around a toothpick. The power which this substance has of cleansing a wound filled with pus, the short time and the small amount required is somewhat surprising. In considering the class of cases which have come under my care, I will discuss them as follows:

1. *Scalp Wounds.*—When these cases are first seen they are usually found to be very dirty, and in many of them little hope is entertained for union by first intent. In many of these cases, physicians are in the habit of packing the wound with gauze and allowing it to granulate, or else placing a few sutures and inserting a wick drain. This seems to me a not altogether desirable method, as recovery is not very rapid and a scar is bound to result, which, if revealed to the gaze of every one, is uncomfortable to our patient. I have recently been treating this class of patients as follows: The wound is first cleansed by means of a normal saline solution, and then thoroughly dried; it is then swabbed with pure iodin and the entire wound closed. In the vast majority of the cases I have succeeded in obtaining union by first intent.

2. *Ulcers of the Leg.*—At least 100 patients have been treated by the iodin method, the ulcers varying in size from that of a dime to those which occupied the entire circumference of the leg. Many were exceedingly foul, being at times filled with pus and vermin, and in all cases one application was, as a rule, sufficient to rid the area of pus. Not only does it act as a germicide, but as a deodorant as well; it stimulates the formation of granulations to a considerable extent, and combined with rest in bed, many large ulcers have been actually healed by this method.

3. *Inguinal Adenitis.*—Many patients with extensive suppuration were treated as follows: The area was opened up thoroughly, swabbed clean by means of dry sponges, and then the iodin applied carefully to every part of the wound. Where suppuration was not too

extensive, closure of the wound with hope of union by first intention was tried, with success in many cases, and many required but one application. The iodin seems to have the same effect upon the Ducray bacillus as upon the ordinary pyogenes. Patients with inguinal adenitis, as a rule, do not care to stay in the hospital, but wish to get up and around, and in these cases it is indeed worthy of a trial. It is exceedingly gratifying to find a patient returning in a few days with a dressing that is dry or almost so, instead of the very foul cases we so frequently see in dispensary practice; the patient at the same time feeling much more comfortable.

4. *Vaginitis.*—Upon vaginal discharges, particularly those produced by the gonococci of Neisser, iodin exerts a most favorable influence. The discharge in many cases ceases after a few swabbings of the cervix. It is particularly of value in the socalled subacute stages.

Iodin has also been applied to the uterine mucosa in the early stages of puerperal sepsis, with excellent results.

In the treatment of surgical tuberculosis, iodin is one of the very few remedies of value. I have seen excellent results follow its use upon old tuberculous sinuses, following tuberculous glands of the neck. In tuberculous joint affections it does great good, but in tuberculous osteitis its use is not followed by such good results, except in that it moderates the discharge associated with this condition. Upon venereal sores, as chancres, and chancroids, it is useful, particularly does it check the serpiginous sores; also its use may be recommended for pus in the perineum following urinary extravasation.

To summarize, I would strongly advise its trial in all cases of suppuration.

THE MOLECULAR CONCENTRATION OF THE BLOOD AND OF THE URINE, IN PREGNANCY, IN THE PUERPERIUM AND IN ECLAMPSIA.

BY
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Up to the present time no one of the theories advanced as to the etiology of eclampsia has been entirely satisfactory. After reviewing the many hypotheses concerning the nature of this disease, the following seem to me to be the most important:

1. That it is due to a disorder of the nervous system peculiar to pregnancy. This conception is little entertained today, although we know that the nervous system during pregnancy, is in a less stable condition than in the nonpregnant state.

2. That it is primarily of uremic origin, *i. e.*, due to retention of urinary products in the blood. (Lever.) The advocates of this view seem to cling to it despite the wellknown facts (*a*) that there are cases of eclampsia with little or no albumin in the urine; (*b*) that the urea output may be relatively high; (*c*) that the disease is less common in individuals with a chronic nephritis.

3. That it is of bacterial origin. (Doléris.) The researches of Haegler, Döderlein, Schmorl, Williams, etc., have shown this explanation to be unsatisfactory.

4. That it is an autointoxication, due to an increased toxicity of the blood, with lessened toxicity of the urine. This might be either primarily renal (Bouchard and Rivière) or primarily hepatic (Pinard and Bouffe-de-St. Blaise). We find, however, from the more recent experiments of Volhard, Stewart and Shumacher, that the toxicity of the blood in eclampsia is practically *not* increased.

5. That spasm of the vessels of the kidneys, brain, liver, etc., plays the essential role in the causation of the disease. The convulsions are brought about by acute variations in the cerebral arterial pressure, the immediate exciting factor being uterine contractions. (Zangenmeister.) This view seems unsatisfactory, especially as Zangenmeister himself states that it will not explain all of his cases.

6. That a close relationship exists between the thyroid gland and the intoxication that leads to the development of eclampsia (Lange, Nicholson). In pregnancy there is a normal thyroid hypertrophy. When this increased functional activity fails, the development of eclampsia is probable. After partial thyroidectomy on cats general convulsions occurred during labor. They were checked (Nicholson) by the injection of fresh thyroid extract into the peritoneal cavity. This theory offers a promising field for further research.

7. That it is an autointoxication, neither primarily renal nor primarily hepatic, in which both mother and fetus play a part. (Fehling, Dienst, etc.) That this is possible has been shown by the observations of Füth and Krönig, on the freezing-points of the maternal and fetal blood. It has been demonstrated that the difference in their freezing-points is a very slight one, so that it is only natural to suppose that a free transmission of substances can take place from mother to fetus or from fetus to mother.

As the renal origin theory of eclampsia, is still, we believe, the most widely accepted one, we have had recourse to cryoscopy in order to ascertain, if possible, whether or not the kidneys are primarily responsible for this affection.

General Theory of Cryoscopy.—This depends upon the constancy of the osmotic concentration of the blood in normal renal activity and an increase in disease of the kidneys. As the concentration of the blood increases, that of the urine decreases, due to the fact that when the kidneys functionate normally all the nitrogenous molecules are excreted with the urine, when disturbed some are retained. (Rumpel.)

We note, however, that the freezing-point has been shown not to follow exactly the number of molecules of substances contained in any given solution. According to the law of d'Arrhénius, the various salts in solution are dissociated, more or less, into ions or radicals, and the freezing-point depends not upon the number of molecules, but upon the number of ions into which these molecules are dissociated when in solution.

Cryoscopy in Its Relation to our Subject.—Zangenmeister, in his exhaustive monograph on the blood of parturient women, gives the following results of his analyses with the cryoscope: (1) A lessened concentration of the blood during pregnancy; no change in the urine; (2) in the puerperium, a concentration of the blood that is still below the normal average, and yet is slightly higher than in pregnancy; the urine shows virtually no change; (3) in eclampsia, the average concentration of the blood is found to lie well within the normal limits. The urine shows a molecular concentration that is somewhat increased before the attack, slightly decreased during the attack and again increased after it. These urinary changes are largely, if not entirely, due to disturbed renal circulation. He deduces from the foregoing that the blood in eclampsia shows no uremic origin and practically no change in its molecular concentration.

Bouquet, from a few observations on eclamptic blood, states that there is a slight increase in the concentration.

Schröder found a decrease in the concentration of the blood in 74% of pregnant women and a slight increase in eclampsia.

Füth and Krönig report a virtually normal concentration of the blood in eclampsia.

Szili shows that the freezing-point of the blood in eclampsia is not abnormal, and that there is no retention of urinary constituents.

Our own experiments comprised analyses of the blood and urine (1) in pregnancy, (2) in the puerperium, (3) in eclampsia.

They were carried out by means of the Beckman apparatus. The following points in the technic were especially heeded: (1) The blood was defibrinated and analyzed within 12 hours after being drawn. (2) The blood was never drawn during a convulsion, as the increased CO_2 content at that time would modify somewhat the cryoscopic findings. (3) The freezing-point of distilled water was daily ascertained. (4) The lower reservoir of the thermometer was always completely immersed in the fluid to be tested. (5) In our later experiments, in order to shorten the time of their duration, the inoculation method was used. As most of these cases of eclampsia under discussion were brought to us in the height of the attack and with the history of a sudden onset, they may all be considered to have been on a mixed general diet up to the onset of the disease.

A.—RESULTS OF OUR ANALYSES IN THE NINTH MONTH OF PREGNANCY.

△= Freezing-point.	Gravida.	△ of blood.	△ of urine.	Amount of urine in 24 hours.	Sp. gr.	Grains of urea in 24 hours.	Albumin.	Casts.
Case 1	I	—.45	1.12	42 oz.	1020	376	0	
“ 2	I	— 53	1.24	51 oz.	1018	352	Trace.	
“ 3	III	—.56	1.36	32 oz.	1030	406	“	Hyaline.
“ 4	II	—.49	1.52	47 oz.	1026	422	“	
“ 5	I	—.52	1.48	35 oz.	1010	348	0	
“ 6	IV	—.48	1.08	41 oz	1032	390	0	
“ 7	I	—.51	1.38	26 oz.	1016	340	Trace.	Hyaline.
“ 8	I	—.57	1.64	37 oz.	1026	418	“	
“ 9	I	—.47	1.53	45 oz.	1024	424	0	
“ 10	II	—.53	1.26	29 oz.	1034	364	Trace.	
“ 11	V	—.49	1.42	52 oz.	1018	372	0	
“ 12	I	—.52	1.55	43 oz.	1020	338	Trace.	Hyaline.

From the foregoing, we see that our readings for the blood, range between —.45 and —.57, the average being —.51. With the urine, the range is between —1.08 and —1.64; the average being —1.38, *i.e.* no change from the nonpregnant state.

B—RESULTS OF OUR ANALYSES ON PUERPERAL WOMEN.

△= Freezing-point.	Gravida.	△ of blood.	△ of urine.	Amount of urine in 24 hours.	Sp. gr.	Grains of urea in 24 hours.	Albumin.	Casts.
Case 1	II	— 57	—1.52	37 oz.	1030	370	Trace.	Few hyaline.
“ 2	I	—.53	—.9	41 oz.	1026	354	“	
“ 3	I	—.48	—1.15	55 oz.	1018	382	0	
“ 4	IV	—.51	—1.33	26 oz.	1034	415	Heavy trace.	
“ 5	I	—.49	—1.12	39 oz.	1030	324	0	
“ 6	II	—.55	—.85	56 oz	1016	376	Trace.	Hyaline.
“ 7	III	—.52	—1.18	72 oz.	1018	422	“	
“ 8	I	—.50	—1.53	61 oz.	1012	310	Heavy trace.	Hyaline and granular.
“ 9	VI	—.56	—1.36	48 oz.	1024	404	0	
“ 10	II	—.55	—1.43	38 oz	1028	392	0	
“ 11	I	—.53	—1.55	34 oz.	1026	350	0	
“ 12	I	—.57	—1.39	46 oz.	1022	410	Trace.	

From these figures, we see that the readings for the blood, range between —.48 and —.57, the average being —.53; that those, for the urine, range between —.85 and —1.55; the average being —1.27. The average △ of the urine is somewhat less than in pregnancy, owing to increased diuresis, in the first few days after labor. The figure however, is still well, within the normal.

C.—RESULTS OF OUR ANALYSES IN ECLAMPSIA.

△= Freezing-point.	Gravida.	△ of blood.	△ of urine.	Amount of urine in 24 hours.	Grains of urea in 24 hours.	Sp. gr.	Albumin by boiling and centrifuging.	Casts.
Case 1	II	—.57	—2.15	32 oz.	150	1030	5%	Many varieties.
“ 2	I	— 54	—1.20	26 oz.	179	1032	Heavy trace.	
“ 3	I	—.55	—1.15	30 oz.	325	1030	5%	“
“ 4	III	—.57	—1.29	23 oz.	276	1036	2%	“
“ 5	I	—.56	—1.57	41 oz.	224	1028	Heavy trace.	“
“ 6	IV	—.58	—1.34	38 oz.	198	1034	“	“
“ 7	I	—.53	—1 42	24 oz	350	1038	“	“
“ 8	III	—.55	—1.28	20 oz.	315	1030	60%	“
“ 9	IV	—.54	—1.37	26 oz.	235	1028	12%	“
“ 10	I	—.58	—1.71	37 oz	335	1032	2%	“
“ 11	I	—.52	—1.67	48 oz	186	1026	10%	“
“ 12	I	—.53	—.82	26 oz.	175	1034	Solid.	“
“ 13	V	—.49	—1.10	31 oz.	346	1030	65%	“
“ 14	I	—.52	—.9	19 oz.	238	1040	10%	“
“ 15	II	—.58	—1.24	23 oz.	310	1036	5%	“
“ 16	IV	—.57	—1.35	35 oz.	348	1032	Heavy trace.	“
“ 17	I	—.56	—1.42	27 oz.	218	1034	75%	“
“ 18	I	—.57	—1.32	39 oz.	276	1028	75%	“
“ 19	I	—.56	—1.15	28 oz.	248	1032	25%	“

From this table, we find that, for the blood, the △ lies between —.49 and —.58, the average being —.55; that the △ of the urine lies between —.82 and —2.15, the average being —1.33. The specimens of urine, were all from the first 24 hours after admission to the hospital.

SUMMARY OF OUR EXAMINATIONS.

1. There is a marked diminution in the molecular concentration of the blood in pregnancy, the average △ being —.51.

2. There is likewise a diminution in the concentration of the blood in the puerperium, the average △ being —.53, but a rise over that of pregnancy.

3. In eclampsia, the molecular concentration of the blood is not increased, the average △ being —.55, the △ of normal blood being —.55 to —.57.

4. The urine shows no marked change in its freezing-point, either in pregnancy, the puerperium, or in eclampsia.

DEDUCTIONS.

1. From cryoscopic findings, there is *no* evidence of renal inactivity, nor of renal retention in eclampsia, *i. e.*, retention of the urinary products, ordinarily supposed to be the cause of the disease, the products in question being *crystalloidal* in type.

2. If there is renal retention, it must be a retention of either *colloidal* substances, which may come from either fetus or mother, or of crystalline substances too small in amount to affect the molecular concentration of the blood.

3. Inasmuch, then, as the kidneys may be, negatively at least, ruled out as the primary etiologic factor in eclampsia, and as a free interchange may take place between the fetal and maternal blood, we are led to believe, both from clinical facts and experimental research, that eclampsia is an intoxication in which both mother and fetus have a share, the pathologic findings (Schmorl, Williams and others) in both mother and fetus being due to the formation of multiple thrombi, with subsequent necroses.

What these substances are that give rise to the intoxication, and what part the syncytium plays in their formation we cannot as yet say.

In closing, I desire to express my sincere thanks to Dr. William J. Gies, of the Physiologic Chemistry Laboratory of the College of Physicians and Surgeons of this city, and to Dr. Francis C. Wood, of the Pathologic Laboratory, for their assistance in my work.

I wish also to thank Dr. Edwin B. Cragin for the use of the material in the wards of this hospital.

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SPECIAL ARTICLES

RESEARCH AND MEDICINE.*

BY

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Until about the fourth century before the dawn of the Christian era, science was known to the world principally through the work of astronomers. Although philosophy was the dominant force in all fields of thought, and the intellectual activities of this period were centered on philosophic problems, yet there came to some master minds an irresistible desire to investigate nature and natural laws, the realization of which laid the cornerstone of modern science. During the last centuries B. C., mathematics were enriched by Euclid's "Elements"; zoölogy in the hands of Aristotle assumed its first definite form; medicine arose by the stimulus of Hippocrates from a foundation of priestcraft and superstition to one of observation and experience.

The development of science from these beginnings to its present state has not been continuous nor uniform, but subjected to laws and influences similar to those of organic evolution, it has had alternating periods of activity and of quiescence, of rapid progress and retarded growth. These times of great advance corresponded to periods of general intellectual activity, while those of little or no progress were coeval with "dark ages" in history.

> "Observe," writes Oliver Wendell Holmes,[1] "the coincidences between certain great political and intellectual periods and the appearance of illustrious medical reformers and teachers. It was in the age of Pericles, of Socrates, of Plato, of Phidias, that Hippocrates gave to medical knowledge the form which it retained for twenty centuries.
>
> "Look at Vesalius, the contemporary of Luther! Who can fail to see one common spirit in the radical ecclesiastic and the court-reforming physician? Both still to some extent under the dominion of the letter. * * * Both breaking through old traditions in the search of truth; one, knife in hand, at the risk of life and reputation, the other at the risk of fire and fagot, with that mightier weapon which all the devils could not silence, though they had been thicker than the tiles on the housetops.
>
> "Harvey himself was but a posthumous child of the great Elizabethan period. Bacon was at once his teacher and his patient. And is it to be looked at as a mere accidental coincidence that while Napoleon was modernizing the political world, Bichat was revolutionizing the science of life and the art that is based upon it; that while the young general was scaling the Alps, the young surgeon was climbing the steeper summits of unexplored nature?"

For this alternation of epochs there must have been adequate causes, one of which is revealed by a consideration of the types of mind to be found among learned men and leaders of thought in those days. Hippocrates, Aristotle, and Galen, who represent one class, were earnest seekers after truth. Keen and accurate observers, they classified and correlated their facts to lay foundations for working hypotheses. The other type, which may well be termed the imitative, was exemplified by Celsus and other followers of these leaders, whose highest aim was to be known as disciples of their masters. They had no initiative, no originality, no desire to search for truth nor to question the nature of the so called facts given to them. To memorize and have at ready command, the principles taught by their masters, and the arguments necessary to uphold them, was the limit of their ambition. It is just this type of mind that in all ages retards and makes difficult, deeper penetration into the realm of the unknown.

For fifteen centuries after the birth of Christ this imitative type was preeminent in the intellectual life of all nations, excepting that of Arabia, where for a few centuries, from 800 A. D., to 1200 A. D., a brilliant creative period held brief sway. With this single exception there was little productive thought in philosophy or science, but rather a slavish clinging to the teachings of the ancients, and a blind following of their practices. But even this type proved to be of some worth, for throughout a long period of stagnation and decline, it preserved as a foundation for modern science the fruit of the intellectual activity of Greek civilization.

"Not dead, but sleepeth," might well have been said of the research spirit at the beginning of the fifteenth century, but the awakening was not far off. Copernicus and Galileo were not satisfied to pitch their tents on the shores of the vast ocean of unrevealed truth, and, like their predecessors, wait in vain for some wave to cast at their feet fragments of its gathered treasures. But with accurate observation for a boat, reason unfettered by ancient doctrine and belief for a pilot, patience and courage that withstood fierce opposition for oars, they explored the deeps and brought back gems of truth that will endure through all ages.

In medicine the awakening of the spirit of investigation was seen in the work of Vesalius, Fallopius, and Eustachius, who in defiance of church edicts and at the risk of their lives, dissected the human body, making descriptions and drawings that are still classic, and freeing anatomy from the control of fancy and superstition.

From this renaissance, the growth of the research idea has been continuous, if not uniform, and its recognition as the motive force of all advance, in both pure and applied science, has increased, until today it is demanded of all who would enter the ranks of scientific workers. It has invaded the domain of general education where the imitative method—memory training—has so long held undisputed sway. Froebel's aim to make children observe and think has given us the kindergarten, the principles of which are again expressed in nature study, and the increasing use of reference books in our public schools. The teacher of advanced science, who lingers on the borderland of that mystery lying between the known and the unknown, who sees before him unsurmountable barriers and impassable obstructions, must make way for the man who, in his eager pursuit of truth, knows no such word as fail, who scales cliffs, inaccessible to others, penetrates untrodden forests and fathoms unmeasured abysses. Especially is this spirit demanded in applied science. Civil, mechanical, electric, mining, and marine engineers, who are thus endowed, soon find themselves leaders in the industrial world. The applied chemist from his laboratory controls the products of great manufactories, and the silk, dairy, and agricultural industries are largely in the hands of the bacteriologist.

Of all the applied sciences, medicine has probably the most vital personal interest to every human being. Sooner or later we must all place our lives and those of our loved ones in the hands of the physician. Every life entrusted to him is a new problem, for just as no two individuals are alike in every respect, so no two cases of illness are exactly the same. The inheritance, the temperament, the power of resistance, the environment, and many other variable factors, give new possibilities to every case. To diagnose and to treat these correctly require the keenest observation, the greatest delicacy of touch, the most acute hearing, followed by the clearest and truest scientific reasoning.

Huxley, that advocate of the research spirit, has written: "A scorner of physic once said that nature and disease may be compared to two men fighting, the doctor to a blind man with a club, who strikes into the melee, sometimes hitting the disease and sometimes hitting nature;" . . . the interloper "had better not meddle at all until his eyes are opened—until he can see the exact position of his antagonist and make sure of the effect of his blows. But that which it behooves the physician to see, not indeed, with his bodily eye, but with clear intellectual vision, is a process and the chain of causation involved in the process. Disease . . . is a perturbation of the normal activities of a living body, and it is, and must remain, unintelligible so long as we are ignorant of the nature of these normal activities."

Is it rational to expect the physician with the imitative type of mind, whose senses have not been trained to accurate observation and clean-cut differentiation, to make a true diagnosis? While a student, he laughed at the more recent scientific methods of teaching as not practical, he shirked every opportunity of training his senses that this method gives, and was satisfied to store his mind with facts. Can he be expected to weigh, with reason and judgment, the evidence his untrained senses give him, and could he do so, would the diagnosis, based on inaccurate observations, be anything but misleading?

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* Address delivered at the Commencement Exercises of the Medical Department of the University of Nebraska, May 26, 1904.

Is it not this type of mind that argues *post hoc ergo propter hoc* and vainly treats symptoms, not diseases? As well might we expect the huntsman, whose knowledge of woodcraft is gained from books, to track the deer, and the fisherman, whose knowledge of his art is gleaned from the experience of others, to catch the brook trout, as to expect a man of the imitative type to be an efficient practitioner. In this, the age of science, the research spirit and the research method, alone give adequate preparation for his difficult tasks.

I am aware that among our physicians, among those educating our physicians to be, and among the members of governing boards of medical colleges, are men of realities, men of facts and calculations, practical men who believe in a practical education. Like Gradgrind with a rule and measure, a pair of scales and a multiplication table, they are ready to weigh any parcel of human nature and tell you what it comes to. They are inclined to sneer at the spirit and methods of research, saying: "It is all a waste of time, the aim of education is to give men facts, we want for physicians practical men, not scientists." They further maintain that such training is not necessary to produce investigators, and point with pride to men, educated in the old school, who have both attained success and enriched medicine and surgery with newly discovered truths. It is true that men trained in the practical school have added to the world's fund of knowledge, but this has been in spite of, not because of, their education. The spirit of research in them was so strong that it survived even the influence of a school whose keynote was the acquisition of facts.

Oliver Wendell Holmes[2] speaks in no uncertain terms of these practical men.

> There are, of course, in every calling, those who go about the work of the day before them, doing it according to the rules of their craft, and asking no questions of the past or of the future, or of the aim and end to which their special labor is contributing. These men often consider and call themselves practical men. They pull the oars of society and have no leisure to watch the currents running this or that way; let theorists and philosophers attend to them. In the meantime, however, these currents are carrying the practical men, too, and all their work may be thrown away, and worse than thrown away if they do not take knowledge of them and get out of the wrong ones and into the right ones as soon as they may. Sir Edward Parry and his party were going straight toward the pole in one of their Arctic expeditions, traveling at the rate of ten miles a day. But the ice over which they traveled was drifting straight toward the equator at the rate of 12 miles a day, and yet no man among them would have known that he was traveling two miles a day backward, unless he had lifted his eyes from the track in which he was plodding. It is not only going backward that the plain, practical workman is liable to, if he will not look up and look around; he may go forward to ends that he little dreams of. It is a simple business for a mason to build up a niche in the wall, but what if a hundred years afterward the skeleton of a murdered man drop out of the niche? It was a plain, practical piece of carpentering for a Jewish artizan to fit two pieces of timber together according to the legal pattern at the time of Pontius Pilate; he asked no questions perhaps, but we know what burden the cross bore on the morrow! And so, with subtler tools than trowels and axes the statesman who works in policy without principle, the theologian who works in forms without a soul, the physician who, calling himself a practical man, refuses to recognize the larger laws which govern his changing practice, may all find that they have been building truth into the wall and hanging humanity upon the cross.

Fortunately for mankind, the law of the survival of the fittest will sift out those, who in their ignorance would build truth into a wall and hang humanity upon a cross. To aid this law is one of the duties resting upon the medical schools of today. For they send out men to prevent disease, to alleviate suffering, to save life, and they have no right to send those whose preparation and equipment are less than the best.

The difficulty of this work is greatly increased by the mental attitude of the average medical student, an attitude due largely to his previous training. His education has cultivated chiefly the memory and, to some extent, the imagination and judgment. Little or no attempt has been made to develop the power of observation or an ability to reason. Such students may well be classed with those who, having eyes, see not; having ears, hear not; having fingers, feel not; and having minds, comprehend not. This is true, not only of high school graduates, but also of those who have a complete or partial university education. The college-trained student has acquired more facts that bear a closer relation to the subjects of the first two years in the medical school, making the field less strange to him, but the power to observe carefully and to think independently is not a part of his equipment. This criticism is applied with equal force by Professor Oscar Hertwig to students trained in the German gymnasia. In his inaugural address as Professor of Anatomy at the University of Jena, he speaks thus of the work resting on the members of his department: "The instructor must, especially in the practical courses, train the student to use his different senses methodically and systematically. He has here to supply the deficiencies of the training received at the gymnasia, which, it is true, develops the judgment, memory and imagination, but neglects to cultivate those senses which the naturalist must possess."

To develop the research attitude of mind in those whose earlier education has been so one-sided and to lay foundations for future clinical work, is a task which may be admirably fulfilled by a proper teaching of pure science in the first two years of the medical course. The importance of these fundamental subjects, anatomy, physiology, pathology, bacteriology, physiologic chemistry and pharmacology has been recognized by lengthening the course to four years and the college year to eight or nine months and by giving much of the added time to laboratory work in these pure sciences. During these years a knowledge of the conditions, appearances and relations of normal structure and function is gained, and if this is neglected or superficially acquired, the student is hopelessly lost, when confronted with pathologic conditions. At this time also his habits of thought and methods of work are being formed and his whole attitude of mind toward his life work is being determined. If the laboratory method is used and all study made as far as possible objective, those qualities characteristic of the research spirit may become an integral part of the student's equipment. He may be brought to realize that knowledge is best obtained, not from books, but by study of natural objects and by experiment, that the most effective knowledge is that which he can test for himself. He may come to know how and to be able to execute that which is not written in books. He may acquire "that artistic sense of perfection" which demands a man's best in every undertaking.

Anatomy, which for many centuries after the days of Hippocrates, formed the largest part of medical science, still remains a major subject, but unfortunately has become the "bête noire" of the student. For this attitude, the manner of presenting the subject is largely responsible; it has been taught by means of lectures, recitations and a certain amount of dissection, with a final examination, which meant to the student, not only hours, but days and weeks spent in the accumulation of a mass of facts, most of which, useful and useless alike, were forgotten before he had fairly started in the practice of his profession. Yet no subject among those of the first two years offers better opportunities for training the senses and cultivating the research spirit than systematic anatomy. Hertwig points out the futility of the memory method and the great difficulty of comprehending bodies of three dimensions from word pictures. "One gains," he says, "a definite and complete knowledge, only of objects seen, while the most excellent description, even for an investigator versed in morphology, offers but half amends. If any one remembers well all the descriptions, he still knows his anatomy but poorly, unless with each he associates the particular memory picture connected with it. Such a result can be attained only by repeated and methodically undertaken contemplation of the object."

As has been proved, even the study of dry bones may be productive of good results.* By making osteology a laboratory course of sufficient length, about 190 hours, and requiring the student to draw the bones and model them in clay, we may give him the opportunity to gain a knowledge of them, such as he could get in no other way, and at the same time increase the acuteness and accuracy of sight and touch. The drawing demands careful and repeated visual study of the bones, both of gross features and of anatomic details, thus giving to the student the memory pictures considered by Hertwig so essential to real knowledge.

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* Moody: On the Use of Clay Modeling in the Study of Osteology. The Johns Hopkins Hospital Bulletin, Vol. xiv, Nos. 144-145, 1903.

To model a bone from a shapeless mass of clay, the student must turn the original over and over so as to study it from every aspect, until he becomes familiar with the planes of all its surfaces and their relation to each other. He must know the form, size and location of every eminence and depression, every tubercle and groove, for these must be reproduced. And as his fingers mold the clay into shape, they become trained in detecting slight variations, so well trained in fact that they distinguish features overlooked by the eye. Frequently a student to whose eye the model is an exact copy of the bone will, by passing his fingers over corresponding surfaces, find well-marked differences. More than this, he gains a definite idea of the bones in three dimensions and, by repeated visual and touch impressions, obtains an accurate and lasting conception of them, such as memorized word pictures could never create. The efficiency of this method is demonstrated by the ability of the student to reproduce accurately in clay or on paper any of the bones with no original before him.

Not only osteology, but also dissection, may be of great aid in cultivating those qualities essential to the research attitude. Muscles, bloodvessels and nerves should be so thoroughly cleaned that they give pictures whose sharpness and clearness are equal to those in the atlases of Toldt or Spalteholz. They should not be cut, except when absolutely necessary, but should be left in their normal relations, so that, again and again, in the course of the work they may be closely studied, until visual images are indelibly stamped on the mind. After the same careful dissection, the size, form, and relations of the thoracic and abdominal viscera are repeatedly impressed on the student, until he is thoroughly familiar with them. Additional pictures may be gained by a use of frozen or formalin hardened transections of the body. The result of this work is tested, not by a written, but by an oral examination. When a "part" is finished, each student spends an hour with his instructor, who from this and other preparations seeks to determine, not how many anatomic facts have been acquired, but to what extent the power of accurate observation and the ability to draw correct conclusions from observed facts have been developed. For the aim of medical education is not the comparatively easy one of loading men's minds with facts, but the more difficult purpose of inspiring men with an eager desire to know the truth, an earnest purpose to find it at whatever cost, and of training them in such scientific methods of thought and work that their search shall not be in vain. If this is done, the acquisition of a few facts more or less is of minor importance. "Give to the medical student," writes Osler, "good methods and a proper point of view and all other things will be added as his experience grows."[3] He also recognizes in anatomy a touchstone of the students' future possibilities: "Take the man who does his 'part' to perfection, who has got out all there is in it, who labors over the tags of connective tissue, and who demonstrates Meckel's ganglion—this is the fellow in after years who saves a leg badly smashed in a railroad accident, or who fights out to the finish, never knowing when he is beaten, in a case of typhoid fever."[4]

I have dwelt thus at length on the possibilities in teaching anatomy, because it has so long been considered a subject that required merely the acquisition of a mass of facts, which no one expected the student to retain for long after the final examination. The chief value of this training was that it taught the student where to look for anatomic facts when he needed to use them, and cultivated the habit of persistent and continuous hard work. But now it is recognized that the study of anatomy should give the student the objective methods of work which, more than anything else, will fit him to deal with the difficult problems of preventive and corrective medicine and surgery.

The kind of instruction needed to develop this trait calls for the entire time and energy of him who teaches, for besides spending hours in the laboratory with his students, he must keep alive within himself the genius of research. This makes it impossible to have an efficient instructing staff of men actively engaged in the practice of medicine; for no one, however able, can meet the demands made upon the research teacher, and at the same time do the work of a physician. Those noble men who in the interest of humanity have, as teachers, given to medicine unselfishly and generously of their time and energy, with small compensation, but the honor of being one of a medical faculty, are entitled to universal gratitude and esteem. But in the evolution of medicine it has become necessary to relieve them of this growing burden and place it on the shoulders of those who make teaching and research their life work.

Eight or ten of the best medical colleges in the United States, have already recognized this fact, and placed the work of the first two years on a university basis, which means that the men who teach the fundamental branches give all of their time to instruction and research. About fifty other schools have taken the first steps in this direction by affiliating, more or less closely, with a university and putting some part of the work on this basis. Nor is this an experiment in medical education; for in France and Germany the medical schools have developed as a part of the university, to which fact is due their great preeminence and remarkable productivity. "All of the factors responsible for the development of the efficient university system of Germany have acted and reacted to the benefit of medicine, since according to the Continental idea it has always been regarded as an organic part of university life."[5]

Even with the first two years established on the university basis, the limits to which the research method may be applied to medical education have not been reached. To train the eye to see, the ear to hear, and the fingers to feel, takes a long time, so that the student who, after two years in a school with this standard enters the third year full of the research spirit and eager to pursue the research method, finds that the path is not an easy one, but that the training of his senses has just begun. He still needs the help and stimulus of the research teacher. But it is only the rarely gifted few among the best medical men who can meet the demands of a large practice and yet have time and strength for the work of such a teacher.

The position of the instructor in clinical medicine is certainly unique. He must give the best of his time, thought, energy, and talent to his vocation, which is the practice of medicine, and by means of which he supports himself and his family; and in order to keep in touch with the rapid advances in his line of work, he must devote no little time to current medical literature. With what is left of his physical and mental resources, he trains younger men in that most difficult and complex art, upon which, more than any other, depends the life and health of mankind. In no other art or science would such a disposition of a teacher's working capacity be tolerated. The mere suggestion, that a man should earn the greater part of his income as an analytic chemist for some large manufacturing establishment, and in hours snatched from his commercial work attempt to fill the position of professor of chemistry in a university would be branded as ridiculous. An instructor in electric or mechanical engineering, who should plan to give half, or even a quarter of his time, to the interests of a firm engaged in the manufacture of electric or mechanical apparatus would be promptly asked for his resignation. How long think you would any technical school exist whose laboratories were in charge of men who gave the major part of their time to outside affairs and only a minor part to the work of the school? And yet, teachers of clinical medicine are expected to train students to deal successfully with problems of vital interest that often baffle all human skill, after their best efforts have been expended in relieving the suffering of their fellowmen. The time has come when students fitting themselves to deal with human life should have at least as much oversight and help from trained instructors as the men who are to build bridges or oversee the construction of electric roads.

Thirty or forty years ago clinics were simply demonstrations. It was considered a sufficient training for the class to see a professor examine and treat patients. A student's ability to make such an examination or give such treatment was first tested in his own practice. Today the laboratory method has not only been accepted as the most efficient way of teaching the fundamental subjects, but has gained a strong foothold in the work of the last two years. The day of class clinics is past; now small groups of students under the direction of experienced physicians examine the patient and advise the treatment. In the surgical clinic they dress wounds, set fractures, and perform minor operations. But here they see only the milder forms of disease or the earlier stages of more severe types. They have no chance in these cases, which they do not see daily, to follow closely the course of disease. In the hospitals they have too little opportunity to examine thoroughly the heart and lungs of a patient, to test the urine, to examine blood, sputum, and stomach contents; to study carefully the symptoms and the progress of the disease, all of which are necessary to attain proficiency in the doing of those things that are essential to skilful diagnosis and proper treatment. Only those fortunate enough to become internes may learn these things by experience before taking human life into their own hands. The insufficiency of this training is shown by the number of men who graduate from the medical school and pass the State Board memory examination, but fail to stand the more severe tests given by the Examining Board of the Army and Navy. This board seeks to determine not what the student remembers about the theory and practice of medicine, but his ability to do those things, which every physician and surgeon should be able to do well. During the years 1901 and 1902, 232 candidates reached the physical standard required by this board; of these, 69 withdrew, 96 were rejected, and only 67 were accepted. The percentage of rejections during 1903 was somewhat higher than during the two previous years. Do not these silent figures make a powerful plea for research teaching in the last two years of medical education? But research teaching requires research teachers, qualified physicians and surgeons, who give all their time to instruction and research. Such teachers must have laboratories, and these laboratories should be hospitals wholly under university control. Here the teachers have both time and opportunity to keep every faculty used in diagnosis and treatment in the best of training. They can also carry the problems of disease from the clinic and the bedside to the laboratory, where research may reveal hidden truths that will be a welcome addition to medical knowledge and may be of the greatest aid in alleviating suffering and prolonging life.

The buildings of such a hospital would be constructed not only with regard to the best welfare of the patients, but with the aim of facilitating, in every possible way, the teaching of students and the carrying on of research into the nature, cause and treatment of disease. As suggested by one of our foremost clinical teachers, with such a laboratory the junior students could be divided into small groups, each of which should, for three mornings a week, throughout the college year, receive instruction in the medical clinics of the outpatient department, where, under able supervision, they take histories and become familiar with the ordinary aspect and treatment of diseases, such as are seen in these clinics. The other three mornings could be spent in the surgical outpatient department seeing minor operations, learning to bandage, and give anesthetics, and helping in all the interesting work of a surgical clinic. In the senior year clinical work would be transferred from the outpatient department to the wards. "Each man should be allowed to serve for at least half of the session in the medical wards and half in the surgical wards. He should be assigned four or five beds. . . . Under the supervision of the house physician, he should do all the work connected with his own patients, analysis of the urine and so forth, and take the daily record as dictated by the attending physician. One or two of the groups of students should be taken round the wards, three or four times in the week, by one of the physicians, for a couple of hours, the cases commented upon, the students questioned and made conversant with the progress of the cases. In this way the student gets a familiarity with disease, a working knowledge of clinical methods, and an actual knowledge of how to treat disease. With equal advantage the same plan could be followed in surgical and other wards."[6] Notwithstanding the fact that clinical teaching is not yet upon a university basis, this plan which allows of the fullest expression of the research spirit, in which patients are the actual subjects of study, lectures and books serving as aids, has already proved successful in those university hospitals where it has been tried.

The expense of constructing, equipping and maintaining a university hospital with an adequate provision for a research staff requires a large sum of money; but that wealthy philanthropists are coming to recognize the value of research in medicine, is shown by the organization of an Institute for Medical Research in New York, and a Memorial Institute for the Investigation of Infectious Diseases in Chicago. The signs of the times also appear in the gift of $500,000 by Sir Donald Currie to the London University for the establishment of a school of advanced medicine and the gift of $750,000 by Lord Mount Stephen for the construction of the Royal Victoria Hospital in Montreal, to provide the medical department of McGill University with clinical facilities and opportunities for the proper training of its medical students. Osler's[7] prophecy, that, "within the next quarter of the century the larger universities of this country will have their own hospitals in which the problems of nature known as disease will be studied as thoroughly as those of geology and sanskrit" bids fair to be fulfilled. Already, in at least two of our larger universities, an earnest effort is being made to establish university hospitals and provide them with a staff of research teachers.

The advances in medicine during the last thirty years have resulted largely from the labors of men, who like Pasteur and Koch, have worked in laboratories of pure science. But with the advent of research clinical teachers and university hospitals much of the progress in years to come will be due to the work of these men in these laboratories of applied science. To lead in raising medical education to this high standard, is America's opportunity to make a magnificent contribution to the medicine of the world.

Members of the graduating class; as you leave the portals of your Alma Mater, I can wish for you nothing better than that the research spirit shall be your inspiration and your guide in the years of work that lie before you. For with this uppermost in your daily work you may expect that in the course of time, it will surely lead to some fruitful results. Whether your field of labor shall be in the whirl of a great city or in the quiet of a country town, whether you labor as a specialist or in the larger field of general medicine, whether you have access to well-equipped laboratories or must be content with crude tools and meager outfit, matters not. Research stops at no barrier, knows no such word as fail; the greater the difficulties, the more intense the purpose to succeed. Pollender, a village physician, after years of observation and study of the blood of animals in health and disease, found the anthrax bacillus and made the first contribution to the science of bacteriology. Pasteur, handicapped by poverty, paralysis and inadequate laboratory facilities, proved the bacterial origin of fermentation, completed the overthrow of the theory of spontaneous generation and created the science that has revolutionized our conception of infectious diseases. Led by this spirit Morton, Simpson and Lister made possible the brilliant achievements of modern surgery, and Sims gave his noteworthy contributions to gynecology. To this genius are due the investigations of Reed and his associates on yellow fever which result in the saving of more lives annually than were lost in the entire Spanish war, and according to Major General Wood, what is quite as noteworthy in an annual saving to the tropical countries of Central America and the southern United States of a sum greater than the whole cost of our conflict with Spain. And in response to the call of this ideal, Lazear laid down his life.

You cannot all attain the eminence of a Pasteur, a Sims, or a Reed, but each one of you may share the spirit that was the inspiration of their achievements, and which is the beginning of all progress. Cultivate it that its fruits may enrich your lives. Add to it tact, sympathy, unswerving integrity, and like Dr. McClure, whose life is so beautifully portrayed by MacLaren, you will "gither mair luve than ony man in the Glen," and you will be "an honor to our profession."

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[1] Currents and Counter Currents in Medical Science.
[2] Ibid.
[3] Osler: The Master Word in Medicine.
[4] Ibid.
[5] The Need of a University Hospital. Report of Committee of University of California.
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THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

October 8, 1904. [Vol. xliii, No. 15.]

1. The Pathogenesis of Uremia and Eclampsia. Robert N. Willson.
2. Amebic Dysentery: Its Local Lesions and Treatment. James P. Tuttle.
3. The Pathology and Etiology of Arthritis Deformans. Thomas McCrae.
4. Arthritis Deformans. James J. Walsh.
5. The Treatment of Arthritis Deformans. Clarence Edward Skinner.
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8. Osmic Acid Injections for Relief of Trifacial Neuralgia. (Concluded.) John B. Murphy.
9. Poisoning by Wood Alcohol: Cases of Death and Blindness from Columbian Spirits and Other Methylated Preparations. Frank Buller and Casey A. Wood.

1.—See *American Medicine*, Vol. VIII, No. 5, p. 182.

2.—See *American Medicine*, Vol. VIII, No. 6, p. 225.

3, 4, 5.—See *American Medicine*, Vol. VIII, No. 6, p. 226.

6.—See *American Medicine*, Vol. VIII, No. 2, p. 49.

7.—See *American Medicine*, Vol. VIII, No. 5, p. 183.

8.—See *American Medicine*, Vol. VIII, No. 3, p. 94.

9.—See *American Medicine*, Vol. VIII, No. 6, p. 228.

Boston Medical and Surgical Journal.

October 6, 1904. [Vol. cli, No. 14.]

1. Gastric Ulcer in Children. Elbridge G. Cutler.
2. Pericemental Abscess. D. D. Smith.
3. A Comparison of Anesthetics: Results from Chloretone. Theodore C. Beebe, Jr.
4. Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. (Continued.) Percy Musgrave.

1.—See *American Medicine*, Vol. VIII, No. 1, p. 13.

2.—Pericemental Abscess.—D. D. Smith says the condition described as pericemental abscess was first observed and described by himself in 1890. The condition is described at length, and its relation to alveolar pyorrhea discussed. Smith says pericemental abscess is not a state of pyorrhea. Pericemental abscess and alveolar pyorrhea are often associated in the same mouth, and may have a similar origin, but they are distinct affections. Pericemental abscess is a characteristic tumoric growth, generally between the roots of teeth; alveolar pyorrhea is an inflammation beginning in the pericementum at the free margin of the gums; in its progress it destroys cemental and alveolar tissue, uncovers portions of the roots of teeth, develops pus, and imparts a characteristic odor to the breath. This inflammation leaves in its train not degenerate, serofibrous growths, but broken-down tissue remains, calcic sedimentary matter, and other debris which destroys permanently all vital relations between the uncovered portions of the affected roots and the alveolus. Pericemental abscess, virulently infectious, is incurable, except through loss of the tooth. Alveolar pyorrhea, often equally infectious, is wholly amenable to rational surgical treatment. [A.B.C.]

3.—Comparison of Agents for Inducing Anesthesia.—Beebe has endeavored to form by the aid of statistics an idea as to the relative value of the more common anesthetics used as a preliminary to ether in profound narcosis. The agents used were nitrous oxid gas, ethyl chlorid, and anesthol. Statistics were obtained from 214 cases; in 65 of which gas and ether were used, 34 ethyl chlorid and ether, 110 anesthol and ether, and 5 in which anesthol was used for the full period of narcosis. Beebe sums up as follows: There does not seem to be any class of cases in which ethyl chlorid has any advantage over either gas or anesthol, while its expense is a distinct disadvantage in a large clinic. Its record for safety has not proved equal to gas and anesthol. As between the last two mentioned, each has its special recommendations. In a large clinic where speed is required gas is by far the more desirable. The absence of odor also tends to make gas the more popular. In alcoholic or powerful individuals who take gas poorly, or in which there is heart or lung complication, anesthol has proved a very efficient adjunct. Statistics are quoted at length concerning the value of chloretone in preventing postoperative nausea and vomiting. Given in 10 gr. doses 30 minutes before the anesthetic is started it proves efficient in many cases. [A.B.C.]

Medical Record.

October 8, 1904. [Vol. 66, No. 15.]

1. Perineal Prostatectomy, with Report of Ten Cases Henry H. Morton.
2. Hospital Notes on Epidemic Cerebrospinal Meningitis. José M. Ferrer.
3. Early Cirrhosis of the Liver and Its Treatment. Hubert Richardson.
4. Case of Strangulated Umbilical Hernia with Unusual Features. J. J. Buchanan.
5. A Case of Supposed Primary Tuberculosis of the Pharyngeal Tonsil. Donald M. Barstow.
6. Le Diabete à Deux. Leonard Weber.

1.—Perineal Prostatectomy.—Morton reports 10 cases, the majority operated on by Bryson's method which he considers the best yet presented to the profession. Two deaths occurred, one from infection of a suprapubic wound and one from acute nephritis; two patients are obliged to use the catheter but are perfectly comfortable; five are entirely relieved; one is improved from the results of an old Bottini operation. Morton thus summarizes the advantages of the Bryson operation: A comparatively low deathrate; the rapidity, ease and facility with which the prostate can be enucleated; the trifling amount of hemorrhage and shock; excellent bladder drainage and ability to keep the patient's bed and dressings dry; rapid convalescence, patients getting out of bed within 10 days; the complete restitution of the bladder functions in most cases. [A.G.E.]

2.—Epidemic Cerebrospinal Meningitis.—J. M. Ferrer analyzes 20 cases treated in his hospital service, 10 of whom died. There were no fulminant cases; 16 were of the ordinary type, and one each of the marantic, intermittent, abortive, and chronic types. All had pain in the head, more or less fever, retraction of the head, delirium, and leukocytosis. All were constipated but 2, who had diarrhea; 17 had vomiting, 15 general hyperesthesia. In 15, Kernig's sign was elicited; 12 had initial chills; 3 had chills late in the disease; 14 had stupor; 11 developed coma; 12 had general rigidity of the body; 1 had clonic spasms of the face; 10 had opisthotonos; 7 had the typical eruption; 9 had herpes labialis; 2 had rose spots; 5 had convulsions; 3 had strabismus; 6 had earache, deafness, and slight discharge. There were the following sequels: In 1 paralysis; in 1 atrophy and partial blindness of one eye; in 1 deafmutism and idiocy; in 6 deafness. Lumbar puncture was performed in 11 cases; in 4 it was positive, in 7 negative. The treatment was icebags, sponging, laxatives, enemas, morphin, potassium bromid, potassium iodid, ergot, quinin, Warburg's tincture, sodium salicylate, strychnin, digitalis, whisky, fluid diet followed as quickly as possible by light diet. The writer appends reports of six cases. [H.M.]

3.—Early Cirrhosis of Liver and Treatment.—Richardson instances the frequency of this condition by the fact that of 500 autopsies at the Johns Hopkins Hospital, advanced cirrhosis was the direct or accessory cause of death in 49 cases. The early manifestations before the condition is apparent the physical signs are very indefinite. It must be remembered that cirrhosis occurs in the young, in middle life and in old age, in the abstemious, in the glutton, in the alcoholic, and in the teetotaler. Its manifestations are often paroxysmal in character; it may be associated with general decline of health, icteroid discoloration of the skin, feeling of weight or vague discomfort in the hypogastrium, loss of or capricious appetite, irregularity of bowels, and a true telangiectasis in various parts of the body. The last is of great diagnostic value. The condition is the result of toxemia and treatment must be directed to its removal. Elimination of bile should be increased by sodium glycocholate and mercury. Fluidity of the bile can be increased by the use of alkaline mineral waters with sodium salicylate. Mercury biniodid with potassium iodid has a very beneficial effect in many cases of nephritis associated with hepatic insufficiency. [A.G.E.]

4.—Unusual Case of Hernia.—Buchanan details a case of hernia in a woman of 48, weighing 240 pounds. A large umbilical hernia had been irreducible for more than a year, and strangulation had been present 26 hours. Operation revealed a large mass of gangrenous intestine; the ring was freely opened and the intestine punctured, and allowed to remain external to the abdominal wall. The patient at once improved; on the second day the gangrenous coils were opened at several places for the escape of feces, and were subsequently irrigated daily. After 10 days the mass was dissected away, leaving a large open space and an artificial anus. The destroyed portion of the bowel was found to be the cecum, ascending, transverse, and part of splenic flexure of the colon. At a second operation, anastomosis was made between the ileum and sigmoid. A third operation closed part of the largé gap of mucous membrane left by the slough. The remainder will be closed by a fourth plastic operation. [A.G.E.]

5.—**Primary Tuberculosis of the Pharyngeal Tonsil.**—D. M. Barstow reports a case with a history of a two-year cough, accompanied by pains in the chest and sweating. The large quantity of bacilli found would ordinarily indicate a fairly extensive lung lesion which did not appear. The immediate improvement of the symptoms after operation, together with the immediate and almost complete disappearance of bacilli from the sputum goes far to show that the tuberculous adenoid was the main if not the primary lesion. [H.M.]

6.—**Le Diabete à Deux.**—L. Weber has had three cases in which the husband has become rather acutely affected after the wife had been a sufferer for 10 years or so. It may be permissible to think of the possible influence which the acetone exhaled with the breath and the sweat of the diabetic might have upon the health of one in close contact for years with the sufferer. Another factor is the prolonged worry and grief on account of the other's ill-health. While it would be cruel to mention the word infection, the increasing number of cases of diabete à deux reported indicates that it is not desirable that a diabetic and nondiabetic person share the same bed. [H.M.]

New York Medical Journal.

October 1, 1904. [Vol. LXXX, No. 14.]

1. Mitral Regurgitation. O. L. MCKILLIP.
2. The Present Condition of Tenontoplasty. PROFESSOR VULPIUS. (Continued.)
3. Professional Responsibility in Accident Cases involving Litigation. JOHN B. ROBERTS
4. Some of the Difficulties to be Overcome in the Radical Mastoid Operation for the Cure of Chronic Purulent Otorrhea. FRANK ALLPORT.
5. Headache in Relation to Diseases of the Nose and Nasopharynx. OSCAR WILKINSON.
6. Report of a Case of Sigmoid Sinus Thrombosis: Operation without Ligation of the Internal Jugular Vein: Recovery. GORHAM BACON.
7. Hereditary Abnormity of the Little Finger. GEORGE THEODORE MUNDORF.
8. The Fly as a Carrier of Tuberculous Infection. E. H. HAYWARD.

1.—**Mitral Regurgitation.**—O. L. McKillip publishes the answers of several prominent physicians in reply to the question as to the order in which the chambers of the heart dilate and walls hypertrophy in mitral regurgitation. The answers show that the profession are by no means agreed upon this point. In discussing the subject the author says the chief characters of the murmur are that it is systolic in time and is transmitted to the left, sometimes being heard in the back and sometimes all over the chest and, in children, even over the abdomen. The most important diagnostic point noticed on auscultation is an accentuation of the pulmonic element of the second sound. It is said to be of sufficient importance to call the attention of the physician to a possible mitral regurgitation even when a murmur cannot be heard at the apex. If we have a mumur at the apex, systolic in time, transmitted to the axilla, an accentuated pulmonic second sound, enlargement of the heart, and evidences of blood stasis, the author says we may safely diagnosticate mitral insufficiency. [C.A.O.]

3.—See report of Medical Society of the State of Pennsylvania for 1904.

4.—**Chronic Purulent Otorrhea.**—Frank Allport reviews the principal objections to the radical mastoid operation and answers these objections. He says that while meningitis and other intracranial complications and accidents to the facial nerve, horizontal semicular canal, sigmoid sinus, etc., may result from the performance of this operation, the only occurrence that seems to him to possess much weight is the embarrassing and unfortunate occurrence of facial paralysis. He says most cases of facial paralysis following mastoid operations are due not to injury of the nerve after it leaves the tympanum on its way to the stylomastoid foramen, where it is protected by its petrous covering, but to the breaking of the walls of the tympanic fallopian canal by probing, chiseling or cureting, an accident which may occur to the most painstaking operator, especially when openings of the canal, either of a necrotic or congenital nature, are present. Another objection which is frequently raised is the possible bad effect upon hearing. He says that while this result with a properly executed operation is a possibility, he believes its magnitude has been greatly overestimated, and that a vast majority of cases will emerge from the operation with either uninjured or improved hearing. The only suggestion that is offered by the writer is not to neglect or abandon this truly admirable operation, but to perfect our skill, knowledge, precautions, and surgical technics so that this and other accidents and misfortunes will not occur. [C.A.O.]

5.—**Headache and Diseases of the Nose and Nasopharynx.**—Oscar Wilkinson has classified the diseases of the nose and nasopharynx that produce headache. The first of these is morbid conditions of the mucous membrane, under which heading is acute and chronic rhinitis and as subdivisions of acute rhinitis, simple, specific and neurotic. Headache is one of the most constant symptoms of acute rhinitis. In specific rhinitis, in its incipiency, these are the symptoms of acute simple rhinitis, but of decidedly more exaggerated form. There is more pain, more headache, and greater constitutional disturbances. This is especially true in the glandular gonorrheal and diphtheric types. The other specific rhinitis conditions, the tuberculous, and those of lupus, leprosy, and larvas may vary very much in their symptoms in different individuals. In some they are decidedly acute, while in others they are chronic. Headache is not so constant a symptom in chronic cases. In the acute forms, however, headache is almost always a prominent symptom, and may be due to two causes: (1) A local condition due to obstruction of the nasal canal from inflammatory changes; (2) a constitutional condition due to infection from bacteria present. Under the neurotic type of acute rhinitis are placed hay-fever, asthma, and hyperesthetic rhinitis. The author calls attention to two forms of headache in asthma. The first is rather acute, and often severe, due to pressure in the nasal canals from stenosis. The second form is a dull, languid headache, which occurs after a night spent in wrestling with an asthmatic attack, due probably to the character of the inhalation used, loss of sleep, or a night spent in a close room. Morbid conditions of the osteocartilaginous framework are fruitful sources of nasal headache. Under this heading we have deflected septum, thickening of septum, pressure of the septum, exostoses, synechia, and caries. Headache is almost as constant a symptom in sinus inflammations as is unilateral purulent discharge. Of the benign growths of the nasopharynx which may cause headache are mentioned adenoids, polypi, syphiloma, enchondroma, papilloma, osteoma, and rhinoscleroma. The malignant growths of the nasopharynx which cause headache are carcinoma and sarcoma. [C.A.O.]

7.—**Hereditary Abnormity of the Little Finger.**—G. T. Mundorf reports a remarkable instance of hereditary transmission of an anatomic peculiarity resembling Dupuytren's contraction. While the finger is fairly well extended, the axes of the first and second phalanges do not lie in the same plane, but meet at the articulation in a more or less acute angle. He says that this condition is probably due to a contracted state of the palmar fascia, although it is possible that the real cause is a very much shortened flexor tendon. In the members of this family, consisting of grandfather, children, and grandchildren, 38 in all, the deformity occurs in 14 cases. In 11 cases the deformity occurs in one hand, and in three cases it occurs in both hands. [C.A.O.]

8.—**The Fly and Tuberculosis.**—E. H. Hayward has made a number of experiments which prove the vitality of the tubercle bacillus is not impaired by passage through the intestinal canal of the fly. Culture plates made of the feces on glycerin agar and incubated two weeks, showed a growth of tubercle bacilli. Postmortems made from each batch, and smears from the stomach and intestines, showed large numbers of tubercle bacilli. The feces were also rubbed up with sterile water and injected into the peritoneal cavity of guineapigs, which developed tuberculosis. [C.A.O.]

Medical News.

October 8, 1904. [Vol. 85, No. 15.]

1. The Incidence of Gastric Ulcer in America. CAMPBELL P. HOWARD.
2. The Condition of the Blood and Urine in Gastric Ulcer. THOMAS B. FUTCHER.
3. The Pathologic Anatomy of Gastric Ulcer. HARLOW BROOKS.
4. Complications and Sequels of Gastric Ulcer. MORRIS MANGES.
5. Symptomatology and Course of Gastric Ulcer. MAX EINHORN.
6. Further Remarks on Orthoform in the Diagnosis of Gastric Ulcer. FRANK H. MURDOCH.
7. Two Old Friends: Castor-oil and Salts. EDWARD P. CARLTON.
8. Internal Antisepsis. J. N. HALL.

1.—See *American Medicine*, Vol. VIII, No. 1, p. 13.

2.—See *American Medicine*, Vol. VIII, No. 2, p. 53.

3.—See *American Medicine*, Vol. VII, No. 26, p. 1015.

4.—See *American Medicine*, Vol. VIII, No. 2, p. 53.

5.—See *American Medicine*, Vol. VIII, No. 2, p. 53.

6.—See *American Medicine*, Vol. VIII, No. 3, p. 99.

7.—Castor-oil and Salts.—E. P. Carlton gives formulas for completely disguising the taste of these drugs as follows:

Vanillin	gr. xx	1.5
Olei menth. pip.	ʒj	4.0
Garantose (saccharin)	ʒiss	4.0
Alcohol	℥iij	100.0
Tinc. persionsis	℥ss	15.0
Olei ricini, q. s. ad. ½ gallon		2000.0

Dissolve the vanillin, peppermint, and garantose in the alcohol. Add the tincture of cudbear to the oil and shake. Finally unite the two mixtures.

Magnesii sulfatis	℥xxxij	1000.0
Fluidi cardamomi comp.	ʒij	30.0
Vanillin	gr. xx	1.5
Garantose "crest," Merck	ʒij to iv	8 to 16.0
Alcohol	℥ij	60.0
Glycerin	℥ij	60.0
Coffee, roasted and ground	℥ij	60.0
Aqua, q. s. ad ½ gallon		2000.0

Stir the coffee in a half gallon of boiling hot water, and allow it to stand for 10 or 20 minutes, adding enough of it while still hot to the magnesium sulfate to make about 3½ pints. Dissolve the vanillin in the alcohol, add the glycerin, and then the cardamom. When the first solution has cooled somewhat, add the second mixture to it. After shaking, add the garantose and enough of the coffee infusion to make a half gallon. Filter through a covered filter. These mixtures keep well. The metric equivalents of the troy weights are the author's. [H.M.]

8.—Internal Antisepsis.—Hall reviews some of the advances in internal antisepsis during the past decade, and says we may confidently expect great improvement along this line. The surgeon has largely eliminated sepsis as a cause of death in his patients, but the physician still loses many from this cause. Attention is directed to the action of normal gastric and intestinal secretions in rendering innocuous, numerous pathogenic bacteria when introduced and the consequent indication for intestinal antiseptics when these secretions become perverted. Caution is necessary in their use, however, Hall having seen a case of acute nephritis induced by the too free use of salol during an attack of typhoid fever. He has obtained improvement in two cases of early pernicious anemia by the use of sodium cacodylate. In cases of tuberculosis with added streptococcus infection, antistreptococcic serum has proved beneficial. Intravenous injection of formaldehyd failed to give satisfactory results in similar cases, this being true also of collargol. [A.G.E.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

Frost-bite.—Frost-bite is one of the natural dangers which an army in the field is liable to suffer from, to even a very great and unexpected degree—when the climate is a continental one, and the territory in which the hostilities are being conducted happens to be placed beyond a certain distance from the equator or the sea's level. The blow from which Napoleon Bonaparte never recovered was an atmospheric one. The histories with which we used to be personally acquainted in our own school and college days mostly left the impression that in his invasion of Russia the terrible little Corsican had laid aside his former discriminating foresight, and had rushed blindly on the fate which he had too much trusted. Far from doing so, Napoleon had employed the greatest astronomer of the age to summarize the Russian climate for him; and more especially to forecast the localization of the crest of the wave of frigidity of the Muscovite winter. Laplace made his mathematic and meteorologic calculations with consummate skill. Napoleon crossed the Russian border. The good genius of Muscovy sent the wintry wave to greet him—two months before its regulation time, and the raptorial progress of the Imperial brigand was arrested!

Causes, Progress, and Stages of Frost-bite.—The subject of frost-bite is the text of an important practical communication to the July issue of the *Indian Medical Gazette*. Lieut. G. J. Davys, M.D., L.M.S., there summarizes the results of his observation and experience in the Chimbu valley with the *Tibet Mission Force* during the past winter and spring. The prime cause of the frost-bite there was usually damp clothing, combined with extreme cold. But he goes on to state that "paradoxic as it may seem, there is no doubt that very often the more serious results of frost-bite are directly due, not to excessive cold, but to carelessly applied heat." He divides the process into three stages. In the first stage, the cold causes great contraction of the peripheral arterioles, and the affected part, at first painful, becomes gradually numb. In the second stage, the blood is completely expelled from the affected part by the contraction of the tissues which results from the extreme cold. The part is then absolutely without sensation. The third stage is "simple death" of the tissues of the affected part. When the cold has been very intense and prolonged, they sometimes pass into a state of dry gangrene. In Dr. Davys' experience, however, "death from heat" usually presented the severest results. The men who were affected held the frostbitten part "practically in the fire," and as a result, "violent rapid edema occurred, with severe pressure on the already damaged tissue, causing its death; this was followed by moist gangrene of the part." Dr. Davys also makes three grades of severity: 1. Simple death of the superficial layers of the skin, with subsequent peeling of the dead tissue. Recovery is slow, but no permanent ill result remains. 2. Death of the whole skin, and sometimes of the superficial fascia. Recovery is accompanied by great scarring and deformity. 3. Death of the deeper tissues—muscles, tendons, etc. This means complete loss of the affected part.

Grades of Severity of Frost-bite.—The treatment of frost-bite, according to Dr. Davys, should vary with the stage. In the first stage, the best immediate treatment by far is massage. After the circulation has been restored to some extent, as shown by its redness, and the feeling of pain and "pins and needles," lukewarm water should be applied. It is in the second stage that treatment is most important. He recommends, to begin with, friction and careful massage—either dry, or with oil or vaselin to render the massage more efficient. If this treatment prove insufficient the affected part may be immersed in ice cold water and the vessel containing the water placed near the fire and very slowly warmed; friction and massage being kept up all the time. Another method, by which he obtained good results in a couple of foot cases, was: Wrapping the affected part very thickly in wool and bandages, and covering it in a box with warm sand. In all methods the warmth must be applied *very* slowly. For this reason friction is by far the safest treatment, but unfortunately is not always successful by itself. During the treatment he gave warm drinks or gruel; and, more rarely, a very small quantity of alcoholic stimulant—either rum or brandy. The patients were always well wrapped up in blankets, but never allowed quite close to a fire. Cases which had passed into the third stage always required operative treatment. A few which refused operation, "even when only slightly injured, all went to the bad."

REVIEW OF LITERATURE

The Shape of the Chest in Health and Pulmonary Tuberculosis.—L. Brown and E. G. Pope[1] furnish a very complete study of this question. In an endeavor to obtain a normal, the average of measurements of many individuals at Harvard, Yale, Tufts, University of Nebraska, and at certain army posts were used. The value of these was lessened by the fact that different standards were employed by various investigators, but from them a series of instructive tables has been prepared. To determine the shape of the chest in pulmonary tuberculosis, measurements have been taken at the Adirondack Cottage Sanitarium. The writers conclude that the measurements of the normal chest have not up to this time been determined with sufficient accuracy to allow of very positive conclusions. In health the index is about 73; in the early stages of pulmonary tuberculosis it is 72, and in advanced stages 76. The female chest tends to a lower index than the male. The influence of pulmonary tuberculosis has some tendency to reduce the diameters of the chest, and possibly also the length, and the progress of the disease probably tends to increase the index. Two types are noted; one flat (index 68 to 70), and one deep and round (index 78 to 80), but both reduced in size. The index does not appear to possess any prognostic value. The change of index in pulmonary disease is probably not due to emaciation, but to change in bulk of the lungs. During sanatorium residence there is marked increase in both expansion and respiratory movement. [A.G.E.]

Chancre of the Inferior Turbinate in a Child of Seven.—In a weak, sickly child, having enlarged glands of the left submaxillary region without inflammation of the tonsils, mouth, or ears, Brunn[2] diagnosed scrofula. The nose examined externally seemed normal, and swallowing was painless. The glands continued to increase in size, and those of the other side became painful. Three weeks later the forehead was the seat of a papular eruption, also the trunk and scrotum; one mucous patch was found inside the mouth, but no primary lesion could be discovered. The inside of the nose was not examined until the glands about the hyoid bone became enlarged. The parents then remembered that at first the child had a coryza with bloody mucoid discharge from the nose, difficulty in breathing, and snoring. Internal examination revealed a little red and blood-stained ulcer with wellmarked edges upon the inferior turbinate bone and some swelling upon the corresponding part of the septum. Under antisyphilitic treatment the child recovered slowly, the disease running a severe course and leading to a perforation of the soft palate. [E.L.]

Lobar Pneumonia in Infancy.—J. L. Morse[3] presents an analysis of 118 cases of this disease in infants, with the statement that it is more common and occurs relatively more frequently in comparison with bronchopneumonia than is generally supposed. In order of frequency, the left lower, right upper, and right lower lobes were involved. Fifty cases were during the first year and 68 during the second year of life. The average duration of fever was 8 days, the course being more often short in the first year. The highest temperature was usually between 103° and 106°. Crisis occurred in 68.8% of the cases, being less common in the first year. High temperature was no more fatal in the second than in the first year. Mortality was nearly 23%, being twice as great in the first as in the second year. The following statements regarding prognosis seem justified: The prognosis of lobar pneumonia in infancy varies decidedly with the age of the infant, and to a certain extent with the amount of lung involved. The prognosis is good when the temperature is not above 103°; it is serious when above 106°. Variations between these points make little or no difference in the prognosis. The prognosis is good when the pulse is not over 140 and the respiration not over 55. The amount of the increase above these limits is of little importance. [A.G.E.]

Value of Ficker's Diagnostic Test in Typhoid Fever.—The original Gruber-Widal test for typhoid fever cannot be well carried out by the general practitioner. The Ficker test is much more readily performed. In this case the living typhoid bacillus culture is replaced by a sterile fluid, containing dead bacilli in suspension, the whole forming a somewhat cloudy liquid. This solution keeps for a long time. Blood-serum from the patient is added to the fluid in certain proportions, and a positive test is indicated by a clumping of the bacteria with clarification of the liquid. A. Skutetzky[1] has carried out a series of experiments to determine the value of this test as compared with the Widal reaction. They were performed on 32 cases, 11 of which were typhoid fever. The Ficker test was positive in all typhoid cases and negative in the rest, while the Widal test was also positive in a case that showed no evidences whatever of typhoid fever at autopsy. An important advantage of Ficker's test is that it is always surely positive or negative, while the Widal reaction is often doubtful. The author therefore concludes that the Ficker test gives as good, if not better, results than the Widal. Also according to his experiments, a negative result is as good evidence against typhoid, as a positive reaction is for the disease. [B.K.]

Tuberculosis and Heart Disease.—G. W. Norris[2] reviews the literature of this subject, and furnishes statistics derived from a study of 7,040 autopsy records at three Philadelphia hospitals. Of these cases, 1,764 were tuberculous. In view of the frequency with which pulmonary tuberculosis has been found associated with valvular heart disease, he concludes that the latter exerts very slight, if any, influence upon the former, either as an inhibitive or curative agent, even if satisfactory compensation be maintained. Mitral stenosis does not seem to be less often coincident with pulmonary tuberculosis than do other lesions of the heart. It is doubtful if smallness of the heart predisposes to pulmonary tuberculosis to a greater degree than is explainable by the general systemic underdevelopment and lack of resistance often exhibited by such individuals. It is a fact, however, that small hearts are commonly found at autopsy upon tuberculous individuals. Pulmonary stenosis seems to favor the development of pulmonary tuberculosis. The cardiac muscle undergoes different forms of degeneration, this fact explaining the signal failure of digitalis and other cardiac stimulants. Uncomplicated cases of pulmonary tuberculosis often exhibit such striking differences in resistive power and frequently evince such remarkable tendency toward recovery, even in seemingly hopeless cases, that we should accept only the most absolute evidence as a proof that the coincidence of another pathologic condition has conferred a benefit upon the patient. [A.G.E.]

Mechanism of Tuberculin Immunity.—E. Loewenstein and E. Rappaport[3] have studied the effect of tuberculin in 91 patients to determine the causes of immunity to it. Of 18 patients manifestly tuberculous, but injected for purposes of diagnosis, all gave a typical reaction when 2 mg. was injected. Of 73 patients injected for purposes of treatment, 67 gave the reaction during the first five injections, none of which exceeded 5 mg. Cases of manifest tuberculosis in the stage of cicatrization seem to have lost their sensitiveness toward tuberculin. A relation exists between the stage of the disease and the minimal dose of tuberculin producing a reaction; the more advanced the disease the smaller the minimal dose. The increased response to tuberculin usually charged to a cumulative action of the substance must be considered as due to an oversensitiveness on the part of the organism to the second, third, or fourth dose of the fluid. In the patients with active tuberculosis, oversensitiveness exists as the result of the infection; in the greater number of latent cases of tuberculosis this oversensitiveness is not made manifest until after one or more diagnostic injections. Oversensitiveness is really a stage toward immunity; by employing a large dose, just as in diphtheric toxin, either one can be attained. By giving small doses of tuberculin repeatedly, any of the patients may be transferred into a prolonged stage of oversensitiveness. If the same dose ($\frac{1}{10}$ mg., for instance) is given three to four times to patients with active tuberculous lesions, the intensity of the reaction will be markedly increased. Oversensitiveness produced by "old tuberculin" can be made manifest also by the use subsequently of other tuberculin preparations. The formation of oversensitiveness depends in the first place upon the dose of tuberculin used. The oversensitiveness after tuberculin lasts longer than does immunity. The diagnostic value of the oversensitiveness reaction must be determined by corresponding treatment of nontuberculous individuals. Fever reaction and immunity reaction are not the same; immunity may set in without fever, and repeated fever reactions do not necessarily mean immunity. Insidious treatment is therefore recommended. In very sick patients to produce immunity a long period of treatment and a large number of injections are necessary; the minimal dose should not be continued too long. Immunity after "old tuberculin" means immunity after other preparations as well. The authors report a large number of patients who, treated as thus indicated, did not have their health disturbed toward the last by so large a dose as 1,000 mg., thus showing the justification of the tuberculin treatment when carried out so as to produce immunity. [E.L.]

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[1] American Journal of the Medical Sciences, October, 1904.

[2] Rev. Hebd. de Laryngologie, d'Otologie et de Rhinologie, 1904, 337, March.

[3] Archives of Pediatrics, September, 1904.

[1] Zeit. für Heilkunde, 1904, Bd. xxv, Heft 8, p. 253.

[2] American Journal of the Medical Sciences, October, 1904.

[3] Zeitschrift für Tuberculose und Heilstaettenwesen, 1904, v, 485, No. 6.

Diagnosis of Pulmonary Tuberculosis in Infants and Young Children.—S. V. Pearson[1] says the most striking symptom of tuberculosis in infants is wasting, yet this symptom occurs more often from other causes, the two most prominent being gastrointestinal derangement and pus, especially pent-up pus. After a thorough discussion of the differential diagnosis, Pearson states some practical points gained during the past years. One of these is the infrequency of chronic pulmonary tuberculosis in children of from 6 to 14 as compared with the frequency of some of its more common symptoms. At this age, pulmonary tuberculosis is not very common, although cough, debility, and wasting are frequent. Debility, and quite severe debility, may be due to very simple causes, as a capricious and poor appetite pandered to by fond parents. Loss of weight may be only apparent, due to rapid growth. Cough may persistently recur on account of a tendency to catarrh, kept up by lack of fresh air or injudicious dieting. The condition most liable to simulate the early stages of pulmonary tuberculosis is the combination of adenoids with unhygienic surroundings. Second, it is quite easy to confound the debility due to rheumatic infection in children with that of pulmonary tuberculosis, especially if it is associated with wasting, which is not infrequent, and with cough. The appearance of a child with the tuberculous diathesis is not infrequently much the same as that of a child apt to be the subject of acute rheumatism, and pain in the side is often a symptom of the latter as well as of the former. [A.G.E.]

Pneumococcic Peritonitis.—Anton Ghon[2] cites five cases of acute fibropurulent peritonitis which originated in disease of the stomach. In the exudate *Diplococcus pneumoniæ* was found in large numbers, as well as other bacilli. He believed that the diplococcus was the chief cause of the peritonitis. In two cases no focus of infection could be determined. In two other cases pneumonia was present. In the first case the disease followed perforation of a gastric ulcer, and in the three other cases detailed there was cancer of the stomach. In a fifth case seen first in a moribund state the autopsy revealed the presence of a pneumococcic peritoneal exudate and a perforated ulcer of the stomach. [J.H.W.R.]

The Water Content of the Sick Body.—Homberger[3] in discussing this subject maintains that the osmotic pressure can preserve an equilibrium when the volume of the blood, the number of molecules and the temperature are constant. In fever, he says, there is a disturbance in this relation; then in order to maintain the normal osmotic pressure the volume of the blood and the number of molecules must be altered correspondingly. This is brought about by the retention of the water of the body and by the dilation of the bloodvessels, consequently there is little visible perspiration and there is a drain of the body juices. This accounts for the thirst in fevers. The body cells are just as eager as the blood to obtain water to compensate for the juices that the blood has robbed them of, so they increase their activity, consequently the katabolic products are increased, among which is water. This, he says, explains the empiric fact that water is of great value in fevers, as it relieves the pressure upon the bloodvessel walls and lessens the heart's action. It also decreases the rapidity of the circulation, thereby affording better nutrition. [J.F.]

The Morphologic Changes in the Blood after Muscular Exercise.—P. B. Hawk's[1] investigations were for the purpose of noting the changes occurring in the elements of the blood as the result of exercise. From a number of bloodcounts he found the normal number of red blood-cells in young men taking regular exercise to be 5,600,000 per cmm., and leukocytes 8,800 per cmm., the ratio being 1 to 636. Muscular exertion incident to physical exercise invariably caused an increase in the number of red corpuscles and leukocytes. The immediate increase in red corpuscles is inversely proportional to the length of the exercise period. The leukocytosis is inconstant. The maximum average increase of 22.5% in the number of red-corpuscles was caused by short swims, the average increase (26.7%) being after a swim of three minutes. The minimum average increase of 9.7% occurred as the result of long bicycle rides, the smallest (7.3%) after a ride of four miles. The maximum average increase in the leukocytes (73.4%) occurred after the long swims; the greatest individual increase (104.4%) after swimming for three minutes. The minimum average increase in leukocytes (46.1%) was observed after the short swims, the smallest increase (38.0%) after a 100-yard swim. The increase in the number of red-corpuscles produced by muscular exertion is due primarily to the passage into the circulating blood of a large number of cells lying in various parts of the body and inactive before the time of the muscular exercise. The leukocytosis following muscular exertion is due to the changed distribution of the leukocytes and their accumulation in the peripheral circulation. [E.L.]

Varieties of Splenic Anemia.—Alfred Stengel[2] presents the report of five cases, with pathologic studies in three of them, as a contribution to the knowledge of the condition generally designated as splenic anemia. The most interesting is that of a negress of 21, who gave a history of probable onset of the condition years before. She had enlarged spleen, palpable superficial lymph-nodes, pain in left side, slight anemia. Splenectomy was performed and the spleen carefully studied. The organ weighed 1,230 gm. (41 oz.) and showed on the surface numerous nodular projections, which presented the appearance of secondary tumors. The microscopic features may be summarized as a marked increase of fibrous tissue and of endothelial cells, these changes causing a disappearance of normal splenic features. Stengel believes it belongs in the category of tumors rather than of simple cellular hyperplasia. He recognizes the following varieties of splenic anemia: (1) Simple splenomegaly; (2) simple splenomegaly terminating in cirrhosis of the liver; (3) splenomegaly with marked constitutional disturbance; (4) splenomegaly primitive. The conclusion to which Stengel has come is, that cases of splenomegaly of the type of Gaucher represent a primary neoplasm of the spleen somewhat comparable to the diffuse myelomas and to certain infiltrating sarcomas of the liver. [A.G.E.]

Epilepsy and Heart Disease.—T. L. Chadbourne[3] carefully reviews the literature of this subject and reports nine cases. He concludes that it was impossible from the study of his cases to trace any direct connection between epilepsy and vascular lesions. He states that in his experience heart disease is not frequently associated with epilepsy. He subscribes to the postulates of Stintzing, who claims that (1) the heart disease must precede the epilepsy; (2) other causes must be excluded; (3) the coexistence must be confirmed; (4) the improvement in the heart disease must improve the epilepsy. [J.H.W.R.]

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[1] The Practitioner, September, 1904.
[2] Wiener klin. Wochenschrift, 1904, No. 10, p. 267.
[3] Berliner klin. Woch., 1904, No. 25.

[1] American Journal of Physiology, 1904. x, No. 7, 384.
[2] American Journal of the Medical Sciences, September, 1904.
[3] Bull. of Ohio Hospital for Epileptics, Vol. vi, 1904.

Treatment of Liver Abscess.—James Cantlie[1] divides liver abscesses into suprahepatic, intrahepatic, and subhepatic varieties. The first is independent of dysentery; the exciting factor appears to be chill subsequent to severe exercise in tropical heat. Under such circumstances, Cantlie has known pus to form within 48 hours, the subject being a man but three months from Britain, who never had dysentery, malaria, or any other tropical ailment. Pus in the substance of the liver is usually the result of dysentery. There is no single sign or symptom that will absolutely determine the presence of deep-seated pus in the liver, short of ascertaining its presence by the aspirating needle. Suspected pus should be sought for immediately. To minimize the danger from hemorrhage which is liable to follow puncture, Cantlie has established anatomic data regarding the distance of the inferior vena cava, the only large vessel likely to be wounded. In a chest 80 cm. (32 in.) in circumference, the inferior vena cava is everywhere, in the region of operation in liver needling, 11 cm. (4½ in.) distant from the surface. A physician should not puncture a liver to search for pus without a surgeon standing by ready to proceed with relief of the abscess. When pus has been allowed to bulge in the epigastrium or at the thoracic wall, incision and packing is allowable here as in other parts of the body, but deep-seated liver abscesses, whether of the suprahepatic or intrahepatic type, are best treated by trocar and canula, and siphon drainage. This method of Manson has given satisfactory results in 53 cases operated on by Cantlie. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

EDITORIAL COMMENT

The Suture of Heart Wounds.—Since the surgical feat of suturing a human heart was first attempted in 1896 a considerable number of cases has been reported. The results have been very encouraging to the surgeon; they have demonstrated the tolerance of the heart to manipulation and suturing and abundantly shown that operative intervention should be accorded all cases of penetrating wound of that organ. While not excessively rare, instances of successful suture are few enough to render them worthy of note. One of the latest cases, the fourth successful one in America, reported by Dr. F. T. Stewart,[2] possesses several points of extreme interest to the surgeon. The patient was a colored man of 20, who walked one and a half squares to the hospital after being stabbed in the chest with a long, rusty penknife. The diagnosis was not difficult and operation was begun 45 minutes after injury; it lasted 45 minutes, four ounces of ether being administered. The left pleura, lung and the pericardium were found injured. When the opening in the last structure was enlarged it revealed a penetrating wound of the anterior wall of the left ventricle about 2 cm. (¾ in.) in extent. This was closed by a continuous silk suture, six stitches, and the pericardium and pleura drained, no attempt being made to suture the pleura or lung. Despite infection of the wound and postoperative pneumonia, the patient recovered. Access to the heart in this case was gained by severing the third and fourth ribs and turning them forcibly to the right, fracturing the costal cartilages near the sternum. From a consideration of the literature, Stewart believes an atypic osteoplastic flap, with the base toward the sternum and including two to four ribs, will probably be used in most of the future cases. He inserted the sutures without reference to diastole, the rapidly beating heart resembling a quivering mass of muscle, in which the phases of pulsation were essentially indistinguishable. This is the case in most instances, but fortunately writers now generally agree that the time of suturing makes but little difference. One point regarding the operation Dr. Stewart unfortunately does not mention, namely, whether time was taken to disinfect the field of operation. This is a most important question in these cases where time is so valuable, and, on the contrary, where absence of infection in so desirable. Dr. J. H. Gibbon[1] believes he lost valuable time in his unsuccessful case by scrubbing the field of operation. From a study of reported cases Gibbon concludes that with patients who are in a desperate condition the part of wisdom is to expose and repair the heart with the least possible delay; in others who have survived the injury for a number of hours or do not appear to be in an immediately dangerous condition, sufficient time should be taken to thoroughly disinfect the field of operation. The cases operated upon after the lapse of several hours show a larger proportion of recoveries than those operated upon earlier, but Stewart rightly says operation should be undertaken as soon as possible after the injury; the explanation is very simple, those patients surviving for some time being most apt to recover after operation. Early operation saves some patients who would otherwise die.

Dr. Stewart has tabulated 60 cases of suture of the heart, all that had been reported up to May, 1904, with the surprisingly high recovery rate of 38⅓%. Of the 60 cases, 55 were stab wounds and 5 gunshot wounds; two of the latter recovered. Of four cases in which the coronary artery was injured only one (Stewart's) recovered; he punctured the artery while suturing the heart, an extra suture being necessary to control this hemorrhage. Of the 60 cases, the left ventricle was wounded 30 times with 15 recoveries; the right ventricle 21 times, 7 recoveries; left auricle once, death; right auricle once, death; the apex 3 times, 1 recovery; in 4 the site of wound is unknown. From Stewart's table we have summarized the operated cases each year, with the number and percentage of recoveries:

Year.	Cases.	Recoveries.	Percentage.
1896	2		
1897	3	2	67
1898	5	3	60
1899	12	4	33
1900	4	1	25
1901	15	4	27
1902	6	3	50
1903	11	5	45
1904	2	1	50

The figures for 1904 are, of course, incomplete. From this it will be seen that the recovery rate fluctuates decidedly instead of steadily increasing, as in the case of many other lesions now treated surgically. This will undoubtedly continue to be the rule, as the nature of the lesion tends to prevent even a constantly improving technic overcoming with any marked degree of regularity the difficulties inherent in individual cases. This statement is supported by the fact that in the 34 cases collected by Sherman two years ago, though a few of the earlier cases appear to have been overlooked, the recovery rate was also 38%. The collective results of operation are, of course, very gratifying. That a surgical procedure yielding such good results was not practised until nine years ago is to be regreted.

REVIEW OF LITERATURE

The Flap Method in Herniotomy.—E. W. Andrews[2] says the plastic flap is the one thing needed to perfect the surgery of hernia. Of the dozen or more methods suggested by various operators, he believes the one devised by himself best answers the purpose. The upper segment of the external oblique muscle is made into a flap and drawn down to Poupart's ligament; this doubles its thickness, gives broad surfaces for union, and covers the opening with a stout fibrous layer. The overlapping can be done in front of the cord, behind the cord, or with the cord between. This makes at least six practicable ways of imbricating, every one of which Andrews has tested. There is little to choose between them in point of strength, but some are more quickly executed. Andrews says he did not realize until he had performed many of these operations that it is making quite a perfect and typical flap transplantation every time the shelving layers of aponeurosis are imbricated or shingled in the way described. This makes clear the point that the method is a short cut to what many workers have attempted by other means of devising flaps. Consequently it should supersede other flap-operations, as it gives the desired results in a simpler manner. [A.G.E.]

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[1] International Clinics, Vol. ii, Fourteenth Series, 1904.
[2] American Journal of the Medical Sciences, September, 1904.

[1] Ibid.
[2] Chicago Medical Record, September 15, 1904.

Syphilis Treated by Intramuscular Injections of Mercury.—L. E. L. Parker,[1] of the Royal Army Medical Corps, reports having treated 18 cases of syphilis among the troops in Hongkong. The preparation consisted of mercury, 2 dr.; lanolin pur. anhyd., 2 dr.; parolein carbol, 2%, 4 dr.; 5 to 10 minims once a week. This preparation is unsuitable for use in hot weather, as it becomes too liquid. In a hot climate Lambkin's preparation is probably better. It consists of mercury, 2 dr.; lanolin, 2 dr.; and carbolic oil (5%), 4 dr.; 5 m. to 10 m. once a week. In no case was there inflammation or tendency to abscess formation. As a rule four injections, with intervals of a week between each, were sufficient to remove all trace of the disease, so the patient could leave the hospital. Plaques and mucous patches disappeared, rash began to fade immediately, and in a month's time the men were, to all purposes, well. In all cases there was increased weight, and the anemia disappeared; only one of the patients was readmitted to the hospital for syphilis. After being discharged from the hospital the men attended weekly for injections, performing their usual duties at the same time. A note made six months after the original notes taken, showed that although some of the cases had been under treatment more than a year, only one had been readmitted to the hospital for syphilis. [A.B.C.]

Treatment of Varicose Veins and Ulcers of the Leg.—W. S. Royce[2] describes fully his method dealing with these lesions by the use of Unna's paste. For varicose veins without ulcers he elevates the leg of the patient and prepares it as for a surgical operation; in bad cases the patient had best remain in bed for a day previously with the leg elevated. The melted paste is then painted upon the foot and ankle and a gauze bandage applied over it. The principal point in the application of the bandage around the instep and foot is not to reverse it, always cutting it and starting again. Apply more of the paste as needed to hold the layers of bandage. After covering the foot and ankle continue the dressing to the knee, always cutting the bandage instead of reversing. Apply paste to the entire dressing and put on a bandage in the ordinary way; this outer bandage may be changed as often as necessary for cleanliness. When an ulcer is present apply the dressing to the margin and cover the ulcer with a healing powder, which may be often renewed. The under dressing may be left on for weeks, or even months. The points of superiority in this dressing are: (1) The soothing effect of the material employed, to which is added the comfort produced by a firm yet elastic and equable support; (2) the small number of dressings required and the long intervals between their application; (3) absolutely no loss of time to the patient; (4) permanency of the cure effected. [A.G.E.]

Syphilis of the Liver from a Surgical Standpoint.—Cumston[3] calls attention to the fact that syphilis of the liver produces symptoms similar to those produced by other new-growths of this organ. As a rule, there is pain, loss of appetite, diarrhea, and later ascites, with changes in the urine. In some there is present a perihepatitis, and then the pain is not only present in the region of the liver, but is also present in the thorax and in the back, and the pain is increased by inhalation. In other cases there is rise of temperature, great fatigue and nervous depression. The circumference of the upper portion of the abdomen is increased, especially in the right hypochondrium and in the epigastrium; this is not only due to the increase in the size of the liver, but to the ascites. Sometimes the superficial veins of the abdomen are enlarged. He says gummas of this organ vary from 1 cm. (⅜ in.) to 2.5 cm. (1 in.) in diameter. He also points out that primary carcinoma of the liver is rare, and that when this disease enters into the question of differential diagnosis, the primary tumor can very often be found in some other organ. He notes that the progress of malignant disease is more rapid and that the cachexia is also more marked in carcinoma. Cumston calls attention to the fact that the jaundice in syphilis of the liver is a dark yellow brown, while in malignant disease it is a distinct yellow green. He advises antisyphilitic treatment first, and when this fails, he considers removal. [J.F.]

Purulent Mastoiditis.—J. A. C. MacEwen,[1] of Glasgow, reports that a boy of 6 years was admitted to the hospital complaining of a "running ear" of considerable duration, recent pain and tenderness over the part and slight headache. The left ear was the one affected, the left tympanic membrane was gone and there was a bare point on the inner tympanic wall, tenderness over the mastoid region and slight tenderness over the internal jugular vein in the neck. A diagnosis of suppurative mastoiditis with septic thrombosis at an early stage without systemic involvement, and with encephalitis threatening abscess formation was made and operation immediately undertaken. The radical mastoid operation was done, and an opening made through the suprameatal triangle down to the antrum, from which pus escaped. The mastoid region was thoroughly opened, the cells containing pus were cleared and the granulation tissue was removed, together with the malleus and incus. The dura was uncovered, found inflamed, but was left intact. The sigmoid sinus was exposed; its lumen was not entirely occluded, but its wall had lost its natural elasticity, the entire wall was thickened, but it was not opened. The wound was freely cleansed, filled with iodoform and boric powder and packed with iodoform gauze. The patient made an uninterrupted recovery. [A.B.C.]

Enucleation of the Prostate: Its After-treatment.—P. J. Freyer[2] describes in detail the after-treatment that should follow total enucleation of the prostate by his method. The bladder is irrigated with boric acid solution and a rubber drainage-tube introduced; Freyer now uses ⅞-inch (2.2 cm.) tubing. The bladder should be irrigated once daily with boric acid or potassium permanganate solution. As a rule the tube is removed four days after operation. The track is allowed to heal by granulation, irrigation being kept up daily by introducing the nozle of the irrigator through the fistula into the bladder. After 9 or 10 days, Janet's method of irrigation may be employed; if this be not tolerated a catheter is introduced for the purpose. Formerly a catheter was introduced daily after the third or fourth day from operation for the purpose of preventing contraction of the deep urethra during healing, but this is now known not to be necessary. Management of the bowels to prevent constipation is of the greatest importance. Freyer reports additional cases of the operation which continues to give brilliant results. He has now performed it in 110 cases, 3 of which proved to be malignant. Of the 107 remaining, 97 proved a complete and absolute success. Of the 10 deaths only 4 or at most 5 can be attributed to the operation itself, but if all are counted the mortality is but little over 9%. The average age of the patients was a little over 68. Freyer considers the results of the operation as truly remarkable; they justify the belief that we have at last arrived at a rational and practical method of dealing with the condition in question. [A.G.E.]

Early Operation in Appendicitis.—In his conclusions Bornhaupt[3] says there can be no difference between the expectant and the operative treatment; no time should be lost to institute operative treatment after suppurative exudate is once found to be present. He maintains that there are cases of appendicitis in which operation during the first 24 hours of the attack alone can save the patient. Although it is impossible to designate these cases absolutely, abnormal symptoms, such as high temperature, frequent pulse, intense pain, anxious expression and board-like hardness of the abdomen are to be regarded as signs indicative of the cases referred to. He believes the interval operation should be done four or five weeks after the attack. The early operation is not necessary in all cases. [J.F.]

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[1] Journal of the Royal Army Medical Corps, September, 1904.
[2] Chicago Medical Recorder, September 15, 1904.
[3] Arch. f. klin. Chirg., 1904, Bd. lxx, Heft 2.

[1] Annals of Surgery, September, 1904.
[2] The Practitioner, September, 1904.
[3] Arch. f. klin. Chirg., 1904, Bd. lxx., Heft 2.

Duodenal Ulcer.—C. Graham[1] finds the basis of diagnosis of duodenal ulcer in the carefully developed history; physical and laboratory findings are helpful accessories. In the series of 46 operated cases in St. Mary's hospital (33 males, 13 females), pain was the most important symptom. Vomiting was also prominent, 32 patients giving it particular mention. It was as a rule delayed, irregular, and acrid. Gas is also prominent, and is at its height when acidity, pain, and vomiting are ascendant. Food and drink relieve gas formation quite as frequently as they do pain. A large proportion of the patients have good appetites, or even a keen food desire. Bleeding is common, 12 of the patients reporting that sign, and it was found in four others. Cholelithiasis was the chief error into which they fell in diagnosis, it being really the only condition worthy of consideration in making a differential diagnosis. There will always remain a certain number of cases that will mislead the careful physician. Those gallstone cases in which the stomach symptoms of gas, distress, sour belching, and dilation predominate, and pain is but little complained of (and that only of a dull character) will usually be diagnosed ulcer; the duodenal case whose chief symptom is the sudden, sharp pain of perforative peritonitis, and where, with no obstruction nor hyperacidity, the other stomach symptoms are in abeyance, will be wrongly called cholelithiasis. Such error is not vital, as both conditions are purely surgical, and the differentiation must, in many cases, be made upon the operating table. [A.G.E.]

Internal Hernia Causing Intestinal Obstruction after Gastroenterostomy.—H. M. W. Grey[2] reports the case. An unmarried woman of 31 was operated upon for persistent hemorrhage from gastric ulcer; a large quantity of blood was removed from the stomach and a posterior gastroenterostomy was performed. She did well until the sixth day, when there was complaint of intermittent griping pain in the abdomen. This was thought to be due to flatus, but on the seventh day pain had increased in severity and vomiting was noted; this persisting, and the pain not subsiding from enemas, intestinal obstruction was diagnosed and immediate operation performed. The abdomen having been opened, it was found that practically the whole of the small intestine had insinuated itself from left to right through the ring formed by the gastroenterostomy; *i. e.*, by the peritoneum of the under layer of the mesocolon, that lining the posterior abdominal wall and forming the upper layer of the mesentery, and completed by the gastrojejunal junction. It was pulled back and the ring closed by suturing the under layer of the mesocolon to the upper layer of the mesentery to prevent recurrence. The colon was distended with gas, which was relieved by puncture with trocar and canula, the opening being closed with silk sutures. The patient made a good recovery. The writer has searched the literature and finds no other similar case reported. [A.B.C.]

Experiments to Determine whether Bacteria Increase or Decrease in Accidental Wounds Treated under Dry Asepsis and Moist Antisepsis.—Gontermann[3] in order, to determine this data, utilized dry aseptic gauze, iodoform gauze, 0.5% moist corrosive sublimate gauze with guttapercha, 3% with moist carbolic acid gauze with guttapercha. The dressings were changed daily and the bacteriologic observations were also made daily. From his work it is evident to him that the bacteria content of nonsuppurating wounds with antiseptic moist nonabsorbent dressings is increased more than with dry dressings. He prefers iodoform gauze in accidental wounds because this form of dressing beside absorbing the secretions of the wound, acts injuriously upon the bacteria. He finds the moist dressings tend to produce eczema and abscesses of the hair follicles, and he finds it is no safe means to prevent suppuration in accidental wounds. He determined that in suppurating wounds the dry dressings decrease the bacteria content much quicker than the moist, while in phlegmonous inflammations the dry dressings, either aseptic gauze or iodoform, are also followed by better results. In many accidental wounds, healing progresses well in spite of the presence of abundant bacteria in the wound. [J.F.]

Treatment of Recent Simple Fractures by Metallic Clasps.—C. Dujarier[4] reports four cases of fracture, in which, after the usual methods of treatment, skiagraphs showed malposition of the fragments. The fracture was then laid bare and the fragments fastened in apposition by the use of two metal clasps driven into holes made for them in the fragments of bone. The primary results were very satisfactory, as shown by accompanying illustrations. The technic of placing the clasps is described, the writer insisting upon careful attention to details. The holes for the clasp must be drilled through the compact bone on one side, the marrow, and into compact bone again, in order to give firm hold to the metal. The clasp will be held in place by the overlying tissues when they are thick, but in other sites the danger of coming out must be held in mind. None of the cases suppurated. The formation of callus was early, and in general, voluminous. The results indicate that it is not necessary to remove the clasps; in some instances they remain indefinitely without giving rise to trouble, in others they work loose and must be removed. The functional results in three of the cases were perfect; in the other an unexplained minor difficulty persists. Contraindications to the use of the clasps are old age or ill-health of the patient, a large intermediate fragment, or any condition that prevents rigorous asepsis of the overlying skin. [A.G.E.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

EDITORIAL COMMENT

Pharmaceutic Nomenclature and Manufacturers' Rivalries.—The need of a central authority respected and obeyed by physicians and pharmacists, to establish the official name of new drugs—and sometimes of old ones—is daily forced upon the mind of the observant physician. That the blame for the present deplorable conditions rests squarely upon the shoulders of the medical profession, who could have "nipped in the bud" the tendency of chemists and manufacturing pharmacists to selfish secrecy and trademarking of legitimate pharmaceuticals, and thus have avoided permitting an "example of excuse" to the manufacturers of fraudulent and illegitimate preparations, may be admitted. Doubtless had a firm stand been taken when "antipyrin" was patented under a commercial name in the choosing of which the responsible professional authorities and leaders had no share, and had medical men the world over, like some few in London and Philadelphia—and doubtless elsewhere—refused to use the preparation, its manufacturers would have been compelled to submit to such reasonable regulations as a recognized medical authority would have determined and a useful precedent might have been established. But the opportunity was allowed to pass, and the result is what the protesting minority foresaw and warned against. Manufacturers give to their products what names their caprice dictates, and we may thus have identical commercial designations for different products, in the rare case of absence of copyright and trademark —or we may have wellknown scientific terms misapplied by copyright or trademark, or without these—or more frequently we have several different names given to identical, or practically identical, products; as for example, to the combination of ammonium and formaldehyd, and to the active principle of the suprarenal gland. In the case of the latter substance indeed we are badly off, as the most appropriate name "Epinephrin," which was given by Abel to this substance before any one had either isolated it or obtained it in any reasonable degree of purity, would not be recognized by the pharmacist to whom a prescription would be taken as applying to any of the products placed at his disposal by manufacturers—for each house has its own name and claims superiority for the substance or combination of substances it designates by this name. It is not only possible but probable that there may be differences in these products, some essential, some nonessential. If so, there is all the more reason why some disinterested scientific body should determine and make known wherein such differences consist, and their chemic, physiologic, and therapeutic importance. The American Therapeutic Association is to meet in Philadelphia next year, and we beg to suggest to its officers and members that they cannot devote their attention to a more important subject. If the physician is to use pharmaceutic products usefully and skilfully he must have definite and exact information concerning them, he must be sure that his patient gets what he prescribes, and he must not be led astray by unfounded similarities or differences in the naming of the agents he uses. The interested clamor of commercialism must be disregarded and only the interests of science and humanity considered in approaching this problem. The Revision Committee of the United States Pharmacopeia as a continuing body might, if its members would consent, be made a final tribunal; but it has "troubles of its own," and perhaps some other solution of the many questions concerned in the identification and nomenclature of nonofficial products can be found. But this is certain—the question demands careful and scientific study.

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[1] St. Paul Medical Journal, September, 1904.
[2] The Lancet, August 20, 1904.
[3] Arch. f. klin. Chirg., 1903, Bd. lxx, Heft 2.
[4] Revue de Chirurgie, August 10, 1904.

REVIEW OF LITERATURE

Drugs Useful in Cardiac Affections.—S. S. Cohen[1] considers drugs the least useful of all remedies employed in diseases of the heart, and exercise, rest, diet, massage and hydrotherapy of more benefit; but of all drugs used, digitalis is still the sovereign. It is counterindicated when the valvular lesion has been compensated and functional symptoms are lacking; in cases with slight functional symptoms it should not be given in too large doses or for too long a time. In mitral stenosis, especially of children, in which the pulse is small, feeble, and easily compressible, although the heart thumps against the chest so that palpation is not necessary to recognize it, digitalis should never be used; rest in bed, nitroglycerin to relax the peripheral circulation, and aconite to overcome the fruitless cardiac contraction are much better in these instances. In aortic regurgitation it does harm by prolonging the diastole, but in mitral regurgitation and in combined mitral and aortic regurgitation, it is very useful; in combined mitral regurgitation and stenosis, digitalis and aconite are often usefully combined; nitroglycerin often makes a valuable second or third to these drugs. In some cases, especially of fibroid disease of the heart and vessels, it may often be the only drug necessary and in these cases is a valuable cardiac tonic. Cohen favors very small doses, such as $\frac{1}{400}$ gr. to $\frac{1}{500}$ gr. every 10 to 20 minutes, instead of $\frac{1}{100}$ gr. every hour; sodium nitrate he gives in doses of $\frac{1}{20}$ gr.; its action is more prolonged, but less rapid, than that of nitroglycerin. Erythrol tetranitrate in doses of ½ gr. three to four times daily is very efficient in angina pectoris; amyl nitrite should only be given in emergencies and then in large doses by inhalation. In cases of dilation, digitalis is the drug; in cases of hypertrophy, aconite. Digitalis may be alternated with strophanthus and adonis vernalis, or combined with these. Cactus is an excellent remedy in cardiac pain. Mercury and potassium iodid are useful in cardiac disturbances of various kinds, not being limited to syphilitic affections; in cardiac overaction due to nervous overaction-strontium bromid is the best remedy. Suprarenalin, 3 mg. to 6 mg. ($\frac{1}{20}$ gr. to $\frac{1}{10}$ gr.), camphor, 1.2 cc. to 1.9 cc. (20 m. to 30 m.) of a 10% solution, and musk are the remedies in cases of sudden rupture of compensation, or in acute infectious diseases for stimulation; the first two drugs are given hypodermically, the last in doses of 5 to 10 drops by mouth. [E.L.]

Borax in the Treatment of Epilepsy.—In 12 cases of epilepsy in which treatment consisted of the daily administration of 1 gm. to 3 gm. (15.6 gr. to 46.8 gr.) of borax, Hoppe[1] found it useless in seven. In five of these the function of the excretory organs became deficient and psoriasis and edema developed; some of them developed albuminuria, others lost in weight. In two of the seven cases disturbances of the heart and bloodvessels arose. There was an apparent improvement in five of the patients so treated, one of whom being obese lost weight and the attacks occured at longer intervals. Of the other four who have taken borax for 18 months some have developed hyperacidity of the stomach and one has now a gastric ulcer; some are suffering with motor insufficiency and dilation of the stomach. Hoppe says we can not expect to find in borax a specific, but occasionally it will do good. [J.F.]

The Curative Results of Rosenthal's New Dysentery Serum.—L. Rosenthal's[2] antidysenteric serum is derived from the blood-serum of horses immunized against the disease with dysenteric toxin. The serum was found to agglutinate dysentery bacilli in a dilution of 1 to 1,500, it produced characteristic precipitins in dysenteric toxins in a dilution of 1 to 20 and killed dysentery bacilli in from 3 to 7 hours. It possesses marked protecting and healing properties; in doses of $\frac{1}{50}$ mg. to $\frac{1}{80}$ mg. it cured a guineapig, which had been injected with a fatal dose, while the control animals died; 0.5 cc. injected into an animal 12 hours after the fatal injection, cured it, while the control animal died within 24 hours. The serum also possesses antitoxic properties. Rosenthal employed it in 157 cases in the course of an epidemic which lasted from June to October. The ages of the patients varied from 10 to 80; 30% were between 10 and 20, 50% between 20 and 40, and 20% between 40 and 80. About 15% of the patients were admitted during the first three days of the disease, 50% toward the end of the first week, 25% during the course of the second week, and 10% later. Only valerian and caffein were given, and no laxatives or enemas; diet consisted of milk bouillon, eggs, milk, bread, and later meat. The amount of the serum given varied from 20 cc. to 140 cc., rarely was more than 40 cc. necessary. Few unpleasant symptoms were produced; occasionally pain at the point of injection lasting for 24 hours, and in a few cases erythemas, urticarias, and joint pains for a few days were noted. Injections given during the first three days of the disease produced a cure within one or two days; the blood, mucus, pain, and tenesmus disappeared almost at once. By the end of the first week the disease is well developed, but in spite of that a cure results from the use of the serum, only not so quickly; the improvement begins within 20 hours, and by the third day the patients are on the road to recovery; the emaciation and weakness noted ordinarily in cases of convalescence from dysentery are absent. Of his 157 patients, only seven died of dysentery; four others died of dysentery and complications. In the seven fatal cases the patients were not seen until late in the disease, and in all of them stimulation was necessary at the time of admission. The mortality rate in other hospitals varied from 10% to 11.7%; Rosenthal's mortality was 4.5%. [E.L.]

Treatment of Chronic Otorrhea.—The medicines of choice are carbolic acid and glycerin; the ear should be cleansed with hot water before resorting to local applications, which consist of painting with the following solution (Ménière):[3]

Crystallized carbolic acid .	1 gm. to 5 gm. (15 gr. to 75 gr.)
Pure glycerin	5 gm. to 10 gm. (1½ dr. to 2½ dr.)

After the discharge has lessened and become but an oozing, the following formula is preferred:

Pure glycerin	10 gm. (2½ dr.)
Mercuric chlorid	0.05 gm. to 0.25 gm. (¾ gr. to 4 gr.)

Carbolized glycerin also diminishes aural pain and may therefore be employed in otalgia. [E.L.]

The Treatment of Endemic Cretinism with Thyroid Extract.—J. Wagner and V. Jauregg[4] reported the results of the treatment of 52 cases by thyroid extract. In 35 cases in which the treatment extended over 15 months, the increase in height varied from 5 to 15½ cm. They subtracted from the amount of actual growth the amount that a normal child would grow at the same age and found that the children grew from nothing to 10 cm. more than would the normal child. In a few cases the growth was less than normal, but in most cases it was greater. In endemic as well as sporadic cretinism the formation of bone from cartilage is delayed, and also the ossification of the epiphyses is either later or absent. The administration of thyroid extract causes these processes to proceed to the normal, or at least in part. They found that the treatment was not equally favorable in different localities. Hand in hand with the growth of the patient there was a loss of weight. The loss in weight is not the same as that which follows large doses of thyroid gland in myxedematous adults. With the former there is improvement in the blood state, and general strength, and the pale unhealthy color is lost. The apathy and lack of mental activity are without exception improved. Jauregg used tablets containing 324 gm. of the thyroid substance, and usually gave one a day, but in rare instances the dose was increased to 1½ and 2 tablets daily. [J.H.W.R.]

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[1] Pennsylvania Medical Journal, 1904, vii, 509, No. 10.

[1] Berliner klin. Wochschrf., 1904, No. 27.
[2] Deutsche medicinische Wochenschrift, 1904, xxx, 691, No 19.
[3] Bulletin général de Thérapeutique, 1904, Vol. cxlvii, 592, No 15
[4] Wiener klin. Woch., No. 30, p. 835.

Magnesium Peroxid in Acid Diarrhea of Adults.—Bertherand[1] gave magnesium peroxid to six adults with fermentation diarrhea, and found that it becomes changed in the stomach to magnesium chlorid and hydrogen peroxid; the latter under the influence of the ferments of the stomach changing to water and oxygen. To prevent its decomposition in the stomach he gave it in keratinized pills. The dose varied from 0.5 gm. to 1 gm. (7½ gr. to 15 gr.) per day, and caused an immediate diminution of the acid stools, an approximation in consistency to the normal and a return to neutral reaction. His six observations demonstrated very well the antiseptic and antidiarrheal action of magnesium peroxid in fermentation diarrheas. [E.L.]

In intestinal catarrhs of nurslings, especially in cases of dysenteric infection with glairy, bloody, and foul-smelling stools, Hutinel[2] recommends intestinal irrigations with the following solution:

Hydrogen peroxid	50 to 100 (14 to 26)
Sodium chlorid	5 gm. (75 gr.)
Sodium phosphate	3 gm. (45 gr.)
Sodium bicarbonate	0.5 gm. (7½ gr.)

Boiled water sufficient to make 1 liter.

Two to three injections of 150 gm. to 250 gm. daily. [E.L.]

A Case of Resorcin Poisoning.—P. Dalche[3] reports the case of a child of five, for whom on account of tonsillitis and pharyngitis he prescribed a gargle and as a local application to the pharynx a mixture of resorcin 3 gm. (45 gr.) in glycerin 30 gm. (1 oz.); also for the next day a dose of castor-oil. Instead of giving the castor-oil, the nurse in charge gave the patient the remaining part of the local application. The child swallowed approximately two-thirds of the mixture. The symptoms of poisoning, consisting of chilliness, pallor, marked prostration and signs of collapse came on rapidly. An emetic was at once given, and later stimulants. The patient lay in a stupor for 18 hours, voiding during this time only very small quantities of absolutely black urine. The next day, while somewhat better, he suffered severe gastric and abdominal pain and had diarrhea. The urine which still continued black, was voided in larger quantities, and contained per liter, 42 gm. urea, 3 gm. phosphoric acid and 2 gm. sodium chlorid. The improvement continued, but during convalescence his conjunctivas became slightly icteroid and roseolar eruption appeared over trunk and thighs. There was no fever at any time. It took the child a long time to regain its strength. Resorcin is not usually considered a very poisonous drug, and one author says that even in doses of 6 gm. (90 gr.) it is not poisonous, but the age of the child as well as the preceding illness predisposed to the susceptibility. [E.L.]

Carbolic Acid Poisoning Treated by Vinegar.—G. Zelensky[4] saw a child of four about ten minutes after it had swallowed a spoonful of carbolic acid. The lips and buccal mucosa were white and swollen and the child was almost comatose. As none of the usual remedies were at hand, Zelensky immediately gave two glasses of equal parts of vinegar and water. The child slowly regained consciousness and the color of the mucosa became more normal. A stomach tube was then introduced and the stomach washed with water slightly acidulated with vinegar, this recovering many particles of food possessing the odor of carbolic acid. That night the child had a chill followed by high temperature and delirium and green colored urine was passed; this was present for a day but recovery was perfect. Zelensky attributes the outcome to the action of the vinegar. [A.G.E.]

Menthol Valerianate and Seasickness.—Seasickness is a condition difficult to influence by drugs, excepting probably in isolated cases; in validol (menthol valerianate), K. Koepe[1] has found a drug which he says has failed him in but few instances of many hundreds. At the beginning, when the patient complains of nervous headache, bad taste, salivation, dizziness, etc., he gives a piece of sugar with 10 to 15 drops of the drug and bids the patient lie down for half an hour; this is followed by a glass of wine and a biscuit. Within an hour the patients usually have appetite and are well; this dose may have to be repeated, but in most instances the patients remain well. In graver cases, patients having been ill for some days, rest in bed is ordered; validol is given on sugar, and this must be eaten slowly; if the first piece is vomited, a second piece is given at once; the gastric pressure and headache become easier shortly; a half hour later the patient is given sherry, mixed with two yolks of eggs and ice in teaspoonful doses. This dosage is repeated several times during the day, and after the patient has had a good night's sleep, light diet is begun. If this is not tolerated, the egg, sherry, and ice mixture must be resumed and continued with validol until either the end of the voyage, or until the patient can eat other things. If eggs and sherry are disliked, oatmeal and validol may take the place of it. [E.L.]

Laxative Syrup for Infants.[2]—The following formula is taken by infants without struggling or repugnance:

Fluid extract of rhamnus frangula .	5 gm. (75 gr.)
Syrup of senna	25 gm. (6¼ dr.)
Syrup of orange	50 gm. (1⅔ oz.)

One to two teaspoonfuls every evening.

This may be given up to the third or fifth year. [L F.]

The Action of Cascara Sagrada.—J. B. MacCallum[3] summarizes his studies connected with cascara sagrada as follows: The dried extract of cascara sagrada is only very slightly soluble in distilled water. A mixture in distilled water has a marked acid reaction. If sodium hydrate or sodium bicarbonate be slowly added to this mixture until the acid is neutralized, the cascara is dissolved and a clear dark brown solution is obtained; 0.5 gm. (7½ gr.) cascara may be readily dissolved in 25 cc. of a ¼% solution of $NaHCO_3$. This solution may be precipitated by the addition of a few drops of sulfuric acid, and redissolved by again adding $NaHCO_3$. The cascara extract is thus soluble only in a netural or alkaline solution, and is precipitated in the presence of acid. It is insoluble in distilled water on account of the free acid which the powder contains. The cascara extract is soluble in the intestinal juice of a rabbit, but is relatively insoluble in gastric juice. The intravenous injection of 1 cc. 2% solution of cascara extract in ¼% solution of $NaHCO_3$ produces within one minute a very active peristalsis. The same dose of ¼% solution of $NaHCO_3$ alone has no such effect. When poured on the peritoneal surfaces of the loops, the cascara solution produces strong peristaltic movements after an interval of two to three minutes. The injection of 2 cc. to 3 cc. of the cascara solution into the lumen of the small intestine causes increased peristalsis in two to three minutes. When placed in the stomach, however, no action is to be observed in the first half hour. It is to be assumed that the cascara is precipitated in the stomach and goes into solution only when it reaches the intestine, when the acid is neutralized. When administered either subcutaneously, intravenously, or applied locally to the peritoneal surfaces of the intestine, cascara solution causes not only increased peristaltic activity, but also an increased secretion of fluid into the intestine. The movements caused by cascara may be inhibited only partially by the administration of calcium chlorid. [E.L.]

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[1] Bullet. Mem. de la Société de Thérapeutique, May 25, 1904.
[2] Wiener klinisch-therapeutische Wochenschrift, 1904, 771, No. 28.
[3] Bulletin Géneral de Thérapeutique, 1904, cxlvii, 550, No. 14.
[4] La Semaine Médicale, September 7, 1904.

[1] Therapeutische Monatshefte, 1904, xviii, 296, No. 6.
[2] Bulletin Géneral de Thérapeutique, 1904, cxlvii, 592, No 15.
[3] University of California Publications, 1904, i, 163.

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Public Support of Medical Libraries.—So avid is the public for miscellaneous books and libraries that the methods of supplying it are multiplying in a remarkable manner. Vanity, commercial cunning, and philanthropy are mixed in varying proportions in the attempt, the two first not being the least manifest. The controller of New York, when called upon for $10,000 annually, to buy books for each of a large number of Mr. Carnegie's branch libraries, spoke plainly what many have doubtless felt before. It has been erroneously supposed that the word library meant a collection of books, but it is found that it must now be defined as only a building, plus a heavy annual expense, for books and maintenance. But even this degree of public support is denied medical libraries, which certainly are of vastly greater service to the community than the branch public libraries. Instead of a few medical libraries there should be thousands. It is the peculiarity of medical literature that great sums are required to form even a small and useful working collection of medical reference books and periodicals. There are so many languages, and such an amazing number of periodicals! Is it true that there are about 1,400 medical journals published in the world? The ability to consult a few of the best of these, and to have access to the great textbooks and reference works would be of the greatest service to the local profession, and thus to the community. When will some small share of wasted wealth be deflected for this useful purpose? The members of the Association of Medical Librarians would probably smile sceptically, if not derisively. The medical profession can wait!

The Increase and Origin of Bright's Disease.—According to the Chicago Bulletin of Health about 6% of the city's male population is afflicted with Bright's disease in early manhood. This number was rejected in the examination of 489 applicants for appointment in the city fire department. In nine years the increase in the incidence of the disease has been 81.8%. Many suggestions arise in the mind in reference to such increases. The cause usually ascribed is "the high tension of modern life." This, or degeneracy, or some similar unknown *deus ex machina*, is the customary explanation of the inexplainable. But are such pathogenics of any more service than was "the itch struck in," the rush of animal spirits, or blood, to the head, etc., in the older philosophies? The chief cause of Bright's disease is said to be "exposure to cold and wet after a drinking bout." Are the majority of patients with nephritis drunkards? What about the women patients? Are those suffering from the disease more "strenuous" and "high-tensioned" than those having other diseases, or no disease? Is not this theory, like so many others, like that for example of bad food and hurried eating as the cause of dyspepsia, unsupported by accurately observed facts? Is it not rather another instance of the oldtime unscientific clutching out of the air any theory that may serve to disguise our ignorance and inability to explain the troublesome facts? We were not helped to cure epilepsy by saying that the evil spirit must be exorcised, and no therapeutics will be found in the ascription of the cause of any disease to a vague mystery or random theory which does not show the logical and clinical nexus of cause and effect.

The Collapsible Tube and the Tin Can.—The preservation of food by the "tinning" or "canning" process has played a greater role than many know in modern civilization, and especially in warfare. It has made, or its absence has unmade, many campaigns, and the extension of work in undeveloped countries has often been possible only through it. But it is possible that in many ways and for a number of preparations the collapsible tube will supplant the tin can and glass jar. Heretofore the tubes have been used only for toilet preparations, tooth pastes, mucilage, etc., but it is now proposed to extend their uses to foods. A company has been formed to sell ice-cream put up in this way, and one can see many advantages gained by their adaptation to other things. Condensed milk, cream, butter, cheese, jellies, marmalades, gravies, and even meats in the tubes may soon become common articles in households, and especially in those pestered by the servant-girl problem. Careful attention, of course, is demanded as to the material of which the tubes are made, and the possible corrosive or poisonous action of the contained articles upon them. Their adaptability as to size and quantity, the ease with which they can be stored, kept intact, not broken, opened, etc., are evident advantages over old methods, while their disposal when done with, and the freedom they secure from the necessity of the use of dishes, are not inconsiderable benefits. But what shall the word-maker and namer say? He can "wire" his telegrams, "phone" his orders, but instead of "tinned," will he ask the grocer to send him a "tubed," or a "collapsibled" lunch? The American will surely not collapse before he meets the dire philologic—we beg pardon, the philological—necessity. The physiologicly or physiologically strenuous will solve the problem.

The Conservation of an Army's Health.—The measures adopted for the prevention of disease by the Japanese prove the great hygienic superiority of this wonderful nation. Since the greater part of the mortality in all wars is due to disease, the able manner in which this nation has grappled with and solved this problem must command universal admiration. It has remained for them to prove that the systematic use of scientific methods is a most powerful ally in warfare—a lesson to be heeded. Major Louis L. Seaman, who has just returned from the seat of war, says the sanitary precautions observed in the Japanese army are so perfect that, despite the fact of the "notoriously unhealthy" region in which the war is waged, "the loss from preventable disease in the first six months of the conflict will be but a fraction of one percent." This extraordinary result is attributed to three causes: (1) The powers given to the Japanese medical officers; (2) their preparation for war; and (3) the excellence of the ration furnished to the soldiers. Major Seaman emphasizes the fact that the Japanese are the first to recognize the true value of an army medical corps. He says:

> The medical officer is omnipresent. You will find him in countless places where, in an American or British army, he has no place. He is as much at the front as in the rear. He is with the advanced scouts, with his microscope and chemicals, testing and labeling wells so the army to follow shall drink no contaminated water. When the scouts reach a town he immediately institutes a thorough examination of its sanitary conditions, and if contagion or infection is found he quarantines and places a guard around the dangerous district. Notices are posted so the approaching column is warned, and no soldiers are billeted where danger exists. Microscopic blood tests are made in all fever cases, and bacteriologic experts, fully equipped, form part of the staff of every divisional headquarters. The medical officer is also found in camp, lecturing the men on sanitation and the hundred and one details of personal hygiene—how to cook, to eat, and when not to drink, to bathe, and even to the direction of the paring and cleansing of the finger nails to prevent danger from bacteria.

The excellent result of adopting such rigid measures is evidenced by the report of the reserve hospital at Hiroshima, which shows that up to August 1, 9,862 patients were admitted, and of these 6,636 were wounded, making a total of 3,226 medical cases. Of the entire number of cases up to that time only 34 had been fatal.

"The National Congress of Tuberculosis."—The recent meeting in St. Louis, according to the inspired reports in the newspapers, must have been both instructive and amusing. Not intentionally so, however. The retiring chairman of the Executive Committee is reported with oft-repeated quotation marks to have said that October 6 was "the greatest day in medical lore in the history of the world." One speaker, or would-be-speaker, says that "the Mikado and his Court" ruled his paper out because he was not speaking to the question, and the 150 papers to be read left no time, etc. Those only coming with "the intention of doing some good to suffering humanity" were allowed to speak. The suppression of the undesired papers of those who had been invited to speak, it is said, came near breaking up the "Congress." "Many delegates appeared, but did not file their credentials." Those mentioned as delegates, vice-presidents, etc., in the long lists of the precongressional literature seem to have been conspicuous by their absence. "There was not one practising physician on the entire board of officers," says an ashamed delegate. The enthusiastic exchairman, etc., tells the reporter that "the medical fraternity the world wide will receive the news of this alliance with satisfaction. No such organization to combat the spread of a disease, from which there are 1,200,000 persons suffering in the United States, ever has been completed before, and it is the only successful way to meet the deadly foe." "The medical fraternity the world over," one should recall to the promoters, has no satisfaction whatever, or interest in Mr. Bell's congress, and the folly of its promotion without the sanction and help of the profession is strikingly demonstrated in the final result. The following officers were elected: President, Dr. F. E. Daniel, Austin, Tex.; first vice-president, Dr. J. H. Kellogg, Battle Creek, Mich.; second vice-president, Charles Howard Fassett, St. Joseph, Mo.; secretary, Dr. M. M. Smith, Austin, Tex.; treasurer, Clark Bell, New York; chairman of council, Dr. P. O. Hanford, Colorado Springs.

Sanitary and sociologic bulletins for the instruction of working people and their families, model ones too, are being issued by the medical and sociologic departments of the Colorado Fuel and Iron Company. What a capital plan! A better and more effective method of carrying out the betterment of the physical and moral conditions of their working people could not be devised, and Dr. Corwin deserves all praise, both from them and of the profession. Hygiene, social reform, milk and its care, the liquor traffic, tuberculosis, playgrounds, etc., are the subjects treated in the copies sent us, all in simple language, and in such ways that even he who runs or works may read with profit. Physicians may have much influence in encouraging the great corporations and employers of labor to follow the example set by this unique organization, and may advise officials to get copies of the bulletins and the delightful annual reports issued by Dr. Corwin and his company. In the latest report we read of such things as the teachers being sent to St. Louis to study educational methods; of health lectures, by physicians; of hospitals; of cooking schools, night schools and kindergartens; of circulating libraries, etc., all supported by the company. In the medical department, 63,143 patients were treated during the past year. During the strike all the schools conducted their work as usual. The work of the public, private and evening schools, cooking, sewing and kindergarten schools, as well as the clubs, reading-rooms and libraries, was carried on with regularity and without change during the labor agitation. Prohibition and laissez faire have both failed to meet the liquor problem, and it is said:

> We are arranging to try the open reform saloon where one may obtain any sort of pure liquors, where no rules beyond good behavior are to be enforced, but where soft drinks, milk, tea, coffee and sandwiches can be obtained and always be found conspicuously "on tap." Further, where, with games and music, halls, card and billiard-rooms will be made more attractive than the bar-room, and also where it will be the duty of the barkeeper to amuse, entertain, dispense innocent drinks and food rather than sell alcoholic liquors. In other words, a real live saloon, but one which shall not have for its chief object monetary profit or sale of strong drinks.

A model report on tuberculosis is that just issued by the Tuberculosis Commission of the State of Maryland. There is here gathered a vast amount of accurate and scientific information of service to physicians and to the public in the warfare against the disease, not only in the State, but anywhere. The report is made up of five parts, the first pertaining to the nature of the disease, its prevalence and mortality generally, and especially the economic effects in Maryland, the portals of entrance of the disease into the organism, the manner of infection, prophylaxis, treatment, etc. Part II gives the available facts as to the prevalence and distribution of tuberculosis in Maryland; Part III describes the Tuberculosis Exposition held in Maryland; Part IV republishes the addresses delivered at the exposition by Thayer, Hoffman, Flick, Salmon, Adami, and Knopf; Part V cites the acts of the Maryland Legislature relating to tuberculosis. The addresses, especially those of Hoffman and Adami, should be read by every physician. Dr. Ravenel stoutly contends—and despite Koch's recent reassertion to the contrary, we believe with substantial accuracy—that bovine tuberculosis is an important factor in the causation of the human disease. One of the decorations at the Tuberculosis Exposition was a chart illustrating the pathway of human life with its one thronged entrance—the gateway of birth; and its many exits—the gateways of death. Oblique lines in the pathway show the vices, accidents and diseases which turn the crowd toward the exits. The population, represented by dots, numbers 64,172 persons, just enough to allow one woman to finish a hundred years of life. The ages in five-year periods are inscribed on the walls. In thirty years the population would have grown from 64,172 to 96,253. The dead in that time will number 44,578, of whom 5,168 will have died of tuberculosis.

The Influence of Homeopathy.—A few words are due our kind correspondent whose letter is printed in another column, and to those like-minded. It has often been said that the disuse of polypharmic and nauseating drugs is due to homeopathic influence and teaching, but it is more than doubtful if this, except in a minor degree, is true. The catalogs of drugs issued today by some homeopathic drug stores demonstrate that the nauseating is still beloved by many of them. As to polypharmacy, nothing is more certain than that their actual practice, though perhaps unwittingly, is now a hundred times more polypharmic than ours. The glass of water in which the "single drug" is diluted, and which sits by the bedside, contains at least 20 or 30 distinct chemic substances, and in the very highest "potencies." One more than suspects that homeopathy did not aid greatly in the abolition of venesection. A careful ransacking of history might tell a different story. That all the Monday's discoveries of scientific medicine are abandoned on Tuesday, is, of course, not true. When it is so one might add that it is better to abandon proved error than to cling to it religiously. But the oddest of the claims to honor is that pertaining to the testing of drugs. The antivivisectionists have long and persistently dogged our footsteps with violent denunciations and laws against the use of animals in making such tests; with great exacerbation of virulence, one says, "If not on animals, then on human patients!" The tests must be made, according to homeopath, "allopath," or regular. But in the face of all, here is the old "new school" contending with great emphasis that the founder and all his followers demand that the human being shall be used instead of the animal. And yet the antis are so often of the Hahnemannian school!

The troubles of the bow-legged are without number and end! What actor, no matter how great his talent, could succeed if he were bow-legged? What lover could win his suit were he badly so afflicted? So long as he remained upon his horse the cavalry man or officer would be at no disadvantage and his trouble would be unrecognized. But he must at times dismount—and then he would be undone! The examining surgeons, however, will not let him enter the army, and so the military career is impossible for him. Why is this? Shall a matter solely of looks disbar the hero? Is war governed by purely esthetic principles? Evidently the "curve of beauty" and "the Paphian line" are not included or illustrated in the parabolas of extrorsum. But why not? Will any one support the contention that Genu Varum cannot drill, march, and shoot, just as well as Genu Valgum, or even as Genu Erectum? It is said that many protests have been made to the United States Army authorities against the rule that the soldier's legs must be straight. Falstaff's army was made ridiculous, not by lack of valor, but by the abnormal curves of their legs. The Peace Congress should devote some attention to this. If the prejudice is justified and if they could get the government to rescind its ruling concerning bow-legs, there might result a scientific experiment which would be conclusive—defeat is the final test in war—and demonstrate the truth or falsity of the prejudice in a conclusive way. Possibly, however, by sheer reaction the Valgums and Varums would be nerved to exceptional bravery and ability in order to show the falsity of the popular prejudice, and to illustrate a striking *reductio ad absurdum*.

"The Bigs."—In the history of medicine and of medical discovery it has often been demonstrated that a little fact may be a great one, and an unconsidered symptom has proved to be a very significant one. Are we too frequently determined to elicit symptoms and complaints according to a preconceived system, to fill out the picture of a "typical" disease? While doing this do we ignore, or pass too lightly over, something the patient hinted at, or would have told us about if we had only permitted him to tell his story according to his own thoughts and feelings? It is a truism that in actual practice there is no typical case, and that the most important element or phase is that which is individual, and may not often, soon, or never recur. Such a train of thought is suggested by a question put by a most intelligent nurse: "Did you ever have 'the bigs?'" We had not, and we did not know what "the bigs" were, or was! Some physicians feel very big—was that what was meant? Not exactly! Several patients she said had complained of the symptom, and she sympathized with them because she had herself felt the strange sensation. It was described by one as a feeling of enormous size of a leg, arm, the head, or even of the whole body, which seemed as if there were almost no limit to the extent of the part—as if it were filling the room, for example. When did it occur, in what diseases, under what conditions, how long did it last, etc.? It seemed generally to be a symptom of convalescence, and synchronous with a somnolent condition of mind, and quiet of body. Has it any significance? The nurse could not tell. Can any physician?

Guides to Diagnosis of Smallpox.—According to the Bulletin of the New York State Board of Health, a number of cases of smallpox occurring within the State have not been recognized as such. This is common in the absence of an epidemic of smallpox, and the Bulletin enumerates certain data which, if observed in these obscure cases, will aid in diagnosis. Part of the instructions are as follows: If an adult; if the initial fever is marked and lasts three days, subsiding as the eruption appears; if the eruption comes first on the face and is most abundant there; and if there is any induration of the lesion, as of a papule having become vesicular, all of these or any modification of them are quite conclusive of smallpox. No adult should be allowed at large with an eruption thought to be that of chickenpox; no case of vesicular exanthem, preceded by marked fever, though the fever may have no characteristics differing from that of a severe or mild cold; no vesicular eruption so starting and coming mostly on the face, wrists (and frequently on the palms) is likely to be anything but smallpox; and if there is any induration of the base of vesicular lesions appreciable to touch with the tip of the finger, all of these are to be held as conclusive symptoms. In every case give the benefit of doubt to the public, for there will be some cases in which diagnosis will, for a little time, be difficult. Where several cases have occurred the difficulties of diagnosis will be lessened.

The following prophylactic measures for the prevention of pneumonia are suggested by Dr. Edward F. Wells, of Chicago: "1. Pneumonia sputum should be destroyed before it has become dry. The sputum which clings to the teeth and lips, and that which may adhere to the fingers and bedding, should be wiped up with moistened cotton, gauze or other cloth and these burned. All sputum, although not pneumonic, might well be destroyed. In coughing, in the case of the healthy as well as the pneumonic, a cloth, preferably moist, should be held before the mouth in such manner as to prevent the projection into the surrounding air of the fine, insensible, but probably pneumococci-bearing spray which follows ordinary coughing. The same applies to sneezing and blowing the nose. 2. The nostrils, mouth, and throat should be kept as clean as possible. Cleansing sprays and washes for the nostrils; washes for the mouth and brushing the teeth; gargles and drinks for the throat. Permanent occlusions of the nostrils should be removed, while transient ones may well be cared for by the more or less frequent use of a spray of adrenalin solution. Honey-combed tonsils and adenoid growths should be removed. Taking a drink of water after eating is a habit which should be formed and cultivated. Every means should be taken to prevent sleeping with the mouth open. 3. The room occupied by a pneumonic patient should be afterward disinfected, as is done after diphtheria and some other infectious diseases. Remaining long or unnecessarily in a room occupied by a pneumonic patient should be avoided. 4. Respiratory catarrhs, from whatever infection, should be avoided, and if contracted should be relieved as quickly as possible. 5. Physical and mental exhaustion; privation; undue exposure to cold and inclement weather, all should be avoided as far as practicable."

AMERICAN NEWS AND NOTES

GENERAL.

Meaning of the Term Professional.—A New York physician, who was an athlete in college, has sued the management of the recent Olymphic games in St. Louis because he was barred from the competition on the ground that he is a professional, not an amateur. His exclusion was based on the fact that during his practice he has devoted himself in great part to the "physical culture" side of medicine and in this way has accepted fees for giving boxing lessons and instruction in general gymnastics. The management claims that his receiving wages as an athletic instructor, even though a physician, bars him from the ranks of amateurs.

Vital Statistics of Cuba.—The report of the Sanitary Department shows the number of deaths in 1903 to be 1,302 less than in the preceding year. This decrease is said to be due to better service in the rural Sanitary Department. Tuberculosis seems to be on the decrease in the country, and slowly but surely increasing in the capital. Infant mortality in general and deaths from tetanus in particular, are not as low as they should be. Tetanus caused 1,126 deaths in 1902, and 1,144 in 1903, and is the result of ignorance and neglect of simple precautions. Yellow fever, smallpox, and malaria have lost all their terror and are about to become dangers of the past.

Yellow Fever in Brazil.—Consul Ayme reports yellow fever endemic in Para, but as it at present is confined to that city, foreigners and in general, new arrivals, form the greater number of the victims. This apparent susceptibility of strangers is attributed to the complete neglect on their part of the proper preventive measures. The *Stegomyia fasciata*, or socalled yellow fever mosquito, bites during the daytime. It shows a preference for the brightest light, and according to Dr. Goeldi, director of the museum in Para, is attracted by human perspiration. As those mosquitos with which the stranger is familiar usually bite during the night and in obscurity, they are not prepared for the attack of the *stegomyia*, and merely complain of the annoyance of being bitten during the day, as well as at night.

Health of the Army.—Surgeon-General R. M. O'Reilly shows in his annual report that the general health of the army has improved during the past year, the admission rate per 1,000 having been 1,451.13, against 1,716.51 in the preceding year. This marks a gradual improvement in the condition of the troops, which has been noted since sanitary matters have received closer attention, notwithstanding a large proportion of the troops have been on practically war service in the Philippines since 1898. From an average strength of 19,029 American troops in the Philippines, 1,074 were invalided home, a rate of 56.44 per 1,000. There were 271 deaths among the troops there, the losses by death and invaliding amounting to 70.67 per 1,000. Contrary to what might be expected, in view of the general belief in the prevalence and severity of malarial fever in the Philippines, it was found necessary to send only 59 such patients home. Nearly all of this number subsequently returned to duty, none dying. The Filipino soldiers were singularly fortunate in the matter of injuries, having a rate of only 87.29 per 1,000, but their mortality rate of 3.34 for external causes is almost as large as the combined deathrate of white and negro troops. There were 105 cases of Asiatic cholera, with 68 deaths, among the white troops, and 44 cases and 28 deaths among the Filipinos. The negro troops were entirely free from this malady. Beriberi was confined almost entirely to Philippine soldiers. They again demonstrated their freedom from drunkenness, as only three hospital cases from that cause were recorded.

EASTERN STATES.

Leper in Massachusetts.—A Portugese sailor is at present in the United States Marine Hospital at Chelsea, awaiting action by the State Board of Charity. He admits having the disease for nine years, every one of the eight members of his family having died from it or being at present afflicted.

NEW YORK.

Maimed by Röntgen Ray.—It is reported that Dr. Lewis W. Weigel, of Rochester, has had amputated his right hand at the wrist, and the three middle fingers of the left hand, as a result of prolonged experimenting with the röntgen ray.

State Department of Health.—The August Bulletin shows a satisfactory condition throughout the State. Infant mortality shows a decrease more marked than that of adults. The deaths from diarrheal diseases have been below the average of past years.

Many Deaths Credited to Alcoholism.—An investigation has been started to determine the cause of 24 deaths within 10 days in a small section of the city known as "Stryker's Farms." It is believed the victims have been poisoned by wood alcohol. One saloon keeper has been arrested, and others are under suspicion.

New York Skin and Cancer Hospital.—The governors of this hospital announce that Dr. L. Duncan Bulkley will give a sixth series of clinical lectures on "Diseases of the Skin" in the outpatient hall of the hospital on Wednesday afternoons, commencing November 2, 1904, at 4.15 p.m. The course will be free to the medical profession.

Illegal Practice in New York.—In spite of the fact that the Medical Society of the County of New York has been waging war for several years on the army of quack doctors that infect the county, it is said there are still 20,000 charlatans illegally practising medicine in the metropolis. A favorite form of fraud is for a man to assume the name of a licensed physician who has recently died or moved from the community. The most pitiable cases arise from the "consumption" cure fakirs.

The new naval laboratory at Brooklyn is nearing completion, and will shortly be ready for occupancy. It is more accurately described as a medical supply depot, since it will be the establishment from which will be distributed the medical stores for ships of war. Vessels returning from cruises will send their unused supply to the Brooklyn laboratory where also will be overhauled the instruments and other material preliminary to reissue. The building is a credit to the medical corps, being of latest architectural design and fitted with modern appliances, in addition to being a substantially built and fireproof structure. Ground has been broken at Brooklyn for two quarters for medical officers, the contract for this building amounting to about $20,000. The bureau of medicine and surgery will shortly invite bids for quarters for junior medical officers at Norfolk; these buildings will be of cottage design and will cost about $20,000.—[*Army and Navy Register*.]

PHILADELPHIA, PENNSYLVANIA, ETC.

Typhoid at West Chester under Control.—New cases of typhoid have not developed at West Chester for several days and the epidemic is believed to be under control. Eleven deaths have occurred.

Favor Dentists for the Army.—The Pennsylvania Association of Dental Surgeons, at their fifty-eighth annual meeting in Philadelphia, October 11, endorsed the movement of the National Association to secure the placing of a corps of commissioned dental surgeons in the United States Army.

Medico-Chirurgical College.—Dr. William Pickett has been elected professor of nervous and mental diseases and has entered upon his duties as successor to the late Dr. F. Savary Pearce. Dr. Pickett is examiner of the insane at the Philadelphia Hospital, where he has held several important positions.

Prophylactic Use of Antitoxin Recommended.—In view of a fresh outbreak of diphtheria during the past week, Chief Abbott, of the Bureau of Health, urges the preventive use of antitoxin. He points out that the city has a laboratory, where diphtheria antitoxin is prepared in sufficient quantities to furnish every physician, free of charge, all that he has use for.

Hospital for the Tuberculous at Pittsburg.—A hospital for the tuberculous will probably soon be established in Pittsburg. The physicians there have taken no formal action in the matter, but favor such proceeding. No institution of the kind is located in that part of the State and none of the local hospitals admit tuberculous patients. William McConway has offered his Herron Hill residence free for a term of years to be used for the purpose specified.

SOUTHERN STATES.

Wills Mountain Sanatorium.—Of interest to the profession is the news that Dr. George M. Sternberg, U. S. A., has accepted the position of director of this sanatorium, situated near Cumberland, Md. The present efficient house staff will be retained. Dr. Sternberg will spend a considerable portion of his time at the sanatorium, which is a health resort for chronic invalids and convalescents.

Johns Hopkins Laboratory Asks for Specimens.—The embryologic collection at the anatomic laboratory, Johns Hopkins University, lacks many stages of the embryo up to the first three months. The collection is now one of the best, if not the best, in existence, being used extensively for study by advanced students of anatomy. Specimens are also sent from it to various parts of the country. A plea is now made to physicians interested in the collection to supply the specimens most needed. To be of value, the specimens should be placed as soon as possible, and without handling, in a 10% formalin solution, or in the strongest alcohol, and sent to the laboratory as soon as convenient.

WESTERN STATES.

International Congress of Military Surgeons.—This congress met at St. Louis, October 10, with a large attendance. The congress took the place of the thirteenth annual meeting of the Association of Military Surgeons of the United States.

Alma Springs Sanatorium.—Dr. George F. Butler has retired as superintendent and returned to Chicago, where he will fill the chairs of professor of therapeutics in the College of Physicians and Surgeons, and of professor of medicine in the Dearborn Medical College. He will continue to edit and publish his magazine, "How to Live."

Chicago Lowers Mortality Record.—September, 1904, takes its place in the vital statistics of the city as that of the lowest September mortality on record. Its total of 1,935 deaths from all causes represents an annual rate of 12.33% of the population. The lowest previous rate for the month was that of September, 1903, when the rate was 13.42 per 1,000, or 8% higher, while the average September rate for the previous decade was 15.40 per 1,000, or very nearly 20% (19.9%) higher.

The Illinois State Board of Health has issued a third revised edition of its pamphlet on the "Cause and Prevention of Consumption," the first edition of which was published in July. Illinois is recommended as a suitable place for the treatment of tuberculosis, and attention is directed to climatic conditions, elevation and soil, which are equally as good as, and in some instances superior to those found at the tuberculosis sanatoriums of Massachusetts, New York and Pennsylvania. Copies of this pamphlet may be obtained on application to the Secretary of the Department in the City Hall, Chicago.

Vital Statistics of Michigan for September.—There were 2,635 deaths registered in Michigan during the month of September, representing a deathrate of 12.7 per 1,000 population, according to the State census of 1904. This shows a slight increase over the preceding month, which had a deathrate of only 12.1, but is lower than the rate for September, 1903, which was 13.4. By ages, there were 608 deaths of infants under 1 year of age; 208 deaths of children aged 1 year to 4 years; and 704 deaths of persons aged 65 years and over. Smallpox caused 3 deaths during the month, 1 each in the cities of Petoskey, Jackson, and Flint. Two deaths were reported from tetanus.

FOREIGN NEWS AND NOTES

GENERAL.

The Berlin Institute for Infectious Diseases.—Professor Robert Koch retired from his position as director of the institute on October 1. Within a few months he will go to German East Africa to continue his investigation of various tropical diseases, especially those communicated to cattle by various insects classed under the name of ticks. Press reports state he will on his return reside in Paris.

Liverpool School of Tropical Medicine.—A second expedition is to be sent by this school to the Amazon to investigate still further the cause of yellow fever. The expedition will probably start at the end of the year. The committee of the school has published its Thirteenth Memoir, devoted to reports of the trypanosomiasis expedition to the Congo in 1903 and 1904, by Drs. Dutton, Todd, and Christy.

An Amusing Error.—The far-reaching results of a printer's error is shown by the following from the *British Medical Journal:* "At the British Association a paper by Dr. Adamkiewicz, with the title 'Ist der Krebs erblich?' ('Is cancer hereditary?') was on the program. 'Erblich' was misprinted 'erdlich' (earthly). The *Times* announced that a paper had been read by Dr. Adamkiewicz on 'Is the crab a sea or land animal?'"

Famine Threatens India.—Press reports indicate that unless there is a material change in the weather conditions of west and northern India, within the next week or two, the country will be called upon to face a prospect more serious than any since the last great famine year. In many tracts of the Bombay presidency and other localities the water-supply is inadequate, and prices of foodstuffs are increased. In the Punjab the outlook is still worse.

Statistics of the New Vienna Hospital.—The new hospital, of which the foundation stone was recently laid by the Emperor of Austria, will consist of 40 separate buildings, eight of which will be devoted to offices and residences for the staff. Each of the clinical buildings will have a roof-garden, and each patient will be allowed 1,030 square feet of space. The hospital will have 2,300 beds; the operating-rooms will be of an entirely new type, and in the clinics for infectious diseases the patients will be separated from the lecturer and the students by a glass partition. The entire cost of the hospital will be between $7,000,000 and $8,000,000.

Training of Public Disinfectors.—Reports indicate that the training schools in Germany for disinfectors have proved very useful during the past year. In all there were 14 schools, 60 courses of instruction were given during the year, the number of pupils being 601 of whom 585 obtained certificates of competency as disinfectors. The duration of each course was nine days, and only 10 pupils were received at one time, the age limit being 45 years. The minister of public instruction has requested local authorities to appoint in each town at least one registered disinfector to undertake the disinfection of dwellings when required by the medical officer of health.

Sanitary Cooking and Baking.—The City Corporation of London has gone a step farther than any American municipality in supervision of the sanitary arrangements, storing, preparation and cooking of food in restaurants. The chief medical officer over there has hit upon the plan of granting certificates to proprietors who conduct their places properly, and more than 1,000 London restaurants have been visited by inspectors and thoroughly investigated to learn if they are worthy of certificates. The proprietors, so far from regarding this as a meddlesome interference with private affairs, welcome the inquiry and are eager to secure the certificate of the Corporation, which invites trade, as it is accepted as a guarantee that the food is wholesome and prepared with cleanliness. A system of inspection which pries into the food supply is a kind of government paternalism to which, if properly conducted, there can be no valid objection.—[*Providence Journal.*]

OBITUARIES.

S. C. Morrill, at Concord, N. H., October 1. He served for a long time as a member of the Concord Board of Education and was chiefly instrumental in establishing in the public schools the kindergarten, manual training and sewing schools. He was graduated from Harvard Medical School, College of Physicians and Surgeons, New York, and Hahnemann Medical College, Cleveland.

Robert Ellis Dudgeon, at Carlton Hill, London, aged 84. For many years he was a notable personage and was one of the most distinguished homeopathists known in England during the past half century. He devoted considerable attention to the subject of optics and invented the sphygmograph which bears his name.

Thomas Lincoln Axtell, at his home in Waterbury, Conn., September 26, aged 51, from paralysis of the heart. He was at one time surgeon to the second infantry, Connecticut National Guard; graduate of the Bellevue Hospital Medical College, in 1881.

Samuel E. Freeman, at Woodbridge, N. Y., September 24, from apoplexy. He was the fifth of that name in direct line to practise in Woodbridge; a graduate of the College of Physicians and Surgeons in the city of New York, in 1858.

Frederick Marshall, interne in the Boston City Hospital, at Melrose, Mass., September 22, being instantly killed by an explosion of dynamite under a trolley car; a graduate of Harvard University Medical School, in 1904.

VanB. Thornton, at his home in Houston, Texas. He was physician and health officer of the Prairie View State Normal and Industrial College; a graduate of the National Medical College, Washington, D. C., in 1861.

Joseph Newton Johnston, at his home in San Jose, Cal., September 21, aged 40. He had been ill for a long time with tuberculosis; a graduate of Cooper Medical College, San Francisco, in 1886.

William J. Williams, one of the most prominent physicians of Dallas county, Ia., at his home in Adel, September 30, aged 50; a graduate of Rush Medical College, in 1887.

Isaac McBride, at his home in Philadelphia, October 2, aged 73, as a result of injuries received by falling from a trolley car; a graduate of the University of Pennsylvania, in 1854.

T. Carbone, extraordinary professor of pathology in the University of Pisa, at Milan, from the effects of Malta fever, upon the bacteriology of which he was working.

Leroy M. Taylor, a Confederate veteran, at his home in Washington, D. C., September 27, aged 66; a graduate of the University of Georgetown, in 1860.

T. J. Owens, at his home in Utica, N. Y., September 28, after a long illness from diabetes, aged 57; a graduate of Bellevue Hospital Medical College, in 1873.

Theodore Schultze, at Evansville, Ind., September 30, aged 88. He was the oldest physician in that city and had been an invalid for several years.

John W. Jones, at Knoxville, Ga., September 30, from injuries received in a runaway accident; a graduate of Tulane University, in 1861.

Samuel A. Wilson, of Windsor, Conn., was found dead in bed, October 9. He graduated from the New Haven Medical College.

Austin Lord, at his home in New Haven, Conn., October 11, aged 83; a graduate of Yale Medical School, in 1844.

Edward J. Belt, of Springfield, Mass., October 8, from the effects of ingested carbolic acid.

William White, of Abingdon, Va., at a hospital in Baltimore, October 14.

Caleb Harrison, at his home in Madison, Wis., aged 44.

S. B. Stovall, at Vienna, Ga., October 10, aged 78.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 15, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Arkansas:	Fort Smith	Aug. 20-27	3	
Illinois:	Chicago	Oct. 1-8	3	
Indiana:	Evansville	Oct. 10	20	
Massachusetts:	North Adams	Oct. 1-8	1	
Michigan:	At 89 places	Sept. 24-Oct. 1	Present	
Minnesota:	Hennepin Co.	Sept. 27-Oct. 3	23	
	Washington Co.	Sept. 27-Oct. 3	1	
Missouri:	St. Louis	Sept. 24-Oct. 10	20	1
New York:	Buffalo	Oct. 1-8	1	
	New York	Oct. 1-8		1
Ohio:	Cincinnati	Sept. 30-Oct. 7	1	
	Toledo	Oct. 1-8	1	
Tennessee:	Nashville	Oct. 1-8	3	
Texas:	San Antonio	Sept. 1-30	1	
Wisconsin:	Milwaukee	Oct. 1-8	1	
	SMALLPOX—INSULAR.			
Philippine Islands:	Manila	Aug. 13-20	1	2
	SMALLPOX—FOREIGN.			
Africa:	Cape Town	Aug. 20-27	1	
Belgium:	Brussels	Sept. 17-24		1
France:	Paris	Sept. 17-24	10	2
Great Britain:	Bristol	Sept. 17-24	1	
	Glasgow	Sept. 23-30	1	
	Leeds	Sept. 10-17	5	
	Manchester	Sept. 17-24	2	
	Newcastle-on-Tyne	Sept. 17-24	7	
	Nottingham	Sept. 17-24	4	
India:	Bombay	Sept. 6-13		1
	Karachi	Sept. 4-11		1
Italy:	Catania	Sept. 23-29		1
	Palermo	Sept. 17-24	9	2
Mexico:	City of Mexico	Sept. 17-24	2	
Russia:	Moscow	Sept. 10-17	6	1
	St. Petersburg	Sept. 10-17	9	1
	Warsaw	Aug. 13-20		20
Turkey:	Alexandretta	Sept. 17-24	Present	
	Beirut	Sept. 17-24	Present	
	Constantinople	Sept. 18-24		19
	YELLOW FEVER.			
Mexico:	Coatzacoalcos	Sept. 17-24	15	4
	Merida	Sept. 25-Oct. 10	1	
	Tehuantepec	Sept. 25-Oct. 10	1	1
	CHOLERA.			
India:	Bombay	Sept. 6-13		4
	Calcutta	Aug. 26-Sept. 10		10
Russia:	Trans Caspian Territory and Central Asia,			
	Askabad	Aug. 19	1	1
	Bairam Ali	Aug. 14-17	8	4
	Kaahka	Aug. 12-19	12	5
	Merv	Aug. 18-19	29	16
	New Bokhara	Aug. 16	1	1
	Tejend	Aug. 12	1	1
	Trans Caucasia,			
	Baku	Sept. 11	5	
	PLAGUE—INSULAR.			
Philippine Islands:	Manila	Aug. 13-20	1	1
	PLAGUE—FOREIGN.			
Egypt:	Alexandria	Sept. 3-9	9	8
	Tukh	Sept. 3-9	6	4
India:	Bombay	Sept. 6-13		62
	Calcutta	Aug. 26-Sept. 3		7
	Karachi	Sept. 4-11	6	2
Japan:	Formosa	Aug. 20-27	7	9

Changes in the Medical Corps of the U. S. Army for the week ended October 15, 1904:

WHALEY, First Lieutenant ARTHUR M., assistant surgeon, now at Camp Daraga, Albay, will proceed to Lucena, Tayabas, for duty, relieving Captain Henry Page, assistant surgeon, who will proceed to Camp Daraga, Albay, for duty.

MORRIS, First Lieutenant SAMUEL J., assistant surgeon, will proceed to Camp Gregg, Pangasinan, for duty, relieving First Lieutenant Edward M. Talbott, assistant surgeon, who will proceed to Manila, P. I., and report to the chief surgeon of the department of Luzon for instructions.

KIRKPATRICK, Captain THOMAS J., assistant surgeon, is relieved from duty at the first reserve hospital, Manila, and will report to the commanding general, department of Luzon, for assignment to duty.

RICH, First Lieutenant EDWIN W., assistant surgeon, is relieved from duty at Lucena, Tayabas, and will report for duty at convalescent hospital, Corregidor Island.

KIRKPATRICK, Captain THOMAS J., assistant surgeon, will proceed to Malahi Island, Laguna de Bay, for duty.

NOBLE, First Lieutenant ROBERT E., assistant surgeon, will report at the Army General Hospital, Presidio of San Francisco, for duty.

CHAMBERS, WILLIAM H., contract dental surgeon, is granted leave for one month.

WAKEMAN, Major WILLIAM J., surgeon, is granted leave for ten days.

DE WITT, First Lieutenant WALLACE, assistant surgeon, leave granted August 2 is extended fourteen days.

Field, First Lieutenant **Peter C.**, assistant surgeon, leave granted August 31 is extended fifteen days.

Roberts, First Lieutenant **William**, assistant surgeon, is granted leave for fifteen days, to take effect upon his being relieved from duty at Fort Caswell.

Koyle, Fred T., contract surgeon, will be relieved from duty at Fort Brown, upon arrival of Captain Benjamin J. Edger, Jr., assistant surgeon, and will proceed to Fort Bliss for duty.

Winter, Major **F. A.**, surgeon, is granted leave for twenty days from about October 10.

Brooks, Robert R., sergeant first class, now in Washington, D. C., will report upon expiration of furlough to the commanding officer, Fort Myer, instead of returning to Company B, hospital corps, Presidio of San Francisco, as directed in orders of June 17.

Van Kirk, Harry H., contract surgeon, is granted leave for one month.

Dykstra, Joseph, sergeant first class, Fort Des Moines, Ia., will be sent to Fort Morgan, to relieve Sergeant First Class Will G. Butler. Sergeant First Class Butler will be sent to Fort Caswell for duty.

Atkin, Brown F., sergeant first class, Fort Leavenworth, will be sent to Fort Williams for duty.

Stephenson, Major **William**, surgeon, now in New York City, on leave, will proceed to Fort Snelling and report in person, not later than October 30, 1904, to the commanding officer, Twenty-first Infantry, for duty, and will accompany that regiment to San Francisco, Cal.

Holt, Frank, sergeant first class, now with Company B, hospital corps, Presidio of San Francisco, is relieved from further duty in the Philippines Division, and will be sent to Fort Mason to relieve Sergeant First Class Victor Dupont. Sergeant First Class Dupont will be sent to Fort Stevens to relieve Sergeant First Class Charles S. Elliot. Sergeant First Class Elliot will be sent to Fort Canby for duty.

Brown, Henry D., contract surgeon, is granted leave for two months, to take effect when he is relieved from duty at Fort Ward.

Craig, First Lieutenant **Charles F.**, assistant surgeon, is granted leave for ten days.

Changes in the Medical Corps of the U. S. Navy for the week ended October 15, 1904.

Cole, H. W., Jr., assistant surgeon, appointed assistant surgeon, with rank of lieutenant, junior grade, from October 5, 1904—October 8.

Cowan, J., pharmacist, retired, ordered to the Naval Hospital, Port Royal, S. C., for duty—October 11.

Smith, H. W., and **Clifford, A. B.**, assistant surgeons, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C. —October 12.

Changes in the Public Health and Marine-Hospital Service for the week ended October 12, 1904:

Stoner, G. W., leave of absence for eight days from September 19, 1904, under paragragh 189 of the regulations, amended to read seven days only.

Wertenbaker, C. P., surgeon, granted leave of absence for one month from date of joining station at Ellis Island, New York, N. Y.—October 8, 1904.

Rosenau, M. J., passed assistant surgeon, detailed to represent Service at meeting of the Committee on Antitoxin and Immunizing Sera of the Laboratory Section of the American Public Health Association, at New York, October 7 and 8—October 5, 1904.

Sprague, E. K., passed assistant surgeon, granted leave of absence for seven days from October 11, 1904, under paragraph 191 of the regulations.

Foster, M. H., passed assistant surgeon, relieved from duty at Port Townsend, Washington, and directed to proceed to San Diego, Cal., and assume command of the Service at that port, relieving temporary Acting Assistant Surgeon B. V. Franklin—October 10, 1904.

Robinson, D. E., passed assistant surgeon, relieved from duty at Port Townsend Quarantine, Washington, and directed to proceed to Port Townsend, and assume command of the Service at that port, relieving Passed Assistant Surgeon M. H. Foster—October 10, 1904.

McClintic, T. B., passed assistant surgeon, upon being relieved at Tampico, Mexico, by Passed Assistant Surgeon Joseph Goldberger, to proceed to Washington, D. C., and report at the Bureau for further orders—October 10, 1904.

Goldberger, Joseph, passed assistant surgeon, relieved from duty at Monterey, Mexico, and directed to proceed to Tampico, Mexico. for duty, relieving Passed Assistant Surgeon T. B. McClintic—October 10, 1904.

Amesse, J. W., assistant surgeon, to proceed to San Francisco, Cal., and report, on October 31, 1904, to the chairman of board convened to determine the fitness of Assistant Surgeon Amesse for promotion to the grade of passed assistant surgeon—October 10, 1904.

Collins, G. L., assistant surgeon, leave of absence granted for three days from September 30, 1904, under paragraph 191 of the regulations, amended to read one day only—October 6, 1904.

Frick, John, acting assistant surgeon, relieved from duly at Brownsville, Texas, and directed to proceed to Laredo, Texas, and report to the medical officer in command, for duty—October 10, 1904.

Jackson, J. M., Jr., acting assistant surgeon, granted leave of absence for thirty days from October 26—October 10, 1904.

La Grange, J. V., pharmacist, granted extension of leave of absence for sixteen days from October 3—October 6, 1904.

Appointment.

John M. Bell, of Minnesota, appointed pharmacist of the third class —October 6, 1904.

Boards Convened.

Board convened to meet at the Purveying Depot, New York, N. Y., October 31, 1904, for the examination of such assistant surgeons as may present themselves to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Surgeon H. W. Sawtelle, chairman; Surgeon G. W. Stoner, Passed Assistant Surgeon C. H. Lavinder, recorder.

Board convened to meet at the Plague Laboratory, San Francisco, Cal., October 31, 1904, for the examination of Assistant Surgeon J. W. Amesse, to determine his fitness for promotion to the grade of passed assistant surgeon. Detail for the Board: Passed Assistant Surgeon Rupert Blue, chairman; Passed Assistant Surgeon H. S. Cumming, Passed Assistant Surgeon D. H. Currie, recorder.

SOCIETY REPORTS

INTERNATIONAL CONGRESS OF ARTS AND SCIENCE.

Held at St. Louis, Mo., September 19 to 25, 1904.

[Specially reported for *American Medicine*.]

[*Continued from page 666.*]

The Diagnosis of Human Tuberculosis.—Professor Paul Courmont, of Lyons, reviewed some experiments in the diagnosis of tuberculosis in man by the agglutination method. With homogeneous cultures of tubercle bacilli taken from the blood of tuberculous persons were mixed some drops of the serum of the suspect. If a positive seroreaction took place, the subject undoubtedly suffered from tuberculosis. Numerous savants in various countries, in researches covering more than 1,000 cases, had confirmed this discovery made in Lyons. A positive diagnosis had been attained to in 85% of the cases. Even in the absence of tuberculous lesions in a case of serofibrinous pleurisy, the presence of such a reaction indicated tuberculosis. The reaction had never been obtained in any case in which tuberculosis was absent. The importance of this reaction in prognosis was also emphasized.

SECTION OF PATHOLOGY.

The section of pathology was in session on September 22. In this section the paper by Prof. Teissier, of Lyons, on **New Researches in Connection with the Pathology and Diagnosis of Abdominal Aortitis**, was read by Prof. Paul Courmont, of Lyons. M. Teissier, as a result of an analysis of 35 cases, gave what he considered a complete description of the pathologic factors which up to quite recently were almost ignored, showing the provocative causes and giving a basis for the formation of an accurate diagnosis. He said that abdominal aortitis might be either primary or secondary, and that it was more frequently primary than Potain had stated. Direct exposure of the abdomen to cold, prolonged fatigue, or traumatism, as causes of congestion, were frequently among the principal inducers of the primary condition. Such a predisposing cause as a preexisting enterocolitis might be at the bottom of the inflammatory process in the subdiaphragmatic aorta. That part of the vessel might also be attacked by certain infections, such as acute articular rheumatism, grip, tuberculosis, puerperal fever, syphilis, and gout. Secondary abdominal aortitis might be due (1) to direct extension of some degenerative process in the thoracic aorta, *e. g.*, atheroma, rheumatism, or syphilis; (2) to a peritonitis consequent on the extension of inflammation from neighboring organs, *e. g.*, enterocolitis, perityphlitis, and pericholecystitis. The absence of well-marked signs and the difficulty of interpretation rendered the symptomatology very obscure and complex. The hypertension of the dorsalis pedis artery, when compared with the normal tension of the radialis, was a sign of diagnostic value; due to the fact that it was frequently commensurate with the inflammatory intensity in the subdiaphragmatic aorta. Variations concurred with variations in the inflammation and it disappeared with the cure of the disease. M. Teissier had noticed a condition of cardiac intermittency, apparently due to pressure on the aorta at its passage through the diaphragm. A pathognomonic spasmodic icterus occurred sometimes in the crises of subdiaphragmatic aortitis in connection with predisposing diseases, of themselves insufficient to occasion jaundice. The extension of the inflammation from the aorta to the renal arteries rendered subacute or chronic nephritis frequent complications with a consequent resultant renal insufficiency, even though the nephritis itself was cured. Temporary albuminuria or intermittent diabetes might also be produced by aortitis, as a consequence of disturbed renal or pancreatic circulation. In all obscure cases of differential diagnosis the hypertension of the dorsal artery sign was of the greatest service.

SECTION OF SURGERY.

The History of the Development of Surgery.—This paper was read by Professor Frederic S. Dennis, F.R.C.S., of the medical department of Cornell University, New York. Dr. Dennis said that the history of surgery for the last 100 years was one of the most remarkable chapters in the progress of science. Not much more than 100 years ago there were enacted tragedies under the name of surgery more awful than any that characterized the Inquisition. The greatest influence on the development of surgery had been exercised by the introduction of anesthetics. Three operations a month was the average in the Massachusetts General Hospital prior to the introduction of anesthetics. Next to this came the discovery of antisepsis, the influence of which on the decrease of human suffering was incalculable. Modern therapeutic and diagnostic methods next lent their aid to the development of surgery, in electricity, the röntgen rays, and the Finsen light. The inoculation method, too, must not be forgotten. The development of old operations and the discovery of new methods exercised a fourth great influence on the development of surgery. Among these might be mentioned trephining, the suture of wounds of the heart, and operations such as those for gastric ulcers and cancers, for umbilical hernia, appendicitis, intestinal obstruction, typhoid perforation, etc. Then, again, the foundation of the abdominal surgery of today was the outcome of the operation of ovariotomy, which we owe to McDowell, of Kentucky. From a mortality of 100%, this operation had developed until now a series of 93 cases had been presented without a single death. Another instance where the mortality had dropped was in the treatment of compound fractures; here a former rate of 68% had fallen to a seventh of 1%. Surgery differed completely from other arts and sciences in this, that whereas in all other arts something had been lost from the achievements of the past, the opposite was the case with surgery. America had contributed the greatest discoveries in this field, and had come to rank second to none in her progress in this, as in other lines.

Professor Carl Beck, of the Postgraduate School, of New York, said that the gift to medicine by America of anesthesia alone would suffice to deserve a monument. America had taken the lead, too, in experimental science, and aseptic surgery was more thoroughly practised in America than anywhere else. As 60 years ago no surgeon was considered thoroughly equipped until he had studied in Paris, and as now his trend was toward Berlin, so the time was not far off when a visit to America would be necessary to the completion of the surgeon's education.

Other addresses delivered were by Professor J. Orth, of Berlin, on "Cancer"; by Professor Theodor Escherich, of University of Vienna, on "Umbilical Hernia"; and by Dr. Hermann Tuholske, of St. Louis, on a case of extrauterine pregnancy, and some remarks were also made by Dr. A. C. Bernays, of St. Louis, on Dr. Dennis' paper.

SECTION OF GYNECOLOGY.

The section of gynecology held its session on September 24, under the presidency of Prof. Howard A. Kelly, of Johns Hopkins University, Baltimore.

Uterine carcinoma was the subject of a paper by Prof. John A. Sampson, of Johns Hopkins University. It was a study and analysis of 417 cases of uterine cancer, of which 255 were too advanced for operation at the time of their admission into Johns Hopkins Hospital, while of the remainder, 162 in number, not more than 20% could hope to survive and be free from cancer after five years. The author strongly urged the more thorough education of the laity and the general practitioner as regarded the early symptoms of this dread disease. In order that suitable cases might come under treatment before all hope of success was precluded by the condition of the case. He called attention, moreover, to the example set by Prof. Winter, of Königsburg, who had attempted to decrease the number of inoperable cases by throwing open his laboratory to the general practitioner, and by the education of the masses by means of articles in the lay press,

Considerable discussion followed this paper, and on the motion of Dr. John Webster, of Rush Medical College, the chairman, appointed a committee to lay the matter before the next meeting of the American Medical Association, with a view to that body undertaking a work in America similar to that of Prof. Winter, in Germany. The committee appointed by Professor Kelly consisted of Prof. Sampson, Dr. Fred. Taussig, of St. Louis, and Prof. John G. Clark, of Philadelphia.

[To be continued.]

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-fourth Annual Meeting Held at Pittsburg, September 27, 28, and 29, 1904.

[Specially reported for *American Medicine.*]

[Continued from p. 667.]

The Postoperative Treatment of Malignant Disease.—R. W. STEWART (Pittsburg) contended that every case of malignant disease operated upon should be considered as open to the suspicion of a possibility of recurrence, and that the best results will be obtained by early and radical extirpation of the malignant tissue, followed immediately by a course of röntgen ray treatment before the wandering carcinoma cells have become localized and rendered more resisting by increase in cell growth.

A new line defining the relationship of the femur to the pelvis was discussed by S. L. MCCURDY (Pittsburg). He says that intrapelvic lines crossing the pubic spines will cross the trochanteric eminences in children and above the same point in adults, and when the trochanter is found above this line, displacement from some cause is always present. Disregarding the pubic spines, two lines may cross the pelvis. One through the anterior superior spines, and a second through the trochanteric eminences. If these lines are not parallel, then displacement exists on the side on which the lines converge, or are closer. A demonstrator upon the skeleton to show the inaccuracy of the usual method of estimating shortening of an extremity unless the femurs are placed at the same angles with the pelvis on the two sides.

Modern Methods for Combating Deformity in Spinal Caries.—DAVID SILVER (Pittsburg) says that traction by suspension, as a means for correcting deformity and placing the spine in the proper position for fixation, is deficient, because: 1. It does not separate the diseased vertebral bodies, and so does not abolish the traumatism from weight-bearing and functional use. 2. The force used is largely expended upon the secondary curves, the kyphosis being but slightly modified. 3. A large part of the good effect is lost unless traction is made continuous by means of a head support, which is not ordinarily done. Similar objections apply to recumbency on a flat surface. Hyperextension is the key-note of modern treatment. It throws the weight upon the healthy transverse processes, thus relieving the diseased area from pressure; if the proper degree be maintained, the development of a kyphosis is prevented. Deformity in early cases should always be corrected and the spine placed in the overcorrected, *i. e.*, the hyperextended position. During recumbency, necessary throughout the destructive stage, hyperextension is best obtained by the Lorenz plaster-of-paris bed, or in young children by the Bradford frame, which may be bent to give any degree of forward curve. Deformity may be gradually corrected with either of these appliances. The best method for obtaining correction, and for the routine application of jackets, in cases not requiring a head support, is some modification of the Metzger-Goldthwait horizontal frame. A convenient H-shaped support for the kyphosis is described. When the head is to be included in the plaster or a head support to be applied, an upright apparatus, such as Taylo's plaster stool or Wullstein's vertical frame which provides for hyperextension during suspension, is to be preferred. The most perfect head fixation is obtained by carrying the plaster up over the head to encircle the forehead and the occiput.

FOURTH SESSION.

Glimpses of Autointoxication.—E. W. MOORE (Franklin) holds that the real cause of autointoxication is an unsolved mystery and claims that perverted nutrition and cell destruction affords sufficient cause to justify it a place as a causative factor in disease. He mentioned the various actions of the liver and suggests a difference in the urea of its production and that resulting from the metabolism of tissue. He separates autointoxication from infection by giving to the infection theorists all conditions of exogenous origin and to autointoxication investigators those of endogenous origin. He admits a large field of toxemias between those extremes as unclassified and of no known definite origin. He specializes rheumatism, gout, many nervous diseases, jaundice, Addison's disease, and many gastroenteric conditions as autointoxications and questions the right of investigators in claiming anemia as an infection.

The Symptomatology and Treatment of Influenza.—SAMUEL WOLFE (Philadelphia) says that the history of influenza, recurring since 1889, has characteristic deviations from the classic type. Each epidemic has an individuality of its own, but the affinity of the specific cause for mucous membranes and nervous structures is constantly demonstrated. There is reason to believe that certain symptoms are caused by the bacillus itself, and certain others by the toxin resulting from it, but strict differentiation is not yet practicable. The treatment aims at the control and mitigation of such conditions as fever, pain, catarrhal inflammations and central nervous derangements. Facilitating the elimination of the toxin must be regarded as important.

Pneumonia.—J. R. McCartey (Fredonia) advocates the use of spirits of chloroform in this condition. He considers this remedy almost a specific when given early. Case I. Seen as soon as the patient emerged from severe chill; was given 20 m. every 15 minutes for six doses, and every hour thereafter. Dismissed next day. Case II. Seen eight hours after initial chill; was dismissed on the third day. He says the remedy is of no avail after hepatization is established. He usually combines aconite with it now. He believes that digitalis is the chief remedy for the heart, as it is bactericidal and antidotes the pneumococcus toxins. Opium is of value early to retard exudation, but harmful after hepatization is complete. The writer uses salicylic acid in this condition, by dissolving it in gasolin and applying it externally. He believes that it promotes absorption and hastens resolution. His mortality has been 2%.

Physical Diagnosis.—David Riesman (Philadelphia) called attention to two original methods of physical diagnosis. The first is that of ulnar palpation. It consists in laying the ulnar side of the hand in each interspace successively while the patient counts one, one, one; one, two, three; or "ninety-nine," according to individual preference. The ulnar surface of the hand or little finger must be firmly placed in the interspace, the hand being held almost at a right angle with the chest. This part of the hand has a very delicate sense of touch. The method gives very accurate information, and enables one to discover small shades of difference in the fremitus of contiguous interspaces or corresponding areas on the two sides. It also shows very sharply the upper level of an effusion and the limits of plastic exudate. Its chief value, of course, is in examining the front of the chest. The second point is that of transmanual auscultation. It consists in auscultating through the hand placed over the heart. The method can be used satisfactorily only with a newer binaural stethoscope. The author has found the one known as the Bowles the most satisfactory. The principal advantage of this method will be found in differentiating presystolic from systolic murmurs.

[*To be continued.*]

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, Held in Cincinnati, Ohio, October 11, 12, and 13, 1904.

[Specially reported for *American Medicine.*]

Medical Section.

What Shall be Done with the Criminal Insane?—John Punton (Kansas City, Mo.) said that the conflict of authorities raging between law and medicine was responsible for much miscarriage of justice. A mutual conference to adjust differences of opinion and formulate conclusions relative to the medicolegal aspects of insanity in keeping with the more advanced state of medical knowledge, which could be used as a criterion in courts of law, was greatly to be desired. The skilful manipulation of law, as now applied, often swept aside the entire medical aspect, even when guilt was admitted, and gross errors of justice resulted. The members of the American Psychological Association and the general medical profession were appealed to for their assistance in defining the mental condition which should exonerate a criminal from punishment. The wide difference of opinions prevalent in the public and professional minds relative to what constituted criminal responsibility of the insane rendered a consensus of medical opinion a necessity. Very few of the insane were wholly irresponsible for their misdeeds, and they should, therefore, incur, with certain restrictions, some form of punishment. In view of the degrees of responsibility associated with insanity, the just and equal disposition of the criminal insane became a question of the highest importance. The prevalent horror and disgust at the punishment of an insane person for criminal misconduct was a fallacy which should be condemned, as it often proved to be the responsible agent for the plea of immunity from punishment by murderers on the ground of insanity. The declaration of the law that the insane man was wholly irresponsible was a gross confession of weakness. Some courts recognized modified responsibility, and instructed the jury to commit the insane criminal, if found guilty, to the State Insane Hospital until his recovery, when he shall again be set free, and this usually happened a very short time after punishment. The just or humane medical disposition of the criminally insane would seem to demand his incarceration in a special institution under medical surveillance and subject to certain restrictions, suited to each case, and he should never be allowed to associate with innocent inmates of the State Insane Hospital. A consensus of medical opinion on the important vital questions above stated would tend to harmonize the present misunderstanding between law and medicine, and would thus aid in a more just and equitable disposition of the criminal insane.

Discussion.—A. Ravogli (Cincinnati), deprecated the tendency to generalize too much in discussing the criminal insane. He reported a case in which an epileptic committed several murders before his insanity was recognized. Charles W. Hitchcock (Detroit) said this was a very delicate question for the medical profession to decide, and a case was reported showing that justice might miscarry, even where there was an institution provided for the incarceration of those not responsible under the law. G. Frank Lydston (Chicago) disagreed with the previous speaker that this was a delicate question for the medical profession, and said that the entire subject of criminology should be relegated to the medical profession, so far as the physical conditions and remedies therefor were concerned. Many irresponsible individuals were punished. Punishment for crime has proved a distinct failure. Both sane and the insane criminals should be removed from our social system and isolated. The principle should be not punishment, but simply social self-defense. What should we do in regard to the propagation of the criminal insane? We had not yet come to the sterilization of these individuals, but undoubtedly would do so. F. W. Langdon (Cincinnati) said that if the profession was given full power in this matter, it was questionable whether it would be able to draw the lines satisfactorily. The legal and medical professions had different points of view, and therefore their conclusions must vary. He agreed with Lydston as to the punishment of the sane and insane. We should not arrogate to ourselves the fixing of the penalty that probably was never right. B. F. Beebe (Cincinnati), stated that law had been coming to medicine on this question, because the prosecutors had been securing the assistance of medical men. Society must be protected, but the question was how and when and where to take care of the criminal insane. We must determine what constitutes responsibility or irresponsibility. While the laws of the various States did not agree, there was practical unanimity among those who had studied this subject from a medical standpoint. Dudley S. Reynolds (Louisville) spoke of the qualifications of the jury, requiring that they be not familiar with the facts, and were not opposed to capital punishment. Such qualifications did not require that the jury be really competent to decide these cases, and medical men were called in to testify as to the responsibility or irresponsibility of the defendant. Medical testimony was based not on an examination of the individual, as a rule, but upon hypothetic questions constructed by the legal gentlemen. The chief trouble was with the legislative conditions in the various States. Any person convicted of a felony should be unsexed rather than killed. No person in his right mind would commit a felony. Geo. Sprague (Lexington, Ky.) referred to the fact that the use of the asylum for the criminal insane was being rapidly extended throughout the country by the legal and medical professions. Often the attorneys for the prosecution and defense agreed to rest the matter of commitment on trial with the medial commission of such an institution. Such a reference would be more frequent if there were more assurance that such a medical commission was composed of really expert medical men. Hitchcock, in explanation, stated that he did not regard this an indelicate question for physicians, but it was a very delicate question. Lydston said that sterilization could be effected by obliteration of the fallopian tubes in the female and by obliteration of the vas deferens in the male, without any effect upon the individual, save the arrest of the function of procreation. Punton, in closing, said it was desirable to become able to have the court properly instruct the jury in these cases.

Loss of Consciousness and Automatism in Inebriety.—Thomas B. Crothers (Hartford, Conn.) said that the claims of no recollection or consciousness of events by inebriates indicated a paralysis of certain brain sections, during which the victim might act automatically and be without consciousness of the real condition. Histories of prominent cases confirmed this fact. Many startling crimes were committed in this condition. This was a new phase of irresponsibility which had not been recognized by the courts and only recently had been studied by physicians. The defense of no recollection might be a reality in some cases, and should be recognized by physicians.

Discussion.—B. F. Beebe stated that the essential point was to prove the fact of the unconsciousness and the automatism. An idea could not exist if the brain cell was not in a condition to receive and retain an image. Whether unconsciousness was produced by alcohol or any other poison the result was the same. John Punton said that the medical profession ought to know the effects of alcohol upon the nerve cells, but when this question came up in court there were as many opinions as there were doctors. It was not the individual's opinion the court asked for, but rather what definite knowledge there was and the consensus of opinion of the medical profession in reference to the question at issue. Hugh T. Patrick said it was necessary to make a very fine distinction between alcoholic automatism and automatism in the alcoholic. In many degenerates or imperfects there was a tendency to drink too much. The automatism and the drinking might be the result of a preexisting condition. Crothers, in closing, stated his belief that individuals, such as he had described, should be regarded as insane.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

AN IDEAL OF MEDICAL PUBLICATION.

CHICAGO, September 19, 1904.

To the Editor of American Medicine:—The condition of medical journalism in the United States must be seriously deplored by everyone interested in the reputation of the American medical profession. We have practically three classes of medical periodicals. In the first group are the *Journal of the American Medical Association* (which is following rather closely the example set by the former *Philadelphia Medical Journal*) and a half dozen other medical weeklies of similar form and motive. In the second group are an unlimited number of local monthly publications of more or less local interest and usefulness, built up upon practically the same lines as the better periodicals in the first group. In the third group are a half dozen quasimedical journals which cater to the most popular, numerous and isolated class of the profession and occupy a space between the lay health journals and the more serious medical publications. The circulation of the first group averages about 20,000 for each of the half dozen individuals in the group. The circulation of the journals in the second group is much smaller, but generally much more concentrated in definite localities. The circulation of the journals in the third group is something enormous, though partially gratuitous. These journals have a monthly circulation of 60,000 to 150,000, and practically appear upon the table of every practising physician in the United States and Canada.

This condition of affairs makes it impossible for a medical or surgical contribution of whatever merit to appear in a dignified form and with suitable surroundings in any journal except three or four periodicals of restricted circulation and confined to definite specialties. The mechanical expense and the postal restrictions are such that the best sort of illustrated articles cannot be produced in a journal of wide circulation. Even if it could overcome these limitations, it would be buried in a mass of transient medical news, routine medical discussion, and extenuated society proceedings, and lost in its frivolous company.

Some years ago the *Philadelphia Medical Journal*, which at that time set the pace and established the fashion up to which the first group has been gradually creeping ever since, published a supplement at monthly intervals, in which it grouped those communications of unusual merit and of special mechanical requirements and set them before the profession in excellent form and unimpeachable company. This particular idea has not been utilized elsewhere. The journals of the first group still publish dignified articles, trashy communications, serious editorials, but also editorials of temporary interest and value, gossipy news, juiceless abstracts, drooling correspondence, and favorite prescriptions, without any apology for their incongruous association. The shelf room of our libraries is crowded with this driveling of the medical press. The value of the most highly elaborated contributions and their influence upon medicine and medical practice is lost in isolation and lack of dignified dress and attractive company. Authors are discouraged when they seek for a place of publication, they are disappointed when they see the results of their labors. The profession loses in reputation abroad and in ideals and enthusiasm at home. The influence of the best literary, clinical, and laboratory investigators is lost in the mire of democratic mediocrity and cupidity.

Is there not some way by which there may be established in America a dignified medical journalism, an Archives of articles of permanent value to the profession, in which worthy communications and contributions may be appropriately clothed with all the attractiveness and wealth of the modern bookmaker's art and yet distributed as widely as the journals of the first group? We separate the advertising pages from the body of these journals when we send them to the binder, why not in some way controvert the absurd postal regulations, and by a system of pagination, by placing permanent and valuable communications by themselves and transient and questionable publications in a separate series, begin at least to realize this ideal?

BAYARD HOLMES.

"A HOMEOPATHIC DISCOVERY."

To the Editor of American Medicine:—Referring to your little "dig" entitled "A Homeopathic Discovery," dated September 10, while in this instance your sarcasm is deserved, still as you claim you will give credit where due, why not, instead of pronouncing homeopathy sterile, remember that if it had done nothing else than force the regulars to abandon indiscriminate venesection and their nauseous, bulky polypharmacy, homeopathy would yet be deserving of honor—but homeopathy has done more. Over a hundred years in advance of Prof. Schmiedeberg and other German investigators of the present day, Hahnemann decreed that in order to ascertain the pathogenic (physiologic?) action of drugs they must be administered to healthy men and women, not to dogs, rabbits or guineapigs, and results recorded. A comparison of these results obtained by Hahnemann and his successors, with the materia medicas of Bartholow, *et al*, will reveal the fact that the regulars are not averse to appropriating a bit of homeopathy occasionally, although they seem decidedly averse to "give credit where it is due." Homeopathy has been reproached for its lack of progress—its failure to carry on research and the invention of instruments; its accusers forget that homeopathy is a specialty in therapeutics, that it has to do only with the administration of drugs. We must admit the first indictment—we have been too content to rest upon the laurels of the masters who builded well and for all time. Newton discovered the law of the attraction of gravitation, and physicists are yet studying its apparent exceptions and modifications. The same is true of the homeopathic law of similars. Homeopathists do not make as many discoveries as do the regulars, it is true. We do not discover that Monday's lauded panacea is, like some railway tickets, "good for this day only"—not good on Tuesday or any other time, and as to last year's discoveries, they too often bear a painful resemblance to last year's birds' nests. Neither do we permit the enterprising "detail man" of the manufacturing pharmacists to do nine-tenths of our prescribing. All honor to your brave, persisting investigators. God speed them—they must soon discover the truth there is in homeopathy. The mountain awaits, patiently, the coming of Mahommet.

St. Louis, Mo. E. R. PAILLOU, M.D.

The Philippine Opium Question Again.—The commission, appointed some months ago to investigate the opium question in the Orient, have made their report to the War Department at Washington. The commission urges that the opium trade be made the subject of a monopoly at once. The commission consists of Major Carter, Bishop Brent and Doctor Albert. They instituted inquiries in Japan, China, Hongkong, Java, Formosa, Saigon, Straits Settlements and throughout the Philippines. The only places where there was difficulty in getting full information as to the use of the drug and the conditions under which it is consumed was in the city of Manila. The Chinese there control the greater part of the traffic in opium and they would not divulge any particulars of their business. The commission is of the opinion that the use of opium is spreading to native Filipinos to an alarming extent and that measures should be taken promptly to check traffic in the drug. The commission considered five methods of action: High license, local option, farming, prohibition and monopoly and decided that the latter was the most practical way of dealing with the evil. The commission states that the use of opium in the Philippines does not at this time constitute as grave a social danger as it does in China and other neighboring countries, and on that account it is all the more important to stamp out the evil if possible or to check it and restrain it within bounds. The commission recommends the adoption of a system of exclusive government monopoly, limiting the right of importation, wholesale and retail, of opium to the Government, the exercise of the governmental function to be entrusted to upright, intelligent, honorable and well-recommended persons, following the practice observed in Java, with the object of eliminating from such a responsible trust, all personal and commercial interests which would tend to extend the sale of the drug. The recommendation is also made that the monopoly be replaced as soon as practicable by one of absolute prohibition. A system of registration and licensing for all chronic smokers is urged, limiting the right to procure opium in definite quantities to them.

ORIGINAL ARTICLES

SOME PROBLEMS IN THE LIFE HISTORY OF PATHOGENIC MICROORGANISMS.

BY

THEOBALD SMITH, A.M., M.D.,

Professor of Comparative Pathology in Harvard University.

Our knowledge of the profound influence which the microscopic organisms, known as the bacteria, exercise in the life of the globe, may be considered an acquisition of the last quarter century. The surmises and hypotheses of the half century preceding were then made over into well-attested facts.

The activities of microorganisms manifest themselves in many different ways. The functions carried on by the bacteria of the soil are known to be of fundamental importance to higher plant life. The work of the bacteria producing fermentation, putrefaction and decay, is of similar importance in preparing the way for the soil bacteria and ministering to the wants of higher organisms. Out of this latter class there has arisen a group which has given these microorganisms all the notoriety they possess. It is a small group, but formidable in that it is in partial opposition to the higher forms of vegetable and animal life. It is these parasitic forms to which I shall devote my address, as it is they which have preoccupied my attention for some years. In thus passing over large groups of bacteria I simply register my inability to properly present their claims, and I trust that others here present will fully supplement my paper by dealing with them in deserving fashion.

While bacteriology, strictly speaking, deals only with a fairly well-defined group of unicellular plant-like forms standing near the limit of microscopic vision, medical bacteriology has been gradually widening its scope to a study of all unicellular and even higher parasitic forms, which multiply more or less indefinitely and continuously for a time in the invaded body. In addition to the bacteria proper, the protozoa, and those highly important ultramicroscopic organisms which seem to have certain characters not possessed by either of the other two groups, are now frequently gathered into medical bacteriology, because of certain underlying principles of action which they possess in common as parasites.

Bacteriology differs from the older sections of biology in several important particulars. In the first place, it has been developed under the stress of practical demands. The enormous economic and sanitary significance of bacterial life has pushed forward this study very rapidly, and the problems undertaken have been suggested almost wholly by considerations arising in agriculture and medical practice.

In the second place, bacteriology, at least so far as the parasitic forms are concerned, is essentially a study of two realms, that of the parasite and that of the host, of two organizations, widely different, acting upon one another and entering into complex, reciprocal relations. The older departments of biology do not present such a complicated aspect. Thus anatomy or morphology has, at least until very recently, dealt with structure and development without considering the relation of the individual to its environment. That was relegated to physiology and patholgy. With the bacteria the morphologic aspect dropped nearly out of sight because of the difficulty encountered in analyzing structures so minute and relatively simple. Even the classification gradually evolved, as more and more forms were examined, is at present very largely a physiologic one, the characters being based on the action which the bacteria exert upon the medium in which they multiply.

Then again, there was no ulterior interest in the study of bacteria as such, which is a strong impulse in many other departments of biologic science. It is what bacteria do rather than what they are, that commanded attention since our interest centers in the host rather than the parasite. This tendency manifested itself in a peculiar way. As soon as bacteria could be handled in pure culture, the study prosecuted most actively was how most quickly to destroy them. Disinfection, sterilization, and all agents which act destructively upon bacteria were diligently sought for. The first impulse of the youthful branch of bacteriology was thus to destroy, rather than to study and analyze. When some years later the antibodies were discovered, the rush toward the bactericidal serums was equally manifest.

Bacteriology in its scientific form was thus ushered into existence largely by medical men who had definite practical ends in view. It presented from its beginnings a dual aspect for study and its chief aim from the first was the destruction of one of the elements, the parasite. Slowly, however, the more impartial study of host and parasite in their mutual relation began to take root and today there is scarcely a department of physical, chemic and biologic science which does not have some share in the unfolding of this complex relation existing between plant and animal life on the one hand and the microorganisms acting as parasites on the other. As a result of this rather unique state of affairs, bacteriology is not a self-contained, well-defined field of work, but one greatly subdivided by aims and methods of study. A realm as large as that of microorganisms may well claim attention in many workshops of science.

The short time at my disposal does not permit a wide survey of the field of bacteriology, and I have deemed it best to discuss in a general way the parasitism of bacteria and to outline the probable results of any attempts of medical and sanitary science to modify this parasitism. In undertaking this task I have adopted the somewhat discredited method of presenting actual hypotheses, partly new, partly old, in a new dress. These furnish a definite point of attack, and are better suited for discussion than any presentation which boxed the compass with the views already well known.

Infectious diseases have frequently been portrayed as a battle between two organisms, the host on the one hand, the parasite on the other. There are few diseases even among those not strictly infectious in character in which this battle does not go on at some stage and in which the activity of bacteria may be ignored. For some years the analysis of this warfare has been the chief problem of bacteriology and pathology. What are the weapons of offense and defense on either side? Are the weapons simple or complex? Are they changed as the struggle progresses to suit the immediate state of the battle? Do the combatants themselves change during long or short periods of time, and does the character of the disease change as a consequence? Do the parasites act differently when posing for us in the culture tube than in the animal body? These and other queries may easily be read into the special literature of the last decade.

To realize the great complexity of this struggle we need but to review the gross facts of disease which express themselves in epidemics on the one hand, in individual disease on the other. We meet all gradations of severity, from rapid death to a mild transient disturbance, from a disease lasting hours to one lasting 15 or 20 years, or even longer. Even the simplest generalizations concerning such a varied phenomenon must necessarily be subject to many exceptions, and perhaps gross inaccuracies. This is evident from the heated discussions which have been waged over the humoral and the cellular phenomena, the antitoxic and bactericidal forces of the blood and the phagocytic activities of certain cells, each party to the discussion claiming, at least for a time, that the opponent had no case. Though the brilliant researches of Metchnikoff and Ehrlich, and the fundamental discovery of Behring and Kitasato have to a certain degree exposed the mechanism of warfare, the exposure is only fragmentary, and the hypothetic reconstructions based on it are leading as usual to further controversy. We do know that no two species of microorganisms carry on the warfare just alike, and that the same parasite finds a somewhat different situation in every host attacked. The problem of the immediate future is to determine where the brilliant discoveries of Metchnikoff, Nuttall, Behring, Bordet, Ehrlich, and others, belong in the life of each microbe, and to construct for each disease the exact nature of the contest.

In the following pages I do not intend to enter into any discussion concerning the intimate life of bacteria, but simply to point out certain biologic problems which seem to lie on the surface, as it were, and which illustrate the close relation existing between bacteriology and general biology. They have suggested themselves to me from the comparative standpoint, one up to the present but poorly cultivated in medical science.

The researches of Roux, Kitasato and Behring, Van Ermengen, and others, have shown that certain species of bacteria secrete toxins during their vegetative period. These toxins are soluble in the mediums in which these species multiply. Beside these physiologically well-defined poisons, there are others which are closely linked to the body substance of the bacteria, and which have become familiar to us in such wellknown substances as tuberculin and mallein. According to the theory of R. Pfeiffer, this second class of poisons is liberated only by the disintegration of the bacteria, and the intoxication of the host, due to its destructive action on the bacilli, is a kind of postmortem effect of the parasites. Other bodies, the socalled lysins, which act destructively upon red and white corpuscles, have also been demonstrated by Van de Velde and by Ehrlich and his pupils, but their significance in disease is not yet clear.

In the host, on the other hand, during the multiplication of microorganisms, there appear bodies known as antibodies, which have aroused the greatest interest. They neutralize the soluble toxins, agglutinate the invading bacteria and disintegrate them. They also precipitate or coagulate albuminous bodies. Their action is specific, being directed toward the invaders. These are the main weapons which thus far have been found. Are there other offensive and defensive bodies? What course do the bacteria pursue in the presence of the gradually accumulating antibodies of the host? Do they forge new weapons or not?

Professor W. H. Welch in his Huxley lecture presented the theory that the mechanism of the production of antibodies on the part of the invaded host was set in operation by the microorganisms as well, and that various tissue poisons might have their origin in overproduced bacterial receptors thrown off under special stimulation by host substances. This theory implies that bacteria may not unfold all their activities in the culture tube and that the latter give us no reliable clue as to their behavior in the living body.

On this point we may perhaps get some light by a consideration of the plasticity of microorganisms. It has long been known that the pathogenic power of bacteria is reduced gradually in artificial cultures. It is also well known that by a series of inoculations or passages through animals the virulence may be restored, and even raised above the natural level. Bacteria have been gradually accustomed to originally destructive doses of poisons in culture fluids. Very recently it has been shown that they may be gradually trained to multiply in strongly bactericidal serums and to refuse to be clumped in strongly agglutinating serums.

These adaptations persist for a certain time and are transmitted for a limited period, even in cultures. In other words, the modifications are more or less gradually acquired and gradually lost. The same is true of the antibodies of the host. The antitoxin circulates in the blood of the horse long after the stimulation by toxins has ceased. In the immunized animal the agglutinating properties do not disappear at once. I am therefore inclined to believe that the bacterium freshly removed from its usual environment will, at least for a time, exercise all its functions, provided the special nutritive substances which may be needed to carry on those functions, are present.

The theory of Professor Welch would then resolve itself into a question of nutrition. In the body of the host there are certain substances which give rise to special toxins when acted upon by special bacteria. If we could offer these special substances to freshly isolated bacteria there is no reason why the assumed toxin should not be formed. We must therefore take into account two possibilities, the adaptation of microbes to originally destructive agencies, and the production of poisons from specific substances elaborated by the host.

I have entered into this much of detail concerning the mutual relation of microorganisms and host in order to make clear the hypothesis, which it seems to me accounts very well for the general phenomenon of infection. It is that the tendency of all invading microorganisms in their evolution toward a more highly parasitic state is to act solely on the defensive while securing opportunity for multiplication and escape to another host. By tendency I mean a general slow movement through long periods of time. The following data are in its favor:

1. The production of diffusible toxins survives parasitism indefinitely, and is readily brought about in cultures.
2. Where toxin-producing bacteria have become adapted to a definite species, as in diphtheria, the toxin itself acts upon a number of different species. In other words, the parasitic relation is far more specialized than the chief pathogenic product.
3. No strictly invasive bacteria have yet been found producing diffusible toxins which appear to be of any real significance in the disease process.
4. Those which produce such toxins are not strictly invasive bacteria.
5. The injury due to invasive bacteria is known to be due to the disintegration of bacteria and the setting free of poisons locked up in the bodies of the microbes.
6. Pathogenic bacteria manifest less biochemic activity than the related saprophytic forms.
7. The hemolytic and leukocidic toxins of bacterial filtrates may be due to autolysis of the bacteria. Jordan has shown that hemolysis is at least in part due to a change in the reaction of the culture fluid.

According to this hypothesis, microorganisms in slowly adapting themselves to the parasitic habit would gradually eliminate active toxin production and other aggressive weapons as of little use, and strengthen whatever defensive mechanisms they may accidentally possess the rudiments of. If these are capable of marked development, we may expect such types of disease as tuberculosis, leprosy, glanders, and syphilis in which the parasitic habit is carried to a high state of perfection. If their mechanisms of defense are not capable of much development they will soon be destroyed or else become adapted to live upon the skin, and especially the mucous membranes as opportunists and occasional disease producers.

In this adaptation the possession of somatic poisons set free during disintegration may play an important part. They may give rise to just sufficient toxin to produce a local protecting nidus of necrotic tissue, until the time for escape to some other host arrives. This assumption is supported by the fact that diseases of some duration are usually focal in character. The microorganisms multiply only in certain foci which sooner or later become evident as the visible seat of disease.

It may be claimed that defensive and offensive methods are practically the same, and that it is simply a play upon words to make any distinction between them. But reflection will convince us that offensive methods mean direct injury, whereas defensive methods simply mean a neutralization of the offensive weapons or else a condition which is invulnerable to them, such as an envelope made of a special substance.

According to Ehrlich and his pupils, the antibodies which appear in the course of disease, are not new bodies but overproductions of bodies present in minute quantities normally. The parasitic microbe is thus at the very beginning of the invasion confronted with these bodies. At the termination of the disease there are no new bodies present, but the antibodies are on hand in relative abundance. The situation which the invader has to face is thus qualitatively the same at the beginning and at the end of the attack. How does he meet it by defensive methods?

Three possible fates await the invaders. 1. They are largely destroyed within the body. 2. They are excreted, or discharged through various channels. 3. They remain indefinitely in the body after the disease is over to be eventually destroyed or eliminated.

That the microorganisms are largely destroyed within the body in the course of the disease, is not open to dispute; this class is of no special significance to us. Of most importance are those that escape to continue their life cycle in another subject. The mechanism of elimination is of vital importance to the parasite. It assumes many forms, and is admirably adapted in the various specific diseases to perpetuate the existence of the species.

The survival of the microbes after the disease is over may be explained partly on the ground that in nearly all diseases some of the microbes pass their final stage near the surface of the skin, or mucous membrane, or in organs in direct or in indirect contact with the outer air, so that escape outward is readily affected through destruction of tissue, and hence protection from the bactericidal forces of living tissue. The small number which in some types of disease remain alive for some time after the disease process has subsided, may also be enclosed in small foci of necrotic tissue, and thus escape destruction temporarily.

I am inclined to believe, however, that among the problems of the future will be the elucidation of still another mechanism for the protection and escape of the microorganism. It is highly probable that in a certain number of species of bacteria after the active vegetative stage a latent stage follows, during which the parasite which has escaped destruction provides itself with some protective envelope which also aids it in its passage to a new host. This envelope, which may be some specific substance not recognizable with the microscope, or which may be represented by the capsules in some groups, may be a defensive body of the parasite stimulated to overproduction by the antibodies of the host. This body also interferes with the metabolism of the microbe and thus acts in the double capacity of stopping the disease and protecting the microbe at the same time. This hypothesis suggested itself to me while endeavoring to account for the peculiar behavior of tubercle bacilli under cultivation.

It is well known that tubercle bacilli from the diseased tissues of cattle grow very slowly and then only upon certain culture mediums, such as blood-serum. After several years of continuous cultivation they multiply vigorously in glycerin bouillon and can hardly be distinguished in appearance from those human varieties of the bacillus which grow richly from the first or second transfer. There seemed to be no justification to assume that the bacillus had completely changed its metabolism under artificial cultivation. The more rational hypothesis seemed to be the one which assumed the existence of some protective substance only slightly acted upon by the serum, not at all in glycerin bouillon, and therefore a hindrance to multiplication. After repeated transfers, this protective substance was slowly lost either through a selection of bacilli or absence of stimulation on the part of the host, or both causes combined, and the growth became as luxuriant as with the more saprophytic human varieties. It is obvious that each group or species of bacteria would have its own special protective device depending upon original capacities of the species which would be gradually developed in power and efficiency with the perfection of parasitic relations.

The formation of protective or defensive coverings, the strengthening or modification of the cell wall or the secretion of defensive fluids would account for certain phenomena which are familiar to bacteriologists much better than the current theory which bases parasitism exclusively upon toxin production, active or passive.

In cultures we should expect a loss of power to form protective substances because the antibodies are absent. Hence the universal tendency toward the reduction and final loss of virulence with apparently the metabolic and vegetative activities unchanged, and the frequently observed regaining of virulence by passages through series of animals.

In the evolution of parasitic bacteria I assume then that though the function of toxin production may have been the entering wedge toward a parasitic existence there is a progressive loss of this function as of little use to the parasite after it has once acquired a foothold, for the action of toxins at a distance from the focus of multiplication does not aid the parasite, while it may destroy the host. In other words, with the invasion of the tissues of the latter it became necessary for the invader to concentrate its powers in its immediate vicinity, and for this purpose those poisons set free by the disintegration of the parasite may be of use in protecting the focus where the younger forms are, by necrosis of tissue, plugging of vessels, etc., and thereby keeping away the bactericidal forces until the bacteria have accumulated sufficient protective power to subsist in a latent condition and are ready to be discharged outward. With the loss of active toxin production according to this hypothesis and the loss of other, now useless, metabolic activities, there goes hand in hand a strengthening of the defensive functions. This strengthening I interpret as the gradual development of certain substances which the nonimmune host is unable to act upon or at most only in a slight degree. This substance which, as it were, shoves itself in between the parasite and the common bactericidal forces of the body bears the specific pathogenic character of the microbe. It is the substance which according to the nomenclature of Ehrlich calls forth the amboceptor from the resources of the host to combine with it and thus open the way for the usual bactericidal forces or complements according to Ehrlich. The existence of this specific protective body will account for the varied resistance of animals to the same microorganism and the relative difficulty to induce immunity. The more difficulty the body has in producing the amboceptor the greater the difficulty in acquiring immunity.

In the departments of preventive and therapeutic medicine, the isolation of this protective substance apart from the body toxins, would be of prime imporance in combating disease by inducing individual resistance. In fact, the theory that the socalled immunizing and disease-producing substances are separate, is not new, but has been presented under various forms. The tendency to give up the toxic extracts of bacteria and use the latter in their entirety in immunization pays tribute to these unknown bodies. The most prominent example of this change was the abandonment by Koch of the old tuberculin, a boiled extract, and the utilization of the entire tubercle bacilli ground and uninjured by heat, in the production of immunity in tuberculosis.

The foregoing hypothesis that the tendency of microbes in perfecting the parasitic habit is to act solely on the defensive is to a certain degree supported by a phenomenon of considerable biologic importance, which I wish to discuss very briefly.

If we examine the statistics of the various infectious diseases we are struck with the relatively low mortality of most of them. There are few highly fatal plagues now known. To be sure, the mortality of many infectious diseases is regarded as formidable by sanitarians, but if we disengage ourselves from the humane view for the moment and take the biologic standpoint, we will agree that the relatively high mortality of 25% to 50% indicates a very decided preponderance of the resisting powers of the human race. The odds are always against the invading microbe. This state of affairs appears for the moment to contradict the results of experimental bacteriology, which teach us that the virulence of microbes may be more or less rapidly raised by repeated passages through susceptible animals, or even through those which possess considerable resistance. The accustoming of bacteria to antiseptics, bactericidal, and agglutinative serums has already been mentioned. With this capacity for adapting themselves to the defensive mechanisms of the host, why should not the infectious diseases become more, rather than less virulent? What is it that keeps their virulence on a low level? This problem has occupied my attention for a number of years, but only recently did a fairly satisfactory explanation present itself. Before entering upon it I have still one other phase of the problem to consider.

Of a given number of races of the same species of bacteria, the one which becomes parasitic on a given host species is not necessarily the most virulent for that species. This phenomenon impressed itself upon me during the study of a number of races of the bacillus of septicemia hemorrhagica, or more familiarly, rabbit septicemia. Races of this species have been found very widely distributed among mammals and birds. Epizootics due to it have been described as occurring among cattle, carabao, game, swine, rabbits, guineapigs, fowls, geese, etc. It lives in the upper air passages of many domestic animals in health.

The rabbit may be successfully inoculated with any of these races. Some are very virulent, for the merest scratch of the skin inoculated with them will result in death within 24 hours. But the rabbit is not attacked spontaneously by them, although they are ubiquitous. The race which has fastened itself upon the rabbit is one of a very low degree of virulence for that animal. Similarly the highly virulent tubercle bacillus of cattle is encountered only occasionally in man, although the opportunities for a transfer from cattle to man are very good.

On first thought, it would seem to us that the most virulent race would be the one to crowd out any less virulent races and to finally predominate. But comparative pathology shows us that the contrary may be true.

The explanation for these apparently discordant facts readily flows from a consideration of the life history of parasitic microorganisms. This briefly consists of three phases, the entry into the host, the temporary multiplication therein, and lastly, the escape to another host. Each step in this life cycle must be carefully and deliberately worked out in the evolution of parasitic organisms, and each demands a special mechanism adapted to the purpose. One step is as important as the other. The parasite must find an unguarded entry or one which yields readily to its efforts. It must have a means of defense within the body and it must finally reach the exterior to enter a fresh subject.

As a result of these needs, each microorganism producing disease has one or several avenues of entry and escape. In some of the protozoa there is but one avenue, and this is highly specialized and is through the body of some insect. Among the bacteria the channels of escape are less highly developed, and there may be several. As a rule, the microbe adapts itself eventually to a locus more or less in direct contact with the exterior, and in some instances the loci of entry, multiplication, and exit have coincided. If we think over the various infectious diseases of man and animals, of which we have any definite information, we will be surprised to find in how many the points of attack are in organs or tissues in direct communication with the exterior. In the most common type of tuberculosis, pulmonary consumption, the process is almost wholly limited to the respiratory organs. In typhoid fever the process is to a large degree carried on in the intestinal wall. In dysentery and cholera it is wholly so. Even in the very protracted disease of leprosy, the skin is the chief seat of the disease, while the discharge of bacilli from the ulcers of the nose is the rule in the tuberculous type. In that exquisitely parasitic, highly specialized group of microorganisms producing the eruptive diseases the final process is carried on in the skin. In these diseases the mechanism of escape is the most perfect.

On the other hand, among the spore-bearing pathogenic bacteria the means of escape is uncertain. Thus the anthrax bacillus betrays its saprophytic nature, as pointed out by Koch many years ago, in its inability to produce spores within the body. Were it not for the accidental discharges of blood from the mucous surfaces and the operations of man the bacillus might not escape at all to sporulate. Similar conditions obtain for the bacillus of tetanus and of Rauschbrand. Both produce disease probably in an accidental manner and not as progressive parasites. Their continued existence is assured by vegetation and spore formation outside of the body, and it is highly probable that the species would continue to exist if they did not attack animal life, and that their incursions into the body are of no use to them. On the other hand, all attempts to demonstrate the production of spores in bacteria whose existence depends largely or wholly upon parasitism have thus far failed. The spore is evidently poorly fitted to parasitism and is replaced by other devices of more adaptability.

The mechanisms of invasion and escape bear a distinct relation to the pathogenic power or virulence. It is safe to assume that those varieties or species no matter how virulent, will be eventually destroyed if these mechanisms are imperfect. In fact the more virulent the microbe, the more rapid the death as a result of invasion, the less the opportunity for escape. Hence there will be a selection in favor of those varieties which vegetate whence they can escape. The surviving varieties would gradually lose their highly virulent invasive qualities and adapt themselves more particularly to the conditions surrounding invasion and escape. That some such process of selection has been going on in the past seems the simplest explanation of the relatively low mortality of infectious diseases. These individuals or races of microbes which invaded the host too rapidly and caused death would be destroyed in favor of those which vegetated more slowly and in tissues permitting escape of the microbe after a certain time.

We may now return to the rabbit septicemia bacillus. The reason why the most virulent type of this group does not pass to rabbits is due to the fact that there is no satisfactory mechanism of entry and escape. This presupposes a lesion, a wound as a place of entry and the excretion and transfer into a wound in another animal. In the rabbit this difficulty is worked out in the way usual with this bacillus. The microbe adapts itself to vegetate upon the mucous membrane of the upper air passages. Under certain conditions it invades the lungs, pleural and pericardial, more rarely the peritoneal cavity, producing pneumonia and extensive exudates on the serous membranes and causing death. The disease of the thoracic organs evidently follows some predisposing cause, which enables the bacillus to make a temporary invasion from the mucous membrane. This incursion into the body is not essential to the life of the race. In fact a little reflection will show that the bacteria which invaded are not likely to be transmitted, whereas those on the mucosa are readily handed down from old to young. The virulence of the bacillus is thus kept on a low level, so low that subcutaneous inoculation of pure cultures produces merely a local lesion. This type of disease is quite different from that produced by inoculation with highly virulent races. These multiply rapidly in the blood throughout the body.

We can now appreciate Pasteur's failure to exterminate the rabbits of Australia. He believed that with races of this bacillus on hand which destroy life very quickly, all that is necessary is to start the disease among rabbits, and it will tend to spread. The stricken rabbit with its blood full of germs does not offer the means for inoculating a second, and so the virulent race perishes.

We can understand, furthermore, why the bacteria associated with definite diseases in animals, produce a diseased condition with difficulty after inoculation. The virulence of the specifically adapted microbe is of a relatively low order, and in the production of epizootics various conditions must be realized which assist the microorganism. The careful analysis of these conditions will form one of the great problems of pathology in the immediate future.

The phenomenon of the elimination of the most virulent races and the establishment of parasitic races of less invasive power I have portrayed in the simplest terms. But it is probably much more complex. The parasite, to be successful, must also stand in a definite relation to the tissue through which it enters. It is quite probable that the race of rabbit septicemia bacilli of high virulence would not be able to maintain themselves in the mucus of the upper air passages. This ability to multiply in certain places is evidently an acquisition which gives the particular race its specific character. Without doubt the bovine tubercle bacillus, though of great virulence, does not possess the specific power of entering the human body, or it may be of maintaining itself after entry in certain tissues, such as the lymph-nodes, except under certain accidental, favoring conditions not yet understood. Perhaps the process of cultivating vaccine virus in the skin has deprived it of the capacity for entering through the respiratory tract, and has converted it into a purely inoculable virus.

In the study of pathogenic bacteria the relative ease with which pure cultures may be obtained from the blood and other organs only accessible by way of the blood has made this a favorite way of obtaining such cultures. But it may be asked whether we are not in this way obtaining bacteria of maximum virulence? May not the nonagglutinability of some typhoid bacilli immediately after isolation be accounted for in this way? In general, the bacteria thus obtained can differ but little from the type, as they are all recently descended from a single bacillus or a very few which caused the infection. It is different in the socalled passages through series of animals in which the usual portals of entry and exit are circumvented and the bacteria injected into the body and withdrawn therefrom directly. As a result of such passages many species of bacteria have been made more virulent, and Pasteur was able to greatly modify the unknown virus of rabies.

Beside the maintenance of virulence and its occasional augmentation, a slow decline to complete loss of virulence may be looked for under conditions abnormal for the microbe. This probably goes on where the bacteria multiply, partly or wholly protected from bactericidal influences. The bacilli of tuberculosis, which multiply in cavities of the lungs or in muco-pus of the air-tubes in chronic cases, must be regarded as degenerating in virulence. And we actually encounter races varying considerably in pathogenic power. In the throats of well persons or those who had diphtheria months ago, bacilli without any power of toxin production, but with all the other characters of genuine diphtheria bacilli, are occasionally encountered.

During the elimination of the more virulent races of microorganisms, there goes on as well a gradual weeding out of the most susceptible hosts. In a state of nature in which medical science plays no part, there must occur a slight rise in the resistance of individuals, due to selection and perhaps acquired immunity, which meets the decline of virulence on the part of microbes until a certain norm or equilibrium between the two has been established. This equilibrium is different for every different species of microorganism, and is disturbed by any changes affecting the condition of the host or the means of transmission of the parasite. One result of the operation of this law is the low mortality of endemic as compared with epidemic diseases. Certain animal diseases while confined to the enzootic territory, cause only occasonal, sporadic disease, but as soon as they are carried beyond this territory, epizootics of high mortality may result. Climate in some cases enters as an important factor, but the most important, perhaps, is the slight elevation in virulence brought about by a more highly resistant host. The most susceptible animals are weeded out, and the rest strengthened by nonfatal attacks. The virulence of the microbe rises slightly to maintain the equilibrium. In passing into a hitherto unmolested territory, the disease rises to the level of an epizootic until an equilibrium has been established.

The same is true of human diseases, among which smallpox is a conspicuous example. The great pandemics of influenza, which seem to travel from east to west every one or two decades, soon give away to sporadic cases, and the careful work of many bacteriologists would indicate that the influenza bacilli found at present have fallen to the level of secondary invaders, and are parasites of the respiratory tract in many affections.

As pathogenic microorganisms differ not only in the degree of parasitism attained, but also in their essential nature, a great variety of diseases is the result. In a crude way they may be arranged into three classes:

1. Microorganisms which live upon the skin and the mucous membranes and invade the body only when lesions exist in these structures, or where the general resistance is impaired.
2. Microorganisms which appear only occasionally from some unknown but permanent focus. They produce epidemics often highly fatal, but they are successfully pushed back because the strain cannot readily adapt itself to the new conditions.
3. Microorganisms which are most highly adapted for a parasitic existence and which produce diseases of a relatively fixed type.

As regards the first class, the conditions under which they produce disease rise more and more into prominence. The factor microbe becomes almost secondary to other factors. Many of our most common diseases obey certain meteorologic laws. Thus diphtheria and pneumonia are chiefly winter diseases, because the conditions of throat and lungs which favor them are largely due to cold weather, or we might say, the cold weather acting upon an indoor sedentary population or one subjected to untoward influences, injures the respiratory tract. Some microbes of this class depend upon the preparation made for them by others. Thus the exanthematous diseases, such as scarlatina and smallpox, are frequently associated with or followed by the invasion of streptococci and the majority of deaths are due to such secondary invasion. The streptococci live upon the mucous membranes, and whenever the proper opportunity comes they invade more vital territory. This group of bacteria is the frequent cause of death in chronic diseases. Some years ago Prof. Flexner pointed this out and denominated the invasion as a terminal infection. I think that they may also be appropriately styled the parasites of the diseased state.

Among the second group we may place such diseases as Asiatic cholera and the bubonic plague. The origin of the first is unknown. The definitive host of the second is probably the rat.

Among the third class we have such widely separated but highly parasitic groups of diseases as tuberculosis, leprosy, syphilis, and glanders, on the one hand, and the eruptive diseases on the other. The former are very chronic, protracted, the latter acute, rapid in their course. In the eruptive diseases the infection seems to depend solely upon the specific susceptibility of the individual, and immunity is easily brought about by protective inoculation.

In tuberculosis and leprosy the mode of infection is evidently very different from that of the group just mentioned. Prolonged exposure, as in family life, seems necessary to successful infection, and even then many exposed individuals escape. In tuberculosis, heredity plays a very prominent part in the eyes of the physician, because the disease appeared to propagate itself in families. This was probably due to the necessity for more intimate association and repeated exposure in order that the disease might appear. Here the disease is long drawn out, the parasite may become in a sense individualized, and the attack upon a new host may have to be made repeatedly. With these highly parasitic forms the necessity for a frequent transfer to another host is slight. In leprosy, the disease may last 15 years to 20 years, and then death ensue, usually as a result of the attack of the secondary invaders.

From the biologic standpoint which I have endeavored to present, we may conceive of all highly pathogenic bacteria as incompletely adapted parasites, or parasites which have escaped from their customary environment into another in which they are struggling to adapt themselves, and to establish some equilibrium between themselves and their host. The less complete the adaptation, the more virulent the disease produced. The final outcome is a harmless parasitism or some well-established disease of little or no fatality, unless other parasites complicate the invasion. The logical inference to be drawn from the theory of a slowly progressive parasitism would be that in the long run mortality from infectious diseases would be greatly reduced through the operation of natural causes. But morbidity would not be diminished, possibly greatly increased by the wider and wider diffusion of these parasites, or potential disease producers. The few still highly mortal plagues would eventually settle down to sporadic infections or else disappear wholly because of adverse conditions to which they cannot adapt themselves.

In this mutual adaptation of microorganism to host there is, however, nothing to hinder a rise in virulence in place of the gradual decline if proper conditions exist. In fact, it is not very difficult to furnish adequate explanations for the recrudescence and activities of many diseases today, though the natural tendencies are toward a decline in virulence. In the more or less rapid changes in our environment due to industrial and social movements the natural equilibrium between host and parasite established for a given climate, locality, and race or nationality is often seriously disturbed and epidemics of hitherto sporadic diseases result. Typhoid fever will serve as one illustration of my thesis. It is ordinarily a sporadic infection, passing from the sick to the well by direct contact. Our knowledge that the infection of this and other diseases is contained in the discharges of the sick and a growing sense of cleanliness led years ago to the large systems of sewerage, which have made a crowded city life possible. But the removal of sewage from our immediate surroundings was the beginning of new trouble. The sewage was led into water courses from which drinking water came. Hence the great epidemics in place of sporadic disease. The direct transmission of the parasite on a small scale was largely checked, but the indirect transmission greatly favored. The dweller in cities with unprotected water-supply is still further endangered by the fact that the typhoid bacilli returned in the water may represent more virulent varieties than those handed down by his ancestors in rural communities. The motley propulation brought together by migrations from all parts of the globe bring the various races of bacilli with them to be redistributed on a large scale.

Conditions may even create diseases artificially. Thus in childbirth, the physician through want of cleanliness may in his examination actually inoculate a wounded surface with streptococci or other septic bacteria. In a hospital badly managed, such germs may be made to pass artificially through a series of individuals and their virulence raised. In nature this could not take place, because there would be no physician. Hence the transfer would not take place. The history of maternity hospitals before the period of asepsis in surgery is a sufficient proof for the theory advanced. Hospital erysipelas and hospital gangrene were diseases artificially bred. With the introduction of the principle of asepsis in medicine and surgery the artificially created diseases were destroyed, because the transportation facilities of the bacteria were cut off.

These illustrations indicate that socalled natural law does not stand in the way of our having highly virulent types of disease if we are ignorant enough to cultivate them. The microorganism is sufficiently plastic to shape itself for an upward as well as a downward movement. Among the most formidable of the obstacles toward a steady decline of mortality is the continual movement of individuals and masses from one part of the world to another, whereby the partly adapted parasites become planted as it were into new soil and the original equilibrium destroyed. These various races of disease germs become widely disseminated by socalled germ carriers, and epidemics here and there light up their unseen paths. Fortunately for us, the conditions under which these microorganisms may establish themselves are in many cases so complex that they cannot be realized. It is highly probable that the bubonic plague cannot get a foothold or maintain it among us, while Asiatic cholera might have a better chance, through our still greatly unsatisfactory water-supplies. Many tropical diseases would fail to take root in our climate. The mysterious rise and disappearance of leprosy in the middle ages has astonished many students of epidemiology. Possibly some slight bias of the microorganism may have accomplished what seems almost a miracle. Perhaps the right race or variety once introduced may repeat the history of the middle ages in our day or in that of the coming generation.

Another obstacle to the amelioration of infectious diseases is the rapid change going on in the habits of individuals and the ferment in our conceptions of health and well-being, which are continually upsetting any established equilibrium and making us more resistant to some diseases, more susceptible to others. Of great interest is the effect upon the human race of the assiduous care of those afflicted with certain chronic diseases which is just now expressing itself in the establishment of sanatoriums for the cure of the tuberculous. If this movement should gain great headway there may be a race of immunes gradually developed who may be able to stand the untoward conditions of indoor city life much better than the naturally robust and physically superior who have no socalled hereditary taint.

Of still greater interest is the vast vaccination experiment to whose beneficent influence the century just past bears ample testimony. The vaccinated individual is either wholly immune or else the disease contracted after exposure is abortive and the eruptive stage does not come to full development or maturity. The excretion of the infecting organism is thereby greatly interfered with and it is not improbable that in the mildest cases it may not reach that maturity necessary for the successful infection of others. In view of the adaptability of microorganisms in general it is not beyond the range of possibility that a variety of the smallpox organism may through a chain of accidents arise as a result of successive passages through partly protected individuals. Today it seems fairly well established that a single vaccination in infancy is not an adequate protection during life and at least one nation—a nation which not only cultivates but consistently utilizes science—prescribes two vaccinations as necessary to complete protection. Whether in the days of Jenner repeated vaccinations were deemed necessary I have not been able to verify; but we may assume without immediate fear of experimental contradiction that a century of incomplete protection may have worked some changes in the smallpox organism. In any case, it is obvious that our thesis implies in addition to the natural decline of virulence also a gradual rise in virulence whenever the resistance of susceptible individuals is raised on a very large scale. Either the microorganism if a true parasite will perish or else it will augment its invasive powers to meet those of its host.

Another problem has been created for the diphtheria bacillus by the extensive use of diphtheria antitoxin. Will the thorough protection of one group of human beings lead to the decline or to the increase in virulence of the diphtheria bacillus circulating among the individuals of this group? What effect will the transfer of such bacilli to unprotected groups have? These and similar queries may be answered not many years hence, for a generation of microbes represents a very short space of time.

It may not be out of place to call attention here to the bearing of my thesis upon the recent attempts to utilize parasitism in ridding us of undesirable or noxious animals. In bacteriology there have been attempts to destroy field mice and rats with certain species of bacteria. In entomology, parasitism is such a familiar phenomenon that it has been seized upon on a number of occasions to destroy otherwise unassailable insect pests.

Leaving out of consideration the presumptive dangers of introducing new species into a locality or country which must always be taken into consideration, although they may be of no significance, we have to consider the chances of success as compared with the cost of introducing and maintaining the parasites. In any event, we need not expect a destruction of the noxious species, for that is not the end of parasitism. A reduction in numbers is all that need be looked for. The new parasite will probably fail to become acclimated at first, and it may be necessary to reintroduce it for a number of years. During this period some few may become adapted to their environment and continue as parasites. Whether the equilibrium finally established will be of economic value, must be observed rather than predicted. In bacteriologic experiments of this kind the continued vigorous activity of the bacteria from year to year need hardly to be expected. The disease will either die out or continue on a low level of mortality, in accordance with the general laws I have detailed, unless bacteria whose destructive powers are maintained and carefully gauged in the laboratory are distributed at definite intervals.

In conclusion, I will simply call attention to another problem affecting the future wellbeing of mankind, the possibility of new infectious diseases arising in the flux and change incidental to human progress. We have assumed that in the capacity for a parasitic existence probably depends on some original offensive power of the microbe which it accidentally possessed, such as toxin production, or the presence of intracellular toxins combined with defensive powers. These, possessed independently of the host, were probably the entering wedges to be further developed or dropped, according to necessity. It is more than probable that all species of bacteria which possess these rudimentary invasive powers have already availed themselves of the opportunity to become parasites of animal life on the one hand, of vegetable life on the other, and that no startlingly new diseases will arise from saprophytic forms.

Subsidiary problems there are, however, concerning the modifications and readaptations of the parasitic forms already in existence. These may be grouped under two heads:

1. The transfer and adaptation of parasites from one host species to another.
2. The increase of invasive properties of parasites of the same host.

Are there any new diseases likely to appear as a result of the successful adaptation of parasites of higher animals to the human subject? This is a legitimate question, though difficult to discuss for want of material at present. Among the more important possibilities I will simply mention the bovine tubercle bacillus and the hog cholera group of bacteria. The larger number of parasites on animals are so specialized, however, their receptor apparatus, according to Ehrlich, may have been so curtailed that parasitism on a relatively distant species may be impossible.

As regards the second problem, that microbes may gain in invasive power on the same host, the principle I have endeavored to establish would stand in the way of any rise in virulence because the most invasive forms of a varying species would have the least chance for transmission. Whatever increase in disease-producing power may be acquired must be gained under special conditions, one of which is association with other microbes. Thus, if we could conceive of the same streptococcus originally an inhabitant of the normal throat as passing on account of some series of accidents through the bodies of a number of scarlatina patients, this streptococcus might thereby rise temporarily to the level of a serious menace to the throats and perhaps other organs of relatively healthy people.

Again, certain microbes like *B. coli*, the pneumococcus and meningococcus may, by living upon catarrhal mucous membranes and passed by case to case, acquire enough temporary pathogenic power to cause localized epidemics under favorable conditions. Any advantage thus gained would soon be sacrificed and the microbe return to the normal condition unless a satisfactory mechanism of transmission could be established.

It will be seen that there are many problems before the bacteriologist, problems which have something akin to those of the student of races, varieties and species among higher forms of life. These problems must be attacked with the same patience and pertinacity that were exercised by Mendel, Darwin, De Vries and many others in the effort to trace the rise of new species.

In dealing with the great problems of pathogenesis and parasitism as applied to the microorganisms in such a summary and hasty manner, and in endeavoring to trace the law of a declining virulence (and hence mortality) and an advancing parasitism, I may have left some doubts in the reader's mind concerning the ultimate value of medicine, preventive and curative, in controlling these diseases, since it might be assumed, according to the hypotheses presented, that they would take care of themselves. This impression will, I think, be dispelled by a little further development of the ideas presented.

The social and industrial development of the human race is continually leading to disturbances of equilibrium in nature, one of whose direct or indirect manifestations is augmentation of disease. In order to avoid this calamity or reduce its force as much as possible we must make special compensations or sacrifices to restore or maintain the normal balance. The more clearly the kind of compensatory action required is foreseen, the more promptly it is put into effect, the less disease there will be. It is the true function of medical science to discover and put into effect those compensatory movements which will counterbalance the temporary ill-effects of what, for want of a more illuminating term, we call human progress.

It is largely through the phenomenon of parasitism that nature attempts to restore the equilibrium and in this, microorganisms play the most important part. As soon as the individual falls below a certain level he may become the prey of a microscopic, or even an ultramicroscopic world. Hence the importance of bacteriology in medical science. Much has already been done in determining ways and means for the counterbalancing of the ravages of this microscopic world, but science cannot rise above natural law but must work through it. The optimism of the world frequently places science above natural law and believes it capable of correcting any and all excesses of individuals and races. We may be certain that it will never be able to eliminate the factor of parasitism. Its most important work will continue to be to analyze this factor into its minutest details and to devise means by which this analysis may be made useful in turning aside or at least in deadening the shock of disease.

THE MODERN CONCEPTIONS AND METHODS OF MEDICAL SCIENCE.

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An acquaintance with present conditions in medicine and with the literature of the past makes us aware of a great change both in the conceptions of medicine and in the methods by which the conceptions are reached. There has been a great increase of knowledge brought about by investigation and experiment, a realization of the value of knowledge and its acceptance and utilization. Medicine has severed all connection with speculative philosophy and taken its true place among the natural sciences. It has been brought into closer accord with other sciences than ever before and has accepted the methods of science. There are no systems, no schools, no paramount authority; no hypothesis is so firmly held that it is not instantly rejected when it fails to accord with new knowledge. Progress in medicine has gone hand in hand with progress in all departments of knowledge.

Medicine has for its problems the cause, the nature, the prevention, the cure of disease. It is a branch of biology in that in all of its relations it has to do with living things. The ontologic conception of disease as a thing differing from and entering into the organism is no longer held, but disease is regarded as a condition of living things in which there is disharmony of function. The phenomena of life depend upon actions exerted upon living tissue by its surroundings. When the action exerted leads to forms of activity which differ from and fail to come into accord with the usual activities, whatever produces such an action is a cause of disease. These causative agencies acting on the tissue, produce structural alterations, in consequence of which even the action exerted by the ordinary surroundings may result in disharmony. The terms health and disease both carry with them the conception of activity. Although the abnormality of function is always associated with and depends upon structural alteration, there may be extensive structural alteration which is so repaired or compensated for that it does not result in disease.

In the history of the advance of knowledge in medicine we find two methods by which knowledge has been sought. In one, the endeavor has been made to form conceptions of the objects studied by means of impressions conveyed by the senses. Great advances have always followed the discovery of methods and instruments by means of which the territory of investigation has been extended. The inquiry does not stop with the mere description of the conceptions derived from the sense impressions, but an effort is made to correlate them, to ascertain preceding conditions, and the meaning or idea involved. When the inquiry passes beyond the immediate investigation an ideal conception of the nature, the interrelation, the cause or the result of the condition studied, an hypothesis may be formed, based on experience and analogy. The hypothesis must be tested by further observation under natural conditions and by the experiment which involves observation under known and controlled conditions. When the hypothesis has been so tested and found to hold good in all cases under the same conditions, it can be used as a basis from which new questions may arise.

The other method is by speculation. By a wide and illegitimate use of analogy conceptions are formed and projected into the objects, instead of being derived from the sense impressions. A tendency to speculation is inherent in the nature of man. Confronted always with the unknown, which has such enormous proportions compared with the known, and so much of which seems to be removed from the possibility of actual investigation, man is led to attempt to answer the questions which the unknown thrust upon him by means of the imagination. As knowledge becomes deeper and more extended, speculation tends to become more confined. True philosophy aims at a complete understanding of the causal relation of all processes in nature and of man's relation to these processes. Disease, as one of the most important conditions in nature affecting man in all of his relations, has always had an important place in philosophy. All the systems of philosophy in the past, from Plato down, have embraced speculations concerning disease. The true ends of philosophy cannot be reached by speculation, but by the use of all the material for observation given by the natural sciences, and a philosophic system will contain just so much truth as there is natural science in it. Nature seems to delight in refuting all conceptions of her processes which are not based on sense impressions.

The progress of knowledge by these two methods has been the same in all sciences as in medicine, but it is more easily followed in medicine, because of the important place which its subject disease has always held in the thoughts of man. It is possible to trace the past in the conditions of the present. In the earliest period of medicine, before there were any records of the study of the phenomena of disease and any differentiation of disease, disease was regarded as the visitation of the wrath of offended deities, and the surest mode of its relief the propitiation of the deity by supplications and offerings. Such beliefs are still held, or at least practices which were based on such beliefs, are continued. In almost all countries at the present time it is the custom to offer supplications that the disease of an important individual may be removed by divine interposition. It is true that such prayers may be a part of past tradition or a part of the discipline of a religious system, but undoubtedly their efficacy is believed in by many. Disease has played an important role in systems of religions, and the teachers of the system who had most fully embraced its tenets were supposed to be the most efficacious in removing disease. Christian science is only one of a great number of religious systems held today in which treatment of disease forms an important part of the cult. In the past there have been systems of medicine which gave explanations of all phenomena, and the system being perfect the phenomena were removed from further investigation. Homeopathy is the most important survivor of such speculative systems.

Speculation has undoubtedly been fostered by systems of religion founded on what was accepted as supernatural revelation. Revelation which sufficed for the explanation of phenomena at the time when it was given becomes firmly and inseparably blended with speculation when it must be expanded to meet a wider range of phenomena. Knowledge cannot be diffused, accepted, or utilized beyond the general development of culture. Any general influence which can be exerted on the people, turning thought into new directions, giving new subjects and proper methods, is of great importance.

Darwin, by substituting a rational and easily comprehended hypothesis, based on observation and experiment, with a clear statement of the method by which the hypothesis was formed, for a revelation which did not suffice and which could not be twisted to conform to what was of general and accepted knowledge, exerted probably the greatest influence on general scientific progress in the last century. Medicine, like all other sciences, has felt its vivifying influence.

One of the greatest changes which has taken place in the last century is the general acceptance of the idea that medicine is a natural science, in which knowledge must be sought by the methods of science, namely, observation and experiment, and that disease is the result of injurious conditions acting upon the tissues. A great part of the mystery surrounding disease has been removed by knowledge of the conditions which give rise to it, with the further knowledge that it is possible to prevent disease by removing such conditions. Even though some may still believe that an epidemic of typhoid fever is an act of God, they must see that the action is exerted by means of a defective water-supply, and the surest way of removing the epidemic is not by supplication, but by purifying the water. At no time in the world's history has the importance of knowledge been so fully recognized as at present. People see the application of knowledge in the arts, and that improvement in the processes involved is directly dependent upon increased knowledge of the processes. There is a closer union between science and art than has ever been before. We see the influence of the appreciation of knowledge in medicine in the general acceptance of the idea that the hospital, in addition to taking care of the sick, shall furnish facilities for the investigation of disease; in the creation of institutes devoted to the furtherance of medical knowledge, and in endowments of universities to the same end.

A brief glance at some of the more important periods in medical history will enable us to trace the influence and the results of the two methods by which knowledge has been sought. The history of medicine begins with Hippocrates. Before him there were only superstition and tradition without systematic observation and description. He described accurately the results of his study of the phenomena of disease, classified the phenomena, and based his methods of treatment on his observations. The influence of Greek philosophy made him attempt to explain the phenomena, by the assumption of a force residing in and presiding over the body. The contemporaries and successors of Hippocrates who regarded him as a god, and his conclusions as unfailing axioms, entirely neglected the methods by which he arrived at them. It must ever remain a source of wonder that the light which burst upon medicine with the advent of Hippocrates should so soon have passed into darkness. The Greeks chose rather to speculate on the meaning of phenomena than to investigate them. Galen, next to Hippocrates, had the greatest influence on medicine, an influence which was dominant for more than 1,300 years. Galen mastered all the knowledge and traditions of medicine at his time and made important contributions to anatomy and physiology. He was the first to introduce the experimental method into medicine, and gave a firm foundation to nerve physiology by observing the paralysis of certain muscles after section of the nerves. A voluminous writer as well as investigator, Galen created a complete system of medicine which remained as authority until men became bold enough to throw over authority when it did not conform with what could be learned from investigation. The stagnation and decline in medicine which followed Galen and continued during the middle ages was due to the dominance of a dogmatic religion in lands in which the general culture of the people should have given the conditions for knowledge to increase. The church regarded its dogma as sufficient, and all inquiry, all free activity of men's minds were prohibited. Dogma based on supposed revelation sufficed. There was some attempt at progress made by the Arabians, but their most important contribution was the preservation of the old learning. Even the period of Renaissance passed with little or no influence on medicine, for activity was exclusively turned into channels in which dogma could not be disturbed.

Three circumstances served to bring about a new era in the progress of knowledge in which medicine shared. The discovery of the art of printing by which knowledge became more diffused and more exact by the substitution of record for tradition, the discovery of America, with the stimulation which this gave to thought and imagination, and the reformation which gave freedom to thought, removed the weight of authority and allowed investigation. The reform in medicine was introduced in Europe by Paracelsus, whose work was chiefly the overthrow of the Galen system, which had sufficed and under which investigation was not possible. Progress in the new reform was more active in England than in the land of its birth. This was due to the freedom from war, the greater freedom of the people in all ways, and to the work of Francis Bacon, who for the first time showed clearly the methods by which knowledge must be sought. With few exceptions, English medicine has remained true to the precept of Bacon, that knowledge increases by the observation of things with the proper utilization of past observations. There has been an almost continuous line of great physicians in England who have enriched medical knowledge by investigation and who remained free from speculation. The contributions which such men as Harvey, Sydenham, Hunter and Bright have made, remain and have served as bases from which knowledge has grown. The theories which were founded upon their work have passed without influence. That there came a time in England when medical investigation was greatly surpassed in other countries, is to be attributed to the introduction of methods of investigation which could not be utilized in England. It was the introduction of the laboratory with the facilities for and the systematization of medical investigation which gave medicine in Europe its ascendancy. Young men at an age when authority has the least weight, and before there was opportunity given them for the investigation of the clinical phenomena of disease, found in the laboratory opportunity for investigation, and had small questions placed before them which could be solved. The laboratory gave the workers scientific methods which formed the basis, and gave the direction of further work in the clinic. With the laboratory came also a division of labor, which allowed certain men to devote their time to investigation and teaching. Ambition was stimulated for advance and the further career was made dependent upon the ability for investigation.

It is interesting to follow a wave of speculation in medicine which reached its acme in Germany in the early part of the nineteenth century. In the period following the reformation the most striking figure in medicine was Albrecht v. Haller, a man who as investigator and clear thinker has been equalled by few. Haller recognized the important fact that life was a property inherent in the tissues and manifested itself by sensation and movement. On the work of Haller is founded the system of Brown, who though a Scotchman can be regarded as the forerunner of the German Natur-philosophie in medicine. The system of Brown is founded on the principle which he states clearly that the living animal body is distinguished from the dead and from all lifeless matter by the capacity for excitation by external influences. The difference between health and disease lies in the degree of irritability of the tissues. He divided disease into the sthenic and asthenic types, according to the degree of irritability developed by the excitant, and the treatment of disease was based on this. In the hands of Brown's pupils and successors treatment of disease was productive of great harm. The theory of Brown found ready acceptance in Germany, not only by physicians but by a group of men who sought to explain nature by the creation of laws. The law once made was regarded as more correct than the observation. Schelling, who was the foremost figure in this philosophy, sought to give a representation of all the phenomena in nature, to develop the interrelation of the phenomena, to show the action of natural laws in all bodies, and that these laws originated in a common point and were characterized as an advancing series of higher phases of development of matter. Not only was it impossible to construct a system of the world from the knowledge of nature at that time, and it probably never will be possible, but Schelling very imperfectly utilized what knowledge there was. This natur-philosophie dominated medicine in Germany during the first quarter of the nineteenth century. It is expressed to a greater or less extent in all medical writing. The most gifted men could not entirely withdraw from its influence. Medicine was not a science following the methods of observation and experiment, investigation was banished from the clinic and laboratory and found its place at the writing desk. Hartmann says that one reason why the natur-philosophie found such ready acceptance was the ease with which it was possible by its aid to become famous as a writer. The young physician found it no longer necessary to become acquainted with the material for study by toilsome investigation; he only needed the philosophic forms of expression and could apply these to what he knew or did not know of medicine. Many systems of medicine were founded which purported to give a complete explanation of all the phenomena of disease. Of all these systems, the one which has endured the longest was almost the most fantastic in its structure. The success of the system of Hahnemann or homeopathy is, in the first place, due to the fact that under it the treatment of disease represented a great advance as compared with treatment under the systems of Brown and Rasori. However zealous the exponents of a system may be, it will find its condemnation from those who suffer most from it. The system as presented by Hahnemann was complete; it offered names and seeming explanations for all conditions. The practice of the medical art under the system was easy and involved no toilsome investigations. It was put forth at an early period of the natur-philosophie and was carried upward on the tidal wave which swept through Germany. It at once found great favor with the people and was taken up by great numbers of physicians. In the course of time the adherents of the system have become divided into three camps. In one its principles have been extended far beyond the conception of Hahnemann, in that the products of disease have been used as remedial agents; a second have remained true to the principles of the founder; and a third, comprising a large number of intelligent physicians, hold only to the name. Under the natur-philosophie, combinations between religion and medicine arose and a system, which represented a return to medieval mysticism, was formed by Windischmann and Ringseis. In this it was taught that the causes of disease are immaterial and not to be sought for, since disease merely represents discord between body and soul.

Such a remarkable phenomenon as the dominance of the speculation which was a part of the natur-philosophie must be regarded as a part of the romantic movement which swept through Germany and found its chief expression in poetry. All barriers to idealism and speculation were cast aside. The movement was a part of the awakening of Germany to a new national life. The great questions of the time involving political liberty and even national existence were absorbing. Under such circumstances only a few could turn from the pressure of such large questions to the narrow field of scientific investigation. It is remarkable that the great awakening in France which preceded it should have been characterized by the opposite tendencies. During this period of speculation in Germany valuable contributions to knowledge were continually being made in anatomy and physiology. The chief exponents of the natur-philosophie were physicians who had to do with the clinical phenomena of disease. Speculation was fostered because the methods of gaining information from the study of disease were at the time so meager that observation was restricted. So confirmed was the habit of speculation that each new discovery in anatomy and physiology instead of serving as a basis for investigation became food for new speculation.

It is possible to see the influence of the natur-philosophie on its greatest opponent Rudolf Virchow. No one more clearly laid down the methods of scientific investigation than did Virchow in the opening articles of his Archives. He was a born investigator and made valuable contributions to knowledge in every department of medicine. The protocols of his autopsies are models of full and accurate discriptions of observations. He made important additions to the technic and methods of work by the use of which new knowledge was gained. He was a great teacher as well as investigator and men trained in his methods are among the most famous in medicine.

It is difficult to find in the history of modern medicine anyone who can be compared with Virchow in the contributions made to medical knowledge and the influence which he exerted. He substituted for the ontologic conception of disease which was prevalent in Germany at that time, the conception which we adopt today, that it consists in life under altered conditions. This is not an explanation, but a simple way of stating the summation of the most obvious phenomena. He created the cell theory of disease, which, though it represented an enormous advance over prevalent theories and has been most stimulating to investigation, can no more be held in its entirety as Virchow gave it than any of the systems it supplanted. Unlike the other systems, it did not pretend to be all satisfying and all explaining. The cell theory of disease should be regarded as an hypothesis fully justified in being formed from the knowledge at that time available. In Virchow's theory of inflammation we see the great value of an hypothesis which, though gradually proved incorrect by continued observations, has been most stimulating to investigation. It is interesting to see the contention which has been excited by theory. No one contends for the acceptance of an observation, but is content to leave this for time, but the contention is for the conception based on the observation and the theory formed from the conceptions. Virchow properly opposed the ontologic conception of disease, but this led him also to oppose the proof given that certain diseases which he regarded as due to the action of general causes, were due to parasites. Virchow appeared in medicine at the time when natur-philosophie, though seemingly dominant in Germany, was really far advanced in decline, and his mighty blows were delivered against a feeble body. It was the knowledge of French and English medicine, where the advance had been by investigation, the increase in knowledge in all the natural sciences giving too much to be covered by any system, which gave the death blow to this period of speculation in medicine.

It is possible now to see the effect of this period of unrestricted imagination on medicine. It is true that it inhibited progress, by restricting observation and experiment, that it substituted theory for knowledge, and found satisfaction in empty phrases and juggling with terms. But it gave birth to fruitful stimulation, and opened wide and distant vistas which science has utilized. The excitation of the imagination provided the imagination be controlled and theories be recognized as theories, is most useful in science. Without the imagination, without the tendency to seek for explanations of phenomena there would be no progress. There is only danger in the failure to recognize the true relation of the hypothesis and in attempting to progress by adding hypotheses. There was but little progress in the period, but progress resulted from the stimulation which the period gave, and from the reaction which followed it. Although as playing a great part and affecting an entire people, such a movement has passed and will probably not return, we constantly see the same tendencies. The medical systems often connected with religion which are constantly arising in all countries, and especially in this, the attempt to form theories in explanation of the unknown are due to the same mental states which produced the natur-philosophie. They arise, have a ready following composed of birds of passage resting temporarily on any bough provided, and disappear without making any real impression. How completely the period of the natur-philosophie has passed in the country of the creation is seen in the history of medicine in Germany for the last 50 years. By the adoption of scientific methods, by the fostering influence of the government which provided facilities for research, and by a system which gave reward for investigation, Germany has become the leader of the world.

At no time in the world's history was there such rapid advance, such a complete transformation in methods, such an array of great men in all the departments of medicine as in France, following the revolution. The foremost of the men in this school in France was Bichat. He undertook the gigantic task of creating for medicine a solid foundation derived from the study of objects and from experiments. He carried the anatomic study of disease further than ever before, endeavoring to ascertain not only the lesions in the organs, but in the tissues which compose them. The relation between the anatomic lesions and disorders of function he says must be studied by experiment. The work of Magendie in physiology was hardly less important than that of Bichat in pathology. Physiology had suffered from the theory of vital force which as a seeming explanation weighed upon it as an incubus, opposing investigation. He claimed for physiology the same methods as in physics and chemistry, saying that the carefully conducted experiment is alone decisive in testing the conclusions formed from observation of phenomena. The work of Magendie had full recognition in France, and he was followed by Claude Bernard and Brown-Sequard, who further developed his methods. Corvisart, Andral, Louis, Rayer, and Cruvilhier were among the most brilliant men in the new school which was founded by Bichat and Magendie. Corvisart and Laennec deserve especial mention in that the former brought to general knowledge the method of percussion of Auenbrugger which had been forgotten and the latter introduced and further developed the method of auscultation.

In the advance of science new technical methods of investigation play a most important role. The technical method enables the observation to extend further and more deeply. Virchow has said that the introduction of the microscope into medical research enabled us to approach several hundred times nearer disease than before. The microscope introduced a new era in the study of disease; it came into general use when the study of gross pathology in the absence of new questions had almost reached its limit. It gave more correct ideas of disease by increasing the powers of observation; it overthrew at once many theories and gave new points of view and new questions, from which further observation could proceed. Every improvement in the microscope by which its efficiency is increased has the same influence. The knowledge of the influence of bacteria in disease is due, in the first instance, to the improvement of the microscope, and in the second, to the discovery by Koch of methods of cultivation, by means of which the individual species can be studied. Until this was possible our knowledge of bacteria was inexact and their causative relation to disease only an hypothesis. The development of knowledge of the minute structure of cells and tissues is principally due to the use of methods of staining, which started with the simple carmin stain of Gerlach. In clinical medicine the introduction of the microscope, the thermometer, the methods of chemic investigation, the blood-counter, the röntgen ray, have all led to a closer insight into disease and the substitution of knowledge for conjecture. There is a further indirect advantage which comes from the use of instruments of precision in investigating phenomena, in that the continued use of the methods, the constant seeking for exact knowledge of conditions removes the tendency toward speculation.

The brilliant results which have been reached in surgery changing this from the most despised to the leading branch of medicine, show the advantage of methods which are founded on knowledge. Surgery was despised in the period in medicine in which speculation was in the ascendancy, when the answers to its problems were sought in the study rather than at the bedside and in the laboratory. The art of surgery has been dependent upon direct observation of disease, and its remedial measures were applied to the disease as revealed by sense impressions. Theories and systems in medicine have come rather from internal medicine in which field the diseased conditions were not so susceptible to study as things. The broken leg, however, is revealed by sight and touch, the tumor is an object. Moreover, the training in the anatomic and other laboratories so essential for a surgeon, gave the knowledge and the methods, and the manual skill to make them effective. At an early period surgery had recourse to animal experimentation, for the animal body offered the readiest means for testing new devices. In surgery new knowledge has been readily accepted and utilized. The demonstration of anesthesia came first from the surgeon, and the surgeon was the first to accept and apply the knowledge that infection is due to the action of living organisms. By the use of anesthesia and of measures of preventing infection, surgery has been extended into fields formerly supposed not to be open to the exercise of its art. Medicine owes a debt to surgery for not only what it has accomplished, but for holding to proper methods and demonstrating their importance. The less advance in modes of treating disease which internal medicine has made, compared with that made in surgery is to be attributed to the difficulty of obtaining definite knowledge of the conditions of disease in internal organs.

That the lack of power is due primarily to lack of knowledge, is shown by the fact that for diphtheria, formerly one of the most dreaded, now probably the best known of diseases, there is a remedy which leaves little to be desired. The production of antitoxin is the greatest triumph of scientific medicine, and is due to knowledge obtained by the application of scientific methods to the study of a disease which gave unusual opportunities for investigation. It points out what may be accomplished in the future by not seeking for analogies between other diseases and diphtheria, but by pursuing the same methods. Modern therapeutics is guided by two principles, in each of which efficiency is dependent upon knowledge of disease. In the most important, the remedial agent has a specific action on the cause of disease, either destroying it or opposing its action. In the second, the remedial agents are used not with the view of exerting any specific action against the cause of disease, nor even in assisting in the restoration of the tissue which has been injured, but with the view of restoring function. Any agent acting as a cause of disease produces injury of the tissue, and the effect of this is alteration, or diminution, or destruction of function. There is a close interrelation of function, that of one organ depending upon the others. The effect of the alteration of function is seen in the supervention of phenomena, which differ from the ordinary. The effect of impaired function may be remedied by supplying the body with some substance which was formed by the impaired organ. Substances directly derived from glands in the animal body, such as thyroid and pancreatic extract, may be supplied. Or the functional activity of an organ may be increased by direct stimulation or increasing its blood supply. Or the function of some other organ nearly related to the organ affected may, by increased function, be caused to supply the deficiency.

Therapeutics acts either as a guard against, or as a caretaker of the body in disease. Its greatest triumphs are in prevention. When the injury has once been produced, its effects are minimized by the capacity of the body to adapt itself to new conditions. There is a third use of therapeutics in the case in which the disease produces so much pain and discomfort that the remedial agent is used for the purpose of diminishing the effect of sense impression on the central nervous system. It is clear how complicated the questions are, and how much greater is the task presented to the physician than to the surgeon. The surgeon acts directly, either adjusting parts which are deranged or by removing tissue which is diseased. The study of medical literature shows the mistakes and follies which have been and are being perpetrated in therapeutics. The more obscure the disease the greater the number of remedies, the more ignorant the practitioner the more confidence that certain drugs will act as remedies in all diseases. Each year has served to discard some remedy considered infallible and to substitute for it another equally infallible. The discontent of the general public with such therapeutics is shown in the success of charlatans who advertise nostrums for the cure of all diseases. It is just as easy for them to obtain certificates of cures by the nostrums as it is for the practitioner to become convinced of cures effected by certain favorite drugs.

The greater knowledge of the infectious diseases which has come with their experimental study, has especially served to place therapeutics upon a proper basis. It has become apparent that many diseases are self-limited, and tend to recover under any treatment, provided this be not too injurious, and that the medical art can be more successfully exerted in preventing disease than in its cure. The first effect of increased knowledge of disease was to produce a feeling of powerlessness in the face of it, followed by a nihilism in therapeutics which was as much to be deplored as overconfidence, for it acted as a bar to progress. This nihilism was a prominent feature of the Vienna school in the sixth decade of the past century. The science of therapeutics as we find it today, is founded on experimental pharmacology and pathology. In experimental pharmacology the action of drugs on the healthy animal is investigated. It is sought to discover the mode of entry of the drug into the tissues, the mode of excretion, the changes the drug undergoes while in the body, and the changes in structure and function it produces. The action of the drug may differ in different animal species. Knowledge of the pathology of disease shows in what part changes are produced by the causative agent, the nature of the changes, and the effect of these changes on function. The determination of what is taking place in the body in disease is the most important question in medicine today. For its answer all the resources of science must be brought to bear. The subject is rendered more complicated by the fact that we are not dealing with a fixed but with a variable quantity. Age, heredity, temperament, and social environment must all be considered. We cannot say, except with wide limitations, what changes and variation in function will be produced by the action of certain conditions. With the knowledge of the effect of the drug on the healthy body, and the knowledge of what changes are being produced in disease, and the effect of which we wish to minimize, an intelligent experiment may be made. Previous experimentation on animals should deprive the experiment of all danger.

Another change which has become apparent is the greater specialization not only in the exercise of the medical art, but in investigation. All increase of knowledge must bring with it specialization, for with the enlargement of the field comes the impossibility of its control by one individual. Specialization has both advantages and disadvantages. The advantages are, that investigations are more easily carried out by the simplification of the questions and the familiarity with technical methods. Methods of investigation have become so complicated that the necessary skill can only be attained by the constant exercise of methods only applicable in a very narrow field, and an investigator of exceptional ability in one line of work may be powerless in another. A man may profitably devote his entire energies to the study of the changes in nerve cells in disease, or may confine himself to the study of a single species of bacteria. With the enormous increase in medical literature there has come specialization in this and certain journals are devoted to special subjects and are only read by those working in the field covered. The first differentiation came in the separation of anatomy, physiology, and pathology from practical medicine, that is, the medicine concerned with the exercise of the art. The separation was a natural one, for not only could progress be more rapid, but the subjects could be better taught by one who had the knowledge which came from his own investigations. It is no longer possible for a single individual to control the knowledge in any of these primary subdivisions. The most obvious disadvantage in specialization is the loss of the more general aspects of questions. The large questions become broken up into smaller, and the smaller questions become again leading questions to be again broken up. It is also felt that the knowledge gained in such special investigations may not be of a character which can be utilized in the treatment of disease. But few of the questions which arise and form the basis for investigation come from the clinic, and they apparently have only the most remote relation to the problems of disease. The investigator very properly feels that his investigations are justified, in that they form contributions to general knowledge, and whether or not the results are directly applicable to the treatment of disease does not disturb him.

There was an error perpetrated in not giving to those devoted to the study of the clinical aspect of disease the same opportunity to devote themselves to research, to answer the question which came from the phenomena of disease, which was given to anatomy, physiology, and pathology. Clinical medicine, the study of the problems of disease coming from the bedside, must have the same opportunity and must advance by the use of the same methods as physiology and anatomy. Clinical medicine is behind the special departments in the contributions it has made to knowledge, in the methods by which it seeks to advance, and in the efficiency of teaching. Provision must be made in the universities which will enable men in the clinical departments to devote themselves to research and teaching, and laboratories must be provided for such research. Only one who is himself an investigator can direct investigation by recognizing and properly stating the questions. There need be no fear that the knowledge which comes from investigation will not be utilized. In what way may not be apparent at the time, often knowledge which seemed furthest removed from utility has become the most important. That power is knowledge, and that it is the only power is an accepted axiom.

Anatomy and physiology originally arising from human medicine for the furtherance of knowledge which could be applied to the treatment of disease in man have long outgrown such limitations. Both have become comparative. Physiology undertakes the study of the processes taking place in living things, anatomy their form and structure. The comparative view has more slowly entered into pathology for this has been more closely in contact with clinical medicine and most of the questions for investigation have arisen in connection with the diseases of man. Disease is found in every living thing in all animal and plant life. The phenomena of disease must differ according to the conditions peculiar to the organism. Strictly speaking there can be little similarity between the phenomena of disease in a plant and in an animal. The functions which are destroyed or altered by disease are too dissimilar. But this is not true when we study the closer details of disease. In both, changes are produced and the changes affect function. We can study unicellular organisms directly under the microscope, see the changes which are being produced by injurious conditions and the effects of the changes. Knowledge derived from such study may be said to be the basis of our conception of inflammation. The studies of plant diseases have been almost entirely directed from the economic side. The economic results which have come from this study by enabling the prevention of disease are almost incalculable. General medicine has gained by this study a greater knowledge of parasites, their mode of action and the means by which the organism is protected against them. That the knowledge has been so rapidly gained, is due to the facilities for investigation and experimentation. Plant experimentation has never given offense. It should be regarded on the whole as very much better that the study of plant disease has been directed from the economic side for progress has been more rapid, but there would be advantage in the closer association of plant and animal pathology and the extension to plant diseases of questions coming from disease in man.

Careful study of diseases in animals has been chiefly directed to the infectious diseases and especially to those artificially produced. The questions have been chiefly those concerned with the parasitic cause of disease and the mode of action of the parasites. The more obscure diseases of animals have attracted but little attention and only from the economic side. The phenomena of disease in the higher animals have much similarity to the phenomena of disease in man, and in certain aspects the diseases of animals are more capable of investigation. Diseases are found in animals which are similar to the most obscure diseases in man. Our ignorance of these diseases in man is due to their complexity and the difficulties of investigation. To their understanding chemic and physical methods are necessary and some of these methods cannot be carried out for they may be harmful to the individual. In animals we have the advantage that the disease can be interrupted at any stage and the conditions studied at this stage. We know the infectious diseases of animals chiefly by their experimental production. There has been but little study of these diseases under natural conditions and much knowledge can be gained by the mode of, and conditions predisposing to infection. Questions of heredity have an important bearing on disease. The susceptibility of animals to disease varies. Common experience has shown in man also that under circumstances apparently the same, certain individuals will acquire diseases, others remain exempt. There is also foundation for the belief that susceptibility for certain infectious diseases is inherited and in other diseases inherited susceptibility is beyond doubt. The most striking recent discovery in medicine is that the blood-serum contains many complex substances. Some of them play an important role in the animal economy, for others we can as yet discern no purpose, and our knowledge of these substances is chiefly confined to their effects, but it has recently been found possible to isolate one substance in pure form with a known chemic composition. While these substances may serve an important role in protecting the body against disease they may act in the opposite way by providing a means by which injurious substances are brought in contact with cells. Whether chemic variation may not arise, be inherited, and play an important part in disease susceptibility is an important question to be answered by comparative medicine. For the purpose of such investigation an animal clinic is necessary which should be provided with thorough facilities for the study of disease. The questions for solution should come both from comparative medicine and from the clinic of human disease.

Comparative medicine is intimately associated with experimental medicine. There can be no contention as to the relative advantages of observation and experiment. The experiment is only observation under simple and known conditions and supplements observation under the more complicated natural conditions. In the experiment it is possible to divide questions into their simpler components and make each the subject of experiment. In experimental medicine just as in the animal clinic, the questions for solution should come from both comparative medicine and the human clinic. The most brilliant results in experimental medicine have come from the study of the infectious diseases. Knowledge of these diseases stands in direct relation to the possibility of their experimental production. It is true that we have not been able to produce in animals many of the diseases which are found in man. Experimental medicine is comparatively new and the number of animal species experimented has not been large. It has recently been found possible to produce syphilis in the chimpanzee and there is every reason to hope that this will lead to knowledge of the nature of this most obscure disease. Questions concerning the circulation and respiration in disease which are closely related to physics will find their answer in experimental medicine. The opponents of animal experimentation should remember that the greater our knowledge of disease which comes in this way, the further will disease in man be removed from experiment. Before our present knowledge of diphtheria, tuberculosis, tetanus, and anthrax, all treatment of these diseases was experimental. In certain cases experiments must be carried out in human beings and even when the experiments may have a fatal termination. Such experiments will only be resorted to when this forms the only method of obtaining knowledge of the highest importance, and the subjects of the experiment must be adults who submit with full knowledge of the possible consequences. Let us give all honor to the men who devised and the brave men who submitted to an experiment, the knowledge obtained from which has placed yellow fever in the list of preventable diseases.

There has been in the past too wide a separation between the public and the medical profession. The public has derived its medical information chiefly through the newspapers and the information so given has been sensational and unreliable. Without correct information of the problems which face the medical profession, and of the methods by which these problems are being solved neither the sympathy nor cooperation of the public may be secured. Active or passive opposition may be encountered. There is evidence that this is being slowly changed. The medicine of the romance is not so fantastic as it was formerly. The general information in biology, human anatomy, and physiology necessary for any appreciation of medicine is being imparted by the schools. Many of the popular magazines contain admirable articles on disease. The stories of such diseases as malaria and yellow fever have actual fascination. The medical education of the public is also furthered by the work of boards of health in the control of infectious diseases. The public is slowly but none the less surely learning that disease is not a mysterious entity, dwelling like a devil in the body, to be driven out by the use of some equally mysterious agent, but a condition of life which can be guarded against. The public is not slow in the appreciation of the results of the work of boards of health, and is willing to make provision for their work.

Medical education, the training of men to exercise the art of medicine, has been revolutionized in the past 25 years. The most marked change has been in the substitution of object study for the didactic lecture. The didactic lecture is still used, though not with the idea of imparting knowledge, but of showing the interrelation of knowledge coming from objective teaching. The successful practice of medicine depends more than ever before upon the use of methods which give accurate knowledge of the condition of the sick individual and training in the exercise of these methods is the most important part of medical education. It is certainly of importance that the student should learn the structure of the body, the functions of the different organs, and the changes which organs and functions undergo in disease. The knowledge acquired will be constantly used in solving the problems presented in the practice of medicine. While this is true, a great part of the value of these studies consists in the discipline which laboratory study enforces.

In the laboratory the student learns to acquire conceptions of objects and of the activities taking place in them, by means of sense impressions, and to use and appreciate methods by means of which the field of investigation is extended. He learns to approach problems from the scientific point of view. Progress and success in medicine is directly dependent upon the habit of investigation. Medicine is not and probably will not be an exact science with definite laws, by the application of which the exact sequence of phenomena can be foretold. Every case of disease is a problem, and on the knowledge aquired from investigation successful treatment of the individual depends. Science demands to know, and methods by which knowledge can be obtained are of supreme importance. Methods of obtaining knowledge have been widely extended in clinical investigation. Every year sees the discovery of new methods. There should be, and with the foremost men there is, no distinction between the clinic and the laboratory. In both, knowledge is sought by the use of the senses, and methods of investigation have a supreme importance. The laboratory discipline can be given just as well in the clinic as in the other laboratories, with the advantage that the methods of the clinic are the methods which are used in the practice of medicine, and facility in methods can only be acquired by continual exercise. It is evident, however, that the laboratories and clinics should only be conducted by men who themselves know and fully appreciate the importance of methods. It is probable that in the medical education of the future there will be a restriction of the laboratory training in anatomy, physiology and pathology, and an extension of the training in the methods of the clinical laboratory.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.[1]

BY

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More and more in recent years the medical profession has been striving to recognize the beginnings of disease; convinced that after pathologic processes have made extensive inroads upon the tissues, the chances for arrest and for repair are always poor. This effort to discover the symptoms and signs of a disease before it has advanced far, has been made especially with two chronic ailments—cancer of the stomach and tuberculosis of the lung. With regard to cancer of the stomach the picture given in our textbooks is of an advanced stage of the disease. There is no picture that presents the disease in its incipiency; and such a one must be found, so that we may submit our patients to operation in the future much earlier than we have done in the past. With tuberculosis of the lung also we must learn to recognize an earlier stage than that which the textbooks describe, for whatever hope we have of cure must rest upon early discovery of the disease. What evidence have we upon which to base such an early diagnosis?

I. *History.*—Too much cannot be said of the value of a careful and painstaking history. It requires time, but it is worth while. As regards the family history, too much stress is usually laid upon it in the diagnosis of pulmonary tuberculosis. 1. Suppose that the family history is positive—the patient has lost a parent or brother or sister, from this disease; what is the value of such a fact? Too often it misleads. It should not be given any considerable weight unless the individual has been closely associated with the parent or brother or sister who had the disease. If for instance, the patient lived in California at the time that his father suffered and died from tuberculosis in New York, the history of tuberculosis can have no possible bearing upon the case in hand. 2. Suppose that the family history is negative—the patient insists there has never been a case of tuberculosis among his people; here again we may be led astray if we attribute too much importance to this fact. If it can be elicited by further questioning that the patient has been in close association with some friend who has pulmonary tuberculosis, the negative family history fades into insignificance. The whole subject of family history thus has its importance in association, not in relation.

The personal history of the patient is of more importance. Here the significant point is how he lives. The habits and occupation have to do with the likelihood to tuberculosis only as they relate to associations with tuberculous surroundings. Flick has called attention to the fact that tuberculosis is a house disease. Persons who live out of doors and keep out of houses are less likely to tuberculous infection. In considering the patient's history, therefore, it is important to know whether his habits or his work are such that he lives much in the open air; or whether, on the other hand, he spends many hours each day in an office, a factory or shop, where he comes in contact with many other people. There are few occupations that in themselves predispose to tuberculosis; but the question is whether the occupation is such as to expose one to tuberculous infection, or such as to lower resisting power so that infection of any sort becomes more likely. If we find that a patient, whether by habit, by preference or by necessity spends most of his time inside of houses, we certainly have reason to suppose him more likely to contract tuberculosis than another individual who spends much time out of doors.

The history of previous illness is of importance, simply because it may indicate a predisposition to tuberculous infection. Certain acute diseases seem not only to lower the vitality and decrease the general resistance of the individual, but also to prepare the soil for growth of the tubercle bacillus in the lung; such, for instance, are measles, whooping cough and influenza. Certain of the chronic diseases, especially diabetes, similarly lower the vitality and increase the likelihood of tuberculosis. There is only one disease, however, that makes the history exceedingly suspicious, viz., pleurisy. Every physician has observed the frequency with which patients who have once had pleurisy, develop tuberculosis of the lung later on; but the sequence is not inevitable, and the physician must not allow this fact in the history to bias him in the making of a diagnosis.

Naturally, the most important evidence is furnished by the history of the present illness. Here the symptom most suggestive of pulmonary tuberculosis is persistent cough. But there are several sources of error to be borne in mind. Suppose the patient has such a cough, does it always mean tuberculosis? I am assuming that the cough has not been of long duration—say a month or six weeks at most; for when a patient has coughed for three or for six months, one is no longer dealing with an early diagnosis. Such a cough, of a few weeks' duration, may easily be due to a simple bronchitis, in which case physical examination will reveal the facts. Very commonly such a persistent, annoying cough is due to disease of the tonsils, pharynx or nasopharynx; and it is always wise to have these parts examined by a specialist before too much time is spent upon the lungs. If then persistent cough is a prominent symptom in the history, it is always a suspicious symptom, but that is all. On the other hand, the patient with beginning pulmonary tuberculosis may have no cough at all, or so little that he is not aware of it, and denies its presence when questioned about it. Frequently the only history to be elicited is that of a hawking or clearing the throat in the morning on first rising. This negative history, I am sure, more often leads to error in diagnosis than does the positive one first considered; for absence of cough is too often taken to mean that the patient cannot have pulmonary tuberculosis.

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The second symptom to be investigated is the expectoration. If it is present, it is important to remember that it does not always come from the lung, and frequently does come from the nose and throat. Usually in early tuberculosis there is little or none; and the patient's statement that he has no expectoration should never be considered to negative the possibility of incipient disease in the lung. A third symptom, long recognized as highly suspicious, is hemoptysis. It is often the very first symptom to present itself in pulmonary tuberculosis, and the determination of its significance is always one of the most serious problems we have to solve. The fact must be borne in mind continually that tuberculosis is by far the most common cause of hemoptysis; and even though the physical signs are doubtful or negative, a patient who has had this sympton is to be looked upon with suspicion and carefully and repeatedly examined during the weeks that follow. Still another suspicious symptom is persistent hoarseness. This calls for examination of the throat by a specialist; and if tuberculous infiltration of the larynx if found, it is almost certain that in one of the apices there is also a patch of infiltration, for laryngeal tuberculosis is rarely primary. Here again the patient must be kept under observation, and repeated examination of lungs and sputum must be made.

But the most common early history of pulmonary tuberculosis is summed up in the patient's complaint that he is "all run down." When questioned as to what he means by this, the patient gives a story of lack of former energy and ability to do his work, loss of ambition, tiring easily, feeling weak, poor appetite, and restless sleep. We hear this story so often, that we are apt to forget its possible significance; and it is so much easier to write out a prescription for a tonic than to investigate the lungs, that the patient only too often is sent away with a diagnosis of "nervous prostration" and a tonic, but without a physical examination of any kind. Such a history as that described is the most suggestive one of all for early tuberculosis, and should prompt the most thorough and painstaking investigation by every possible method. But for that matter, in this early stage of pulmonary tuberculosis any history elicited can be only suspicious, never convincing; and other methods of inquiry are always needed to establish further proof. And this brings us to our second source of evidence.

II. *Physical Examination.* Certain points in the general condition first demand attention. The weight is apt to decrease very soon after tuberculous infection occurs. But the patient's statement about this should never be accepted. The scales alone can decide the question, and their testimony should be sought regularly, at least once a week, and best with the patient stripped. Steady, continuous loss of weight, even though slight, is always an important bit of evidence. The temperature, as is well known, is likely to be slightly elevated, even in the very early stage. But to determine this, it is necessary to have the temperature taken regularly every two hours during the day and evening; taking it twice or thrice a day, gives no information of any value. If possible, it is best to have the suspected patient in a hospital for a number of days, for careful observation both of the temperature and pulse; for the pulse-rate, like the temperature, is likely very early to be increased. A temperature reaching 100°, or even 99.5° regularly each afternoon, and a pulse running up to 90 or above, are still further links in the chain of evidence, in the early diagnosis of pulmonary tuberculosis.

Of course the most important part of the physical examination is that of the chest itself. Two points of utmost value in making this examination are the following: 1. The body must be bare to the waist; it is utter nonsense to attempt an investigation unless the clothing is entirely removed from the chest; for one must see the whole thorax in order to gain reliable information. 2. One must have the patient in a good light; we are looking for fine changes in early tuberculosis, and one cannot expect to find them in a dark room. Under the head of inspection, it is undoubtedly true that the affected side very early becomes restricted in its movement; and in my own experience, the angle of the scapula shows the difference many times when the infraclavicular region does not—the scapula does not move as far from the middle line of the back on the affected side, or it lags behind the other when a deep breath is taken. As for change in contour of the chest, it must not be expected in early tuberculosis, but sometimes a prominent clavicle on one side gives us a clue when other signs are vague. As regards palpation, in early infiltration it is next to impossible to make out change in the vocal fremitus and not much aid is to be expected from this sign. Concerning percussion, too much importance, I believe is attached to the discovery of "slight dulness at one apex." Personally I have found it practically impossible in the early stage to make out by percussion any alteration in the resonance; and have come to consider that percussion tells us least, of all our methods in the early diagnosis of pulmonary tuberculosis. Auscultation, on the contrary, is the most valuable method of all. Here our textbooks as a rule give a wrong impression, for they set the examiner to looking for bronchial breathing, something louder and harsher than the normal vesicular sound. What is really heard in early tuberculosis is (*a*), feeble breathing over the affected area, more distant and subdued than is heard on the sound side. Frequently this error has led to a wrong conclusion as to the site of the disease, and the sound area has been taken for the affected one. Besides feeble, distant breathing there is early heard over a tuberculous infiltration (*b*), a prolongation of expiration, so that this becomes as long as inspiration or longer than it. This is certainly an early and characteristic sign. Still another is (*c*), the pleuritic friction squeak, heard over one or the other apex, due to a localized pleurisy over the patch of diseased lung. (*d*), Increase in the loudness of the transmitted voice sounds is a fourth and very important sign, even in the early stage. But when it comes to (*e*), rales, they are like dulness on percussion—one must not count on finding them in order to make a diagnosis. Commonly they are not heard at all, even when the foregoing auscultatory signs are all positive. If rales are heard, they are crepitant or subcrepitant in character. If not heard by ordinary examination, they may be elicited by having the patient cough and then take a deep breath; or by examining after the patient has taken iodid of potassium for several days; or by examining during the reaction from a diagnostic dose of tuberculin.

Finally, no man, however expert, has any right to give a positive opinion after one physical examination in early pulmonary tuberculosis. Repeated examinations are required, for the signs at this time are never so definite as they are later on, and from one investigation it is easy either to overlook the deviations from the normal, or on the other hand, to magnify their significance.

III. *Microscopic and Chemic Examination.*—Under this heading comes the subject of sputum examination. As a matter of fact, there is but little assistance to be derived from this in the early diagnosis. Frequently at this time there is no sputum to examine; and if there is a little, as a rule no bacilli can be found in it. It does not seem to be generally recognized by the profession that when tubercle bacilli can be found in the sputum the case is no longer an early one. What we must learn to diagnose is the prebacillary stage. In connection with this point a recent communication by Klebs is of interest. He states that he has found in tissues undoubtedly tuberculous, as shown by histologic examination, microorganisms that will not take the usual carbolfuchsin stain, but that ultimately develop in cultures into the typical tubercle bacilli that do take the stain. Perhaps our failures to discover these organisms in the sputum in the early stages of infection may be due to the fact that they are still in an early stage of development, and therefore do not take the usual stain. But Klebs' work has yet to be verified, and his findings cannot be accepted as definitely proved. It is always proper to make repeated examinations of the sputum in a given case, but to remember that a negative finding is never a bar to the diagnosis of early pulmonary tuberculosis.

The blood count and the differential count of leukocytes tell us nothing regarding the presence of early tuberculosis, but are often of great value in differential diagnosis. The urine examination likewise gives us no help in the early diagnosis, but is of assistance in the exclusion of other diseases that must be differentiated.

IV. *Specific Tests.*—The first of these is the injection of tuberculin. From this procedure much was hoped at the outset, but accumulated experience has not proved it an unqualified success. From the standpoint of diagnosis the principal objections to its use are the following: 1. The reaction occurs in latent and practically healed cases that have no active tuberculosis at the time the injection is given. 2. Not all cases of active tuberculosis react to ordinary doses. 3. Nontuberculous cases may react to large doses. From these facts it follows that the margin of error is quite large, that the result obtained is not always reliable, and that too much importance must not be attached either to the presence or absence of the reaction unless the other evidence coincides.

The second specific test proposed for early diagnosis is the serum reaction described by Arloing and Courmont in 1898. They thought they had discovered a reaction between blood-serum from a tuberculous patient and a culture of tubercle bacilli, similar to that which exists in typhoid fever between the blood-serum and a culture of typhoid bacilli. But since their announcement was made, numerous other investigators have gone over the ground, and the conclusion reached is, that the reaction is too variable and uncertain to give any practical results.

V. *The Röntgen Rays.*—There are two ways in which the röntgen rays can assist in the early diagnosis of pulmonary tuberculosis: (1) With the fluoroscope it is possible to see that the diaphragm on the diseased side does not descend as low as on the sound side with each inspiration; and (2) spots appear on the plate when a radiograph is made of the lungs, corresponding to areas of consolidation. As regards the first point, we had a method for determining the descent of the lung on deep inspiration long before the röntgen ray was discovered, namely, by percussing out the lower border of pulmonary resonance before and after a deep breath; and this method is just as useful and just as satisfactory as inspection with the fluoroscope. Furthermore, I doubt the value of this sign anyway in the diagnosis of early pulmonary tuberculosis; personally, I have not found it reliable. As regards the second point, the röntgen ray does undoubtedly show areas of consolidation; but such spots cannot be accepted as conclusive evidence if there are no physical signs to be elicited in the region where the plate shows the spots. In other words, the röntgen ray evidence is valuable in corroboration and should be sought for in every doubtful case; but it cannot be taken as convincing proof if it exists alone.

CONCLUSIONS.

We come back, therefore, in the diagnosis of early pulmonary tuberculosis to old and well-tried methods—the clinical history and the physical examination—as the ones of most importance still. Of the newer methods, sputum examination does not give information early enough; tuberculin may give a reaction when no active tuberculosis is present, and may fail to give a reaction when active tuberculosis is really present; while the röntgen ray confirms for us what physical examination has already discovered, but does not tell us anything that cannot be found out in other ways.

Sources of Error.—Finally, the sources of error in the diagnosis of early pulmonary tuberculosis may be set down as three:

1. Preconceived ideas: We are too apt to approach the examination of a case with our minds made up beforehand that the patient has or has not tuberculosis, and then to find the facts such as will support our view. Prejudice and bias often keep us from seeing what would otherwise be perfectly plain.

2. Inattention to details: In any early diagnosis we are dealing of necessity with slight changes from the normal, and it is by many little things that by themselves mean nothing, but put together mean everything, that a diagnosis must be reached.

3. Lack of persistence in examinations: No man can expect to reach a decision by one investigation; he must go over his evidence again and again, and expect to spend much time if he is to reach a conclusion that is certain; and in this occupation, as in scarcely any other, he may feel that his time could not be better spent.

DILATION AND CURETMENT OF THE UTERUS.

BY

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There is no surgical procedure that serves so many beneficent purposes at the hands of the properly trained specialist, and on the other hand none that is fraught with so many possibilities for evil when practised by those whose skill in pelvic diagnosis is founded upon insufficient knowledge and want of experience, than that of dilation and curetment of the uterus.

The contraindications to the performance of the operation as an independent procedure cover a field in pelvic pathology that embraces well nigh every disease of the extrauterine structures, the determination of which, in many instances, demands a tactile sense that can alone be acquired by long-continued and constant practice in making pelvic examinations, supplemented by the ever recurring corrective influences of a well-appointed apprenticeship at the operating table.

The difficulties and uncertainties besetting gynecologic diagnosis are sufficiently evident to the trained hand even in this line of work, to often raise a doubt upon the propriety and the safety of the operation in cases in which the symptoms and physical signs appear to point to the procedure as a positive indication, but in which the history of a pelvic inflammatory attack possibly many years previously, although apparently cured, has left an indeterminable but suspected residuum in the form of a quiescent salpingitis that may manifest all the latent properties of intense energy if its smouldering embers are but stirred into activity as is so frequently done by an ill-advised dilation and curetment.

In this connection it is likewise well to bear in mind that in not a few cases does the proper interpretation of symptoms associated with uterine disturbance not alone depend upon the diagnostic acumen of the gynecologist with an eye single to the pelvis, but the practitioner's skill as a physician in the widest possible sense of the term is called into requisition. For example, there is no pelvic symptom that is so frequently taken as an indication of the presence of disease demanding curetment, and yet none that in more instances may be merely a uterine expression of a general condition, or of a diseased state of some distant or neighboring organ, than hemorrhage from the uterus. So, too, with reference to chronic catarrhal discharges, these not infrequently are associated with corresponding conditions of other mucous tracts depending upon some constitutional dyscrasia, such as scrofula, tuberculous disease, syphilis, or some other disorder that tends to a generally lowered state of vitality. In women of a lymphatic type of organization a relaxed state of the mucous membranes with consequent hypersecretion is not an infrequent symptom of slight constitutional disturbances, but when this is observed in connection with the uterus it is too often taken as an index for a dilation and curetment of its cavity to cure a supposed endometritis that has no existence in fact.

Pelvic pain, although a common symptom in connection with almost all forms of pelvic disease, may be a part simply of a vicious constitutional circle referable, perchance, in a given case, to a general nervous or circulatory disturbance, or it may be to vices in the habits or the nutrition of the individual, but when it is associated with menstruation, and especially in the presence of a uterine flexion, possibly of indifferent significance, it likewise becomes a common pretext for this form of surgical interference.

It follows, therefore, that the interdependence of all the organs and tissues of the body in health and disease must be constantly borne in mind by the careful and conscientious practitioner. A correct diagnosis is of first importance to successful treatment, and the specialist cannot escape the responsibilities that rest upon him as one who should not alone be well grounded in the principles and the practice of his art from a surgical standpoint, but whose skill in pelvic diagnosis should be tempered with a well-balanced professional judgment, the result of a previously matured experience in the practice of general medicine. He should, moreover, never feel himself excused from having frequent recourse to conferences with fellow practitioners capable of supplying professional deficiences in the diagnosis of doubtful cases, before resorting to an operation that is filled with so many possibilities for evil. Individually considered, however, the mistaken diagnoses and the adoption of ill-advised plans of treatment in uterine disturbances depending upon extrauterine conditions, on the part of the specialist, are insignificant in number as compared with the numerous serious diagnostic blunders, and the dire consequences that often follow in the wake of the dilator and the curet at the hands of the unskilled.

To dilate and curet by mistake a uterus that is simply the seat of a functional disturbance, the result possibly of some unrecognized constitutional disorder, and in the absence of palpable pelvic disease will, with comparatively few exceptions, do little if any harm, but when this alone is done in the presence of some pathologic condition demanding additional surgical treatment, which might have been discovered by a trained hand in pelvic diagnosis but which was unwittingly overlooked by the uninitiated operator, it may not only mean an acute exacerbation of existing trouble, but superadded disease, and possibly death to the patient.

Compared with the specialist, therefore, it becomes the family practitioner to consider it a double duty at least to avail himself of the skill of the former in pelvic diagnosis before resorting to so easy a mechanical procedure, apparently, as an instrumental dilation and curetment of the uterus. Yet simple as it may appear it is an operation that calls for great delicacy of touch and the observance of the most rigid asepsis and antisepsis. Not a few uteri are forcibly and permanently retrodisplaced and prolapsed as a result of overstretching and consequent paralysis of their ligamentous supports by traction in order to bring the organ into view for dilation, and the want of proper aseptic precautions is frequently responsible for the introduction of septic material and the spread of sepsis from an infected uterine cavity. All this may sound like a plea on the part of the gynecologist for the preservation of the integrity of his specialty, but "he who runs may read" by making a single visit to the wards of our hospitals and there noting the far-reaching evil consequences and the number of abdominal sections necessitated by previously ill-considered operations of this character. In the hands of the inexperienced in pelvic diagnosis and of the unskilled in operative manipulation, dilation and curetment of the uterus therefore may well be classed among the most hazardous of gynecologic procedures.

That the operation is frequently called for in the presence of extrauterine disease as a preliminary to a vaginal or abdominal section is now generally recognized. As a means of arriving at a proper diagnosis it is indicated in cases in which uterine symptoms of a deleterious or annoying character cannot be accounted for by the presence of an associated pelvic or constitutional disorder. It is likewise indicated in cases of suspected malignant disease, or other newgrowths of the body of the uterus, and especially for the purpose of differentiating between cancer of this portion of the organ and a sloughing submucous fibroid. For clinical purposes, in most of these latter cases, it may not be necessary to do more than dilate the cavity sufficiently to admit the introduction of a finger. In cancer the indurated base and friability of structure, whether of the excavated ulcerating, or of the out-growing pultaceous variety, stand in strong contrast to the uniformity of structure, rounded elevation, and sense of firmness, that is imparted to the finger by a fibroid growth, and when the presence of either is suspected there are but few complicating conditions that should stand in the way of making an exploration of this character.

Dilation and curetment of the uterus as a therapeutic measure in uncomplicated cases of chronic endometritis of almost every variety is the only reliable and safe remedy, and in chronic parenchymatous involvement where the disease has not as yet reached the stage of permanent connective-tissue formation it is a most important adjuvant to other necessary remedial measures.

Sterility and dysmenorrhea for the relief of which the operation is often done with success are frequently but symptomatic evidences of uterine conditions just mentioned even though associated with accidental flexion of the organ.

In uncomplicated cases of subinvolution of recent date, dilation and curetment of the organ, supplemented by gauze packing, promptly reestablishes the arrested function of the muscular structure and results in a rapid diminution in the size of the organ; and in cases of chronic subinvolution associated with laceration of the cervix, or when the enlargement of the organ depends upon persistent passive congestion and consequent serous infiltration, the result of prolapsus from insufficient support, it is a necessary preliminary to the performance of plastic operations upon the cervix and vagina for the relief of these conditions, and should precede every surgical procedure for the restoration of the organ to the anterior position.

While the management of puerperal infections constitutes a necessary part of obstetrics, with which every practitioner engaged in this line of work should be thoroughly familiar, a few words in this connection may not be out of place.

The infected puerperal uterus with retained decomposing material demands digital exploration, thorough cleansing and disinfection by the infliction of the least possible traumatism, whatever extrauterine or constitutional complications may be present. The day for the indiscriminate use of the sharp curet in these cases has passed. Artificial dilation is rarely necessary, and the removal of debris with the fingers and curet forceps is usually readily accomplished. When this is followed by antiseptic irrigation and iodoform gauze drainage, all has been done that may be indicated locally. The very gentle use of a large fenestrated dull douche curet proves of additional value in some cases, and in rare instances the careful use of the sharp instrument becomes a necessity to dislodge closely adherent necrotic masses, but whenever nature's defensive and limiting wall of invasion is forcibly broken down by undue manipulation, as is so frequently done by the employment of the sharp curet, it at once opens up new avenues of attack and gives increased opportunities for germicidal extension and systemic involvement.

The differentiation between sapremia and septic infection of the puerperal uterus as separate and distinct pathologic entities, so sharply drawn by the profession a few years ago, is no longer tenable in practice, for the reason that in socalled cases of sapremia, septic germs are likewise to be found, and in the presence of susceptible local and systemic conditions these may, sooner or later, manifest all the virulent properties of a pathogenic infection in which, perchance, a structurally clean uterus even may have merely served as a gateway of invasion to more important structures.

On the other hand, in cases of recent abortion, whether complete or incomplete, but in which there is no evidence of infection, either sapremic or septic, contrary to the generally accepted teaching on this subject, it has been my practice to remove at once the uterine decidua with a sharp curet, followed by iodoform gauze packing. Diseased conditions of the lining membrane of the uterus are frequently responsible for the occurrence of repeated abortions, but aside from this, the decidual structure in abortions is of immature development, and under these circumstances is not prepared for the retrogressive change, or rather, its molecular disintegration, so necessary for a complete restoration of the endometrium to the normal, and in not a few cases the process at some stage is frequently arrested, leaving the entire organ in a state of subinvolution, with all its retinue of possible evils. By the timely use of the curet, under strict antiseptic precautions, the offending material is at once removed, while the gauze packing, to which further attention will be directed presently, hastens involution and promptly reestablishes the anatomic condition of the organ antedating conception, thus avoiding threatened chronic changes of a deleterious character in its structure or its position, as well as possible adnexal complications demanding serious operative measures subsequently.

The widespread distribution of pathogenic microorganisms and the precautions necessary to prevent their dissemination and propagation in the human organism need be mentioned but to condemn the pernicious practice of office dilation and curetment of the uterus as well as all other forms of intrauterine office tinkering.

Recognizing the necessity for the operation, nothing should be left undone to insure its performance under the most favorable conditions. The day preceding the operation the patient should be put to bed, the external parts should be shaved, she should be placed on an animal broth diet, and should have her bowels acted on by a brisk cathartic followed by an enema, a full bath, and a change of linens in the evening. The enema should be repeated in the morning.

While not considered essential to prepare the room as for an abdominal section, it should, nevertheless, be thoroughly swept, contents dusted, and well aired. All sheets and towels should be sterilized by one of the recognized methods if at all possible, but if the surroundings or the exigencies of a given case are such that this can not be done, recently laundered clean linens may be used after being gone over with a well-heated flatiron immediately preceding the operation.

Thorough cleanliness and the strictest aseptic and antiseptic precautions should be observed on the part of the surgeon and his assistants in their personal attentions as well as in the preparation of receptacles for solutions and instruments. An abundance of clean hot and cold water, previously boiled, should be at hand. Instruments, irrigating apparatus, and rubber gloves, if considered necessary, should be sterilized by boiling.

Under no consideration should the operation be attempted with the patient lying in bed. The modern bedstead is too low for the purpose, and is back-breaking to the surgeon, while the soft, shifting mattress is an additional obstacle to the proper performance of an operation requiring such nicety of adaptation. One of the best supports for the patient is an ordinary kitchen table four or five feet long by one and a half to two feet wide. This offers a properly elevated, nonshifting surface; can be so placed as to secure the best light, and affords the surgeon and his assistants the necessary access for doing good work. By the use of a Robb leg-holder, assistants may be dispensed with in a large proportion of cases. After the patient is etherized and properly placed for operation, the vagina, external genitals and immediate surroundings, including the hypogastrium and the inner and anterior aspect of the upper thighs should be thoroughly scrubbed with a solution of soap and creolin, or lysol, in warm water, followed by irrigation with sterile water and alcohol, and lastly the field of exposure should be surrounded with sterile sheets.

For exposing the cervix a Sims, or an Edebohls self-retaining speculum, is among the best. The uterus is steadied by grasping the anterior lip of the cervix anteroposteriorly with a tenaculum forceps. In doing this, fixation of the uterus by slight traction, or sufficient traction to bring the organ into proper line for dilation without undue stretching of its supports is the object desired. Failure to appreciate properly the force necessary to meet these requirements may, as already indicated, result in serious damage to the patient.

The instruments necessary for dilating a uterus depend upon the conditions present or the degree of dilation that may be required for digital exploration or intrauterine manipulation.

In subjects requiring instrumental examination and curetment alone, dilation of the organ can be most satisfactorily accomplished by the use of Pratt's graduated bougies. By their employment the cavity is dilated equably and the resistance of the tissues is imparted to the hand and appreciated at its full value so that the danger of accidental rupture of the cervix is reduced to a minimum, and if tearing does occur it is usually detected early and the further use of larger sizes is discontinued, while in the use of all forms of parallel bar dilators the cervical structure is stretched by lateral impact, and if inclined to give way generally does so suddenly and violently, resulting in deep lacerations. The one element of danger in the use of bougies is perforation of the uterus. This has occurred with me and has likewise been witnessed in the practice of others, but in none was it considered, nor did it prove, more than a harmless accident. It usually occurs with the smaller instruments and should be followed by curetment of the cavity with a nonirritating instrument and antiseptic gauze drainage. Should it happen in connection with a septic puerperal uterus, or with the organ otherwise acutely infected, more radical surgical measures might be demanded, but it must be observed that dilation in these cases can usually be best accomplished, as previously stated, by the introduction of the finger, so that metallic dilators, save the larger sizes of bougies, are rarely called for, and then only for the purpose of overcoming the resistance of exceptionally dense cervical structure.

Sufficient dilation of the nonpuerperal uterus for digital exploration or for the removal of newgrowths cannot be effected at one sitting, save in exceptional cases, unless the dilation is supplemented by deep lateral incisions of the cervix. If the latter operation is to be avoided the desired object in some instances may be attained by repeated gauze packings of the uterine canal—a very slow process—or by the more rapid method in the employment of tents. Of the latter those made of wood are considered the least objectionable. By scraping the surface of the tent with a sharp knife, exposing it to a high degree of dry heat, and then dipping it into a saturated solution of iodoform in ether, or carbolic acid and alcohol, immediately preceding its introduction, a reasonable assurance of its sterilization can be entertained. Sponge tents, while the best dilators, should never be used because of the uncertainty respecting the details of their manufacture and the difficulties experienced in rendering them sterile.

A very serious objection, theoretically at least, to the use of tents is that they plug the cervix and interfere with drainage, thus favoring accumulations of fluids capable of being forced into the tubes and pelvic peritoneum. Cases for their employment, therefore, should be selected with great care. To use tents properly the patient should be anesthetized, the uterine canal moderately dilated with bougies, and as many of the dilating mediums introduced as possible. A more satisfactory result can be secured by using a number of small tents than by the employment of one or two of a larger size.

The various forms of wood tents usually reach their limit of expansion in from eight to twelve hours, they should then be removed and the cavity irrigated with some antiseptic solution. If the dilation is insufficient to serve the physician's purpose, a second plugging of the canal with tents to remain a like number of hours may be practised, omitting the anesthetic.

Upon removing the tents the cervix is generally softened, and the dilation usually of sufficient permanence to admit of a thorough digital exploration and the practice of extensive intrauterine manipulation. In the presence of a submucous growth, further dilation can be secured, and its removal often accomplished by continuous and forcible traction on the tumor with a tenaculum forceps or volsellum, the cervix gradually yielding to the pressure that is thus brought to bear on the softened structure from within.

In all cases when curetment is indicated, with the exceptions noted, the instrument with a fenestrated sharp beak and irrigating shank should be employed. The attached fountain syringe should hang about two feet above the patient's body, and the flow through the instrument started before it is introduced into the uterus. The end in view should be the removal of the entire surface endometrium. To do this a well-conceived plan must be followed in order to bring the instrument to bear upon every portion of the diseased structure. Uninterrupted continuous strokes extending from the fundus of the organ to the external os should be taken, by attacking the anterior, lateral, and posterior walls, in orderly succession, special attention being directed to the cervical canal and the uterine cornuas. Following the curetment, an application of a solution of iodin, or a saturated solution of iodoform in ether should be made with a forceps armed with sterile absorbent cotton.

In puerperal cases and in subjects suffering from subinvolution, the operation should be followed by the introduction of an antiseptic gauze drain, supported by a loosely applied vaginal tampon. The former proves of value in that it arrests excessive hemorrhage, keeps the uterine surfaces apart and antiseptic, and by virtue of its presence as a foreign body it excites the arrested functional activity of the musculature of the organ in reestablishing the properties of contraction and retraction, with a resulting equalization of the circulation throughout its entire structure; it likewise favors serous transudation from the succulent tissues into its meshes, and finally fulfils the part of a drain by capillary action. If the gauze is packed too closely, however, it is apt to defeat the purpose of its presence in acting the part of an obstructing plug, with resulting retention of fluid material and all the possibilities of superadded complications.

A properly introduced drain usually has served its purpose in from one to two days, and upon its removal in favorable cases, the uterus is generally found to have undergone a very material reduction in size, while the retrogressive change thus inaugurated is apt to continue to the final completion of the involutionary process.

The length of time a patient should remain in bed after a dilation and curetment of the uterus necessarily varies with the gravity of the disease for which the operation was done, with the character of other surgical measures necessary for the relief of associated pelvic complications, as well as with the constitutional condition of the patient preceding and following the procedure.

"SHORTEN THE TIME FROM THE COW TO THE BABY."[1]

A Plea for 12-Hour Milk.

BY

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Notwithstanding the great improvement in the quality of the milk supply—of large cities especially—within the past ten or a dozen years, one point, and, in my judgment, a most important one, has been strangely overlooked. State laws and city ordinances prescribe all manner of requirements for dairies, milch cows, and the constituents of their milk and cream offered for sale. But as to the *age* of milk there is not one word in all the literature of the subject with which I am acquainted.

In an article published last May—believed to be the first public utterance upon the subject—attention was called to the fact that the milk supply of Chicago is produced so near the city that milk could be delivered to the consumer within 12 hours from the time of milking, and that at present the largest proportion of this important article of food is from 24 to 36 hours old before delivery.

Stress was laid upon the fact that 12-hour milk is worth very much more, from a dietetic standpoint, than 24-hour old milk; while 36-hour old milk not only has little food value, but is positively harmful to the young. These statements apply, of course, only to "bulk milk," or milk sold from the can; milk bottled at the dairy in the country, under hygienic conditions which are rapidly becoming standard, will keep sweet and wholesome for three or four days in the usual ice-box temperature; that is, below 50° F.

It was suggested that the time has come when the value of milk must be judged by its age, by the conditions under which it is produced, and by the treatment it receives from the time it leaves the dairy until delivered to the consumer.

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[1] Read to the Section on Public Health, International Congress of Arts and Science, St. Louis, Mo., September 21, 1904.

The article was intended for popular reading and is, therefore, elementary in character, and I shall here only summarize some of the points made, to impress on the laity the paramount importance of fresh milk.

Every one knows that sour milk is unfit food for the young; but every one does not know that milk may be unfit for such food many hours before it becomes sour to the taste. Milk begins to deteriorate, as to its digestibility and wholesomeness, from the moment it is exposed to the air. As known in the laboratory, it is one of the best mediums for the growth and multiplication of bacteria.

Before milk is drawn from the udder it is absolutely free from these organisms. Before it has reached the pail from the teat, even under the most cleanly conditions, at least 150 to every teaspoonful will have been caught up from the air. In 24 hours, unless checked by cold, these will have increased to 400,000, and in a few hours more they will have multiplied so enormously that the milk will be sour, even to the taste.

This souring is due not only to the growth of the bacteria, which have fed and multiplied on the nutritive constituents of the milk, thereby reducing its food value, but to their production of a special souring (lactic) acid and other poisons.

Old milk not only starves the young, but it poisons them, causing diarrhea, "summer complaint," etc., and the excessive mortality among the young, especially during hot weather, which hastens souring of milk by favoring the growth of the bacteria.

Milk is the principal article of diet for children, after they are weaned until they are four or five years old. It is the sole article of diet for infants who cannot be nursed by their mothers. Milk in the diet of adults does not fill so important a place. Old milk or poor milk may be used for coffee and for table use generally by adults without any great harm, for the quantity used at any one time is small compared to their total diet.

All milk intended for the use of children should be bottled in the country, immediately after having been thoroughly cooled. The bottles should be put in cases, packed with broken ice, and so shipped to consumers within 12 hours after bottling, and at a temperature below 50°.

There are some firms now complying with these conditions, and such milk is worth all that is charged for it. These firms bottle the milk in the country instead of in the city, exacting the most cleanly conditions by contract with the farmers producing it, and maintain inspectors for the purpose of seeing that the conditions of the contract as to cleanliness are carried out.

Milk bottled in the city cannot rank with the country-bottled milk, because it is shipped to the city in cans without being iced, and because after the cream has risen during transit, the butter fat cannot again, without the greatest pains, be thoroughly intermingled with the milk so that each bottle receives its due proportion. Nor are the producing dairies, as a rule, under the rigid supervision that is insisted upon by those who bottle in the country.

Here it may be repeated that poor milk or old milk for children is not only without nutritive value, but often produces disease, and even death. Milk produced under the best conditions is worth the highest price for it, because it means health and strength to the child—the foundation and assurance of vigorous, healthful adult life.

To sum up the most important results of personal investigations of a number of dairy farms from which Chicago receives its milk supply:

1. An increasing proportion of Chicago's milk is delivered to the consumer within 12 hours after milking. The bulk of it, however, is from 24 to 36 hours old before delivery. There is no insuperable reason why it should not be all delivered within the shorter period, and every effort of the Department is being made to this end.

2. There is much room for improvement in the conditions of milk production on nearly all the dairy farms visited, except those under the direct supervision of a few large contracting firms. The dairy inspectors of the Department are engaged in visiting this class of farms, explaining to their owners the necessary requirements, reporting upon their conditions, and recommending the exclusion of their product from the Chicago market if after a reasonable time they fail to conform to these requirements.

3. It costs more to produce clean milk than dirty milk, therefore, cheap milk is *prima facie* impure and unwholesome milk, and the housekeeper who buys it is helping to swell the deathrate of the city, by having her babies die off from disease caused by stale and impure milk. The consumer should make it an object to the milk producer and the milk dealer to furnish a clean, fresh, and wholesome product, by being willing to pay a fair price for such product, and by giving personal attention to its quality and proper care after its receipt.

The editor of *American Medicine*, recently commenting upon my May article, says the delivery of 24-hour to 36-hour old milk "is really criminal and should be made illegal."

But no legislation to this end will ever be enacted until the public is educated to a knowledge of the evils of stale milk and its murderous effects upon the young. In a discussion in the Section of State Medicine of the British Medical Association, last July, on the control of the milk supply, the principal speaker, Dr. George Newman, Medical Officer of Health of Finsbury, said:

> It is not difficult to make suggestions as to what should be done toward the control and protection of milk, if one may judge by the abundance of advice which flows in increasing volume from all quarters. The law should do this, the dairy trade that, and the railway companies a third thing. Alarmist views and alarming measures receive ready support. But the problem must be solved on broad lines and by slow progress. There are three broad principles which I venture to submit as governing the question. First, in a general way, some reform should come from the consumer. What the public demands the trade will supply. If the public insists on a pure whole milk, obtained by cleanly methods from healthy, clean cows, there is no doubt the thing can be done.

There is equally "no doubt the thing can be done" as to a 12-hour milk supply, when the public insists upon having it. And the public will insist when it knows—when sanitarians and physicians shall have educated it.

To quote Lord Derby again: "Sanitary education is more important than sanitary legislation."

Adulteration of Food Largely Practised.—Dr. Lederle, formerly Commissioner of Health of New York City, says: An important field is now opening to the sanitarian in the investigation of manufactured food products. The extent to which commercial adulteration and substitution is now practised would be absolutely incomprehensible to the layman. Competition in trade has become so keen and the substitution of inferior constituents in foods so general that the honest manufacturer has hardly a chance to succeed. The use of injurious preservatives has also been practised to a scandalous extent. The only remedy for this evil condition will be the passage and enforcement of a Federal pure food law; such a measure has already been before Congress, but in the absence of an aroused public opinion, the mysterious influences which bar the way of much good legislation at Washington have been able to kill it. Much the same opportunity is offered in a campaign against the vendor of patent medicines and secret nostrums. Few people understand the extent to which these articles undermine the public health, and there has been little or no attempt to assume official control over their production and sale. The remedy is official control. Makers of patent medicines, nostrums, pills, etc., should be required to place upon each bottle or packet the exact ingredients it contains, and should be prosecuted for any deviation which can be shown to be detrimental to the health of persons using the remedy, or designed to perpetrate upon them a commercial fraud.

SPECIAL ARTICLES

THE DOCTOR AND THE COMMUNITY.[1]

BY

RICHARD C. CABOT, M.D.,

of Boston, Mass.

Fellow Students:—I suppose these are first, second, third and fourth year students here. I am a little further along in the school than some of you. I am a fifteenth year student. You have to take some examinations sooner or later, I suppose. I do not, and being freed from that bugbear, I can do my studying more at my ease than you—with time to digest some of the material I ingest, time to stop now and then, look over the years of work and pass along to fellow students who are still in the toils of the examiner, some of the beliefs that have taken root to me since I began to examine other people instead of being examined myself.

If you read the medical journals (as you ought to, now as well as later on) you must be beginning to know and to trust Dr. George Dock, of Ann Arbor, Mich., one of the sincerest, wisest, most energetic, most lovable physicians I know. In the course of a thoughtful address[2] of his, published two months ago, he made a remark that set me thinking, and furnishes the theme which I wish to work out today. He said:

"I am always interested in seeing how soon medical students lose the lay point of view, just as one forgets an unused foreign language, and how sometimes they never recover it"; how quickly, in other words, we lose the power to see ourselves as others see us, with our doctors' foibles and tricks, our medical poses and grandiloquences. We get to think that we are little tin gods—surrounded as we are by a clientele in whose minds our word is authoritative.

Now it has been my fortune to have a number of intimate friends not members of the profession. Among these friends I often hear doctors talked over quite as frankly as if I were not present; and along with a due share of commendation, I hear a good many things said that ought to recall to us something of that lay point of view which, as George Dock says, we often lose so early and recover late, or not at all.

I am going to report to you today something of what I overhear from time to time in nonmedical circles, some differences between the point of view of the average doctor and the point of view of the community, the average layman.

I shall try to report the layman's point of view on three topics: 1. Professional mannerisms. 2. Professional secrets. 3. Professional lies.

1. *Professional Mannerisms.*—One of the more ludicrous of our professional mannerisms is the habit of writing prescriptions in Latin. It is one of the last remnants of medieval custom among us, and to the layman it looks, as it deserves to look, either foolish or quackish. Latin used to be the only language of educated men. To write in Latin was the badge of learning. Gradually as popular education abolished the class of learned men, Latin disappeared from the speech and writings of sensible people, from the law papers and the commencement programs, until now almost the only remnant of this monkish superstition survives in the abominably bad Latin of some doctors' prescriptions. If you want to see how it looks to a layman, just examine a few homeopathic prescriptions. We are so used to our own absurdities that we cannot taste their nauseating flavor; but look at a few of the mannerisms of our heretic brethren and see if they do not jar you; see if they do not turn your stomach. The misspelled and abbreviated scraps of pigeon Latin with which we spatter our prescription blanks convey to some ignorant people an impression of great learning, and of mysterious powers, beyond the ken of simple folk. To educated people they may and do convey the impression (which is often true) that we wish to conceal what we are giving them. In both cases they tend to bring us to the level of the quack.

I know that the practice is often defended on the ground of international uniformity. "When you go to Germany or to Russia you can write your prescriptions just as you do at home and the apothecary will understand." So they tell us, but try the experiment and see. I have handed Russian and German prescriptions, written in Latin, to American apothecaries and found them altogether unable to fill them on account of differences in the pharmacopeia, in the system of measures, and in the script. No, from the lay point of view, from the point of view of the community, the use of Latin in prescriptions is absurd and savors of the arts and incantations of the quack.

Time permits me merely to allude to other professional mannerisms, which give the public many a good laugh, when the bearded and whiskered youth has made his portentious bow and stalked away. Professional manner is a form of quackery that very seldom works except in the person of a professional liar. The amateur poseur is generally a failure. "Why won't doctors talk to their patients as one friend talks to another?" said a much bedoctored lady to me, and I could think of no answer at once true and creditable.

2. *Professional Secrets.*—If a case of diphtheria arises in the family of one of your patients there occurs not infrequently a collision between the family with its desires and the community with its interests. The family does not want the door placarded with a flaming notice of contagious disease within. Isolation is difficult and expensive. To send the children to a hospital is abhorrent to the parents. They want the whole thing hushed up. It costs them too much in many ways to let the truth leak out, and they beg the doctor to keep their secret. They would never have called him, they say, had they known that he would give them away. They threaten never to call him again if he notifies the Board of Health.

Sometimes the doctor yields and hushes it all up. Sometimes the truth leaks out in spite of him. Sometimes the Board of Health swoops down upon him in consequence and he gets punished. Sometimes the Board of Health swears there is no such disease in town or that it is not contagious. You know all about that here in San Francisco. But as a rule the public interest conquers, the doctor serves the good of the community rather than the desires of his patient, *refuses to keep this professional secret*, and prevents the spread of the disease to the uninfected community. Neither does he lose his patient in consequence. For most people have got educated up to the point of seeing that sauce for the goose is sauce for the gander. The average man can see that the physician who protects the public (that is, other people's children) from him, will protect him against infection from other people's children by reporting and isolating their cases, while the physician who hushes up one case will hush up other cases, and so keep everybody in danger.

So far, physicians agree pretty well with the point of view of any common sense layman. But alarming differences arise as soon as we begin to deal with some of the more dangerous diseases. Against mild infections like scarlet fever we protect the public as a rule, but when it comes to a far more fatal disease—syphilis—professional ethics says: "The public be damned; protect the single individual, the single family, even if invalidism, idiocy, and death are spread abroad among hundreds by reason of what you hush up."

A syphilitic patient comes to you for treatment, and mentions that he is soon to be married. You forbid the marriage. He defies you and insists in going on with the marriage regardless of the sacrifice of an innocent woman and the tainting of future generations. What is your duty in the matter? Well, medical opinion is somewhat divided upon the question, but in the great majority of discussions, and by most authorities, it is held that the doctor must keep his patient's secret, even though by doing so he deals out death and worse than death to the community.

Unfortunately the authority of the Hippocratic oath, justly revered through many centuries, seems to support the point of view of the average doctor rather than of the community. "*Whatsoever*," says the oath, "*I see in the life of men which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret.*"

This sentence I say *seems* to support the position that we must protect at all costs the secret of the conscienceless syphilitic, and this sentence is often recalled as a clinching argument in favor of this view. Personally, I think we may well doubt whether Hippocrates had any such problem in mind. It seems to me more likely that he meant to condemn the divulging of secrets which would harm the community as well as the individuals most concerned, family secrets which concern no one else, and which can easily lead to a great deal of pernicious and sordid gossip if spread abroad through the heedless loquacity of the physician.

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[1] An address delivered at the opening of the Medical School of the University of California, August 17, 1904.

[2] Journal of the American Medical Association, June 11, 1904, p. 941.

But whatever Hippocrates meant, our proper course in the matter seems to me perfectly clearly marked out by the following consideration:

Suppose the man in whom you discovered an active syphilis were engaged to marry your sister, and refused to put off the marriage until he was cured or to warn her in any way of her danger; is there a person in this room who, if placed in this position as a physician, would hesitate for an instant to shield his sister from pollution? Not one. Well, then, suppose the woman were not your sister. Is there any reason for treating her any worse than your sister? What defensible reason could there be?

To my mind there is no answer to this question and no need of any further casuistry on the subject. Whatever you would do for your sister's protection you cannot justly refuse to do for any other woman.

When the matter is put in this shape, when it is brought home to us that this vague abstraction, "the community," is vague only because of our intellectual short-sightedness, our moral myopia, I have yet to see a man who will defend the thesis that the physician's duty is to protect the patient's secret, whatever the cost to the community. When the community turns out to be your sister you are no longer so fascinated by the idea of damning the community for one man's sake. But the community is always some one's sister and in damning it you always endanger some one just as dear to her family as your sister is to you.

Between this case and the case of diphtheria which the family wants you to hush up there is no difference in principle. In both cases the good of all the people in the community is weighed against the desires of one or two members. Laymen see very clearly how the scales swing, and to laymen it is as a rule decidedly shocking to know that physicians are often in the position of disregarding the welfare of the whole in deference to the wishes of a single member. It remains to be seen whether the physician will continue to be on the side of the man who undertakes to "hold up" the community in these matters, or whether the physician will consent to remain a public servant, loyal to the community that trusts and maintains him.

3. *Professional Lies.*—The doctor and the community agree in theory regarding most types of lying. The doctor who calls every sore throat a malignant diphtheria, curable, however, by his surpassing skill, is condemned by his professional brethren, as well as by the general consensus of honest men. So it is with the doctor who hires another man to do an operation for him and then proclaims that he did the operation himself, the patient being under ether during the juggle. So far the profession and the laity agree, in theory at any rate. But the vast majority of medical men whom I have met will defend the use of lies told for the patient's good.

I have on another occasion expressed so fully my views on this subject, that I shall confine myself today to a brief recapitulation of an address delivered in New York, in December, 1902, as one of the Cartwright Lectures. In those lectures I reported the results of three researches: (1) On the effects of alcohol on blood-pressure; (2) on the diagnostic value of urinary examinations; (3) on the use of truth and falsehood in medical practice.

This last research has now extended over 10 years. During the first six years I experimented with the use of lies, well-meant, kindly lies, supposed to be wholly for the patient's good. In the last four years I have tried the hazardous experiment of telling the truth, at first with considerable misgiving, lately with increasing confidence in its almost miraculous innocuousness.

Having now pretty thoroughly tried both methods, I am convinced that lying never pays. 1. Because the amateur and occasional liar is generally found out. It is only the habitual, professional liar who can regularly succeed. 2. Because the man who makes a habit of lying for his patient's good, is always likely to slip over the boundary and lie for his own advantage. 3. Because the truth, skilfully and considerately told, is usually a relief or a stimulus to the patient, and never (in my experience) does the harm we expect of it. In the address[1] above referred to, I have told in detail some of the experiences that have led me to these conclusions.

A considerable amount of correspondence and discussion resulting from the publication of this address leads me to believe that two great tendencies in modern medicine are making strongly for the prevalence of truth-telling among physicians: 1. The tendency toward scientific methods of diagnosis and treatment. 2. The tendency toward surgery.

The constant effort to clear up one's own mind and to lean upon observed fact becomes incompatible with the habit of manufacturing facts, and tends to drive it out.

The surgeon's diagnoses are so strictly subject to verification and the success or failure of his treatment is usually so obvious that "the facts speak for themselves," and he gets out of the habit of trying to improve on them, either for the patient's benefit or for his own.

I am convinced therefore that the professional mannerism of lying for the supposed good of the patient is being driven out by the strength of the truth itself, expressed through the two widespread tendencies just alluded to. My own words on the subject are merely a symptom of a change that is going on everywhere.

It will go faster when we are wise enough to take George Dock's advice and guard ourselves against losing the point of view of the sensible layman, who looks on good-humoredly at our mannerisms and pardons them, too good-natured even to mention to us how little they impress him. Is it not time for us to shake off the idea that we owe allegiance to anything less than the best in sight, the whole group of those who may be affected by our acts? Let us not allow ourselves to be hired to play monkey tricks, or keep shameful secrets, or tell lies for anybody—or under any circumstances.

The Blessedness of Sleep.—An Exchange says: Cervantes calls it "meat for the hungry, drink for the thirsty, money that buys everything." Keats regards it as the "great key to golden palaces," and Shakespeare as "Nature's soft nurse," and "sleep that knits up the raveled sleeve of care;" while Young characterizes it as "tired Nature's sweet restorer." It is health's greatest promoter and one of the surest guarantees of happiness. Money is desirable, wisdom should be aquired, friends are to be cherished, but these without blessed sleep would be but so many mockeries. The lesson then is so to live that sleep will be a constant and cheerful guest. One's habits of life—eating, drinking, employment, and associations, have much to do—have almost everything to do—in the way of inviting or repelling sleep.

Doctors' Fees in England.—The specialists must be divided into two distinct classes—the surgeon proper and the pure physician. The former unquestionably gets big fees in ratio to his reputation, says the London *Daily Mail.* Sir Frederick Treves has only to name his fee to the millionaire with appendicitis. With the fear of death before his eyes, he will write his check gladly. When he has recovered he will often grumble, if he does not boast. A younger and less-known man will perform the same operation for a tithe of the cost, but the public, with death staring them in the face, will have the man with the big name, regardless of expense. But the pure physician is an entirely different matter. His fees are standardized, not by act of Parliament, but by that autocratic body, the Royal College of Physicians. His fees for consultation at his own house are fixed at two guineas the first visit and a guinea for each subsequent one. For consultations away from home he receives a fee at the calculated rate of two-thirds of a guinea a mile. Elstree, 12 miles out of town, is *ipso facto* eight guineas; Liverpool (201 miles) is 134 guineas, and so on pro rata. But it must be remembered that nowadays all the big provincial centers have their own specialists, and the town man is very seldom sent for unless he be one of the very biggest names and the patient desperate and rich. If the physician should accept more he transgresses that professional fetich, "medical etiquet," and is branded a quack by his less lucky brethren. Moreover, when he arrives at a sufficient standing in the ranks of his profession, the Royal College of Physicians will not elect him to their all-important fellowship, the crowning qualification and high-water mark of his calling.

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[1] *American Medicine,* Vol. v, No. 9, p. 344.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

October 15, 1904. [Vol. XLIII, No. 16.]

1. Etiology of Cholecystitis and Cholelithiasis. WALTER L. BIERRING.
2. The Relation of Cholelithiasis to Disease of the Pancreas. EUGENE L. OPIE.
3. Diseases of the Gallbladder and Bile Ducts in Relation to Diseases of the Gastrointestinal Tract. BERTRAM W. SIPPY.
4. Diagnosis of Cholecystitis and Cholelithiasis. PARKER SYMS.
5. The Treatment of Cholecystitis and Cholelithiasis LUCIUS W. HOTCHKISS.
6. Poisoning by Wood Alcohol: Cases of Death and Blindness from Columbian Spirits and Other Methylated Preparations. (Continued.) FRANK BULLER and CASEY A. WOOD.
7. A Simple Method of Cystoscopy. M. C. MILLET.
8. Bone Cysts: A Consideration of the Benign and Adamantine Dentigerous Cysts of the Jaw and Benign Cysts of the Long Pipe Bones. JOSEPH C. BLOODGOOD.
9. Experimentally Produced Genuine Epithelial Metaplasia in the Stomach, and the Relations of Epithelial Metaplasia with Carcinoma as Demonstrated by Cases Reported in the Literature. GUSTAV FUTTERER.
10. Lithemic Nasopharyngitis Due to Systemic Disturbance. J. A. STUCKY.
11. Spontaneous Tonsillar Hemorrhage. LEWIS S. SOMERS.

1.—See *American Medicine*, Vol. VIII, No. 3, p. 93.

2.—Relation of Cholelithiasis to Disease of the Pancreas.—E. L. Opie notes certain anatomic peculiarities which have an important bearing on the relation of the liver to the pancreas. In 10% of persons the duct of Wirsung and the common bile duct terminate side by side at the summit of the bile papilla. In the majority, the duct of Wirsung which terminates in the bile papilla, is larger than the duct of Santorini which terminates nearer to the stomach, but in about one of ten instances the reverse is the case. In nine-tenths of all cases the two ducts anastomose within the gland, but in a large proportion they are united by so narrow a twig that one is not capable of acting as an outlet for the secretion of the other. The presence of bile is peculiarly favorable to the action of the fat-splitting ferment of the pancreatic juice and considerable importance may be attached to the mixing of the two before entering the intestine. Experiments have demonstrated that bile injected into the pancreatic duct causes acute hemorrhagic pancreatitis. Gangrenous pancreatitis is a later stage. How often this is due to gallstone has not yet been estimated, but cholelithiasis is the usual cause. Suppurative pancreatitis due to invasion of microorganisms is due to calculi favoring the latter. Chronic inflammation of the pancreas is a more common complication of cholelithiasis than acute lesions. Whenever a biliary calculus passes through the diverticulum of Vater into the duodenum the pancreas is subjected to the danger of injury, the character and extent of which are dependent on the size of the calculus and the duration of its impaction. [H.M.]

3.—See *American Medicine*, Vol. VIII, No. 3, p. 93.

4.—See *American Medicine*, Vol. VIII, No. 3, p. 94.

5.—See *American Medicine*, Vol. VIII, No. 4, p. 139.

6.—See *American Medicine*, Vol. VIII, No. 6, p. 228.

7.—A Simple Method of Cystoscopy.—M. C. Millet transforms an air inflating cystoscope into an irrigating instrument which admits of rapid and thorough irrigation and permits the guiding of the stream where one wills, and is of greater efficiency than many which have been specially constructed for irrigation. The only interruption to inspection is the few seconds required to empty the bladder. A column of clear water filling the shaft of the cystoscope will transmit light and as readily as if it were stationary. The stream can be directed toward suspected areas, clots and mucus dislodged, and the lesions thus clearly exposed. [H.M.]

8.—See *American Medicine*, Vol. VII, No. 25, p. 974.

9.—Epithelial Metaplasia in the Stomach and its Relation with Carcinoma.—G. Futterer reports cases of metaplasia experimentally produced in the stomachs of rabbits. The epithelial pegs, of which he furnishes illustrations, represent a formation of epidermis. An ingrowth of epidermis can be excluded, as there was no fistula. If these were implantations during operation they are the first successful ones of detached epithelial cells on record, they occurred under most unfavorable conditions, and yet the cells were found in five out of 25 cases, and the layers forming the pegs differed very much and showed normal arrangement along the walls of the glands instead of filling their lumen, and hornification was found in only very few spots, and but few prickle cells were observed, and no pigment was seen, and the vigorous downgrowth in every case needs explanation if implantation occurred. A germinal deposit would have been removed at operation. All five cases represent genuine epithelial metaplasias. A number of cases of combination of cylinder-cell carcinoma with squamous epithelioma have been reported in literature, and there is no reason to suppose this could not occur in the stomach as well as other organs. Only further experiments can show what will eventually become of these cases as to transformation into carcinoma. The writer differentiates the recorded cases of metaplasia into three forms. [H.M.]

10.—See *American Medicine*, Vol. VII, No. 25, p. 974.

11.—See *American Medicine*, Vol. VII, No. 26, p. 1011

Boston Medical and Surgical Journal.

October 13, 1904. [Vol. CLI, No. 15.]

1. The Extraction of Foreign Bodies from the Bronchi. A. COOLIDGE, JR.
2. A Case of Malignant Endocarditis. J. F. ALLEYNE ADAMS.
3. On "Variant" Infections: With Report of Cases. THOMAS HORACE EVANS.
4. Gastric Ulcer in Children. (Concluded.) ELBRIDGE G. CUTLER.
5. Examination of Pleural Fluids with Reference to Their Etiology and Diagnostic Value. (Concluded.) PERCY MUSGRAVE.

1.—Extraction of Foreign Bodies from the Bronchi.—Coolidge reports the removal of a foreign body from a bronchus in four cases, three after tracheotomy and one with the aid of Kilian's bronchoscope through the interior air passages. The foreign bodies were a silver dime, a scarf pin, a hat pin, and a nail. From the satisfactory results in these cases, Coolidge is more in favor of operative interference in case of inspired foreign bodies than he was at the time of reporting his first case in 1899. A general anesthetic is not necessary, nor advisable, if a tracheal opening already exists, and in many cases the tracheotomy might well be done with cocain. In the first two cases the presence of a tracheal opening or the absence of proper instruments left no opportunity for choosing between the tracheal and anterior passages. In the third case a pin was shown to be at the bottom of the left primary bronchus, and it was not thought possible to reach it through the mouth; fear was felt, also, that an unsuccessful attempt to do so might harm the patient. In the fourth case the point of the nail was about as high as the bifurcation, a typical case for removal by the interior passage. It must be remembered that an unsuccessful attempt through the interior passages, followed by tracheotomy, not only lengthens the operation, but adds to the danger of sepsis. This must be taken into consideration in deciding on the route to be chosen. [A.G.E.]

2.—Malignant Endocarditis.—J. F. A. Adams reports a case in which at first the heart examination was negative. On the sixteenth day of illness a systolic murmur was heard at the apex. On the twenty-fifth day the patient died, and autopsy revealed the lesions of malignant endocarditis. Before the appearance of a murmur there was no possibility of making a definite diagnosis. The Widal reaction, which was absent, would not, if present, have absolutely excluded endocarditis. The endocardium may be plastered with vegetations without giving rise to physical signs. In this case there was abrupt onset, irregular pyrexia, never any cardiac pain, and little or no oppression or shortness of breath until the last week. [H.M.]

3.—Variant Infections.—T. H. Evans reminds us that disease will no longer be thought of as an entity, but as a "replacement of radicals." Neither can we neglect the factor of personality. Fussell called attention to the frequency of sore throat in families at the time of scarlet fever or diphtheric infection therein—sore throat which cannot be determined to be specific. Infectious variants have a decided element of danger. The writer has suggested varying modes and manners of infection according to the cycle of development of the pathogenic organism, and the essential tissues of the body may have a selective preference for certain toxins or microorganisms or for them in certain stages of their cycle of development. In an epidemic of erysipelas he found a number of cases of throat affections which responded readily to ferric medication. [H.M.]

5.—Examination of Pleural Fluids with Reference to their Etiology and Diagnostic Value.—P. Musgrave presents a study of 72 cases. As a result he concludes that routine and systematic examination will aid greatly in diagnosis and in determining the etiology of pleurisy. Cytodiagnosis is the only one which can easily be employed clinically for the reason that animal inoculation, inoscopy, and culture methods can be employed only in the laboratory. Cytodiagnosis is not accurate in every case, but is sufficiently so when taken in conjunction with the history and bedside examination and the physical and chemic properties of the fluid itself, to justify its use as a routine procedure. It has given some signal results. The examination will establish a basis on which prognostic statistics can subsequently be based. [H.M.]

Medical Record.

October 15, 1904. [Vol. 66, No. 16.]

1. Prolapse of the Ovary: An Operation for its Cure, with Report of Twelve Cases. CHARLES CLIFFORD BARROWS.
2. Unusual Forms and Favorite Localizations of the Rheumatic Process. J. SCHREIBER.
3. The Specific Treatment of Typhoid Fever. JAMES MORRIS HACKETT.
4. Why Railroad and Similar Corporations Lose Their Damage Suits: A Criticism of Prevailing Methods. JOHN PUNTON.
5. Acute Tetanus Cured by Intraneural Injections of Antitoxin. W. SCOTT SCHLEY.

1.—Prolapse of the Ovary.—Barrows details the operation performed by him and reports 12 cases. He shortens the round ligament, then the infundibulopelvic ligament, both steps differing but little from those recommended by writers in general. These procedures, however, do not restore the organ to the desired position, the condition being made even worse by the stretching of the peritoneum between the two points of shortening. The additional technic recommended by Barrows is to make an incision through this double peritoneal fold that is stretched between the round ligament and the top of the upper ligament, bring the ovary up through this opening, and permit it to lie on the shelf thus provided for it. Diagrams explain the steps of the operation. The particular value of the method is that it allows conservative surgery in many cases in which useful organs would otherwise be sacrificed. [A.G.E.]

2.—Unusual Forms and Favorite Localizations of Rheumatism.—J. Schreiber describes cases in which muscular rheumatism has simulated pulmonary or pleural affections and sciatica. He denies its causation by trauma. Among unusual types are rheumatism of the costal periosteum, the costal arch, the sternum, the ensiform process, and the hollow bones; of the diaphragm, tuber ichii and ligaments of the pelvic outlet, and unilateral rheumatism of the masseter. The faradic current may be used in the case of the diaphragm, but mechanical treatment is the best where applicable. This generates warmth in the muscle substance and the normal relationship between will and muscle fiber is restored. Among the favorite seats of rheumatism are the supraspinous fossa of the scapula, the protuberance and the linea semicircularis of the occipital bone, the galea aponeurotica of the calvarium, the temporal muscle and its tendon under the zygoma, the outer border of the scapula and the tendons of the teres muscles at their insertion into the humerus, the sacral origin of the sacrolum balis, the sacrolumbar fascia, the origins of the glutei, the muscles originating from the pubic bone, the muscles, tendons, and ligaments of the condyles of the femur, the muscles attached to the fibula, the tendons and ligaments of the humerus, radius, and ulna. Muscular rheumatism results from disturbances of circulation. Cure comes through those movements that give pain. It is produced by rapid changes of temperature in the affected structures, especially in cooling off after muscular effort. [H.M.]

3.—Specific Treatment of Typhoid.—J. M. Hackett considers calomel and blue mass as specifics. Within from 4 to 10 days the bacilli are no longer active. One or two grains of blue mass may be given every three hours until constitutional symptoms are noticed. If constipation is the rule, 5 gr. of calomel may be given daily. This is not so safe as blue mass. An alkaline cathartic should be used daily during the fever, whether there is constipation or not, unless there is hemorrhage or other complication. Good rest should be insured by opium. Equal parts of milk and water should be given every two hours, ice cold, or, if not well borne, some farinaceous gruel or peptonized milk. Watermelon is harmless. Mercury makes the cold bath unnecessary. It is well borne in typhoid. When the gums get sore, the bacilli are no longer active. Mercury maintains the red cells, and the patient may take solid food as soon as the temperature is normal. The tongue becomes moist a few days after treatment. The temperature does not become subnormal when the fever leaves. [H.M.]

4.—Why Corporations Lose their Damage Suits.—J. Punton attributes these losses to the combination of "switch" lawyers with unscrupulous physicians and malingerers, and to the prejudice against corporations, and the general belief their medical employes are biased, and to the want of medical knowledge by the lawyer who tries the case. The only remedy is the establishment of a medicolegal department, composed of alienists, neurologists, physicians, surgeons, and lawyers of undoubted reputation and experience, the duties of which should be to furnish and prosecute plans of defense against the inroads of fraudulent claims. [H.M.]

5.—Tetanus Cured by Antitoxin.—Schley reports a case of acute tetanus which he considers very strong additional proof of the superior value of intraneural and intraspinal injections of antitoxin in the treatment of this disease. The patient was a boy of 5, the attack coming on the eighth day after injury. The treatment employed was exposure of the anterior crural and sciatic nerves, followed by injection with a fine hypodermic needle of 3 cc. of antitoxin into each trunk, the needle being inserted several times in order to slightly wound the filaments. To allow reinjection of the nerves and to permit as much absorption of antitoxin as possible, the wounds were left open and lightly packed with sterile gauze strips saturated with antitoxin. Lumbar puncture was then made between the second and third lumbar vertebras and 3 cc. of antitoxin injected, an attempt being made to scratch the nerves of the cauda equina; 10 cc. of serum was then given subcutaneously. Chloral and potassium bromid were also given to quiet the spasms. The following day the intraneural injections were repeated, the succeeding day the intraneural and intraspinal, and the third day after this the intraneural injections. The effect of the chloroform used during the injections and for the relief of the more severe spasms seemed decidedly beneficial. The patient received in all nearly 180 cc. of antitoxin. Recovery was complete. Schley considers intraneural injection, reenforced by intraspinal, as the greatest advance in the treatment of tetanus that has yet been offered the profession. [A.G.E.]

New York Medical Journal.

October 8, 1904. [Vol. LXXX, No. 15.]

1. Dupuytren's Finger Contraction. CLARENCE A. McWILLIAMS.
2. A Vesical Calculus of Unusual Size. A. B. WRIGHT.
3. Respiratory Education in the Treatment of Lung and Heart Disorders. J. MADISON TAYLOR.
4. The Present Condition of Tenontoplasty. (Concluded.) Professor VULPIUS.
5. The Economics of Tuberculosis. JOHN B. HUBER.
6. Vulvovaginitis in Little Girls: A Clinical Study of 190 Cases. SARA WELT-KAKELS.
7. Observations on Carbolic Acid Poisoning. CHARLES V. BURKE.
8. A Case of Syphilis, in a Boy Six years of Age, Contracted by Coitus. G. FRANK LYDSTON.

1.—Dupuytren's Contraction.—C. A. McWilliams sums up the treatment of these cases as follows: At the beginning of the disease we may often prevent its further development by systematic massage, active and passive motions, hot-air baths, hot-water baths, with the application of extension apparatus at night. Any constitutional diathesis should be treated. In case the disease advances, or in somewhat more developed cases, we may try the result of multiple subcutaneous incisions, followed by the palliative treatment just outlined. In working persons who can scarcely find the necessary time and means properly to carry on the palliative treatment, we should advise at once a radical operation as the quickest and surest means of effecting a cure. It should also be advised at once in advanced cases. This consists in nothing short of excision of the whole thickened contracted fascia with its processes, preferably by one or more longitudinal incisions. Many surgeons advise, even in the beginning stage, excision of the fascia, as guaranteeing the surest and quickest results, and as giving the softest and least adherent scar. The final results of the operative treatment are usually very satisfactory. [C.A.O.]

2.—Vesical Calculus.—A. B. Wright reports the case of an Italian boy, aged 7, who had suffered with a vesical calculus for over five years. The condition had been diagnosed as tumor, cystitis, and stricture of the meatus. The boy was weak, anemic, emaciated, and nervous; not able to stand erect, but walking in a crouching position; expression anxious. The calculus was removed through a median suprapubic incision and weighed 14.96 gm. (½ oz.) The patient made an uninterrupted recovery. [C.A.O.].

3.—Respiratory education in the treatment of lung and heart disorders is discussed by J. M. Taylor. He says that in most persons the mobility of the thoracic walls is conspicuously defective. The ribs in middle-aged people have lost in great part their normal hinge-like action. This demands full rhythmic breathing, both forceful or at least emphatic inspiration and expiration. The rate of the breathing should be, first, that which is comfortable, about 5 seconds in and 7 seconds out, and then increased in length gradually until full inspiration can be rhythmically increased to 20 or more seconds in and 25 seconds or more out. The apices of the lungs are well known to be only rarely fully distended, and by reason of disuse and consequent defects of nutrition readily become the seat of infection. This apical development should be secured in every one, especially in those whose disablement, by pneumonic or cardiac disorder, discourages or forbids active exercise. By proper breathing exercises, not only the thorax but the abdomen is involved in systematic activities. The effects upon digestion of rhythmic breathing are gratifying. Constipation yields better than to any other agent known to the author. Lymph stasis of the abdominal regions, obesity, visceral ptoses are conspicuously modified. [C.A.O.].

7.—Carbolic Acid Poisoning.—C. V. Burke believes that the sulfates (Epsom and Glauber's salts) are practically useless as antidotes in this condition. They do not save life. The treatment recommended is alcohol, and the removal of what acid may remain in the stomach. Alcohol first; by the mouth if possible. If not it must be thrown into the circulation in generous amount hypodermically, and by the rectum, before the tube is resorted to. Upon getting the tube into the stomach, a weak alcoholic solution should be used for washing, and its use persisted in until judgment decides for success or failure. [C.A.O.]

Medical News.

October 15, 1904. [Vol. 85, No. 16.]

1. The Early Physical Signs of Pulmonary Tuberculosis. LAWRASON BROWN.
2. Are the Insane Responsible for Criminal Acts? JOHN PUNTON.
3. On the Mechanism of Exophthalmos. W. G. MACCALLUM and W. B. CORNELL.
4. Some Notes on a Case of Erythromelalgia with Treatment. I. W. VOORHEES.
5. A Factor in the Causation of Emaciation in Tuberculosis of the Lungs. HAROLD M. HAYS.
6. The Silver Salts in Gonorrhea. WILLIAM L. BAUM.
7. Urgent Adenectomy during the Progress of a Pneumonia. H. JARECKY.

1.—Early Physical Signs of Pulmonary Tuberculosis.—L. Brown states that absence of physical signs in the chest is no better proof that the patient has not tuberculosis than absence of bacilli in the sputum. Bacilli occurred in the sputum of only 71 (35%) of 201 incipient cases. Fifty-eight percent of these did not apply for admission to the sanatorium within the first six months of illness. Auscultation should be practised before the patient breathes deeply, otherwise fine crepitation may be overlooked. In the majority the chest is well developed, though possibly a trifle long, with a slight prominence of the clavicle on the affected side. Movement is generally restricted on the affected side; and restriction is not uncommon on the unaffected side. The lower part of the affected side may show exaggerated movement on inspection. Vocal fremitus was normal in two-thirds of the cases, and was three times more apt to be increased on the affected than on the unaffected side. Some dulness may occur without auscultatory signs. Krönig's method of percussion is of value in incipient cases. In determining movement of the base radioscopy is best in deep-seated lesions, percussion possibly in "pleuritic" cases. In 13.9% percussion was negative, while auscultation revealed pathologic signs. There was prolonged expiration in 32%; wavy breathing at the site of the lesion in 11%; weakened breathing at the lesion in 10% (in 1% the only auscultatory sign); puerile breathing in 12%; harsh breathing with loss of vesicular murmur in 8%; deficiency in vesicular murmur in 41%; increased resonance at the lesion in 38%; rales in 70%, fine, medium, moist, rhonchi, mixed, being the order of frequency; pleuritic friction in 1%. In these 201 cases the lesion was oftenest above the clavicle, then in the suprascapular area, and subclavicular fossa. Sixty-one percent were on the right side. [H.M.]

2.—Are the Insane Responsible for Criminal Acts?—J. Punton thinks it highly desirable there should be a consensus of opinion among competent alienists, as it is not the opinion of the individual, but of the entire profession which the courts desire. Mercier believed it just in many cases to punish the insane for wrongdoing. Total irresponsibility is the watchword that insures kind treatment to those in asylums, but it should not be held in law courts, as it is contrary to all the evidence furnished by clinical psychiatry. The theory of total irresponsibility corresponds to the form known as legal insanity as distinguished from medical insanity. Mercier says no insane person ought to be punished with the same severity as the sane. The principal of petty punishment is practised in every hospital. That the fear of losing "pocket money" restrains from evil habits proves the insane possess powerful control over their conduct. Richardson holds that legislators should vary penalties to fit the individual. Some of the insane are wholly irresponsible; a large majority are responsible to some extent. Wherry holds that if the crime is the result of evil passions then the act is vicious, and vice should never be vindicated because disease has given it undue prominence. A man is not responsible for his insanity but for his vice. If conscientious insanity be established, if the prisoner is dominated by diseased judgment, then he should be exempted from punishment. With McDonald the question is, whether the man has the power to choose the right and avoid the wrong. Every case must be decided on its merits, but the basic facts are that insanity is a mental disease and the product of mental disease cannot be a crime. [H.M.]

3.—The Mechanism of Exophthalmos.—W. G. MacCallum and W. B. Cornell review the work of other investigators, and describe their own experiments. Ligation of the internal jugular on either or both sides produces little or no effect. Closure of the external jugular on the side on which is the observed eye produces marked exophthalmos which is greatly increased by subsequent clamping of the same vein on the other side. Closure of the carotids now produces diminution of protrusion. Protrusion would doubtless yield after the establishment of collateral circulation. If the jugular be left ligated, great edema of the face occcurs, and only gradually disappears. This seems to aid in the protrusion. Stimulation of the cervical sympathetic after ligation of the veins produced so great additional protrusion that its action seemed independent of the circulation. Müller described a cone of smooth muscles and elastic tissue which surrounds the eye, and by its contraction keeps it forward. Stimulation of the cervical sympathetic showed a peristaltic wave pressing the ball forward. Protrusion, then, after stimulation, is not due to vascular changes, but to contraction of this cone. From these experiments there can be no certain conclusions as to the mechanism of exophthalmos in Graves' disease, but the possibilities are perhaps more closely defined. [H.M.]

4.—Erythromelalgia.—I. W. Voorhees reports a case at length, marked by acute onset, severe pain, gradual progress, and long periods of intermission. It is doubtful if the treatment finally employed (ergot, etc.), had as much influence as was at first thought, from the rapid subsidence of the symptoms, as the patient had two previous intervals of freedom from pain. Since other cases reported differ in so many respects from this, there is certainly no specific remedy available. [H.M.]

5.—A Factor in Emaciation from Pulmonary Tuberculosis.—H. M. Hays records investigations proving that in patients with this disease the saliva is greatly impaired in digestive power. This may be taken as an index of the activity of the other glands. Alterations in metabolism appear to be due to some toxic agent, either the specific toxin of tuberculosis or else the result of the febrile process. If the glands by constant stimulation from an increased diet are capable of secreting an extra amount of fluid, digestion can be accomplished. If absorption and assimilation of food takes place under increased feeding, it is probable the digestive system accustoms itself to increased toil, and secretes more fluid, but that of a poorer quality. Alkalinity of the saliva is greater than in normal cases, the rule holding that digestion is better when the saliva approaches the neutral point. [H.M.]

6.—The Silver Salts in Gonorrhea.—Baum says that extensive clinical experience casts doubt on the contention that solutions of these salts do not coagulate in albuminoid solutions and hence penetrate deeper into mucous membrane. He has carried out numerous experiments with all the salts of silver, and with several other solutions, to determine the effect of pressure and of the chemic action of the materials. He concludes that solutions of the silver salts, organic or inorganic, do not penetrate the mucosa to any great extent. He also finds that prolonged pressure of any fluid upon the mucosa causes temporary compression of the capillaries, this being followed by dilation, increased leukocytosis, and more rapid exfoliation of cells; the latter carry out the infectious agent. It is upon the free gonococci thus forced into the surface layer of the mucous membrane that the silver salts exercise their bactericidal action. Of the various silver preparations, argyrol gave the most satisfactory result. [A.G.E.]

7.—Removal of Adenoids during Pneumonia.—Jarecky was called upon to remove adenoids from an infant of four months who was suffering from lobar pneumonia. The child had been a mouth-breather from birth and was never able to drink steadily because of the obstruction. He had pneumonia for four days, during which time he would close his mouth to take food or medicine only with extreme difficulty and the mother desired the removal of the adenoids. The risk was explained, but she steadily persisted, and Jarecky finally consented to operate. He removed the adenoids, a large mass, with an instrument previously described. The child appeared exhausted for a few hours, but in 12 hours began to take nourishment. There was no postoperative treatment, except for the pneumonia, but the patient gradually improved. The temperature became normal on the ninth day. Jarecky believes the case to be unique. [A.G.E.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

Pseudoperforation in Typhoid Fever.—A peritonitis, with or without perforation, may arise during typhoid fever. The symptoms are nearly the same in both instances, and it may be questioned whether or not the socalled intestinal perforations occurring during this disease, which are recovered from, are not in reality mistaken diagnosis and are simply instances of peritonitis without perforation. The abdominal distention may, perhaps, be less in peritonitis without perforation, and the temperature subnormal instead of the usual elevation met with in other forms of perforative peritonitis, but these differences are not of any marked value. The general clinical picture is the same, namely, an extremely sharp pain coming on suddenly, in the first place limited to the ileocecal region, and then extending over the entire abdomen, continued bilious vomiting, exquisite abdominal pain on pressure, distention, suppression of urine, a small rapid pulse and a drawn expression of the face. Rocard[1] has recorded several instances of this kind. A perforation is supposed to have taken place and a laparotomy is done, but the expected perforation is not found. In a patient convalescent from typhoid fever, severe abdominal pain came on with vomiting and cold sweats; abdomen moderately distended, with rigidity of the abdominal muscles; sharp pain on the slightest pressure over the cecal region, a subnormal temperature and a weak and rapid pulse. Rocard opened the abdomen and found the ileum, cecum and appendix healthy, and no fluid in the peritoneal cavity. The only lesion found was redness and an exaggerated vascularization of the transverse colon, while in the large intestine was a large mass of feces, which was pushed down toward the rectum by direct pressure. The recovery was uneventful. On December 26, 1900, Delorme reported a similar case at the Surgical Society of Paris. In this case, the appendix being turgid, was removed, but the lesion was so slight that it was a question whether or not the removal of the appendix was necessary. Another example of the same kind has recently been reported by Alglave and Boisseau.[1] On the fifty-eighth day of a typhoid fever the patient was seized with a violent abdominal pain and vomiting. Temperature subnormal with a pulse of 140; expression pinched, with cyanosis of the skin, abdomen painful on pressure, with slight rigidity of the recti. Laparotomy did not reveal any fluid or foreign matter in the abdomen, the only evident lesion being a considerable quantity of false membrane surrounding the ileum, which was highly hyperemic. The cecum and appendix were healthy and no perforation could be found. The adhesions binding the coils of intestine together were broken up, and the abdomen closed without drainage. Improvement was immediate, and the patient rapidly recovered. These are important facts for the physician to bear in mind, because the patients recover. Supposing that no perforation is found, the operation is not one attended by any amount of risk and an immediate recovery may result. If a perforation is discovered, the operation gives the patient his only chance. There is, however, one complication which may occur after a laparotomy performed during the height of typhoid fever, namely, eventration, and this has been met with four times by Rocard. The degeneration of the muscular fibers of the recti, particularly predisposed to this accident, and this degeneration, as is well known, is very frequent during typhoid. It should be pointed out that in the three cases that have been mentioned the peritoneal attack occurred at a late period in the course of the disease, at about the time when convalescence should commence. The late date of the interference counts much for its successful outcome, and the operative conditions are always better for a typhoid patient who has arrived at the decline of his disease.

REVIEW OF LITERATURE

Facts and Fallacies Concerning Cancer.—Herbert Snow[2] makes a plea for the more scientific study and treatment of malignant diseases, and he gives an interesting tabulation of statistics, showing the increase in cancer throughout the civilized world. He believes these figures are under rather than over the actual increase. In England and Wales the ratio of registered deaths from cancer to each 1,000,000 of persons amounted in 1864 to 385; in 1874, to 461; in 1884, to 563; and in 1894, to 713. For the 5 years, 1896 to 1900, it equaled 800.2 per 1,000,000. In 1901 among males, cancer was fatal at the crude rate of 691 per 1,000,000 at all ages, and among females at the rate of 985 per 1,000,000. In Ireland the cancer mortality in 1864 was 1,498 in a population of 5,675,307. Twenty years afterward, with a decreased population of 4,962,693, is recorded an increased mortality of 1,947. In 1902 the last published returns show 2,861 deaths (females, 1,575; males, 1,286) to 4,432,274 inhabitants, or a ratio of 645 per 1,000,000. In Scotland the cancer deaths were 3,503 (females, 2,142; males, 1,361) in June, 1900, out of a population numbering 4,436,958, a rate of 800 per 1,000,000. In 1864, with 3,118,701 inhabitants, the cancer return was 1,300; in 1884, with 4,962,693 people, it had increased to 2,110. In New York State the 1,000,000 ratio was, in 1875, only 400; in 1885, 530; and in 1900, 670. In Connecticut it has risen from 520 in 1891 to 660 in 1900; in Massachusetts, from 610 to 710; in New Hampshire, from 560 to 710; and in Rhode Island, from 510 to 680. Turning to European States, we find that in 1891 Austria recorded her ratio as 540; by 1900 it had increased to 700. In the same period Bavaria returns a rise from 890 to 990; Holland, from 790 to 930; Italy, from 430 to 520; Norway, from 610 to 920; and Prussia, from 450 to 610. Of the cities, Amsterdam returns for the same years, 1891 to 1900, a rise from 880 to 980; Boston, 690 to 810; Breslau, 860 to 1,080; Brussels, 340 to 440; San Francisco, 600 to 1,090; Stuttgart, 760 to 1,270; Vienna, 1,040 to 1,210; and St. Petersburg, from 990 in 1891 to 1,000 in 1899. Snow urges the appointing of a permanent cancer committee, the function of which should be to differentiate and classify the numerous varieties of disease known as cancer, and also to place on record, authoritatively, the facts we already know respecting their genesis and phenomena. [A.B.C.]

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[1] Gaz. des. Hôpit., June 23, 1904.

[1] Trib. Méd., May, 1904.

[2] The Lancet, September 17, 1904.

Newer Examination Methods and the Operative Results in Diseases of the Kidneys.—After discussing the use of the röntgen rays, the cystoscope, and ureteral catheterization, Kuemmell[1] gives a detailed description of the technic of cryoscopy and the results of his 500 observations. In most of the cases, he says, the occurrence of uremia can be foretold by the lowering of the freezing-point of the blood-serum, with a coincident decrease in the molecular concentration of the urine. From his experience, he does not favor operation upon a patient whose blood has a freezing point of 0.6 or lower. One group of his cases consisted of lesions in one kidney; in these he was able to demonstrate an alteration in the molecular concentration of the urine from the diseased kidney and no alteration in the urine from the healthy one. Kuemmell finds cryoscopy a very useful aid in making differential diagnoses, as between unilateral nephrolithiasis and hemorrhagic nephritis with pain on one side; examination showed the concentration of the blood to be 0.65 and a decrease in the concentration of the urine which points to bilateral kidney disease. In a case of hypertrophy of the prostate, with retention of the urine and no clinical evidences of pyelitis, he found the concentration of the blood 0.71; at postmortem an extensive pyelonephritis was found. In another case of hypertrophy of the prostate, without an ascending lesion, the concentration of the blood was normal. [J.F.]

Health Conditions in Northern China.—Captain Frederick M. Hartsock[2] assistant surgeon U. S. A., states that in Pekin typhoid fever and similar diseases are rare, and, in fact, the healthful conditions in Pekin and northern China in general are far above the average. A form of dysentery is seen in Pekin during the rainy season, which corresponds to the Shiga infection of the Philippines, except that it is not so severe. Acute lobular pneumonia is prevalent among the native and foreign born population. While diphtheria causes many deaths among children, it is rare among adults. Concerning tuberculosis, he states that effective argument against the bovine theory of transmission is the fact that this disease is quite prevalent in northern China, though no milk or the products thereof are used. Causes are overcrowding, expectoration on the floor of houses, and insufficient nourishment. The pulmonary form predominates. A few cases of cholera developed in Pekin in 1902, though it had been prevalent in other parts of the Orient for some time. Though bubonic plague has raged in Canton and in Hongkong, and even extended to Shanghai, there has never been a case in Pekin. Syphilis is especially prevalent, and was known in China before the Christian era; mercury has been used in its treatment as far back as the history of Chinese medicine dates. All forms of the affection are seen from the primary to the tertiary lesions, and hereditary syphilis is common. He states that troops could be quartered in northern China under excellent conditions. [A.B.C.]

Sausage Poisoning.—Otto Pelzl[3] reported three cases of "botulismus" exhibiting gastrointestinal symptoms with paralysis of the intestines, disturbance of secretions (sweat, mucous membranes, saliva, tears), difficulty in swallowing due to paralysis of the pharynx and esophagus, paralysis of the eye-muscles, paralyses of the reflexes (closing of the eyelids, cough, swallowing, choking and vomiting), general muscular weakness, paralysis of the bladder as well as of the detrusors of the sphincters. While the fifth nerve was paralyzed, the seventh showed no involvement. The third, fourth, sixth, ninth, tenth and eleventh were also affected. The pathologic change in sausage poisoning has not been definitely determined. In lethal cases, either nothing has been discovered, or numerous small hemorrhages in the cerebellum have been found. Pelzl believes that it is probable that the symptoms result from a disease of that part of the brain extending from the third ventricle to the decussation, and that the condition is one of superior and inferior acute polioencephalitis. The treatment is symptomatic, while intestinal disinfectants are indicated. High injection of glycerin and magnesium sulfate is useful. [J.H.W.R.]

Malta Fever in the United States Army.—Charles F. Craig,[1] Assistant Surgeon United States Army, writes an interesting article, with illustrative temperature charts, concerning Malta fever. The serum test for Malta fever was first described by Wright, and the various methods of performing the test are the same in principle. Wright discovered that the serum of Malta fever patients had the power of agglutinating the micrococcus in suspension, and that this reaction took place earlier than the Widal reaction and in more diluted solutions. The reaction is described in detail, as is also the method of Curry, and also a method which Craig has himself used. The following conclusions are drawn by the author from the study of a series of cases: 1. There occurs in the tropics a fever, which may resemble in its acute stage either typhoid or malaria, and in its chronic stage, acute articular rheumatism, caused by *Micrococcus melitensis*. 2. There are no pathognomonic symptoms of Malta fever, the symptoms observed are so inconstant and confusing that no one of them can be said to be typical of the disease. 3. A differential diagnosis of this fever is almost impossible, in the majority of cases, without the aid of a microscope and the serum test. [A.B.C.]

Diabetic Glycosuria with Unusual Intercurrent Conditions.—Heinrich Stern[2] reports the case of a male of 68 who suffered from diabetic glycosuria; to this were added jaundice and hematoporphyrinuria. The last was nonmedicamental in character and was present for at least 15 days. Stern says the case stands isolated, as he has not found in medical literature any allusion to the synchronous, or respectively the intercurrent occurrence of these three phenomena. An interesting feature is that while glycosuria was present, hematoporphyrin was not found in the urine; when the latter substance became abnormal in amount, glycosuria disappeared and did not return until the hematoporphyrinuria had again vanished. Stern is inclined to believe that the three symptoms in this case were interrelated. It appears the anomalous condition underlying the glycosuria and hematoporphyrinuria could bring about only one of them at one time. In view of the questions involved, Stern promises a more detailed study of the case. [A.G.E.]

Agglutination in Autoinfections, Especially Icterus.—H. Lüdke[3] found in 32 cases of icterus that typhoid bacilli were agglutinated in a dilution of 1 to 20 by the serum of 19 cases, and of these 11 produced agglutination in a dilution of 1 to 50. This reaction was entirely independent of the degree of jaundice, was inconstant in its occurrence, and was of much less intensity than is found in typhoid fever. Out of nine cases of catarrhal jaundice, seven gave the reaction; hence the conclusion that the agglutinating power of the icteric blood-serum depends usually upon a bacterial infection, rather than the presence of the bile. The reaction never occurred in icterus neonatorum, but was frequently positive in some diseases of the blood without jaundice. Other bacteria of the same group as typhoid bacilli were likewise agglutinated in some cases of icterus, but to a much less extent than the Eberth bacillus. Experiments carried on with bile and its salts, showed that these substances alone were not capable of increasing the agglutinating power of blood-serum. A like result was found with icterus experimentally produced by drugs and other means. This supports the theory that it is not the bile alone which causes the agglutination of the bacilli, although it may have some influence in preparing the blood-serum for its combination with the agglutinin receptors of the organisms. [B.K.]

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[1] Arch. f. klin. Chirg., 1903, Bd. lxxii, Heft 3.
[2] Journal of the Association of Military Surgeons, October, 1904.
[3] Wiener klin. Woch., 1904, No. 31, p. 864.

[1] Journal of the Association of Military Surgeons, October, 1904.
[2] American Journal of the Medical Sciences, October, 1904.
[3] Deut. Archiv f. klin. Med., Bd. lxxxi, p. 34.

Congenital Hypertrophic Stenosis of the Pylorus.—J. Dorning[1] and W. A. Giles[2] report each a case of this condition. Dorning's patient died at the age of 2½ months. Microscopic examination of the pylorus showed diffuse fibrous thickening of the submucosa, and extensive hyperplasia of the circular muscle fibers; the longitudinal fibers were also moderately thickened. Giles operated upon his patient when 7 weeks old, performing a posterior gastrojejunostomy, the first successful case of this kind upon so young a patient in Australia. It is now nearly three months since the operation, and the baby is well nourished, all his functions being carried on in an apparently normal manner, with the exception of occasional vomiting of bilious matter, that is rapidly diminishing in frequency. [A.G.E.]

The Comparative Advantages of Organic and Inorganic Iron in the Treatment of Anemia.—W. Murrell[3] believes that iron is the only drug of value in anemia. There is no reason to think either arsenic or manganese increases the red corpuscles or hemoglobin, although the writer has relieved the amenorrhea of chlorotic girls with the latter. No mere expression of opinion as to the relative value of the various iron salts is of much value. The only reliable evidence is that from comparative blood-examinations. Of course pernicious anemia and those types due to parasites, toxins, or organic changes such as cancer are not arrested by iron. The best forms for comparative investigation are such as result from the hematemesis of gastric ulcer, chlorosis, etc. The writer reports experiments with exsiccated sulfate and perchlorid of iron, and with an iron vitellin preparation. Under the last treatment the daily increase in erythrocytes was 157,000 and the hemoglobin percentage 1.26. This, with regard to the red cells, shows an improvement of over 50% over the best inorganic iron treatment and with regard to the hemoglobin value a gain of 25%. The organic iron has also the great advantage of being easily assimilated and is free from the discomforts attending the use of astringent preparations. [H.M.]

Necrosis of Endoperitoneal Fat; Pancreatic Secondary Change.—Bozzolo[4] reports the case. A farmer, aged 45 years, nonsyphilitic, and not a drinker, with no signs of endarteritis, suffered several attacks of colic. With the advent of fever and evidence of peritonitis, intestinal obstruction was at first suspected. Purging gave some relief. Indican was not present in urine, but sugar was found up to 14.25%. By exclusion a diagnosis of hemorrhagic pancreatitis was reached. Tympanites, abdominal pain and resistance, and absence of calculi in the feces seemed to confirm this diagnosis. At autopsy a brown necrotic mass was all that remained of the pancreas, and along the intestinal course the epiploic appendages, as well as the fatty elements of the small intestine, appeared discolored and necrotic. [T.H.E.]

Acute Leukemia in Early Life.—F. S. Churchill[5] reports a case occurring in a boy of 4, and adds 14 cases from the literature. These, with 14 previously reported, make 29 cases for study. The course in children differs from the adult type only in minor details; hemorrhages are fewer and less severe, and the lymphocytosis is more apt to be of the small variety. The disease is always fatal. In Churchill's case, the last week of illness is believed to have marked the final acute stage of a chronic process which began months, possibly two or three years, before. Tuberculous taint, though present three generations before, probably played no part in the onset of the disease in this case, nor does it in any other. As to direct heredity, only two cases of the disease in parent and child have been reported—too few from which to draw conclusions. Nothing appears to act as a predisposing cause unless it be chronic tonsillitis; this condition may be the result rather than the cause. Acute leukemia occurs more frequently in males—21 of the 29 patients. The duration of the cases was from four and a half days to five months. To further investigate the disease, Churchill says investigations should be made in two directions: 1. Injections of blood from living leukemic patients directly into the bone marrow of animals. 2. Injections of pure cultures of various pathogenic organisms into the same structure. Churchill believes that all cases of leukemia are myelogenous in origin. [A.G.E.]

Severe Intoxication through the Immoderate Use of Antipyrin.—Danernst's[1] patient was a man of 55 who, on account of insufferable headache, had become a victim of the antipyrin habit; the drug always relieved his headache, but only for a short time, and exacerbations were common. He took from 1 gm. to 2 gm. (15 gr. to 30 gr.) of antipyrin every day. He had a rash on both legs, consisting of reddish-brown pigmentary papules, excoriated by scratching, the left foot was swollen, and on the outer side of the ankle was a large ulcer. He was very emotional, had slight nystagmus, and fibrillary tremors of the tongue. The upper limbs were tremulous, this being especially noticeable when dressing or going through some other complicated movement. His gait was spasmodic, the knee and plantar reflexes active, especially on the left side. Sensation and speech were normal; the arteries were very sclerotic, the heart normal; the urine slightly albuminous. Although the symptoms bore a slight likeness to disseminated sclerosis, the author prefers considering this a case of chronic antipyrin poisoning, which drug taken for 20 years in very large doses had caused a slow but sure implication of the nervous system. The lesion was not a myelitis. Symptoms of acute antipyrin intoxication were never recorded, nor did the acute eruption which may occur after a large dose of antipyrin ever manifest itself. [E.L.]

A Criticism of the Mosquito Theory of Infection in Malaria and Yellow Fever.—L. Cheinesse[2] brings together a number of facts tending to throw doubt on constant relationship between the mosquito and infection. The distribution of the anopheles by no means corresponds to the distribution of malaria. The insect abounds where malaria has disappeared or has never existed. Celli mentions districts in which malaria is rife, anopheles abundant, but newcomers are not infected. Francesco points to districts deeply infected with malaria where no anopheles has been seen. Malaria can be propagated without the intervention of a mosquito of any sort. Epidemics after heavy rains have occurred in Algeria. In Eastern Prussia and Posen malaria is general from the onset of spring when mosquito bites must be rare. During July and August the disease suddenly decreases, although the soldiers are most discomforted then by bites. In Bessarabia, in May, 1901, malaria was twice as great as during the previous year, which was particularly rich in mosquitos. The prevalence of malaria seems to correspond to meteorologic or telluric influences. At Tomsk, Siberia, malaria commences when the thermometer registers 10° C. below zero, which is hardly favorable to mosquitos. The experimental inoculations in yellow fever are suggestive, but the disease inoculated may be inflammatory bilious fever. We cannot attribute its disappearance in Havana to destruction of mosquitos. The disease usually wears out in two to four years, unless fresh cases are imported. Cheinesse also cites cases of infection from fomites. [H.M.]

Acute Myocardial Insufficiency in Children.—F. Forchheimer[3] speaks of the occurrence of this condition in connection with the infections of childhood; particularly in scarlatina, diphtheria, rheumatic fever, septicemia, typhoid fever and pneumonia. The mechanism of its production is very simple. Damage is done the myocardium, it being immaterial from a clinical standpoint whether the progress is primarily an interstitial myocarditis or primarily a degeneration and secondarily an interstitial process. Forchheimer has found the condition most often in diphtheria and second in influenza. His method of treatment is briefly outlined as follows: Hypodermic injection of adrenalin. Its effects are transitory, hence the injections have to be repeated every two hours. Saline infusions are used in the beginning to maintain contractions of the heart. To stimulate the splanchnic reflex, ice-bags are put on the abdomen; in one case these alone reduced the pulse from 140 to 60. After the most violent symptoms are passed, caffein soda salicylate is given every two to four hours, alternating with the adrenalin, which is gradually dropped. Convalescence is slow, and extreme care must be used with the patient. [A.G.E.]

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[1] Archives of Pediatrics, September, 1904.
[2] Australasian Medical Gazette, August 20, 1904.
[3] Medical Press and Circular, July 6, 1904.
[4] Nuov. Riv. Clin. Terap., May, 1904.
[5] American Journal of the Medical Sciences, October, 1904.

[1] Le Nord Medical, April 15, 1904.
[2] Medical Press and Circular, July 13, 1904.
[3] Archives of Pediatrics, September, 1904.

Treatment of Carcinoma with Thyroid and Thymus Extracts.—Foulerton[1] has treated a number of cases of carcinoma of the breast and of other parts of the body with injections of the extract of the thyroid and thymus glands, the method of preparation of which he describes in full. Concerning carcinoma of parts other than the breast, he says that no good reason exists to believe that in this method of treatment a cure for carcinoma has been found, but two of his seven scirrhous carcinomas improved very much under the injections; he says it may have been accident, his series may have contained two cases of atrophic scirrhus, or the decrease in their size may have been due to the treatment employed. He considers the results obtained sufficiently weighty to render his method deserving of further trial. [E.L.]

Apoplectic Motation.—W. Browning[2] considers this old term for a somewhat special form of physical inquietude in which he places considerable confidence as a means of distinguishing progressive cerebral hemorrhage. With it, and almost a part of it, is an anxious expression of countenance. The patient may turn the head from side to side uneasily, throw the head backward or move it here and there, draw up a lower extremity and presently again extend it, rub one foot against the other, roll a leg about, throw an arm around in any direction, put a hand to the head either aimlessly or to rub face or scalp, may turn and twist the body (an agitation, rather than writhing) first to one side and then soon to the other, and make other similar motions. The anxious facies is an early sign, but may or may not be so pronounced a feature as the disquietude; the latter continues longer toward the unconscious state. The restlessness of many other conditions in which it occurs is not likely to be confounded with that of cerebral hemorrhage. Several illustrative cases are cited. In a number of cases of cerebral embolism Browning has not observed anything of the kind, and there appears to be no tendency to restlessness during any stage of softening. It does not appear to be characteristic of pontile or cerebellar effusion. In the rare cases associated with convulsive phenomena this feature may be masked or interpreted as part of the spasm. The restlessness ceases as soon as the hemorrhage stops. [A.G.E.]

GENERAL SURGERY

Martin B. Tinker

A.-B. Craig C. A. Orr

EDITORIAL COMMENT

Congenital upward dislocation of the scapula (*Hochstand der Scapula* of the German surgeons, *surélévation congenitale de l'omoplate* of the French) has of recent years formed the text for a considerable amount of discussion. Sprengel appears to have been the first to call special attention to the condition in 1891;[3] when he described four cases of pronounced "Hochstand" of the left scapula. Soon after, Kölliker, Permann, Beely, Bolten, and Hoffa, contributed, respectively, one or more observations of this deformity, which received wider attention when Schlange presented to the Congress of Berlin, in 1893, two patients who were subjects of the same. A few cases were published in 1895–6–7 by Kölliker, Holz, Wolfheim, Pischinger, and Tilanas; and in 1898, M. Kirmisson devoted a special article to the subject.[1] He there discussed at length the pathology and symptomatology of the subject, reviewed the already existing literature, and illustrated his views by three personal "observations" of his own. The deformity thus obtained an assured professional *locus standi;* and its literature has since expanded widely. Honsell published a case of bilateral "Hochstand" in 1899; and Rager, of Copenhagen, in the same year, made the first essay toward a systematic classification of the recorded types of the deformity. Kausch gave as a cause of the malformation, absence of the lower portion of the trapezius muscle. Bruno-Lamm signalized the coexistence of *hochstand* and torticollis, and Guido Muller, in 1902, made this deformity the subject of a thesis in which he collected and classified 55 cases; distinguishing the two broad types of congenital and acquired. The latter had been described by Kölliker in 1898, and afterward by Gross and Bender. The subject has been discussed by the New York Academy of Medicine (April, 1903); and its pathology and symptomatology have recently been examined with great care and precision by M. M. Mouchet and Clement.[2] Up to that date the aggregate record was of 62 cases, of which 54 were unilateral—mostly on the left side, while the remaining 8 were bilateral. The deformity has been observed somewhat more frequently among males. These writers recognize three varieties of the displacement: 1. Abnormal elevation merely. 2. Elevation combined with rotation of the bone around its anteroposterior axis; the inferior angle being usually approximated to the spinal column—rarely turned in the opposite direction. 3. Elevation associated with abnormality or form of the bone—with or without rotation. When the deformity is unilateral it strikes the observer at once when examining the dorsal region, and the amount of displacement can be definitely measured by the vertical distance of the inferior angle from the iliac crest, compared with that on the opposite side. Even on front view the outline of the shoulder is seen to be raised, and the outer margin of the cervical portion of the trapezius is thrown into abnormal relief, while the supraclavicular fossa is nearly effaced. In cases of bilateral deformity the neck seems buried between the shoulders. In cases where rotation also exists the displacement of the inferior angle is very obvious. A rotary displacement around the transverse axis has—rarely—been also observed, in which the inferior angle of the scapula projects backward, forming a dorsal swelling. In the majority of cases of hochstand the dimensions of the bone are modified—usually diminished, but in a few cases increased. Some interesting variations of shape have also been observed; especially an exostosis-like prolongation of the superointernal angle of the bone. A certain amount of scoliosis often coexists.. The upper limb on the affected side is often atrophied. Muscular defects are generally to be found on careful scrutiny: Absence or atrophy of the sternocleidomastoid (Kayser), great pectoral (Schlesinger), and—more especially—of the lower part of the trapezius. The symptoms accompanying the condition are those of failure of muscular function. The diagnosis demands differentiation from the displacements due to muscular paralysis, ankylosis of the shoulder-joint, extreme degrees of scoliosis, and rachitic changes. Paralytic cases must be distinguished by electric tests; the shoulder-joint is not affected in Sprengel's deformity; in the secondary scoliosis, the latter is too slight to be the original cause of the hochstand; and rachitis should always be known by its other fruits. The pathogeny of the condition cannot yet be said to be quite satisfactorily settled—probably because all cases so named are not derived from the same source. Sprengel, who originally described the condition, attributed the deformity to an abnormal degree of compression of the fetus in utero, as a consequence of oligoamnios. In two of his four cases, the infant was born with the arm behind the back; and in after years there was a tendency shown to hold the arm on the back, and slightly rotated outward. The existence of intrauterine rachitis has been invoked to explain the genesis of some cases. Kirmisson refers the "hochstand" to a primary osseous malformation, and attributes the original displacement to an arrest of development of the scapula. Hoffa, Schlange, and several others since have invoked a muscular theory of its origin, comparable to that usually accepted for torticollis. Bloch attributes the existing lesions—both osseous and muscular—to an acute anterior myelitis of intrauterine existence. A careful study of the reports already published tend to show that there is a proportion of truth in every one of these theories, and that it would be a mistake to try to unlock the respective mystery of all types with a single key.

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[1] Archives of the Middlesex Hospital, 1904, ii, 143.

[2] Brooklyn Medical Journal, October, 1904.

[3] Arch. für klin. Chir., Bd. xlii.

[1] Traité des maladies chirurgicales d'origine congénitale.

[2] Gazette des Hôpitaux, 29 August, 1903.

REVIEW OF LITERATURE

Appendicitis with Perforate Duodenal and Gastric Ulcer.—H. A. Lediard and R. E. Sedgwick[1] report that a man of 56 suffered from symptoms of appendicitis, accompanied by dragging pain in the back. After rest in bed and hygienic treatment, pain disappeared; a year later he again suffered from pain in the region of the appendix and this became quiescent when three months later a subsequent attack came on. Operation was advised, the appendix was removed. It was lying under the cecum, slightly kinked, and though it presented no sign of acute inflammation, it appeared to be chronically inflamed and was removed. The patient did well for a few days, when the wound broke down and foul pus and oily fat were discharged; blood was passed by the bowel. The patient's condition continued to grow worse and blood continued to be passed by the bowels. He succumbed on the twentieth day after operation. A postmortem examination showed the first part of the duodenum normal; on the pancreatic surface of the second part, however, around the ampulla of Vater was a crater-form ulcer, irregular oval in shape 2 cm. by 1 cm. with its long axis parallel to that of the bowel. The edges of the ulcer were smooth and its base was formed by pancreatic substance, in the midst of which were the open mouths of two vessels of the third degree, probably branches of the superior pancreatic duodenal artery. [A.B.C.]

Modified Splints for Fractures of Thigh.—G. A. Baxter[2] was about to discard plaster-of-paris splints for fractures of the femur in favor of the old extension apparatus, but finally adopted the expedient of continuing the dressing over the abdomen, and as high as the nipple. This kept up extension even when the disappearance of swelling did away with counterpressure at the perineum, but an unsatisfactory feature, present also in the shorter dressing, was the breaking of the dressing across the groin. To prevent this, subsequent dressings were made with a strip 5 cm. (2 in.) wide, of thin wood, as found in fruit crates, placed diagonally from the upper margin of the bandage on the sound side down across the groin to the outer side of the fractured hip, and a second strip or strips straight down the outer side of the injured leg from the nipple to the knee. These strips were woven into the plaster dressing in a way to fit accurately the curves of the parts beneath. This splint gave entire satisfaction; strips of tin or galvanized iron might be used instead of the wood. In three cases in which the disappearance of swelling left a great space between the thigh and bandage, Baxter slit the bandage on the inner side down 10 cm. to 15 cm. (4 in. to 6 in.) and lapped the thin edges until the thigh was lightly fitted. [A.G.E.]

Etiologic Studies of Epityphlitis.—Hansemann[3] calls attention to the fact that the appendix during fetal life is funnel shaped and that it remains so throughout adult life at times. He maintains that with the exception of tuberculosis and typhoid fever he has never seen a funnel-shaped appendix diseased, although there are constantly fecal masses present in this type of appendix. An individual having such an appendix is as a rule, exempt from epityphlitis. Hansemann says the passage of substances into the appendix is at times comparatively easy, at other times hard, so too the passage of material from the appendix to the cecum varies. He believes that when meteorism exists and that when the passageway from the cecum into the appendix is difficult, injury, sudden jars and tension of the abdominal muscles are important factors in the etiology of epityphlitis. Very often the acute processes are exacerbation of chronic conditions but then Hansemann says constipation and catarrh of the intestinal tract may lead to inflammation of the appendix; after an attack of influenza epityphlitis may result, the bacteria being brought to the appendix by means of the blood stream. He also maintains that enteroliths are not solely the products of fecal matter, secretions of mucous membranes enter into the formation, but he does not believe enteroliths play an important part in the etiology of this condition since he has seen but one case that was caused by a foreign body. [J.F.]

Tropical Abscess of the Liver.—Edward W. Pinkham,[1] late Assistant Surgeon, United States Army, gives his experience during a year which he was stationed at Iloilo, Philippine Islands. Among the serious cases admitted to the hospital were those of tropical abscess of the liver, accompanying or following amebic dysentery; 16 came under his care. Each case is detailed separately. All were operated upon, and in the series there were 7 recoveries and 9 deaths, in 8 of the fatal cases an autopsy revealed conditions which rendered a fatal issue certain. It may be safely assumed that without surgical attention all of the patients would have died; not more than 6 of the patients entered the hospital with a correct diagnosis. He states that in 32 autopsies made, in which death had been ascribed to dysentery, abscess of the liver was found in 5. In some instances the liver was literally filled with small abscesses. These socalled hepatic abscesses are really not abscesses in the true sense; their contents are not pus, but the socalled abscess is really an area of necrosis or liquefaction of hepatic tissue, and the contents are made up of cells in all degrees of disintegration, fat globules, blood-corpuscles, and serum. The amebic coli is frequently found in the socalled abscess or found when scrapings from the abscess wall are examined. When a diagnosis of abscess of the liver is even strongly suspected, laparotomy should be done. The proper treatment of these abscesses is prophylactic—by performing a right inguinal colotomy and giving the bowel rest for a period. [A.B.C.]

Immunization against Infection of Operation Wounds.—J. von Mikulicz-Radecki[2] notes the slight value of artificial hyperleukocytosis in disease which has made itself evident. All the engines of defense have already been led into the field. By mobilizing the leukocytes beforehand, the bacteria may be overcome while their masses are relatively small. He describes his experiments for specific immunization against *B. coli*, which, however, were abandoned since we have to contend with different strains of this organism as well as with other pathogenic bacteria. For causing hyperleukocytoses he investigated the relative value of sodium chlorid solution, bouillon, 2%, starch in salt solution, and nucleic acid. The latter was used subcutaneously, and all intraperitoneally. With nucleic acid there was first a hypoleukocytosis. By its repeated intraperitoneal injection the resistance of the peritoneum could be raised to 40 times the normal, and after subcutaneous injections a considerable quantity of intestinel contents could be placed in the peritoneal cavity without damage. If not used at too great an interval after peritoneal infection it possesses definite therapeutic value. In man Mikulicz has used 0.5% to 4% solutions prophylactically in 58 cases. In 55 cases the operations were abdominal. The proper interval between injection and operation is 12 hours. In 45 laparotomies with exposure to infection, there were 38 recoveries, and in none of the fatal results was peritonitis the cause of death. [H.M.]

Ethyl Chlorid as a General Anesthetic.—J. W. Dansey[3] says that ethyl chlorid has for some months given very satisfactory results at the Royal Prince Alfred Hospital, both by itself for short minor operations and for initiating the narcosis of ether. He has given it without incident in 60 cases for the removal of adenoids, opening abscesses, teeth extraction, exploratory punctures, and similar operations. Clover's ether inhaler is employed. A single filling of the mask is at times capable of producing anesthesia for five minutes. In every case of ether narcosis ethyl chlorid is used to initiate it, for these reasons: It is more pleasant to take than is ether direct; ether anesthesia is more rapidly induced, in from two to three minutes; spasm and excitement, as when ether is begun at first, does not occur; subsequent etherization in plethoric and obese patients is much more simple and satisfactory. Ethyl chlorid has been used preliminary to chloroform in one case. The patient was a man of 71, with marked aortic lesion and albuminuria. There was no excitement nor struggling and anesthesia was complete in 3½ minutes. Dansey previously tried ethyl chlorid in the semiopen mask sold for that purpose but met with very unsatisfactory results, a large amount of the drug and a long time being necessary to induce anesthesia. [A.G.E.]

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[1] The Lancet, September 10, 1904.
[2] Southern Medicine and Surgery, September, 1904.
[3] Mitteil. a. d. Grenzgebiet. d. Med. u. Chirg., 1904, Bd. xii, Heft 4.

[1] Journal of the Association of Military Surgeons, October, 1904.
[2] West London Medical Journal, July, 1904.
[3] Australasian Medical Gazette, June 20, 1904.

Surgical Treatment of Acute Intestinal Obstruction.—Arthur E. Barker[1] gives the following conclusions: 1. That too much stress has been hitherto laid upon the removal of the mechanical stoppage and not enough upon the evacuation of the putrid material which is killing the patient. 2. That the older method of emptying the bowel by establishing an artificial anus is unsatisfactory, as the bowel is in a state of paresis or complete paralysis and only expels its contents very slowly and until it is cleaned out the cause of the paralysis remains. 3. That the best course in many of these cases, probably in all that are still within the reach of any operative procedure, is to resect the tract of paralyzed and distended bowel at once. This would not apply to recent cases, in which the bowel is not seriously damaged by the retained feces and is manifestly sound at and above the seat of obstruction. On the question of drainage of the abdomen or not in these cases each surgeon will act upon his own judgment in particular cases. In most cases it is probably best to close the abdomen at once, unless there be general peritonitis. The after-treatment of these cases is of much importance. They should in all instances sit up in bed from the first as much as possible and only lie down, preferably on one side or the other, for sleep, so as to overcome the tendency to hypostatic pneumonia. They should begin at once to take a mixture of 10 gr. of carbonate of bismuth three times daily, which, according to Kocher, is the best intestinal antiseptic. Albumin water, with 1 dr. of brandy, should be given from the first by the mouth, in small quantities and nutrient enemas and instillation under the skin, of normal saline solution of 5% solution of glucose is recommended as a routine. Half a liter morning and evening may be given if necessary. [A.B.C.]

Vessel Sutures, Vessel Transplantation and Replantation of Amputated Extremities.—Hoepfner[2] carried out a series of experiments upon dogs, utilizing the carotid and femoral arteries only. After he had divided the artery he would grasp the adventitia and dissect off a part so that this portion would not interfere with the union of the two ends. Over the proximal end he places a magnesium tube, which is fastened to the vessel by means of three silk sutures. The distal end also contains three sutures, which are in the intima. The distal end is now drawn over the magnesium tube and fastened by means of the sutures already mentioned and by another continuous suture. Of the 28 experiments he made, 6 are included in this work, and of these only 2 developed thrombi at the site of the anastomosis; these thrombi occurred in both instances where the tubes were but 2 m. in diameter. Hoepfner, at any rate, attributes the cause of the thrombi to the narrow lumina of the vessels. Before the vessels are cut he places a clamp some distance from the point of incision, one toward the heart and another some distance in the opposite direction. When the ends have been sutured together and the clamps were removed the blood went through the vessels, producing a murmur at the point of union. In eight days union between the ends of the vessel was firm, and in one of the thrombosed vessels the magnesium tube had disappeared in the course of six months, in the others absorption was very much slower. Hoepfner next determined to resect an artery and then replace it, but turning it end for end. Accordingly he laid bare the common carotid of an animal along its entire length, clamped the artery at its point of exit from the thorax and at the point of bifurcation, and removed the intervening piece. He introduced sutures in each end of the piece of artery to facilitate handling, and kept it moist with normal salt solution, and upon one end he applied the magnesium tube, or as he terms it, "prothese." The ends of the carotid were treated in a similar manner, the prothese being put on the proximal stump. The piece of artery was now replaced so that its prothese was united with the distal stump. The wound was closed, and four and a half weeks after the operation he opened the wound and found the artery pulsating throughout like a normal vessel. He also succeeded in transplanting a piece of the femoral artery upon the common carotid, and vice versa. The wound over the femoral healed by first intention, but that over the carotid healed by second, nevertheless, both arteries functionated like normal vessels. [J.F.]

Thiosinamin (Allyl-sulpho-carbamid) Treatment of Contractures.—Last June, P. Lengermann[1] reported concerning two cases of Dupuytren's contracture, treated with good results with thiosinamin injections. The contractures have not returned to date and the usefulness of the hands has completely returned. In one of the two cases a small new infiltration has appeared at one side of the old lesion, but this should not be laid to the treatment, as this does not claim to remove the still unknown cause of the ailment. Other physicians have also employed his method of treatment and have reported good results to him by letter, and in no case to his knowledge has failure followed the thiosinamin injections. He reports the details of a third patient's case, who also recovered completely. The little finger had been contracted for 10 years, being now at an angle of 70°; within two months the finger became straight. He used from 40 to 50 injections, massage, passive straightening, warm baths, and applications of 20% thiosinamin plaster. The patient suffered no pain nor functional disturbance. The author also treated a case of severe crush of the right thumb three months after the injury. He found firm scar tissue, the thumb being almost immovable and without any strength. The distal segment was not actively movable. After 12 injections motion had returned to it, the adhesions which had fixed the tendon having been dissolved; 25 injections in all with bath, massage, and plaster produced complete recovery. The injections into the scar tissue require considerable pressure and are therefore painful; in spite of this, the author recommends direct injections into the tissues affected. His method is to inject .5 cc. of a 1% cocain solution, and through the same needle without removing it he injects the thiosinamin solution. These injections cannot take the place of massage and passive motion, but are valuable adjuvants. The treatment prevents operation in all mild and medium cases of Dupuytren's contraction, and in grave cases it improves the chances of the operation and in the after-treatment produces good results. [E.L.]

Congenital Atresia of the Anus and Other Accompanying Deformities.—Stieda[2] reports a case of a child which he saw three days after birth and upon which he operated immediately; cutting down at the site of the rectum and dissecting upward for a short distance he found the blind end of this organ. Only a small amount of pulling was necessary to bring it to the edge of the wound, after doing so the gut was incised and a great deal of meconium was voided. On the under surface of the penis of the child a hard cord-like rod was felt which upon manipulation could be made to disappear. Later it was found that this was a canal that communicated with the large intestines. The child also had a phimosis which was dilated at the time of the operation. At the autopsy he found the left ureter and pelvis of the kidney dilated and the lower portion of the left kidney was atrophied. [J.F.]

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[1] The Lancet, September 17, 1904.
[2] Arch. für klin. Chirg., 1904, Bd. lxx, H. 2.

[1] Deutsche medicinische Wochenschrift, 1904, Vol. xxx, No. 13.
[2] Arch. f. klin. Chirg., 1903, Bd. lxx, Heft 2.

The Prevention of Hemorrhage during Trephining.—To accomplish this Hacker[1] outlines his proposed flap and then about 3 mm. ($\frac{3}{25}$ inch) external to the site of the intended incision he introduces a row of interrupted sutures along the course of the incision and for a distance beyond it. Each succeeding suture includes part of the tissue embraced by the preceding one. He is very careful not to include the periosteum in these sutures. With this prophylactic there is scarcely any hemorrhage at the time of the incision. [J.F.]

GYNECOLOGY AND OBSTETRICS

Wilmer Krusen Frank C. Hammond

REVIEW OF LITERATURE

The Diminishing Birthrate.—D. Walsh's[2] paper is a criticism of the arguments and conclusions of Dr. John W. Taylor, presented by the latter in the inaugural address of the British Gynecological Society. He summarizes the question as follows: There has been a fall in the total birthrate of the United Kingdom during the past half century, with little change in the marriage rate. The fall affects both legitimate and illegitimate births. The fall of the last 30 years was preceded by a proportionate rise during the 30 years before, which may have been due to a wave of national prosperity subsequent to free trade. The fall may be due to the maximum limit of supportable population having been reached, to the increasing tendency to postpone marriage, and (in minor degree) to artificial prevention among the better-to-do classes. The tendency among patrician classes has always been toward lessened fertility. Increased celibacy must be taken into consideration, as well as the frequency of divorce and the constant drain of soldiers and sailors. There is no trustworthy evidence to show that prevention leads to grave physical and moral evils in parents or the nonprevented issue of such marriages. Intellectual limitation may be evolutionary, anticipating destruction of the superfluous by natural laws. The quality as well as quantity of children should be considered. The State should check the reproduction of criminals and the grossly diseased. The soundest remedy may probably be found in laws leading to greater equality in the distribution of wealth and opportunity. [H.M.]

Primary Carcinoma of the Vagina.—C. G. Cumston[3] says primary carcinoma of the vagina is of infrequent occurrence, begins usually in the posterior vaginal wall, and rarely extends to the uterus. He is cognizant of several cases which had no other etiologic factor than a pessary. Cumston discusses at length the three methods of performing total extirpation of the vagina as a treatment for carcinoma. These are the sacral, perineal, and by way of the introitus. Olshausen's procedure is regarded as particularly valuable, in that the diseased surface of the vagina is avoided as much as possible during the procedure. A personal case is reported in detail, the technic being a combination of several methods. The patient died in 15 months from recurrence in the rectum. Regarding the indication for the operation, Cumston says the ultimate results are most unfavorable and its usefulness very limited. Unless the neoplasm is distinctly limited, it is better to remove the uterus with the vagina. To cover the vast raw surfaces left by the operation, Freund's method of bringing the cervix down to the introitus is very valuable in cases where the uterus is not removed. The unfavorable prognosis in these cases depends upon the fact that primary carcinoma of the vagina is rare, the growth usually extending rapidly. [A.G.E.]

A Case of Hermaphrodism.—H. C. Cameron[4] reports the case of a young man of 27, married for several years, but without offspring, complaining of severe relapsing pain in the right groin. It began with his thirteenth year, and had recurred at irregular intervals since then; the attacks lasted from two to three days and were always associated with great tenderness over the region of the appendix. The removal of an apparently healthy appendix did not improve the symptoms. During the convalescence from the operation it was noticed that the right testicle was undescended. After the operation the attacks recurred every 28 days, and believing the pain to be due to the undescended testicle, a second operation was performed some months later. None of the attacks were associated with fever or any other symptoms, except pain, tenderness, and collapse. The operation revealed a round, firm body, clearly a uterus, and attached to it a well-developed ovary and fallopian tube. The left side had no appendages; the uterus was about the size of a normally bisected organ. The appendages were removed, the uterus left behind. The patient's breasts were those of a woman, and he confessed that during his attacks they became large and tender. His penis was of average size and the left testicle seemed normal; an epididymis and vas deferens could be traced; a prostate gland was present; erections were normal, as was also intercourse. He was very hairy and his voice was that of a man. The microscopic examination of the removed body proved it to be a fully developed ovary. [E.L.]

Opening and Closing the Abdomen.—E. H. Tweedy[1] thinks Mackenrodt's long curved incision close to and above the pubes, through skin, fascia, recti, and peritoneum, not justifiable save for the removal of cancer, as a weak scar is more than likely to result. If the object is not to obtain an extensive view, a slightly curved opening should be made at the margin of the pubic hair through adipose tissue and sheaths of the recti. The division between the recti can now be made out and the muscles separated. This incision runs in the direction of the elastic fibers of the skin, and the fear of hernia is reduced to a minimum, the severed aponeurosis being protected by the muscles. Only a few interrupted sutures need be placed superficially in the muscles. The peritoneum should be united by a continuous suture of No. 2 silk, boiled twice with 24 hours' interval in 1 to 1,000 corrosive sublimate solution. The writer's method of closing the skin wound is to pass a subcutaneous silkwormgut suture immediately beneath the skin and thread each end through a perforated leaded plate, cut out of roof lead, about 2 in. wide and corresponding in length to the incision. The ends are drawn taut and tied over the plate. The dressings may be removed in 14 days, the suture cut, and the plate lifted off. The plate prevents suture slackening and does not permit the wound to pucker, the lead itself being favorable to healing. [H.M.]

The Nerve Element of Uterine Contractions.—W. L. Chapman and L. N. Foote,[2] in a concluding article on this subject, give at length the results of their investigations. The outline followed is that contraction of the uterus may be induced by stimuli directed from three sources. 1. Direct irritation of the uterine muscle. The nerve elements responsible for these contractions are found in the terminal sympathetic ganglia imbedded in the substance of the uterus which are capable of a limited automatic action. 2. Reflexly, through the irritation of those parts whose nerve supply has connections with the nerve elements of the uterus. The nerve elements in this form are complex and in one or another form involve all the nerve paths to the uterus. Among these may be grouped stretching of the perineum, fissure of the rectum, pressure on the pelvic floor, irritation of the clitoris, irritation of integument over abdominal muscles and irritation of the mammary gland; the mental condition of the subject also plays an important part. 3. Direct impulses arising in or from the central nervous system. These are observed during menstruation and labor. Contractions were found to start in the distal extremity of the fallopian tubes and thence spread downward over the entire uterus. Retraction of the uterus is the most important factor in the onset of labor. The ovarian plexus conveys to the uterus the impulses which induce the process of labor. [A.G.E.]

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[1] Centralblt. f. Chirg., 1904, No. 29.
[2] Medical Press and Circular, July 13 and 20, 1904.
[3] Medicine, September, 1904.
[4] British Gynecological Journal, 1904, lxxvi, 347.

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[1] Medical Press and Circular, July 20, 1904.
[2] Brooklyn Medical Journal, October, 1904.

American Medicine

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Medical Publishing.—The letter which we published last week from Dr. Bayard Holmes, touches upon a matter of the most vital importance to the profession. We think, however, that our correspondent does not put his finger on the exact place where the patient ails. The evil seems to us to be somewhat deeper, and a little different from that of the description given. Dr. Holmes does not even allude to the primary source of the mischief. Ever since the beginning of the publication of medical literature, the profession has strangely, blindly, and foolishly given its literary property to the purely commercial lay publisher, either without price or recompense, or with so little that the amount was ludicrous. And with what results? Riches to the nonprofessional publisher, and noncontrol of the professional literature by its makers. The doctor's poverty is a third. Dr. Holmes brings out another crying evil, the impossibility of getting published scientific monographs which have too little sale to permit profitable publication. The lay publisher says that he cannot be expected to publish books of which the sales will not pay the printers' bills, and so he chooses only those manuscripts, or incites the writing only of such, as will make him profits above the cost of publication. The results of this policy are evident in the existence of a vast overstock of medical textbooks prepared expressly for salability, rather than for scholarly and professional ends. The medical books issued are entirely too many, of a morbid character, and motived on the wish for profit to publisher. Indirectly the author gets his reward, but not directly in the profits of the sale of the book. In the meantime medical book publishers have amassed wealth, possess country seats, automobiles—and refuse to publish the professional literature of which Dr. Holmes speaks, because there is no profit in it. Whose the fault? Plainly that of the profession. Whose the misfortune? Just as certainly it is again that of the profession. Whose the suffering? That of the public.

The Publication of Professional Books and Journals.—A time came when the profession partly aroused itself and inquired the time of night, or of morning. The publication of its medical journals, it said, should be in professional hands, and if there should be profits from the work, they should be professional profits. The first breaking away from the bondage to the lay book publisher was in the founding and policy of the *Philadelphia Medical Journal.* Its ideal was professional ownership, but the task was too great; the profession still preferred to allow the lay publisher his way and the natural result inevitably followed. But while controlled by the profession, during its first three years of life, it sought valiantly to do its duty by the profession in the way of publishing. It published scientific monographs and literature which the millionaire lay publisher of medical books refused. The profession, however, let this generous and scientific helper die for want of a few thousand dollars, and now it cries out that its nonpaying medical monographs cannot be published. Well, whose the fault? Plainly not the parasitic swarms of semimedical publishers and quack hypocrites which infest the professional body. We have now a professional unity and power sufficiently great to yield profits of some scores of thousands of dollars a year. And still we cannot publish scientific books of unprofitable sale! The work of the great national medical societies is properly professional in ideal and practice. The British and the American Medical Associations must be compelled to devote energies and profits to supporting professional work and knowledge. To encourage scientific research and the dissemination of its products is their sole end and aim. It seems to us that it is their duty to publish such literature as is for the good of the profession and which is refused by the lay publisher. But the British and the American Medical Associations are solely the tools of their constituent members. At last, therefore, ours is the fault of which we complain.

The Traditional College Course and Medical Education.—Those who have held as their ideal that the graduate in medicine should also be a cultured man, have watched with great interest the attitude of our prominent universities and colleges to the elective system. Nearly all have seen the need of training in the sciences; specially in physics, chemistry, zoology, and botany, for the student who is to undertake the study of medicine intelligently and to the best advantage, and Johns Hopkins University, which in many matters has been the leader in a higher standard, has from the start required of its students entering the medical school a knowledge of these subjects, as well as of German, French, and Latin. Harvard, while also requiring a collegiate education for entrance to the medical school, has not required all of these subjects, although recognizing their importance and recommending them to prospective students of medicine. Cornell, Leland Stanford, Michigan, Wisconsin, and numerous other universities, have either outlined courses suitable for students intending to study medicine, or at least, have given their students freedom of choice. Yale and Princeton, among the larger universities of this country, have represented the extreme conservatives, who have held that Latin, Greek, and mathematics are the essentials of a liberal education. But a growing general appreciation not only of the educational value of the sciences, and the indispensable necessity of at least an elementary knowledge of sciences and modern languages in several of the learned professions, have compelled their acceptance as a passport to enter college, and a relatively declining number of aspirants for a college degree offer the traditional preliminary training. A majority of the teachers of medicine, while recognizing the desirability of a liberal education, have felt equally convinced of the unsuitability of the old strictly classic course as a preparation for our profession. Some have even condemned a college education for prospective students of medicine, overlooking altogether the efforts of those educators in our colleges and universities who are working for a broader and more elastic college course. Reluctantly, but apparently forced by the demands of the times, Princeton has this year introduced changes in its curriculum, retaining a minimum number of prescribed studies in the first two years of the college course, and attempting to secure concentration of the work of the junior and senior years, although attempting to avoid the narrowness and inelasticity of the socalled group system. We are glad to see these changes, because, since greater requirements have been made for the medical degree, an increasing number of students.have felt that they must be deprived of the benefits of a liberal education. With a properly adjusted elective system, it is possible for the student to select such studies as will be most valuable to him, and experience has shown that a very considerable proportion of students may be trusted to make such a selection. If a young man, well advanced in his teens, has not sufficient discretion to select, with the advice of his teachers and friends, such studies as are suitable to his needs, it is extremely doubtful if he ever will reach years of discretion and whether he is really worth educating. The progress in medical science during recent years has made necessary the doubling of the number of years of study required. Within 15 years the majority of medical schools of the United States have increased the course of study from two to four years, and the more progressive schools have added two or three months to the term of study, which formerly counted for a year's work, so that the amount of time spent in study for the medical degree has really been much more than doubled. If the colleges and universities of this country are to furnish a preliminary education for the army of medical students, the necessity for changes in the traditional college course must be recognized. Such liberality in electives has been in force in some institutions for many years, and important changes have already been made in nearly all, but we believe that still greater liberality and further recognition of the needs of the students of medicine are desirable in some institutions.

A Disgraceful Affair.—Our readers remember a "decoy letter" which was sent a few years ago to a number of Chicago physicians by means of which the existence of the commission evil was well illustrated. One result —the motive having been good—was to lessen the evil itself, and to crystallize professional sentiment against the shameless abuse. By many medical societies repressive laws were enacted. If we are rightly informed, a cheap, selfish, and stupid imitation of the former exposure has again been tried in Chicago, another letter having been recently sent to 100 physicians, asking for 25% commission upon a case to be brought to the consultant. It is encouraging to find that 56 did not reply and 26 others declined—making 82% of honorable men among the tempted, while 18 are represented as accepting the bid directly or indirectly. This, on its face, is an improvement over former conditions. But may one accept the face-showing? The professional feeling in Chicago seems decidedly to be against any such conclusion. A number of considerations seem to show that the promoters and stock brokers of the commercial world have taught our professionals some of their own expertness in "ways that are dark and tricks that are vain." The affair has, indeed, the complexion of a blundering practical joke, failed in its result, and with serious consequences. It is plainly said, that many who might have been caught were let into the secret in advance and thus escaped committing themselves, and that they even seized the opportunity to assume a hypocritic and toplofty virtue. The brazen spreading of the report in a daily newspaper was not in the nature of a joke and took on the apparent guise of a crass piece of advertising. Chicago practitioners immediately recognized the libel against the profession, and the question arose if the "exposure" was not really made by some who had been trapped three years ago. If so, it was a method of "getting even" which could not be tolerated. According to legal minds, internal evidence confirmed the suspicion. At this time and distance one cannot decide, but the exact conditions should be ferreted out and the guilty ones, both the biters and the bitten, be held up to public obloquy. The great bulk of the profession are not guilty and their good reputations must not be soiled. Let the few be made to suffer. Physicians everywhere will see that if it was intended as a "joke" it was a hideous failure; if it was intended to purify professional ethics it has also proved a lamentable mistake; if it was intended to expose the guilty and advertise the tricksters the result is very different from what was planned. It has at least tremendously increased professional bitterness, and instead of lessening the commission evil, has probably made it only more secret on the part of the few whom, perhaps, nothing can raise above such degradation. The regular meeting of the Chicago Medical Society on October 19 did not lessen the bad impression one gets from a review of the scandal, and the need of an exposure of the "exposers" seems all the more imperative.

Authoritative Abstracts of Scientific Papers.—The *Medical Record* has, for itself, at least, set a commendable example in furnishing other medical journals with abstracts of the original articles appearing in each week's issue. They are sent out as printed slips the day before the journal itself, and other journals in their reviews of the current literature may use them in any manner they please. In past years we have many times urged authors to supply such reviews of their contributions. It is evident that the author can make the best epitome of his conclusions, and this should be used in preference to the work of another less interested and less capable, however great his ability. The plan would greatly lessen and simplify the labor in our editorial offices, and all reasons argue for its general acceptance. For our own part we have concluded to follow the example. The author should make the abstract when it is possible, and we request our contributors to do so.

The Downfall of Therapeutics.—Before the development of the natural sciences placed medicine as an art among the applied sciences, therapeutics was the most important branch of medical study and practice. Among the medical sects the same observation holds true at the present time. During the last half century medical progress, however, the pursuit of exact medical knowledge, has led students chiefly into surgery, diagnosis, pathology, and bacteriology. Definite knowledge of the intimate reactions of the metabolic processes of our bodies with foreign agents introduced as drugs is just coming into sight with the growth of the new science of pharmacology, and so necessarily therapeutics at present lags behind. All of which is new to no one who sees, and is introduced simply to draw attention to an unfortunate practical result of this state of affairs. For some years progress in materia medica and therapeutics has seemed almost to lie in the hands of lay manufacturers. With their new compounds and their disguised old ones, the drug makers have kept the materia medica expanding at an alarming rate. This condition is by no means wholly to be deplored, as the pharmaceutists have contributed much to the comfort of physician and patient. However, the tremendous preponderance of commercialism in recent therapeutic progress has brought with it some ill conditions. Money-making attracts the unscrupulous, and the medical profession has difficulty in separating the wheat from the tares. Any good new laboratory product of therapeutic value is immediately imitated or attacked. There develops intense feeling between foreign and domestic manufacturers, and all the while the poor doctor, as the bone of contention, is overwhelmed with "literature" and "medical journals" (*sic*) and agents. Contradictions multiply until mercury and quinin appear to be about the only agents of whose qualities the physician may feel reasonably sure! The prize—the patronage of the profession—being of great commercial value, many subterfuges are employed by some to enable them to share in it. Official positions in medical bodies at times are sought, and at other times are appropriated by not too nice strategy. Medical journals are subsidized and new ones are published. A number of makers pay a regular stipend secretly to complaisant doctors here and there over the country, who, in return, are expected to read "useful" papers and at every possible turn to uphold the wares of the benefactor. Thus it comes that therapeutics has reached its present low estate. Scientific physicians give their time to diagnosis and pathology, and limit themselves to simplest measures of treatment. Others make a diagnosis and then choose the remedy that the maker says is best for that condition. Many among us who love the study of means to alleviate suffering have endeavored faithfully to recreate professional interest in pure therapeutics, but the combat with intrenched wealth and monopoly is an unequal one in the face of general professional lethargy. But hope is not to be abandoned.

John of Gaddesden, Variola, and the Finsen Light Cure.—A bitter discussion has arisen over the claim of the late lamented Finsen that red light prevents pitting in smallpox. Schamberg and others have proved conclusively the fallacy of this claim; and it may be considered as definitely settled that exposure to red light has no power to avert pitting. Some have considered John of Gaddesden the discoverer of the red light treatment; but H. E. Handerson, of Cleveland, in a short, but interesting article, shows that that old worthy's method had nothing to do with the chemic effect of red rays of light. He advocated that the patient be completely wrapped in a cloth of scarlet, and that the hangings of the couch be made of red material. He did not claim originality for this treatment, references to which may be found in the writings of Gilbertus Anglicus (1290) and of Bernard Gordon (1305). Handerson's explanation of the treatment in question is as follows:

> Scarlet and red have been from time immemorial associated with the idea of fire and heat. A scarlet cloth is therefore warmer than a similar cloth of another color. Warmth applied to the surface of the body favors the development of eruptive diseases, including smallpox. Hence, wrapping the patient in a scarlet cloth should specially favor the development of the eruption in this latter disease.

Historians differ as to the character of John of Gaddesden. That there was something of the charlatan in him is undisputed; but undignified boastfulness and self-assertiveness seem to have been a characteristic of the medicine of his day.

"Doped or Drugged Horses."—Good citizens will do all in their power to help the Societies for the Prevention of Cruelty to Animals to abolish the new form of malignity, the socalled drugging of horses. The object is to make worn-out and dying animals temporarily active by means of injections of stimulants, and thus cheat purchasers, insurance and shipping companies. Some of the railroads have been heavy losers, the shippers claiming damages for the deaths en route of the animals. The scamps seem to have organized themselves well and have long carried on their diabolic business at the expense of private buyers, traders, insurance companies, etc. The cruelty to the poor animals, trampled upon in shipment or rendered insanely irritable by the injections, is fortunately not to the advantage of the defrauded buyers and shippers, so that there is no reason for indifference on the part of the public and the law. One may well hope that the zeal of the anticruelty societies will not abate until the scoundrels have been most harshly punished. No excuse for leniency exists in this case.

BOOK REVIEWS

A Textbook of Diseases of the Nose and Throat.—By D. BRADEN KYLE. Third edition, revised and enlarged. Published by W. B. Saunders & Co., Philadelphia, New York, and London.

In the present edition the author has retained the general scope of this textbook which is wellknown to the profession, and particularly to specialists in this branch of medicine. The entire work, however, has been carefully revised, most important alterations and additions have been made in the chapters on keratosis, epidemic influenza, Gersuny's paraffin method for the correction of nasal deformities, and the one on the röntgen rays in the treatment of carcinoma. The portion devoted to the etiology and treatment of hay-fever has been partially rewritten and enlarged, as has the part devoted to the operative treatment of deformities of the nasal septum. In the chapter devoted to the consideration of the mucous membrane in hay-fever, the author records the results of his experience in the chemistry of the saliva and nasal secretions in relation to diagnosis and treatment. A valuable feature of the work is the number of splendid illustrations and clear plates, there being 175 of the former and 24 of the latter. A feature of the book which appeals particularly to a specialist is the amount of discussion which the author gives relative to the pathology of diseases of the nose and throat, and a feature which appeals particularly to the general practitioner is the aim to consider under diagnosis and treatment the systemic conditions related to the special diseases of the nose and throat. The work is brought thoroughly up to date.

A Treatise on Applied Anatomy.—By EDWARD H. TAYLOR, M.D. Published by Charles Griffin & Co., Ltd., London: J. B. Lippincott Company, Philadelphia.

This is a volume of some 700 pages, devoted to applied anatomy. The author has handled the subject in a systematic manner, taking up the various regions of the body, describing the anatomy of the part and discussing the various surgical operations which are likely to be performed on that part. The volume is devoted rather more to surgery than to anatomy, in the abstract, and in fact, as the author states, the work might be given the title of Surgery from the Anatomic Standpoint. Every region of the body is brought under consideration, and is dealt with intelligently, both from the standpoint of the anatomist and the surgeon. The work is applicable to the needs of senior students who have completed their courses in dissection, as well as the general practitioner who desires a hasty review of the anatomy of any portion of the body in which he, for the moment, is particularly concerned. The work abounds in numerous well-executed illustrations, which are of so much importance in the study of anatomy. We commend the work as being one which will meet a certain demand in both surgery and anatomy, especially in these later days, in which the niceties of surgical operations are of the highest importance, especially in the careful dissections necessary for the extirpation of malignant disease, etc.

The Treatment of Some Acute Visceral Inflammations, and Other Papers.—By DAVID B. LEES, M.A., M.D. Philadelphia: P. Blakiston's Son & Co. 1904.

The first 100 pages of this book are occupied by three lectures, embracing the subjects of Carditis, Pericarditis, Pneumonia, Empyema, Pleurisy, Appendicitis, and Nephritis. The four main ideas embodied are the necessity of determining the size of the left ventricle and right auricle in all diseases of the heart and lungs, the importance of relieving a distended right heart by leeches or moderate venesection, the value of external application of ice in many of the lesions mentioned, and the advantage of largely increasing the doses of sodium salicylate in acute rheumatism and chorea, and safeguarding them by still larger doses of sodium bicarbonate. In these lectures will be found very many helpful therapeutic points. The last 200 pages contain reprints of articles previously published, mainly in British journals. These include a wide range of topics, but most of them bear in some manner upon the subjects treated in the lectures.

Diseases of the Intestines.—By I. BOAS. Second revised and enlarged American edition, with special notations and additions, by SEYMOUR BASCH. Published by D. Appleton & Co., New York and London.

The work which has been so ably done by Dr. Boas in connection with diseases of the alimentary tract, particularly those of the intestine is well known to the profession throughout the entire world. In the present edition the plan and scope of the first edition is continued and new chapters have been added on dysentery, on syphilis of the intestines and on actinomycosis of the intestines. All of the various diseases to which the intestinal tract is subject have been taken up and ably discussed by the author. The work is considered in two parts, the first is devoted to a general consideration of the therapeutics of intestinal diseases in such matters as dietetics, hydrotherapeutics, massage, injections, and medical treatment, while the second part is devoted to special diseases and conditions, as for instance, acute and chronic intestinal catarrh, dysentery, habitual constipation, displacement of the intestines, ulcers of the intestines, round ulcers of the duodenum, intestinal neoplasms, intestinal stenosis, and intestinal obstruction, syphilis of the intestines, actinomycosis of the intestines, diseases of the rectum, nervous diseases of the intestines, etc. The volume is comprehensive, comprising a work of nearly 600 pages, and the translator has done splendid service in converting the German edition into English which is concise and comprehensive. The volume will be well received by the profession in America.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Science and Immortality. The Ingersoll Lecture, 1904.—By WILLIAM OSLER, M.D., F.R.S., Professor of Medicine, Johns Hopkins University. Houghton, Mifflin & Co., Boston and New York, 1904.

A Textbook of Human Histology. Including Microscopic Technic.—By DRS. A. A. BÖHM and M. VON DAVIDOFF, of Munich, and G. CARL HUBER, M.D., Professor of Histology and Embryology in the University of Michigan, Ann Arbor. Second edition, thoroughly revised and enlarged. Handsome octavo of 525 pages, with 376 original illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Flexible cloth, $3.50 net.

Manual of Physiological and Clinical Chemistry. By ELIAS H. BARTLEY, B.S., M.D., Ph.G., Professor of Chemistry, Toxicology, and Pediatrics in the Long Island College Hospital. Second edition, revised and enlarged. With 47 illustrations. P. Blakiston's Son & Co., Philadelphia, 1904. Price, $1.00 net.

Saunders' Question Compends: Essentials of Chemistry, Organic and Inorganic. Containing also Questions on Medical Physics, Chemic Philosophy, Medical Processes, Toxicology, etc.—By LAWRENCE WOLFF, M.D., formerly Demonstrator of Chemistry at the Jefferson Medical College, Philadelphia. Sixth edition, thoroughly revised. By A. FERREE WITMER, Ph.G., formerly Assistant Demonstrator in Physiology at the University of Pennsylvania. 12mo volume of 225 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $1.00 net.

Lea's Series of Medical Epitomes: Nervous and Mental Diseases: A manual for students and physicians.—By JOSEPH DARWIN NAGEL, M.D., Consulting Physician to the French Hospital, New York. In one 12mo volume of 276 pages, with 46 illustrations. Cloth, $1.00 net. Lea Brothers & Co., Philadelphia and New York, 1904.

Examination of the Urine.—By G. A. DE SANTOS SAXE, M.D., Pathologist to the Columbus Hospital, New York City. 12mo volume of 391 pages, fully illustrated, including 8 colored plates. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Flexible leather, $1.50 net.

A Textbook of Clinical Diagnosis: By Laboratory Methods. For the use of students, practitioners, and laboratory workers.—By L. NAPOLEON BOSTON, A.M., M.D., Associate in Medicine and Director of the Clinical Laboratories of the Medico-Chirurgical College, Philadelphia; formerly Bacteriologist at the Philadelphia Hospital and at the Ayer Clinical Laboratory of the Pennsylvania Hospital. Octavo volume of 547 pages, with 320 illustrations, many of them in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $4.00 net; sheep or half morocco, $5.00 net.

Pharmaceutische Produkte.—By MESSRS. LUCIUS and BRÜNING. Victor Koechl & Co., New York City.

A Treatise on Obstetrics. For students and practitioners.—By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics in Jefferson Medical College; Professor of Obstetrics and Pediatrics in the Philadelphia Polyclinic, etc. New second edition, thoroughly revised, and much enlarged. Octavo, 800 pages, with 274 engravings and 39 full-page plates in colors and monochrome. Cloth, $5.00 net; leather, $6.00 net. Lea Brothers & Co., Philadelphia and New York, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

Changes in Navy Titles.—In his annual report Surgeon-General Rixey asks for legislation to make the following change of titles: In place of surgeon-general, surgeon-admiral; in the other grades medical director becomes surgeon-captain; medical inspector, surgeon-commander; passed assistant surgeon, surgeon-lieutenant; and assistant surgeon, surgeon-lieutenant (junior grade).

Christian Scientists and Osteopathists.—City Solicitor Scott of Cincinnati has rendered an opinion on the question as to whether the signature of a Christan scientist or an osteopathist to a death certificate was to be regarded as equivalent to that of a recognized physician. He informed the Health Department that, inasmuch as Christian scientists and osteopathists are not recognized by the courts and statutes as legal practitioners, and inasmuch as they profess no knowledge of medicine, their opinion as to the cause of death can be of little value to the officials. Their signatures, therefore, signify no more than those of other laymen. In such cases the coroner must be called to determine the cause of death. [*Medical Record.*]

The Mosquitos of Key West.—A naval surgeon has captured some valuable specimens of the mosquito. Acting Assistant Surgeon George A. Plummer, U. S. Navy, stationed at the naval station at Key West, Fla., has sent to the surgeon-general a report giving the history of the place and much valuable information as to the character and habits of the mosquitos found on the island. He sent five specimens, which he believes to be all but one of the varieties inhabiting the island. Among them is the rare specimen of *Anopheles albifes*, which has never been recorded before in the United States, except as having been found about two years ago in New Orleans. It was noted in Cuba by the yellow fever commission, also in Vera Cruz.—[*Army and Navy Register.*]

Inherited Brains.—The inheritance of bodily characteristics, both by man and the lower animals, is too well known to need comment. In the same way we are accustomed to think of mental attributes as being more or less heredity. From a priori consideration we have every reason to expect that the organ which is the physical basis of the mental faculties, the brain should show in its structure the influence of heredity. It has rarely happened, however, that any comparative study of the brain structures of near relatives has been possible. A peculiarly fine opportunity for such observation was afforded when the brains of three brothers were given to a competent observer for examination. The brains were those of Willis, Burton, and Fred Van Wormer, all of whom were executed in New York State. All three brains showed marked similarity in general form, differing chiefly in the matter of size. Some unusual features were present in all three; one characteristic in particular, which is of great rarity, occurred in all three. These facts lend much support to the idea that peculiarities of brain structure are inherited as well as peculiarities of face and figure. In the case of these three brothers no attempt was made to associate the configuration of the brain with the nature of the crimes of the men.—[*Collier's Weekly.*]

Illinois Circular on Tuberculosis.—The third edition of a circular on the cause and prevention of tuberculosis, the first edition of which was published by the State Board of Health early in July, has lately appeared. The publicity given to the first edition by the public press manifested the widespread interest in it, and brought about a remarkable demand for copies, not only in the State of Illinois, but throughout the country. The most interesting feature of the last edition is the consideration of Illinois as a suitable place for the treatment of tuberculosis, for the painstaking investigations conducted by this Board have clearly demonstrated that there is more reason than previously appreciated for believing that Illinois can successfully care for her tuberculous patients at home. Attention is directed to the climatic conditions, the elevations, and soil at those sanatoriums which have attained such excellent results in the treatment of tuberculosis in New York, Massachusetts, and Pennsylvania, and comparative tables are shown which conclusively demonstrate that equally as good conditions, and some superior, may be found in Illinois. The laboratory of the State Board of Health, at Springfield, is now in full operation. The work which is being done by the State Board of Health in its laboratories and in the literature put into circulation is of the highest importance, both to the profession and to the public at large.

Miscellaneous.—**The Mississippi Valley Medical Association**, at the annual meeting held in Cincinnati, O., October 11-13, elected the following officers: President, Bransford Lewis, St. Louis; first vice-president, Frank Parsons Norbury, Jacksonville, Ill.; second vice-president, J. H. Carstens, Detroit, Mich.; secretary, Henry Enos Tuley, Louisville, Ky.; assistant secretary, John F. Barnhill, Indianapolis, Ind.; treasurer, S. C. Stanton, Chicago, Ill. Next place of meeting, Indianapolis, Ind., October, 1905.—**American Society of Clinical Surgery** held the third annual meeting in Buffalo and Cleveland, October 28 and 29. At Buffalo, on the twenty-eighth, the members were entertained by a local committee, of which Dr. Roswell Park was chairman. The Buffalo General Hospital was visited, luncheon was served at the University Club, the Cancer Laboratory was inspected, and likewise the Buffalo Medical School, and dinner was served at the Buffalo Club, after which the members of the society took the train for Cleveland, in which city the society was entertained by the local committee, the chairman of which was Dr. G. W. Crile. The Lakeside Hospital was visited, where, at different hours, various clinics were held by prominent surgeons, and luncheon was served at the Lakeside Hospital. Later, the Western Reserve Building was inspected, and dinner was served at the Tavern Club.—**Dr. Byron Cook Pennington**, one of the best known physicians of Atlantic City, N. J., was, on the evening of October 18, presented a loving cup from his brother practitioners, the occasion being in commemoration of his 20 years' practice in Atlantic City. Dr. Pennington will spend the winter in Bermuda.

EASTERN STATES.

$600 for a Dog Bite.—In the first session of the Superior Court, of Boston, a jury returned a verdict of $600 for the plaintiff in the case of Irene Hilton, a minor, vs. John Therrien, owner or keeper of a dog that bit the plaintiff. The child was bitten while in Commonwealth avenue, in May, 1902. She sued for $5,000. The defendant did not put up a defense. The verdict is an assessment of damages.

NEW YORK.

Dean of College of Physicians and Surgeons, New York.—The deanship of the College of Physicians and Surgeons of Columbia University, which has been filled by Dr. John G. Curtis as acting dean since the resignation of Dr. McLane in June, 1903, has been filled by the election for the statutory term of Dr. Samuel W. Lambert, professor of applied therapeutics.

Commission Appointed to Learn the Cause of Pneumonia.—The commission appointed to investigate respiratory diseases, as a result of the appropriation recently made by the city of New York, will hold its next meeting in New York, on November 3. Already the commission has been divided into two main departments. One, on the bacteriology of respiratory diseases, consists of Dr. William H. Welch, of Baltimore; Dr. T. Mitchell Prudden, of the College of Physicians and Surgeons, New York; Dr. Herman Biggs, general medical officer of the New York Board of Health, and Dr. Theobald Smith, of Harvard University. The other, on the clinical aspects of those diseases, is composed of Drs. Edward G. Janeway and Emmett Holt, of New York; Dr. William Osler, of Baltimore; Dr. Frank Billings, of Chicago, and Dr. John H. Musser. The members of these departments or committees are authorized to appoint investigators in their various territories. The investigation is to be carried on in every part of the United States, and will consume probably a considerable period of time.

PHILADELPHIA, PENNSYLVANIA, ETC.

Medical Lectures to Teachers.—The Department of Health and Charities has arranged a series of lectures to teachers on "The Detection of Contagious Diseases." School teachers all over the city will thus have an opportunity of gaining knowledge of some of the principles of medicine, which will enable them to detect minor ailments in children.

The Typhoid Epidemic at West Chester.—The Secretary of the State Board of Health, Dr. Lee, says in part as follows: The weekly report of the Board of Health of West Chester to the State Board shows that since the beginning of the outbreak of typhoid fever now prevailing in that borough 70 cases have been reported. Three deaths have occurred, all since the first of the present month. During the same period five new cases have occurred. It is evident, therefore, that the intelligent activity of the local Board of Health has borne fruit, and that we need not apprehend a repetition of the Butler horror.

SOUTHERN STATES.

Morbidity and Mortality in Baltimore.—The report of the Health Department for the week ended October 22, as prepared by Secretary Kiger, shows a total of 160 deaths, as compared with 171 the corresponding week of last year, 166 in 1902, and 183 in 1901. The deathrate per 1,000 of population was: White, 13.09; colored, 22.90; whole, 14.61.

$100,000 to Orphan House.—From Charleston, S. C., comes the news that a citizen of Charleston has made a gift of $100,000 to the Charleston Orphan House, one of the oldest and best-known orphan asylums in the country. The gift was made as a memorial to the late W. Jefferson Bennett, of that city, and the donor prefers that his identity should not be made known. It is accepted, however, that the gift was made by A. P. Murray, who was reared at the Orphan House and was adopted into the family of Mr. Bennett when a youth.

Nurses in Demand in Baltimore.—The report of the work accomplished during the past summer by the "Instructive Visiting Nurse Association" has just been made public.

The object of the Association is to assist the sick poor in their own homes through the services of a visiting trained nurse. The calls for their services have become so numerous that the Association now finds itself confronted with the serious problem as to how it shall meet these increasing demands upon its nurses with its present resources. To facilitate the work the city is divided into five districts with one or more nurses assigned to each. In addition to this, one nurse devotes herself entirely to the care of the tuberculous. The need of a special nurse for the care of contagious diseases is most urgent. During the past four months 7,356 visits in all were made. There were 87 cases of typhoid fever and 66 cases of pulmonary tuberculosis cared for. Through the agency of the district nurses 320 patients were referred to various hospitals and institutions, while the gratuitous services of a physician were secured for 57 needy cases. A most important part of the summer work was in supplying properly modified milk to a large number of sick infants.

WESTERN STATES.

War on Smallpox in Chicago.—Ten extra medical inspectors were put to work by the Chicago health department recently, and the work of fighting the feared invasion of smallpox was begun in earnest. Vaccination is the weapon which the department will use, and the endeavor will be to inoculate the entire city.

Ohio State Hospitals.—The fourth session of the Association of Assistant Physicians of the Ohio State Hospitals was held at the Columbus State Hospital, October 5 and 6, 1904. Valuable papers and specimens were presented. The Ohio State Medical Association has endorsed the object and work of the Hospitals Association.

To Protect Girls from Vice.—A wealthy man of Minneapolis, whose identity is not disclosed, has agreed to donate $10,000 toward a fund of $20,000 for the maintenance of a branch police system, the province of which will be the protection of young girls from vice. The money will be forthcoming as soon as assurances that the remainder will be subscribed are received.

Cut Staff of Doctors.—The Chicago *Tribune* states that the county commissioners have adopted a resolution reducing the attending medical staff at the county hospital to 65 members, and providing a merit test for appointment. The action was taken at the suggestion of President Foreman, and is intended to reform what are recognized as serious abuses. Previously the only limit to the size of this staff has been the judgment of the county board, which selected it. There now are 113 physicians and surgeons. No pay goes with the appointments, but they are sought eagerly, both on account of the practice which they afford and the standing in the profession that they carry with them. With the exception of a few prominent surgeons and physicians who were named of necessity, most of the appointments have been made for political reasons.

Memorial Services in Honor of Dr. N. S. Davis, who was known as dean of the American medical profession, and a leader among Chicago's old time physicians, were held in Power's Theater, Chicago, on October 23. Dr. Davis died last June. He was founder of the American Medical Association, the Illinois Medical Society, and of the Chicago Medical Society. He was professor of practice in Rush Medical College in 1850, and about that time organized the Chicago Medical College, now a department of Northwestern University. He started the movement which resulted in lengthening the course of medical instruction from 10 months to the present requirement of four years. He also was president of the only International Medical Congress in the United States, and to his efforts is credited the establishment of Mercy Hospital, in Chicago, during the cholera epidemic in the early sixties.

FOREIGN NEWS AND NOTES

GENERAL.

Hygienic Reform in the Wearing of Corsets.—The yearly report before the Austrian Ministry of Commerce by the Vienna Chamber of Commerce and Industry registers a great decrease in the number of corsets manufactured during the past year. It attributes this decrease to the publication of medical opinion condemning tight lacing, and also to the extension of the "reformkleid," or rational dress. All corset factories have reduced the number of their employes, and some have closed altogether.

Appeal to Medical Writers for Brevity.—The dignified *Deutsches Archiv f. klinische Medicin* states that it has tried to keep pace with the constantly accumulating material by issuing its numbers at shorter intervals. This increases the cost to both publishers and subscribers, while long articles drag through several numbers, and readers lose their interest. From every point of view, therefore, it is advisable to reduce the amount of material. The editors beseech all intending to contribute to its columns to condense their articles as much as possible. They hint that the length of an article is liable to be in inverse proportion to the age and experience of the writer.—[*Medical Book News*, October.]

Plague in Bombay.—Public Health and Marine-Hospital reports states that the following extract concerning plague haunts in Bombay is quoted from a report by a delegate commissioned to inquire into the matter. He reports that "in a room the floor space of which was 8 by 10 feet there were four fires burning—one in each corner, for four separate families occupied this spacious room, one family living, sleeping, cooking in each of the several corners." Thinking that surely here the maximum possible amount of overcrowding had been reached, he was shown, to his amazement, a room of exactly the same area where he was told by his guide that six families lived. By means of a bamboo framework suspended from the beams, and hanging about three feet above the floor, space was made for two additional families, and in this way many other chawls in that gully were made to accommodate six families. The doctor who attended the commissioner added that some of the families at times entertained visitors during the rainy season. These were shown as municipal chawls. That conditions such as are described above do not prevail in Bombay alone must be gathered from the great epidemic of plague now prevailing at Surat, a town and port 200 miles north of Bombay.

OBITUARIES.

Samuel W. Abbott, secretary of the State Board of Health, of Mass., was found dead in bed at his home in Newton, October 22. He attended Brown University and was graduated in its academic department with the degree of A. B. in 1858. He soon entered the Harvard Medical School, and 4 years later was graduated. He was assistant surgeon in the United States Navy from 1861 to 1864. He resigned from the navy in 1864, to continue as assistant surgeon of the First Massachusetts Cavalry until the end of the war. In 1886 he was elected secretary of the State Board of Health, and was secretary at the time of his sudden death. Dr. Abbott was a member of the American Medical Association, the American Public Health Association, the Royal Statistical Society of Great Britain and the Loyal Legion of the United States. Many monographs have been written by him on medical subjects, and he wrote a book on "The Past and Present Condition of Public Hygiene and State Medicine in the United States."

Auguste Frederich Muller, chief of staff of the Germantown Hospital, October 19, in Philadelphia, of cancer of the stomach. He was 64 years old. Dr. Muller was born in Alsace-Lorraine, and was brought to America by his parents at the age of 12 years. He served as a soldier in the Civil war and entered the University of Pennsylvania in 1866, and was graduated two years later. He immediately began to practise in Germantown, and when the Germantown Hospital was founded, in 1870, he became attached to the staff. Later, he was made resident physician, and finally became chief of staff. He was a member of the College of Physicians and the Philadelphia County Medical Society, and was vice-president of the Germantown Medical Society.

George Purviance, of Washington, assistant surgeon-general of the Public Health and Marine-Hospital Service, jumped from a fourth-story window of the Orthopedic Hospital, Philadelphia, October 20, and was almost instantly killed. He was suffering from neurasthenia, a result of overwork, and was a patient at the hospital. Dr. Purviance was 63 years old, and was a graduate of Jefferson Medical College in 1867. He served as adjutant in the 134th Regiment of Pennsylvania Volunteers in the Civil war. After obtaining his degree, he practised medicine in Pittsburg, and then entered the Marine-Hospital Service, of which he was an officer for more than 30 years.

William C. Flowers, at his home in Cambridge, Mass., October 20, aged 79. He was formerly one of the best known surgeons in Cambridge. A graduate of Harvard Medical College, in 1862. He entered the service of the United States as an assistant surgeon and served in that capacity for eleven years in various military stations throughout the country. In 1885 he was obliged to abandon the practice of medicine on account of ill-health, since which time he had been almost totally blind. He was a member of the Massachusetts Medical Society and various other local organizations.

Samuel W. Woodhouse, at his home in Philadelphia, October 23, aged 83. He was one of the oldest living graduates of the University of Pennsylvania, having taken his degree in 1847. He was a member of the Academy of Natural Sciences and of the Smithsonian Institution, at Washington. He was at one time physician to the Almshouse, and the Eastern Penitentiary.

Frank Greenough, at his home in Brookline, Mass., October 16, aged 67; a graduate of Harvard Medical College, in 1859. He made an extensive study of dermatology, which was his specialty up to 1893, except during the period of the Civil war when he served in the hospital at Portsmouth Grove. He retired from practice some ten years ago.

Gerhard Heinrich Eiskamp, from Bright's disease, at his home in Washington, Iowa, October 9, aged 49; a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1892; a member of the American Medical Association.

Edward D. Carr, from heart disease, at his home in Argenta, Macon County, Ill., October 11; a graduate of Rush Medical College, Chicago, in 1887; member of the American Medical Association and various local medical societies.

William White, a distinguished physician of Abingdon, Va., October 13, at John Hopkins Hospital, Baltimore, where he had undergone an operation. A graduate of the Medical College of Virginia, Richmond, Va., in 1841.

J. J. Thornton, a pioneer citizen of Gulfport, Miss., at his residence in Soria City, October 15, aged 71. He was a native of Georgia and removed to Mississippi at an early age and had resided in Gulfport 16 years.

Richard C. Lee, at his home in Baltimore, Md., October 20, aged 71; a graduate of the University of Maryland medical department, in 1859. He was prominent in a number of fraternal organizations.

William Bishop, from tuberculosis, at his home in Annapolis, Md., October 6, aged 60; a graduate of Howard University medical department, Washington, D. C., in 1875.

Thomas Devereux Hogg, was killed by a locomotive near his home in Raleigh, N. C., September 30, aged 80; a graduate of Jefferson Medical College, Philadelphia, in 1847.

Charles E. Elliott, from tuberculosis, at the home of his son in Wellington, Kansas, October 8, aged 70; a graduate of Charity Hospital Medical College, Cleveland, in 1869.

Isaac N. Hugg, at his home in Camden, N. J., October 15; a graduate of the Philadelphia University of Medicine (Eclectic), now extinct, in 1869.

William Wilbur Estabrook, at his home in Chicago, October 10, aged 77; a graduate of Pennsylvania Medical College, Philadelphia, in 1847.

Upton Heath Belt, formerly of Baltimore, Md., at Leghorn, Italy, October 15; a graduate of the University of Maryland, Baltimore, in 1850.

Albert E. Mallory, at his home in Calborne, Ont., October 4; a graduate of McGill University medical department, Montreal, in 1872.

Rabin A. Burge, of Graves, Ga., in Brookville, Fla., October 6; a graduate of the Medical College of Georgia, Augusta, in 1902.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 22, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Illinois:	Chicago	Oct. 8–15	6	
Massachusetts:	North Adams	Oct. 8–15	1	
Michigan:	At 42 places	Oct. 1–8	Present	
Minnesota:	St. Paul	Oct. 3–10	7	
Missouri:	St. Louis	Oct. 10–17	7	3
New York:	New York	Oct. 8–15	1	
Pennsylvania:	Philadelphia	Oct. 8–15	1	
	SMALLPOX—FOREIGN.			
Africa:	Cape Town	Aug. 27–Sept. 3	1	
Austria-Hungary:	Prague	Sept. 25–Oct. 2	2	
Brazil:	Bahia	Sept. 3–24	45	4
	Rio de Janeiro	Aug. 28–Sept. 18	997	434
China:	Shanghai	Sept. 10–17		3
France:	Paris	Sept. 25–Oct. 1	7	1
Great Britain:	Leeds	Sept. 25–Oct. 8	5	
	Manchester	Sept. 25–Oct. 1	6	
	Newcastle-on-Tyne	Sept. 25–Oct. 1	3	
	Nottingham	Sept. 25–Oct. 1	3	
India:	Bombay	Sept. 13–20		2
Mexico:	City of Mexico	Sept. 25–Oct. 1	4	1
Russia:	Moscow	Sept. 17–24	7	2
	St. Petersburg	Sept. 17–24	3	8
	Warsaw	Aug. 20–Sept. 10		55
Spain:	Barcelona	Sept. 1–30		6
Turkey:	Beirut	Sept. 25–Oct. 1	Present	
	Constantinople	Sept. 26–Oct. 2		19
Venezuela:	La Guaira	Oct. 1	Present	
	YELLOW FEVER.			
Mexico:	Coatzacoalcos	Sept. 25–Oct. 8	16	5
	CHOLERA.			
India:	Bombay	Sept. 13–20		18
	Calcutta	Sept. 10–17		3
Persia:	Resht	Sept. 17	Epidemic	
	PLAGUE.			
Africa:	Cape Colony	Sept. 3–10	2	1
Australia:	Brisbane	Aug. 13–27	5	2
Brazil:	Bahia	Sept. 3–24		12
	Rio de Janeiro	Aug. 28–Sept. 18	58	14
India:	Bombay	Sept. 13–20		51
	Calcutta	Sept. 10–17		2
	Karachi	Sept. 11–18	4	5
	Madras	Sept. 10–16		1

Changes in the Medical Corps of the U. S. Army for the week ended October 22, 1904:

NEWGARDEN, Captain GEORGE J., assistant surgeon, will proceed to Malabang, Mindanao, for duty.

HANNER, First Lieutenant JOHN W., assistant surgeon, will proceed to Cottabato, Mindanao, for duty.

FLAGG, Captain CHARLES E. B., assistant surgeon, will proceed to Malahi Island, Laguna de Bay, for duty.

JENKINS, FREDERIC E., contract surgeon, is granted leave for two months.

ROBERTS, First Lieutenant WILLIAM, assistant surgeon, is granted leave for fifteen days, to take effect upon his being relieved from duty at Fort Caswell.

APPEL, Lieutenant-Colonel DANIEL M., surgeon, extension of leave granted September 16, is further extended to include November 30.

DUVAL, Captain D. F., assistant surgeon, is granted leave for fifteen days, from about October 25.

VORHIES, H. G., contract dental surgeon, extension of leave granted August 19, is further extended to include November 24.

BOAK, S. D., contract dental surgeon, will proceed to Fort Slocum for duty during a period of two months and will then return to his proper station—Fort Hancock.

NEIL, MATTHEW, sergeant first class, Camp McKinley, H. T., will be sent to Manila, P. I., for assignment to duty.

HARDENBROOK, BURTON, sergeant first class, Fort Totten, will be sent to Allegheny Arsenal, Pa., for duty.

BRATTON, Captain THOMAS S., assistant surgeon, is assigned to duty as attending surgeon and examiner of recruits in Chicago, Ill., relieving Major William E. Purviance, surgeon.

BROWN, HENRY D., contract surgeon, is granted leave for two months, to take effect when relieved from duty at Fort Ward.

BOAK, S. D., contract surgeon, is granted leave for one month, to take effect November 4, at the post where he may be on duty at that date.

KIERSTED, First Lieutenant HENRY S., assistant surgeon, is relieved from duty at Fort Myer and will proceed to Fort Snelling and report to the commanding officer, Twenty-first Infantry, for duty to accompany that command to the Presidio of San Francisco. Upon arrival at the Presidio of San Francisco and the completion of the duty assigned to him he will proceed to the Presidio of Monterey for duty.

VEDDER, First Lieutenant EDWARD B., assistant surgeon, is relieved from further duty as assistant to the curator, Army Medical Museum, surgeon-general's office, and upon the expiration of his present sick leave will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on the transport leaving San Francisco about December 1.

HULL, ALVA R., contract surgeon, now at Oconomowoc, Wis., will proceed to Fort D. A. Russell for duty.

MAUS, Lieutenant-Colonel LOUIS M., deputy surgeon-general, leave granted September 13 is extended twenty days.

Changes in the Medical Corps of the U. S. Navy for the week ended October 22, 1904.

VICKERY, E. A., assistant surgeon, appointed assistant surgeon, with rank of lieutenant junior grade, from October 11, 1904—October 14.

COLE, H. W., assistant surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C., October 22—October 15

FAUNTLEROY, A. M., passed assistant surgeon, commissioned passed assistant surgeon, with rank of lieutenant, from September 28, 1904—October 20.

HOLCOMB, R. G., passed assistant surgeon, detached from the Mayflower and ordered home to wait orders—October 20.

Changes in the Public Health and Marine-Hospital Service for the week ended October 19, 1904:

CUMMING, H. S., passed assistant surgeon, granted leave of absence for one month, or so much thereof as may be necessary, on account of sickness—October 13, 1904.

RODMAN, J. C., acting assistant surgeon, granted leave of absence for three days from October 17—October 18, 1904.

SAFFORD, M. V., acting assistant surgeon, granted leave of absence for three days from October 11, 1904, under paragraph 210 of the regulations.

WALKER, R. T., acting assistant surgeon, granted leave of absence for twenty-two days from November 1—October 13, 1904.

BROCK, G. H., pharmacist, upon being relieved at St. Louis, Mo., by Pharmacist J. M. Bell, to proceed to San Francisco, Cal., and report to the medical officer in command for duty and assignment to quarters—October 12, 1904.

DAVIS, H. E., pharmacist, granted leave of absence for fifteen days from October 14—October 13, 1904.

HOLT, E. M., pharmacist, granted leave of absence for eighteen days from October 26—October 13, 1904.

HALL, L. P., pharmacist, granted leave of absence for thirty days from November 4—October 14, 1904.

BELL, J. M., pharmacist, to proceed to St. Louis, Mo., and report to the medical officer in command for duty and assignment to quarters, relieving Pharmacist G. H. Brock—October 12, 1904.

Boards Convened.

Board convened to meet at Washington, D. C., October 14, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon-General H. D. Geddings, recorder.

Board convened to meet at Stapleton, N. Y., October 26, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon C. H. Lavinder, chairman; Assistant Surgeon T. D. Berry, recorder.

Board convened to meet at Baltimore, Md., October 26, 1904, for the physical examination of officers of the Revenue Cutter Service. Detail for the Board: Assistant Surgeon C. W. Wille, chairman; Acting Assistant Surgeon G. H. Steuart, recorder.

SOCIETY REPORTS

INTERNATIONAL CONGRESS OF ARTS AND SCIENCE.

Held at St. Louis, Mo., September 19 to 25, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 708.*]

SECTION OF OPHTHALMOLOGY.

The Relations of Ophthalmology to Other Departments of Science.—This paper was read by Dr. Edward Jackson, of Denver, who stated that ophthalmology embraced the entire science of optics, while few of the processes of physiology were unconnected with the subject of ocular nutrition. A development had taken place in ophthalmology, both from the material side of the optician and from the conservative tradition of the physician. The importance of vision in modern life compelled a study from the true standpoint of ophthalmology. The author dealt with the general laws of refraction and the property of lenses, the maintenance of binocular vision, and the importance of physiologic development in connection therewith. The effect of inheritance on the growth and nutrition of the eyeball was pointed out. The promises of the ophthalmoscope of throwing light on the processes of nutrition had hitherto proved disappointing. He then dealt with the relations of the infections to ocular diseases, and said that the bacterial flora of the eye was considerable. The action of bacterial toxins on the living eye had been studied by Morax, of Paris, and by Randolph, of Baltimore. Of nonbacteral inflammations, the retinitis consequent on excessive use of the eye, and the inflammation due to eyestrain, were good examples. He next dealt with the problems of ophthalmology in connection with school life. He pleaded for the establishment of a well-planned department of ophthalmology for the training of those into whose hands its application would necessarily fall, so that a more rounded education from such a center might emanate in all directions. [This paper will be published in a future issue of *American Medicine.*]

The New Ophthalmology and Its Relation to General Medicine, Biology and Sociology.—This paper was read by Dr. George M. Gould. The "New Ophthalmology" considers only those diseases of the general system which have their starting-point in the eye. The "Old Ophthalmology" was and still remains interested only in the diseases of the eye alone. The "New Ophthalmology" is concerned only with the correction of the ametropia, which causes eyestrain, and with its systemic results. The "Old" is interested only in the inflammatory and surgical diseases of the eye itself. But these inflammatory and surgical diseases of the eye are for the most part caused by eyestrain, so that spectacles preventing eyestrain prevent such diseases of the eyes as blepharitis, conjunctivitis, strabismus, myopia, glaucoma, cataract, retinitis, etc. Eyestrain is also often the cause of many diseases of the general system, such as headache, migraine or sickheadache, nervousness, insomnia, dyspepsia, and other diseases of digestion and nutrition. A great surgeon contends that some abdominal diseases, appendicitis, for example, is frequently due to an intestinal fermentation, which is or may be dependent upon eyestrain. The strangest instance cited of these effects of eyestrain is that a peculiar astigmatism of the eyes often causes children to hold the head to one side, and this, if long continued, results in spinal curvature. But most of the glasses worn cannot cure or prevent the evil results of eyestrain, because they have not been prescribed by a physician especially or sufficiently skilled in such work. Opticians cannot be trusted to do this. The relation of eyestrain to biology or to Darwinism consists chiefly in the fact that the higher organisms, and especially man, could not succeed in the struggle for existence except upon the condition of perfect vision. All activity of the higher mammalia depends upon emmetropia or perfect vision, and an eyeball varying from the normal by as little as one three-hundredth of an inch unfits that organism to compete with others which have more perfect eyeballs and hence more perfect vision. This imperfection has been one of the great evolutionary factors in excluding the unfit; it makes clear one important mechanism of the exclusion of the unfit overlooked by Darwin and all later evolutionists. The tremendous increase of "near-work," that is, of work with the eyes within reading and writing distances, caused by civilization, gives the eyes a vastly increased labor with an organ created and evolved only for sharp distant vision. In this way eyestrain is far more frequent and intense than formerly, and unless neutralized by scientific spectacles, is thus becoming a more and more dominant factor in handicapping the owner or of rendering him incapable of competing with those who have more perfect eyes and less eyestrain. Thus eyestrain has an increased sociologic role with every advance in the progress of civilization. One of the strange effects of severe eyestrain is cerebral and mental suffering, or despondency, ending sometimes in pessimism and despair. Modern pessimism, indeed, comes largely from great literary geniuses who have suffered terribly from eyestrain. The gloomy and atheistic writers were especially those who have suffered from the very conditions of their work, while the optimistic and encouraging were generally those writers who were free from eyestrain and its consequences.

SECTION OF THERAPEUTICS.

The sessions of this section were held on September 24, 1904, Professor Hobart A. Hare, of Jefferson Medical College, in the chair.

The Problems of Therapeutics.—Sir Lauder Brunton, F.R.S., of London, gave an address on this subject. He said that the two great problems of therapeutics were (1) the relief of pain, and (2) the reestablishment of health. The restoration of function, which was the principal aim of therapeutics, was difficult in consequence of its requiring, in addition to an acquaintance with many sciences, a recognition of the character of physiologic changes and the knowledge to apply the proper remedies. The defense of the body against microorganisms, the production of a poison fatal to the microbes yet innocuous to the body, the formation of serums harmless in themselves but effective in disease, were all problems of therapeutics. The intestines, in their power of resisting the poisons to which they were exposed during the process of digestion, gave an example of immunity, and the problem was to extend to the ultimate cells of every tissue the power possessed by the intestines. In the instance of immunity lay the hope for the future discovery of a means of combating cancer. In the matter of diet, adequate knowledge on which to base practical rules was wanting. Finally, the problem of therapeutics resolved itself into the fact that when the physician should learn to regulate cell life by air and water, food and exercise, he would be able to relieve pain and maintain health.

The Influence of Calcium in Preventing Muscular Spasms.—Dr. G. A. Matthews, of the University of Chicago, said that a series of experiments proved that the application of a solution of barium chlorid to the intestines induced contraction of the intestines. The blood-pressure was raised equally rapidly as under adrenalin and almost so as under digitalis; then it suddenly dropped and the animal died; but the addition of calcium did away with the contractions of the muscles. The contractions caused by a small dose of strychnin were prevented by the use of calciums, which was also of service in offsetting the contractions of tetanus. Animals given a fatal dose of tetanus toxin were given calcium when the convulsions began and the spasms were considerably mitigated. Great relief followed in every case, even when the contractions were not altogether stopped, and in some cases the animals recovered. Dr. Matthews had tried the effects of calcium in the human family in cases of well-developed tetanus, with the result that it allayed intensity of the symptoms and some patients got well, though it was as yet too soon to say whether as the result of the treatment. Calcium did away with the symptoms in barium poisoning and rendered it very difficult to kill an animal with barium. It did not act as an antitoxin, but it seemed to remove the symptom that caused death. Calcium always had the same effect of allaying the spasms due to poisons, whether alkaloidal or bacterial.

A History of Therapeutics.—Professor Oscar Liebreich, of the University of Berlin, said that a rational therapeutics only became possible in the nineteenth century, as a consequence of the thorough understanding of the physiology of the blood. The comprehension of the metabolism of the organism was a prerequisite of scientific therapeutics. The experiments of the chemic laboratory formed no explanation of the methods of metabolism in the human body. While the causes of disease had been greatly elucidated by the research of the nineteenth century, this did not give us the method of cure. Indeed, theoretic chemistry was as yet of little use to therapeutics. The future of therapeutics, however, had its best guarantee in the scientific progress of the nineteenth century.

SECTION OF PREVENTIVE MEDICINE.

This section held its session on September 21, Dr. Joseph Mathews, of the State Board of Health, Louisville, Ky., in the chair.

The Logical Basis of the Sanitary Policy of Mosquito Reduction was the subject of an address by Professor Ronald Ross, F. R. S., of Liverpool. Dr. Ross outlined the efforts already made toward the extermination of mosquitos, admitting that as yet it was not possible to estimate to what extent the measures had resulted in the destruction of mosquitos. The arrest of propagation was the means employed to this end. The factors which entered into the variation of the number of mosquitos in any given locality were four in number, viz., the birthrate, the deathrate, emigration, and immigration. Mosquitos remain largely in their native haunts, very few migrating to the limit. If the propagation of mosquitos was arrested, therefore, the limit of migration would be freed from them. But if the area treated was too limited, emigration would fill up the gaps in the ranks due to an arrested propagation. The following four propositions were laid down: 1. Mosquito density could be lessened by increasing the area treated. 2. This area must be greater than the limit of migration, in order to rid a given area of mosquitos. 3. At the boundary of the treated district, the number of mosquitos would be less than half the normal if the area operated on was not less than half the limit of migration. 4. The results of the treatment would be perceptible beyond the limits of migration.

[*To be continued.*]

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-fourth Annual Meeting Held at Pittsburg, September 27, 28, and 29, 1904.

[Specially reported for *American Medicine.*]

[*Continued from p. 709.*]

Clinical Studies in Blood-pressure and Shock in Traumatic Surgery.—J. M. Wainwright (Scranton) first gave a review of Crile's work, showing that low blood-pressure caused by exhaustion of the vasomotor centers from overstimulation, is the essential phenomena of shock, and that the most efficient means of controlling this is by mechanically supporting the dilated peripheral bloodvessels. Second, that strychnin and digitalin are of use only in mild grades of shock, that in severe grades they are inert, that in all cases atropin, nitroglycerin, and alcohol are harmful, and that saline infusions and adrenalin are of doubtful value. He believes that these views can be accepted *in toto*, except as to saline infusions and digitalis and strychnin. He considers saline infusions of great value. The real value of strychnin and digitalis, which have so long been thought useful by competent clinical observers, must now be determined by more accurate observation at the operating table and bedside. This accurate observation is possible only by means of the sphygmomanometers of the Riva-Rocci type. However, the question of the drugs may turn out, there are two fundamental facts firmly established. These are: (1) That the cause of shock is overwhelmingly irritating nerve impulses of some sort, and (2) that the important condition to control is the low blood-pressure. From the first of these, morphin, by blunting the nerve impulses, must now be accepted as the most important drug that we have for the treatment of shock. Morphin in some cases actually raises the pressure. In addition, it is important to repair immediately the injury, if feasible, *i. e.*, primary amputation, etc. The nerve impulses having been attended to as well as possible, if the patient is in severe shock the blood-pressure must be supported. In this condition, as Crile says, the control of the blood-pressure is the control of life itself. To control the blood-pressure, Crile's pneumatic suit is probably the most effective means. Lacking this, bandaging the extremities and the abdomen and elevating the foot of the bed will suffice in many desperate cases. The author's conclusions are: (1) There is probably a clinical form of shock, as indicated by Howell, in which the heart alone is affected; (2) there is one drug, morphin, of which the value is unquestionable; (3) the most important means to combat shock are the mechanical ones; (4) the question of the value of strychnin and digitalis must be submitted to further clinical observation. They are probably of no value in severe grades. In mild grades or in severe grades, after the peripheral vessels have been supported, they are possibly also of value; (5) nitroglycerin, atropin, and alcohol are inert or harmful. Alcohol is valuable as a fuel in the depressed state following the recovery from primary shock; (6) intravenous infusions of salt solution are of great value. The value of adrenalin is as yet questionable. The ordinary detailed attention to avoidance of exposure, the application of external heat, full and even anesthesia by ether and not chloroform, rapid operation without unnecessary handling, the copious administration of water by mouth or rectum, have the same great value as always. A number of charts on which the blood-pressure readings in cases of shock were plotted, were shown to illustrate various phases of this subject.

Tuberculosis of the Gastrointestinal Tract.—J. A. Lichty (Pittsburg). This paper will appear in a future number of *American Medicine.*

Paraffin as a Surgical Medium.—M. D. Ritchie (Pittsburg) gave a report on 58 cases in which he had injected from 20 m. to 280 m. of sterile cold paraffin without a single case of reaction. He makes use of perfectly cold solid material, with melting point at 110° F. He has contrived a new lever ratchet injector, which, by contraction of the handles, ejects the cold material. The instrument is operated with one hand and he believes it gives promise of revolutionizing the field of paraffin injection. Ritchie showed photographs illustrating the work. A report was given of a series of investigations upon rabbits and guineapigs. These observations brought out the fact that paraffin is perfectly inert, nonsoluble, and eventually becomes part of the tissue into which it is injected. It was brought out in the discussion that paraffin used in this way occasionally caused embolism. He says that when cold, solid, sterile paraffin is injected into surgically clean tissue through a slightly dulled paraffin needle, the production of embolism is impossible.

Carbolic Acid and Ammonia Burns of the Eye.—Edward Stieren (Pittsburg) calls attention to the great dearth of information in ophthalmic literature on the action of ammonia on the tissues of the eye. Eyes so affected almost invariably are rendered blind by dense opacity of the cornea. The essayist reports four cases of ammonia and three cases of carbolic acid burns of the eye; remarks on the similarity for the first few days of the ocular reaction to these agents and the great dissimilarity in the ultimate reaction of the tissues of the eye, those burned by ammonia recovering with very poor vision or no vision at all, while the carbolic acid burned corneas clear up and in time recover their former transparency.

Mastoiditis.—T. W. Frankhauser (Reading) says that this condition most frequently arises as an extension of inflammation from the middle-ear, it rarely arises from the mastoid itself. In its course it is very rapid. The symptoms are pain, tenderness on pressure and percussion, cessation of discharge from middle-ear; prostration comes on early and unconsciousness when the brain is involved. The pain is worse at night; pulse rapid; temperature 100° F. to 102° F. The treatment advised is that of hot and cold applications over the mastoid, and laxatives. If there is no improvement in 24 or 36 hours, the mastoid should be opened and drained. The operation is practically free from danger when done early.

SIXTH SESSION.

Suprarenal Extract in Hemorrhage.—A. R. Craig (Columbia) reports two cases in which the subcutaneous use of this remedy in normal salt solution controlled hemorrhage and relieved surgical shock. The solution used was 1 dr. of a 1 to 1,000 solution to a pint of saline solution.

Discussion.—A. E. Roussel (Philadelphia) cited a case of typhoid fever in which there had been a large number of hemorrhages. Normal salt solution had been used for 12 hours, but with not so marked results as when 1 dr. of a 1 to 1,000 solution of suprarenal extract was added to each pint of saline used. He also recommended it highly as a cardiac stimulant in dilated heart.

Boils.—G. W. Guthrie (Wilkesbarre) reviewed the modes of infection and pathology of boils. Physicians and nurses are very liable to this condition. They are more frequently found upon the backs of the hands, neck and nates, where the hair follicles are more numerous. To avoid this condition, good hygiene and frequent bathing must be observed. Care should be taken to avoid slight injuries. He has obtained good results from the administration of three grains of quinin three times daily. He does not believe any benefit is derived from the abortive treatment, nor does he believe in incision and cauterization. An antiseptic poultice is used, and when the boil begins to discharge it is allowed to drain freely. Boils should not be squeezed.

The Treatment of Infected Wounds with a Phenol Product.—C. B. Longenecker (Philadelphia) advocates the use of camphorated phenol in the treatment of infected wounds. He has had excellent results, and has had no poisoning even when a 33% phenol product has been applied over a large area. The first case reported is that of an infected wound of the hand of several weeks' duration. The camphorated phenol dressing was applied, and the hand cured in 10 days. The second case was that in which the lymphatics were involved in an infected arm. A cure was effected in three days. The third case was that of a fork wound of the foot. The results were excellent. He believes that gynecologists could use this to good advantage.

Craniectomy in Microcephaly.—W. D. Teagarden (Washington) believes this operation justifiable in certain cases. He believes that good may be derived if the operation is done early before the nervous symptoms become prominent in a fairly well-nourished child. The case reported is that of a child of 9 months. The seat of the most faulty development was in the frontal region, hence the biauricular line was chosen. The operation consisted in removing a section of bone a quarter inch in width, extending from the tip of one pina to the corresponding point on the opposite side. After removing the section the expansion was equal to the amount removed. The wound was carefully dressed, and it healed promptly. The child showed absolutely no bad results from the operation. Next morning the temperature and pulse were normal and the child showed signs of more intelligence than ever before. The crying, convulsions, irregular movements and convergent strabismus were relieved at once. Four years have elapsed since the operation, and the child is no more trouble than any other helpless child.

Brain Tumor and Trauma.—E. W. Holmes (Philadelphia) says that the pathology of a traumatic brain growth is not different from that of a tumor elsewhere. The upright posture renders the cranium more liable to injury and in severe traumatism the diffusion of the forces increases the dangers to the brain. The direct influence of the blow is shown by the tumor appearing at the seat of injury, the cortex and the cerebellum. Therefore, being the parts of the encephalon most vulnerable and most liable to tumor, but by reason of concussion and contrecoup, deeper parts, and parts at a distance may be affected, as proved by the clinical evidence of tumor. The fact that the brain is so well protected from infection from without so long as its outworks, the scalp, the skull, and the meninges are intact, mitigates against the bacterial origin of tumor and favors the belief in the cellular nutritional and formative element as causatives of newgrowth. We find the same variety of tumor here as elsewhere, though from traumatic causes (excepting cysts), sarcoma and gumma would seem to bear the greater proportion. The time of appearance is without limit in brevity or in duration. A completely kept history of the individual is of the greatest importance in enabling us to make a diagnosis at the very onset of the disease, or by exclusion in the more neutral areas of the brain.

[*To be continued.*]

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, Held in Cincinnati, Ohio, October 11, 12, and 13, 1904.

[Specially reported for *American Medicine.*]

[*Continued from page 709.*]

General Streptococcus Infection of Intestinal Origin, with Report of a Fatal Case.—G. W. McCaskey (Fort Wayne, Ind.) said that there were constantly in the respiratory, genitourinary and digestive tracts large numbers of pathogenic germs, which might exist in any one of three states: 1. Actively virulent. 2. Innocuous, but with conservation of virulence. 3. As a pure saprophyte. Those pathogenic germs, which included streptococci, staphylococci, the colon bacillus, and many others might be transformed from the saprophytic to the virulent state by local or general morbid condition. In the case reported, a girl, aged 20, a severe chilling of the surface led to a general infection by *Streptococcus pyogenes*, which apparently had its origin from the intestinal contents, which were almost a pure culture of this organism. No other possible source of infection could be determined. He drew the following conclusions: 1. The digestive tract frequently contains *Streptococcus pyogenes* and other pyogenic or otherwise highly pathogenic organisms either in an actively virulent or saprophytic state. 2. These organisms under certain favorable conditions might become enormously prolific with reestablishment or great increase of virulence. 3. Under such conditions the various toxins which these organisms produced are absorbed more or less freely from the intestinal tract, producing a more or less severe toxemia which disappears upon removal of the cause. 4. With local morbid alterations in the intestinal mucosa, these organisms may pass the intestinal wall in sufficient numbers and with sufficient virulence to produce a general infection of a serious or even fatal type. 5. The same result may follow functional disturbances caused by errors of diet, etc., leading to blood stasis and increased diapedesis.

Hereditary Predisposition in Tuberculosis.—Charles L. Mix (Chicago) said that hereditary predisposition was usually defined as a specific predisposition toward tuberculosis. The nature of such predisposition was purely speculative. It was really a relic of the humoral pathologists and existed today because of the difficulty of demonstrating actual infection. The argument in favor of hereditary predisposition was as follows: Tubercle bacilli were ubiquitous; everyone was constantly breathing them in. Half of the people became tuberculous; half escaped. Half were, therefore, predisposed, and half were immunes. The major premise was false, as shown by a table illustrating the number of individuals to each tuberculous patient. The table explained the maximum incidence of tuberculosis at the ages of from 20 to 35 years. There were many fallacies in the usual statistics tending to support the theory of hereditary predisposition. The reports of the numerous joint investigating committees proved nothing. The interpretation of the family cases of tuberculosis was often faulty; family cases showed infection just as much as hereditary predisposition. Hereditary predisposition implied hereditary immunity, but the latter apparently had no existence. The conclusion was reached that there was no such thing as specific hereditary predisposition.

Discussion.—G. W. McCaskey agreed with Mix that there was no such thing as a specific hereditary predisposition to tuberculosis. The important thing to remember was that tuberculosis was always an infection, and that no one could ever contract the disease unless infected. There was little doubt that every one living in a civilized community inhaled tubercle bacilli at one time or another, and with more or less frequency, the inoculations proving effective or otherwise, according to the local and constitutional states of the individual. A. P. Buchman (Fort Wayne) said that one did not invariably become tuberculous upon exposure to tubercle bacilli; otherwise, every one would be tuberculous. Often tubercle bacilli might be found in the absence of manifest tuberculous infection. Mix, in closing, said acquired predisposition existed, and the individual might also inherit a predisposition not only to tuberculosis, but to any of the infections. There was no specific predisposition to tuberculosis nor any other infection.

Treatment of Tuberculous Pleuritis.—James A. Burroughs (Asheville, N. C.) referred to the use of intrapleural injections of nitrogen gas, and reported some cases in which he injected the pleural cavity with salt solution for the control of pulmonary hemorrhage in tuberculosis.

Discussion.—N. McKittrick (Burlington, Iowa) said that injections into the pleural cavity in the presence of diseased lungs and pleura, to compress the lung, were positively dangerous. The method did not merit much consideration in the statistics given by the essayist. Carl von Ruck (Asheville) agreed with the previous speaker as to the dangers of pleural injection. In tuberculosis of the lungs, the cavities tended to work toward the pleural surface of the lung. To prevent rupture, nature caused a thickening of the pleural surface of the lung at that point. The injection of air or fluid into the pleural cavity to bring about the control of pulmonary hemorrhage through pressure required the breaking up of the adhesions which nature had formed, in order to accomplish compression of the lung. Burroughs, in closing, declared that the matter was still in an experimental stage.

The Obstetric Significance of the Transverse Diameter of the Pelvis.—Joseph B. De Lee (Chicago) enumerated the various kinds of pelves, aside from spondylolisthetic and kyphotic pelves, in which there was a diminished transverse diameter. These were especially the funnel-shaped, the assimilation, the masculine, and the infantile pelves. Various methods had been employed in making the diagnosis of lessened transverse diameter of the pelvis. The essayist presented an instrument for measuring the diameter of the pelvis. He believed the transverse diameter was not infrequently reduced. In such cases there was frequently difficulty in delivery, especially in the passage of the shoulders and the extraction of the aftercoming head. In treatment, the expectant method should not be tried too long. Frequently the forceps sufficed to effect delivery. Not infrequently symphysectomy might be indicated. In breech cases delivery might often be facilitated by the application of forceps to the aftercoming head. Illustrative cases were reported.

Discussion.—Henry F. Lewis (Chicago) said the contraction of the transverse diameter of the pelvic outlet was probably more frequent than was generally supposed. In these cases one should not delay the use of the forceps, which should be applied early. In cases of infection in the male type of pelvis, when the head had well advanced, if the forceps failed, symphysectomy was often an ideal operation. De Lee, in closing, stated that in a breech case we were formerly instructed to put the forceps in our pocket. In such cases, we would now put the forceps on to boil. As a matter of fact, the forceps would fit the aftercoming head better than when the head presented. The exaggerated lithotomy position was sometimes of value. He reported a case in which an assistant performed tracheotomy on the child in a breech case. The child lived.

Hydrotherapy in Nervous Diseases.—Charles W. Hitchcock (Detroit, Mich.) described the effects of hydriatic applications, and showed that water might be made a promoter of elimination and a stimulant to all of the vegetative processes. Properly applied, it was a powerful tonic. It might be an excitant, but it was also the finest sedative at our command. The author presented the practical advantages of the use of water in the treatment of neural and psychic cases.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

PERSONAL RECOLLECTIONS OF DOCTORS JOHN L. AND WASHINGTON L. ATLEE.[1]

BY

B. H. DETWILER, M.D.,

of Williamsport, Pa.

Mr. President, Ladies and Gentlemen:—It is the prerogative of age to indulge in reminiscences and it was my good fortune to meet Doctors John L. and Washington Atlee at different periods in the early sixties. They were men of striking physique and prominence in the profession and position of life they honored. Dr. John L. Atlee, as I recall him, was tall, spare, muscular, dark, not fair as his brother, with high forehead, Grecian nose, eyes peculiarly brilliant, that could see through and beyond you, an incisive speaker and a leader of men.

He was born in Lancaster, Pa., November 2, 1799, son of Col. William Pitt Atlee and grandson of Hon. William Augustus Atlee, Judge of the Supreme Court of Pennsylvania, from 1777 to 1793. On the maternal side his grandfather was Major John Light of revolutionary fame. He graduated in 1820 at the University of Pennsylvania. He organized the Lancaster County Medical Society, and was one of the prime movers in the organization of the State Medical Society in 1848, and its president in 1857. In 1882–83 he was president of the American Medical Association. On June 29, 1843, he operated in a case of ovariotomy, removing both ovaries successfully, and he was the first to perform this double operation. Dr. Ephraim McDowell performed the first operation in 1809, Dr. Atlee reviving it. This case was pronounced by the highest medical skill inoperable—both ovaries enlarged, not encysted—producing effusion by irritation of peritoneum. This was prior to anesthesia and asepsis and the abdominal cavity *terra incognito*. Patient was living in excellent health in 1878.

He married Sarah H., oldest daughter of the Hon. Walter Franklin, Judge of Lancaster and York Counties. Two of his sons were physicians and one a lawyer. For 40 years he was a school director of Lancaster. He was president of the Board of Trustees for Homeless Children of Lancaster, and president of the Board of Trustees of the State Hospital for the Insane at Harrisburg. He was an active contributor to medical literature and a leading man in his city, State and church. His father, grandfather and son were church wardens of St. James Church, in Lancaster. In 1885 he died at the advanced age of 86, mourned by the county of Lancaster. No funeral had ever been held in the city of Lancaster that had such a cortege; streets were blockaded by the attendance.

Washington L. Atlee was born in Lancaster, Pa., on February 22, 1808. At 14 he was placed in a grocery store and at 16 he entered his brother's office, and in 1829 graduated at the Jefferson Medical College, a private pupil of Dr. George McClellan, professor of surgery. He located at Mt. Joy, Lancaster county, marrying Miss Ann Eliza Huff. He devoted his spare time, and he had a good deal of it, to the study of botany and lectures of scientific subjects, preparing himself for the active duties before him. He frequently told me that it was a subject of consideration between him and his good wife where the next meal was to come from, but it was always provided. In 1834 he returned to Lancaster, devoting his leisure time to the study of the higher and more abstract departments of medicine. He performed at this time the first operation in Lancaster for the removal of a vesical calculus. He invited his personal confreres to witness his operation. He was then on the highway of professional success; bought a carriage, horse, and harness, and paid for it. He had no tie strap nor 25 cents to pay for one. He drove up to the residence in good style, tied his horse with the line, forgetting to take it out of the ring of the martingale. It was summer, the horse was restless, and when in the midst of the operation, as he was pushing the gorget home, some one exclaimed: "Doctor, your horse is running away." His new horse and his new carriage—his all. His first impulse was to run, but he simply completed his operation, feeling that this was his first realization that he had control of himself, amply repaying him for his total loss, from which he expected much pleasure and profit.

In 1845 he accepted the chair of medical chemistry in the Pennsylvania College of Medicine, and with the coterie of bright physicians, made a name for the Pennsylvania College which its graduates honor by their efficiency. In 1853 he resigned his professorship and devoted his entire time to his professional work. In 1874 he was president of the Philadelphia County Society and in 1875 President of the State Medical Society and vice-president of the American Medical Association.

He was associated with Dr. John L. Atlee in his operation for ovariotomy in Lancaster, in 1843, and with his distinguished brother made it a subsequent study. His first operation was performed in March, 1844, on a woman in Lancaster. This was not successful. His second operation, performed in Lancaster, August, 1844, was successful. His third operation was done in Philadelphia, March, 1849. This was followed with decided disapproval by the profession, denounced by the medical societies and all the medical colleges, including the majority of his colleagues.

He was denounced by the profession as a murderer, the operation unjustifiable. In spite of these adverse criticisms, he followed this line of work until his death, convinced that the lives of these unfortunates were in the hands of the profession, and he was not afraid to follow his convictions. You of the present day cannot realize the condition of these unfortunate women, emaciated with enormous abdominal effusion. I have seen his patients with cysts of over 50 pounds with gallons of water (nearly filling an ordinary washtub) recover after an operation without any aseptic sanitary precautions.

This class of cases, that honest and capable men like Drs. Muetter, Meiggs, and Flint, of Louisville, condemned, were endorsed by McClellan, Gross, Chapman, and Mussy, of Cincinnati. His wonderful success, his ability as an extempore speaker, led the profession to adopt this heroic treatment, and before deciding upon this first operation in Lancaster county, he says that no one can describe the mental and moral conflicts of that hour, and I cannot describe them. "In that humble spot began the first battle of my professional life, and a battle on my part unsought, yet firmly maintained on the defensive, because although the effort was unfortunate, I had weighed the matter well, and my convictions were on the side of humanity and duty. With this axiom, 'Truth must prevail,' I determined to take my position, having decided upon the advisability and necessity of ovariotomy." He followed the bent of his convictions. In 1851, his brother having just returned from a two-year course of study in Paris and Berlin, he had him see a case of ovariotomy in Montgomery county. The consensus of the opinion of the profession was not favorable to his consultation with Dr. Atlee. The result of the case I do not recall. The committee from the Northern Medical Association of Philadelphia, in May, 1852, composed of Drs. Remington, Bryan, and Levis, by invitation, witnessed an operation in a hopeless case, and presented this resolution:

> *Resolved*, That this Association, in view of the numerous fatal results ensuing upon ovariotomy, and the many disasters arising from errors of diagnosis, unreservedly deprecates the frequent performance of this operation as detrimental to the best interests of science and fraught with the most imminent hazard to life.

This was held under advisement at the September and October meetings, and on November 18, a vote of thanks was given Dr. Atlee for his courtesy in inviting this committee to witness the operation, and was adopted as a substitute. On Dr. Remington's motion the following resolution was adopted:

> *Resolved*, That although cases have occurred in which the operation was advisable, this society cannot approve of a general resort to gastrotomy for the removal of ovarian tumors.

These resolutions show the feeling in the profession that Dr. Atlee had to contend with, and the firm belief he had in the deductions made from his research and personal experiences in this then formidable operation. He had with him in his operations a Dr. Parry, who assisted him in his country work.

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[1] Read before the Pennsylvania State Medical Society, Pittsburg, September, 1904, and published synchronously with the Pennsylvania *Medical Journal*, by courtesy of the editor.

The first patient he had in Williamsport, March, 1861, was a Mrs. Martin, of the American Hotel. She was under the care of J. S. Crawford, who had Dr. Atlee in consultation. An operation was decided upon. Mrs. Martin thereby requested that it be performed immediately, as she could not afford the expense of a second trip. In two weeks he operated on her successfully in the presence of the profession of the West Branch, and made a gratuitous operation, which was to the number of doctors present, a revelation. Other operations followed with good success, until a woman was operated on near Williamsport, and in the midst of the operation the floor gave way, part of it reaching the floor of a shallow cellar. The weather was cold, the room crowded, a hot stove dropped with the floor; two of us carried out the stove. Dr. Atlee was standing at the head of the patient a little to one side. Dr. Crawford was at the foot of the table, I at the doctor's side. When the floor commenced falling, Dr. Crawford held the table up with his hands above his head; others came in and helped hold up the table. The operation was completed in a room filled with dust, temperature near zero, and the result was another unfortunate.

The doctor was a methodical man. Never retired without completing his notes, irrespective of place or hour. He amassed a competency and died in the full fruition of his great work. His good wife was spared him during his long useful life, and his love for her increased with years. He died of cancer. It was my good fortune to be in Philadelphia during his last illness. I was unexpectedly ushered into his sick room, and had the pleasure of his firm grasp in his farewell, stating, "I have few days to stay—my work is complete." Instead of the great elegant man with his positive forceful manner, he was spare, yellow, emaciated, and the wreck of one of the noblest works of God; an honest, faithful, physician.

A VERY SLY FELLOW.

A subscriber sends us the following letter received by him:

——— ———, ———, September 3, 1904.

Dear Doctor:—Do you realize that with a slight effort on your part you may increase your cash income one to five thousand dollars per year? A little explanation relative to this may be in order.

This is the day of giant industrial enterprises, of vast speculative ventures and also of enormously successful medical investments. Among the latter class none have of late years attracted more attention than the half-score or more of great medical institutes and sanatoriums scattered about the country. Men of obscure names and unknown ancestry, yet possessing mental ability and business acumen, have popped up here and there and have succeeded in foisting their names and methods upon public attention and in reaping vast monetary returns, which, in a country where gold is god, has swept them forward into public notice and social prominence.

It was long ago a question with me, a regular practitioner, hailing from the good old State of Pennsylvania, how it was and upon what basis of merit or of mendacity these great concerns rose and flourished. For two years I watched and waited for an opportunity. My chance came less than five years ago and I was duly installed in one of the largest, wealthiest and widely heralded medical institutes of the West. What I learned was a revelation to me. I found that cancer, which I had hitherto considered incurable except by an operation, was daily being cured by a painless local treatment. This acted as an incentive to me to proceed farther, and I decided to make a general investigation, ferret out these secret treatments, separate the chaff from the wheat, and give what was really valuable to a limited few of the profession. I found this task anything but an easy one. In not a few sanatoriums I was compelled to remain many long weary months before the secret was divulged.

I devoted much time and not a little money to this investigation, nor have I confined myself to the United States. I have traveled extensively and have at the present time under investigation a certain "specialty" here in ——— ——— which is an unqualified financial success for the proprietors. If you are interested, write me and you may hear something to your advantage later on. Believe me, Doctor, there is a great deal more money in the treatment of these chronic affections than in general practice. You can earn this money if you will. It rightly belongs to you. Why let it slip through your fingers? Remember, also, these patients pay cash. This is not a point to be ignored. Your reputation, prestige and standing in the community will likewise be enhanced. None of these treatments requires any special training. You will have no difficulty.

The treatment of hernia and hemorrhoids is extremely interesting. The patients are invariably pleased; there is no pain and no detention from business. The local dissolvent treatment of stricture is likewise very valuable. It is a money-maker. The results will surprise you.

My investigations also brought me in contact with the most prominent and foremost advertising eye specialist in the United States. A physician whose picture adorns the advertising pages of practically every magazine and paper published; I refer to Dr. Oren Oneal, of Chicago. His treatment of senile cataract is most unique and at the same time successful. An operation is never under any circumstances deemed necessary or even advisable. He also advertises to "straighten cross eyes in a few minutes without pain and without a knife, no risk, and no bandages." It will interest you to know how neatly he accomplishes this result. His income per year is far in excess of that received by the President of the United States. His method is very simple; you can do it equally as well.

One of New York's leading genitourinary specialists a few years ago perfected quite a simple and successful treatment of varicocele; also of hydrocele, which gave him quite a reputation among the laity and was the means of gaining for him his palatial residence on Fifth avenue, thereby illustrating that it is not always the big things in medicine that bring success. These two treatments are especially valuable.

In conclusion, I might add that while I do not wish to influence you unduly, yet knowing as I do the financial successes attained through these treatments, I cannot refrain from reminding you that opportunity knocks but once at the door of any man. It is possible that this may be your opportunity. If so, is it wise to neglect it? Of one thing you may rest assured—it will be the best investment you ever made. I wish I could see you personally and have a talk with you. Should you ever come to ——— ———, don't fail to call on me.

Fraternally yours,

——— ——— ———

P. S.—This is not penned by a "quack," a proprietary medicine man, nor a patent nostrum knave. I am a graduate of the Jefferson Medical College of Philadelphia, Pa. Have also studied abroad, and simply desire to place certain valuable secret information in the hands of a few of my brother physicians at a nominal cost to them and a reasonable return to myself for the years of work I have subjected myself to in order to reach the results and acquire the knowledge indicated.

City . . . . . . State . . . . . . Date . . . . . .

DR. ——— ——— ———

Enclosing your fee of ten dollars (U. S. money or its equivalent), for the secret information referred to in your letter, I hereby make application to receive the same. If given to me, I pledge myself on my honor as a physician and a man not to divulge said secrets to any person or persons in the whole world, and will confine their use to my practice alone. To the faithful fulfilment of this promise I furthermore bind myself to the said Dr. ——— ——— ——— in the sum of five hundred dollars, which is hereby stipulated and agreed upon as fixed and settled damages, to become due and payable only upon violation of above agreement, otherwise to be null and void.

(Signed) . . . .

It is ESSENTIAL that you sign the above agreement. No application will be considered unless this request is complied with.

Remit by Post Office or Express Money Order or by Registered Letter.

ORIGINAL ARTICLES

THE DOMAIN OF PHYSIOLOGY AND ITS RELATIONS TO MEDICINE.[1]

BY
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of New York City.

Physiology is of medical parentage, was reared by medical men, and is still housed and fed by medical faculties. Still it is medicine against which its frequent declaration of independence is directed. Medicine is a practical science, and is too inexact, and physiology wishes to be a pure, exact science. It therefore tries to keep aloof from medicine, and manifests a longing for association with, or still better, for a reduction to physics and chemistry. It urges, furthermore, that the affiliation with medicine binds physiology down to only one species of animal with intricate, complicated conditions, while it would be more beneficial to physiology if it would direct its energies toward a study of monocellular organisms where the conditions are so simple.

Permit me to discuss briefly the domain of physiology and the importance of its relations to medicine as they present themselves to my mind. There can be no doubt whatsoever that physiology has a perfectly legitimate object entirely of its own. Perhaps I may elucidate this statement in the following crude way: All natural phenomena impress us in two ways—as matter, and as force. The phenomena are either inanimate or animate. The studies of inanimate matter are to be found in mineralogy, crystallography, in a part of chemistry, etc. The studies of the forces or energies of inanimate phenomena are carried on by physics and physical chemistry. In the fields of living phenomena matter is studied by gross and minute anatomy, and by descriptive zoology and botany—or in short, by morphology. The studies of the forces, the energies or the functions of living matter are the proper domain of physiology. Now this definition permits a few deductions. All these four divisions are bound, as sciences, to have something in common in their methods of investigation; they must employ the inductive method, and must strive to reach in their results that degree of certainty which the nature of each individual science permits to attain. But the four divisions differ greatly from one another, each one has its own objects and laws and its own problems which have to be solved by methods peculiarly adapted for each division. It is certainly clear to every one that it cannot be the essential task of animal morphology to reduce itself to mineralogy because it can be demonstrated that some anatomic objects contain lime and other mineral substances. It seems to me it ought to be also clear to every one that it cannot be the sole task, and not even the essential task of physiology to reduce itself to physics and chemistry, because some or many of the living phenomena are governed to some extent by known laws of physics and chemistry. Physiology has to study the functional side of life, and in the attempts to elucidate its complex phenomena it certainly has to employ also the known facts of physics and chemistry. But if we would confine the domain of physiology to such parts only which can be interpreted by the laws of physics and chemistry of today, we would have to give up nine hundred and ninety-nine out of a thousand of the phenomena of life as still inappropriate for physiologic study. The four divisions of the natural sciences are closely interwoven, and each one can, of course, profit by the experience of the others. Boyle, Mayow, Priestley, Lavoisier, and others, attempted to unravel the nature of oxygen, nitrogen, and carbon dioxid gas by the aid of experimental studies of the physiology of respiration. The physicist or the chemist employs any method which would help him to shed light upon his subject, but physics and chemistry have methods peculiar to themselves, and that is the secret of their great success. And so it should be with physiology. However, when physiology broke away from medicine it ran into the arms of physics and chemistry, and is still largely there. The early successes which have attended the new venture, which, by the way, is the case with every new venture, led to the conception that this is the most desirable, the most natural union. An analysis, however, of the work in animal physiology in the last few decades will show the fact that the too great gravitation toward physics and chemistry prevented its development in many directions of a purely physiologic character.

I contend that physiology is an independent science, with a clear outline of its domain, but it ought to direct its declaration of independence not only toward medicine, but also toward such exact sciences as physics and chemistry.

As to the standard of precision and exactness to be required of physiology, let me say this: Certainly no physiologic problem can be solved with that exactness, with that absolute reliability which is now the standard for a good many problems in physics and chemistry. Above all, in the studies of the energies of life we lack the controlling factor of synthesis. If we can produce synthetically urea or sugars or other dead constituents of a dead or living body, we cannot yet make synthetically the smallest living organ of the smallest homunculus. But what of it? Each science has its own degree of attainable exactness. Physics and chemistry have one standard, and paleontology or geology is bound to have another standard of exactness. There is no one standard of exactness for all sciences. The scientific demand upon work in any science is to strive for that degree of exactness which is attainable in each specific field of investigation.

I contend further that physiology ought not and cannot be properly developed upon the basis of a morphologic unit. We might just as well attempt to put up the mineral crystals as a basis for the study of physics.

I may say further that in my opinion the knowledge of vital energies would progress more rapidly if we would be guided in our investigations by the view that the actual processes in living phenomena are of a very complex nature. The desire to reduce the multiplicity of phenomena to a few simple principles is a philosophic importation of a psychologic origin. Certainly premature attempts to offer simple interpretations for complex phenomena have often been an obstacle for a further development of our knowledge of the actual processes.

Physiology, however, may take some useful hints from the other sciences. It may learn from such exact sciences as physics and chemistry that the exactness and dignity of a science does not suffer by coming into intimate contact with the necessities of daily life. On the contrary, we find that those chapters of physics and chemistry whose results found practical applications are best developed. The contact of a science with life and its actual necessities works on the one hand as a stimulus to investigation, and on the other hand as a corrective against an indulgence in mere hobbies. The experimental method as such is no talisman against such scholastic degeneration. A study of the literature of the last few decades will show that physiology too could well stand such a corrective.

Physiology could also learn from morphology that a special attention to the human being does not necessarily lead to a neglect of the uniform study of the entire animal kingdom. The marvelous complete studies of gross and minute human anatomy, which was of such immense service to pathology and surgery, was in no way an obstacle to the brilliant development of the broad science of zoology.

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[1] Chairman's address at the section of physiology of the World's Congress of Arts and Science, at St. Louis, September 23, 1904.

There is, however, one difference between the studies of the energies of the inanimate phenomena and the studies of the vital energies to which I would like to call special attention. For physics there is only one kind of energies, they are all normal. If the physicist meets with conditions which apparently do not agree with some established law, he does not transfer these conditions to a pathologist in physics for further investigation. On the contrary, he is only too glad to have such an opportunity; it usually leads to an elucidation of the old law, or still better, an entirely new law might be discovered. When Kirchoff was surprised by the apparently contradictory fact that by the addition of the yellow light of sodium to the sunlight the dark D lines in the spectrum instead of becoming lighter became still darker, he did not turn away from the problem. On the contrary, he was glad of this opportunity; in fact, as he stated once, he was longing to meet such a complete contradiction. The result was the establishment of the law of the proportion between emission and absorption of light and the creation of the nearly new science of spectral analysis. Or, to quote a more recent instance, the exceptions to Van't Hoff's law of osmosis, which were met in salt solutions and which had been displayed by some as a proof against the validity of that law, served Arrhenius as a basis for the establishment of the far-reaching law of electrolytic dissociation. It is totally different, however, with physiology. Its domain is as we saw above the study of the functional side of the living phenomena. Here, however, we find the artificial and unsound distinction between normal and abnormal functional phenomena. Physiology set up some laws; and if conditions appear which do not fit in with these laws, physiology declines to deal with them, it refers you to medicine. Are the laws governing the vital functions under pathologic conditions actually different from those controlling the functions in health? Certainly not. The laws which physiology establishes must be capable of covering the functional phenomena in all conditions of life. The apparent exceptions in disease should serve in physiology as in physics to unravel the real nature of the laws governing the functions of living phenomena, whether they occur in health or in sickness. For instance, the processes occurring while the body is in a state of fever should give a clue to the understanding of the mechanism of the constancy of the elevated temperature of warm-blooded animals. Or the conditions prevailing when urine contains albumin should be seized as a means of studying the remarkable phenomenon in the normal urinary secretion, namely, that of all the endothelial cells of the body, the kidney endothelia alone do not permit normally the passage of albumin. Or the conditions of the blood and the lung tissues in pneumonia could serve as an aid in studying the factors concerned in the formation of fibrin. And so on and so on in many thousand instances of daily occurrence. Some very important discoveries in physiology were thus recently brought to light through medical experience and by medical men with hardly any aid from physiology. The anatomy in the cases of myxedema and cretinism and the results of the complete removal of the thyroid gland for goiter revealed the physiologic importance of that ductless gland for which physiologists, with one single exception, had no interest. This discovery helped at the same time to establish and to introduce into physiology the far-reaching conception of internal secretion. Furthermore, the observation of Bouchard, Lancereaux and other medical men, of the occurrence of a degeneration of the pancreas in cases of diabetes mellitus, led to the discovery by two medical men of the remarkable fact that the complete removal of the pancreas in dogs leads to diabetes. This discovery demonstrated at the same time the further principle that even glands with a distinct external secretion have, beside, a physiologic importance for the body by virtue of their internal secretion. In the long list of workers on this subject we hardly find a single physiologist.

I could quote a good many more instances in which medical studies brought out important physiologic facts and how physiology is slow to avail itself of such golden opportunities.

The physicists are only too glad to meet exceptions, the physiologists run away from them. Is there any well-founded justification for such a course in physiology? I believe none. I believe it is simply an erroneous position. It would lead me too far to attempt here a discussion of the causes which led up to this position in physiology. But I say without hesitation, that this position is deplorable, is harmful to physiology as well as to medicine. Animal experimentation is the essential method of developing physiology. Now then nature makes daily thousands of experiments upon man and beast and physiology refuses to utilize them for its own elucidation. I feel quite sure that a study of the functional processes in pathology, or at least the systematic taking up of physiologic problems indicated by pathologic processes, by minds naturally endowed and properly trained for physiologic studies, would greatly elucidate the proper sphere of physiology itself, and would at the same time be of incalculable value to pathology and medicine.

And medicine is greatly in need of such a physiology. I am afraid that the actual situation in medicine is not fully grasped even by a great many of its enlightened disciples. To state the critical point in a few words: The actual disturbance in most of the diseases is primarily of a functional nature, but the essential part of the present knowledge in medicine is morphologic in its character! This discrepancy is due to the uneven development of the sciences of medicine. When the empiric art of medicine awoke to the necessity of acquiring a scientific basis, it found ready for its disposal an already well-defined precise anatomy, but only a vague, incoherent physiology. It set out and continued to work in the precise lines of anatomy, in which it attained a marvelous completeness. By this step, however, morphology became the dominant factor in medicine and the definition of a disease became inseparably coupled with that which was found in the body after it succumbed to the disease. When at a later period physiology also became a precise science, it broke away at the very onset of its regeneration from medicine; it wished to be exact, to be a pure science, and thus gained no influence upon pathology, which it refused to study. So it came about that medicine is made up of a complete knowledge of the anatomic conditions after death, of nearly a complete morphology of the symptoms of the disease during life, but of only a vague, makeshift mechanical interpretation of the functional disturbances during the actual course of the disease. The last decades have seen the birth and marvelous growth of the knowledge of the etiology of disease. Animal and vegetable invaders were recognized as the essential cause of many diseases. But the study of the functions of the body whose lot it is to grapple with the invaders, received only a secondary attention, and that again essentially from morphologic quarters. At the present time still more knowledge is being diligently added to the stores of medical wisdom. Chemistry has taken a powerful hand in the studies of physiology and pathology and is attaining brilliant results. But we should not be misled. The studies are essentially morphologic in their nature. It is physiologic and pathologic chemistry, and but very little chemic physiology and pathology. Even if the hopes of the new school of brilliant chemic investigators will indeed be realized, namely that in a not far off future they will know the structure of proteids and all their constituent bodies, it will be the knowledge of the proteids of the dead bodies, it will be a brilliant postmortem chemistry. Living animal matter, however, is something else than dead proteids, as living plants are something else than carbohydrates, although the knowledge of the latter has already reached the ideal stage where some of them can be produced synthetically. No, a study of life, normal and abnormal, is essentially a study of energy, of function; of course, the knowledge of the underlying morphology, dead or living, is a prerequisite for such studies. And let me state right here that there seems to be a difference in the make-up of the human mind with regard to the different studies. Some are more apt and better endowed to grapple with the problems of energy, and others again have natural talents for the science of morphology. Only few, however, have the good fortune of becoming educated in the lines of their natural endowments, and still fewer have the genius to work out their natural destinies against all odds, against all education and training. Now the men who did and who now do the original work in the medical sciences received their training in the studies of medicine, four-fifths of which is profoundly developed, magnificent morphology. We cannot wonder, therefore, that most of the original contributions to the medical sciences are essentially of a morphologic character. Even in the very recent brilliant additional departments of medicine, in bacteriology and chemistry, the research work is, as already stated, for the most part of a morphologic stamp. It is true that a few men of genius in medicine, Cohnheim, for instance, broke their acquired chains and made an attempt to study pathology from a functional point of view. Such attempts, however, were not many, and their permanent influence is not extensive. What is now termed general pathology, or even pathologic physiology, consists in the first place of a collection of histologic, bacteriologic, and chemic facts of a general but essentially of a morphologic nature, including at the same time the applications of a few well-established physiologic facts to pathology, and a few results from direct experimentation in pathology. That is not a study of physiology under pathologic conditions, and certainly not a study of general physiologic laws as can be stimulated by and derived from a study of pathologic processes. And it is just this kind of studies which are missing, and which could be developed only by a purposeful and concerted action of the men who have a training in the study of the functional side of life, among whom there are surely many who have a natural endowment for such studies.

The following review of the present situation in medicine will show us the place left vacant by physiology and the disastrous consequences. The studies of pathologic anatomy extend over all divisions of medicine, are lucid and nearly complete. Diseases which are exclusively due to palpable anatomic changes are quite well understood. Their harmful effects are, for the most part, of a mechanical nature. In proportion as they are understood, these forms of disease become amenable to an efficient treatment; it is mechanical, it is surgery.

The studies of the etiology of diseases revealed and continue to reveal many of the foreign originators of disease, the animal and vegetable invaders of the living organism. This new and lucid knowledge led again to some effective measures in the treatment of diseases, it led to clear plans in preventive medicine, it gave means to the surgeon to enter with impunity into the interior of living organisms, and in a few instances it discovered actual remedies for nonsurgical diseases.

But most diseases are something more than mechanical disturbances, or exclusively anatomic changes. There is in the first place that large group of socalled functional diseases which has no pathologic anatomy, and for which clinicians have very little interest. But even those numerous diseases in which the postmortem examination revealed distinct anatomic changes were only results of the advanced stage of the disease. The disease during life consisted primarily surely in disturbances of a functional character, in reactions to foreign causes, reactions of living energies, of the physiology of which we have possibly as yet not even an inkling. The socalled organ physiology which appears to the teachers of physiology to be so extensive that it can hardly be taught to students of medicine in one year's lectures, is of astonishingly modest assistance to the understanding of the actual processes of disease. For instance, in the present knowledge of the entire section of diseases of the respiratory tract, physiology has hardly any share. The knowledge of the few physiologic principles which are applied there can be acquired in an hour's instruction. The extensive knowledge in this chapter of pathology is essentially of a morphologic nature. Do the functions of the involved organs take no part in these pathologic processes? Most certainly they do, but we know too little of it, and the clinician passes over the gap with some makeshift mechanical explanations. The same is true in neurology; in fact, in nearly every chapter of internal medicine. It is impossible to dwell here on the particulars of our subject. What is the result? First-class clinicians employ their brilliant faculties in continually developing the morphology of diseases and their diagnosis. But treatment? There is either a nihilism pure and simple, or some sort of a symptomatic treatment is carried on with old or new drugs upon a purely empiric basis. Or there is a great deal of loose writing upon diet, air, water, psychotherapy, and the like, and a great deal of semipopular discussion in international, national, and local meetings and popular prize essays on the best methods of treatment—with a net result of a very modest actual benefit for the poor patient who, in addition to his affliction, has now to feel the tight grip of the modern health officer. There is no efficient treatment of internal diseases in any way comparable with the specific surgical treatment of mechanical diseases, no specific quelling, correcting, or curbing of primarily functional disorders. And there never will be such a specific functional therapy before there will be a physiology which, like physics, will be only too glad to meet many exceptions in order to understand properly all the rules by which the energies of all grades of living phenomena are guided.

OBSERVATIONS UPON LATENT AND MASKED MALARIAL INFECTIONS, WITH AN ANALYSIS OF 395 CASES.*

BY

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of San Francisco.

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In previous communications[1,2,3] I have called attention to the frequent occurrence of malarial infections in soldiers returning from the Philippine Islands, such infections being latent or masked by some other disease. This is a subject of considerable importance, and one which has received comparatively little attention. At this hospital the blood of every patient is examined, and such routine examination of the blood has resulted in showing many interesting conditions unsuspected before such examination, one of the most interesting being the very frequent occurrence of malarial parasites in the blood of patients who have presented no symptoms of malarial infection.

In considering this subject from a practical standpoint, I define a latent malarial infection as one in which the parasites are demonstrable in the blood of the patient, but in which there are no symptoms which would lead the clinician to suspect malaria.

A masked infection is one in which the symptoms are obscured by those of some accompanying disease, or in which the malarial symptoms are atypic in character. The discovery of such infections is of great importance to all practitioners of medicine in malarial regions, especially those who are called upon to treat patients who have resided for any length of time in the tropics.

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* Published with permission of the Surgeon-General, U. S. A.

The total number of malarial infections observed at this hospital, in which the parasites were demonstrated in the blood, has been 1,267; of these infections, 395, or over 25%, have shown malarial parasites in the blood, unaccompanied by clinical symptoms or masked by the symptoms of some other disease. This large proportion of cases of latent and masked malaria is certainly of the greatest interest, as showing how often malaria lurks in the system, producing no symptoms, or the symptoms of which are masked by other disease processes. It is obvious how important it is to recognize a malarial infection complicating some other disease process, but masked by the symptoms of that disease. The nonrecognition of the malarial condition may predispose very strongly to a fatal result, as I have time and again noticed that diseases complicated by active malaria are much more resistant to treatment than those free from such infection. It is also obvious that if we can recognize malarial infection by an examination of the blood before the symptoms of the disease are present, treatment can be at once applied and the patient saved great discomfort, and perhaps a serious illness. In the contributions mentioned, I have discussed somewhat fully the occurrence of latent and masked infection, and in this report will give the data obtained to date, with some remarks upon the most important phases of the subject.

Type of Infection.—As regards the species of parasite present in the blood in these cases, they may be divided as follows:

Tertian infections		111
Quartan infections		3
Estivoautumnal infections		275
Tertian estivoautumnal infections	205	
Quotidian estivoautumnal infections	59	
Mixed tertian and quotidian infections	11	
Mixed quartan and estivoautumnal infections.	1	
Mixed tertian and tertian estivoautumnal	4	
Mixed tertian and quotidian estivoautumnal	1	

From these data it is obvious that the estivoautumnal infections occur altogether most frequently in a latent or masked form. This fact is very suggestive, as these infections are most apt to become pernicious, and their recognition is of the greatest importance. At any time a case of estivoautumnal fever, which has presented absolutely no symptoms, or very mild symptoms, may assume a most malignant type, and unless the condition is promptly recognized, may lead to the death of the patient. From a diagnostic standpoint, the parasite occurring in these cases is difficult to recognize, unless one has had considerable experience, as in these cases we have the occurrence generally of only the small hyaline disc, or ring form within the red blood-corpuscles. In many of the cases, however, the blood contains crescents, and the recognition of these is very easy.

The large proportion of estivoautumnal cases, which remain latent or are masked by the symptoms of some other disease, is not, I believe, due to any peculiarity in the type of infection, but simply to the fact that the estivoautumnal infections are much more numerous than are the tertian, in the patients which have been received at this hospital, and that many of these patients have been so thoroughly treated with quinin that only the more resistant infections have remained uncured.

As regards the stage of growth of the parasites observed in the blood in these cases, they may be divided as follows:

1. Tertian infections		111
Hyaline stage	19	
Pigmented stage, ¼ to ¾ grown	80	
Pigmented stage, full-grown and segmented	12	
2. Quartan infections		3
Pigmented stage, ½ grown	2	
Pigmented stage, full-grown, segmented	1	
3. Estivoautumnal infections		275
Hyaline ring forms	148	
Hyaline ring forms and pigmented forms	60	
Hyaline ring forms and crescents	35	
Crescents alone	32	

From a consideration of the foregoing table, it will be seen that in numerous instances malarial parasites have been observed in the blood undergoing segmentation and not accompanied by marked symptoms, and in most cases by no symptoms at all. This conclusively proves that it is possible for segmentation of the malarial parasites to occur for a certain period of time in the blood without producing symptoms of the disease. How long this period of latency, accompanied by the segmentation of the parasites, lasts, is as yet an unsolved problem, although I have seen several cases in which the regular segmentation of the tertian parasite was observed in the blood for a period of two weeks, during which time the patient presented no symptoms of the disease. At the end of two weeks, however, a chill occurred, followed in the usual time by another, and the infection ran its usual course, until controlled by quinin.

Number of Parasites.—In an examination of fresh blood it is very difficult to determine exactly the number of parasites present in a given quantity of blood. A count has been attempted by using a staining solution, such as methylene-blue in conjunction with a diluting solution, using the Thoma-Zeiss counter, but the results obtained have been so discordant and unsatisfactory that this method has been abandoned. Another method, by using dried blood smears, prepared very carefully, and then stained by Wright's method, can be used, but this only gives an approximate result, as the smears are not uniform as regards quantity of blood, and a comparison can only be made between such smears and those made in cases of malaria presenting symptoms. Such comparison invariably shows the number of parasites in the latent cases to be very much smaller than in those cases showing symptoms. The following estimate of the number of parasites present in these cases is very approximate, but gives an idea as to the relative number present in the different infections. In these cases the entire number of parasites present in the specimen were counted, and are classed as few or numerous, but it should be remembered that in those classed as numerous there never were more than 6 to 10 present in the entire specimen.

Infection	Total cases	No. of parasites	
		Few	Numerous
Tertian	111	79	32
Quartan	3	2	1
Estivoautumnal	264	226	49

Theory of Latency.—I believe that the only satisfactory theory by which we can account for the presence of malarial parasites in the blood, without the production of symptoms, is that it requires a certain number of these organisms to elaborate the toxin necessary for the production of symptoms. While numerous investigators have repeatedly tried to separate the toxic materials from the blood and organs in malarial cases, at the present time very little is known of this subject. I am informed that Rosenau has recently been successful in finding a toxin in the blood at the time of sporulation.* While no toxin has as yet been separated, I believe that all authorities agree that one exists, and that the cause of the malarial paroxysm is the segmentation of the full-grown parasites and the liberation at this time of toxic materials. As I have already shown, segmenting bodies have been observed in cases showing no symptoms whatever, which would tend to prove that the amount of toxin elaborated was not sufficient to produce symptoms of the disease in these cases. Besides the inadequate formation of toxins, it is undoubtedly true that some persons are less susceptible to the action of such materials than are others, and in such cases a larger amount would be required to produce active symptoms of the disease. It may also be that the parasites present in these latent cases are not as virulent, this loss of virulency being due to some unknown condition of the patient's system, which prevents the normal elaboration of poison by the parasite. As I have stated however, we know nothing positively as to the reasons for latency, as there has been no experimental evidence which has enlightened us on this subject. To sum up the theories regarding latent infections, we may mention the small number of parasites, inadequate formation of toxin, loss of virulency of the parasites, the partial immunity of the infected person to the toxin of the disease, and certain changes in the organism, preventing the multiplication of the parasites. As I have already reported,[4] I have examined the organs of several patients who died at this hospital, and who showed pathologic lesions of malaria at autopsy, but in whom no symptoms of the disease were present before death. In these cases I found that all stages of the tertian and estivoautumnal parasites were easily demonstrated in sections of the spleen, although in scant numbers. A few were also found in sections of the liver, but the other organs and tissues of the body were entirely free from them. These observations prove that the malarial parasite is practically localized in the spleen in latent infections, and as many of these patients were in the hospital for several weeks before death, it proves that they can remain in the spleen, without producing symptoms, for a considerable period of time.

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*I was informed by Prof. Welch of this fact, but Rosenau's report has not appeared yet.

Classification.—In considering this subject, I have classed these cases as latent and masked. In the latent cases there were no symptoms whatever of malaria, although symptoms of other disease processes were present. In the masked infections, I have placed those infections in which the symptoms of the malarial condition were masked by predominating symptoms of some other disease.

Classified in this manner, the 395 cases were divided as follows:

Latent infections	277
Masked infections	118

Clinical Diagnosis of Cases.—The accompanying table gives the clinical diagnosis made in these cases before an examination of the blood revealed the malarial infection.

Consideration of the Table.—Of the clinical diagnosis given, it will be noticed that the greatest number of latent cases occurred in patients suffering from diseases of the alimentary tract and of the lungs.

Chronic dysentery, nonamebic in type, furnished 15 cases of latent infection. All these patients gave a history of having suffered from malaria in the Philippines, and of having been thoroughly treated with quinin, some of them taking quinin even to the day of arrival at this hospital. Despite this fact, the blood of these patients showed malarial parasites; 55 cases of chronic dysentery showed a malarial infection masked by the symptoms of dysentery. A large number of these patients claimed that they never had malaria in the Philippines, and had never taken quinin. The administration of quinin to such patients very often resulted in the disappearance of the dysenteric symptoms and a return to health. The occurrence of a form of dysentery, due to the localization of the malarial parasites in the capillaries of the intestine, has been described by many authors and has been disputed by many others. From my own observations, I am convinced that a form of dysentery, evidenced by the passage of mucoid stools, is frequently produced in this way. I cannot explain in any other way the rapid recovery in such cases of dysentery after the administration of quinin.

Amebic dysentery showed 15 latent infections and 4 masked infections with malarial parasites. These cases are interesting as proving the infection of patients with two protozoan organisms, *Amœba coli* and the malarial plasmodium. These 19 cases, however, do not, by any means, give the true number of cases of amebic dysentery in which malarial infection was observed, as many cases presented the symptoms of the malarial condition, and were promptly treated after an examination of the blood revealed the presence of malarial parasites.

Disease.	No. of cases.	Latent.	Masked.
Chronic dysentery	70	15	55
Chronic diarrhea	25	20	5
Pulmonary tuberculosis	26	3	23
Fractures and wounds.	11	11	....
Chronic gastritis	8	8	....
Amebic dysentery	19	15	4
Chronic indigestion	5	3	2
Acute bronchitis	3	....	2
Hernia	3	3	....
Otitis media	3	3	....
Acute melancholia	3	3	....
Rheumatism	3	3	3
Measles	3	....	3
Anemia	3	....	3
Secondary syphilis	2	2	....
Insanity	2	2	....
Paralysis	2	2	....
Arthritis	2	....	2
Acute dementia	2	2	....
Typhoid fever	2	....	2
Pneumonia	4	....	4
Abscess of liver	1	....	1
Convalescent from operation	1	1	....
Arthritis deformans	1	1	....
Furunculosis	1	....	1
Retinitis	1	1	....
Varicocele	1	1	....
Tachycardia	1	1	....
Uncinariasis	1	1	....
Malta fever	1	....	1
Diabetes mellitus	1	1	....
Paraplegia	1	1	....
Acute endocarditis	1	1	....
Gonorrhea	1	....	1
Cellulitis	1	....	1
Chancroid	1	....	1
Acute constipation	1	....	1
Hemorrhoids	1	1	....
Adenitis, cervical	1	1	....
Appendicitis	1	....	1
Hemiplegia	1	....	1
Diagnosis undetermined	174	174	....

Pulmonary Tuberculosis.—This disease was repeatedly diagnosed in cases of latent malaria, and in cases in which the symptoms of malarial infection resembled those of the pulmonary trouble. In fact, the symptoms of estivoautumnal malarial infection, if of a mild character, resemble very closely those of pulmonary tuberculosis, there being slight chills accompanied by a low temperature, sweating, gradual emaciation, and a peculiar pallor, which simulates almost exactly the anemia present in tuberculosis. Some of these patients were returned from the Philippines with a diagnosis of tuberculosis. An examination of the blood, and treatment with quinin, promptly restored them to health.

Fractures and Wounds.—In nine cases of fracture, and two of bolo wounds, an examination of the blood showed the presence of the malarial parasites, although no symptoms of the disease were noticeable. In several cases after operation at this hospital an examination of the blood, made after a chill, has revealed the presence of malaria, thus relieving the surgeon's mind from the fear of a septic complication. In all cases of operation on patients in malarial regions, followed by a rise of temperature, a careful examination of the blood should be made, as very often the rise of temperature will be found to be due to malaria rather than to septic complications.

Lobar Pneumonia.—At first sight it would seem almost impossible that a diagnosis of pneumonia would be made in a case of malarial fever. However, it is a wellknown fact to those who have thoroughly studied malaria, that certain cases present typical symptoms of pneumonia, probably due to a localization of the malarial parasites in the capillaries of the lung. I have repeatedly seen such cases and have been told of them by practitioners who have observed them. The two following cases occurring at this hospital are of interest as they were very carefully observed and presented all the symptoms of commencing lobar pneumonia. Examination of the blood, however, showed the presence of malarial parasites, and treatment with quinin resulted in rapid recovery.

CASE I.—I am indebted for the clinical history in this case to Dr. Edmund Barry, United States Army.

W. D. C. Patient was admitted to the hospital from the Presidio, San Francisco, Cal., with a transfer slip diagnosis of lobar pneumonia. On admission patient was somewhat emaciated; his mental condition was apathetic; tongue coated, and bowels constipated. He complained of chilliness most of the time. The spleen was enlarged considerably and somewhat tender. Soon after admission he had a severe chill and became delirious, temperature reaching 106.2°. There was marked difficulty in breathing. An examination of the lungs showed marked friction sounds over the middle lobe of the right lung, and a dulness over the same area. Patient remained slightly delirious for five days and during this time the physical signs of pneumonia increased, marked dulness developing over the lower lobe. Respirations were rapid, exceeding 50, and the pulse very weak. He coughed considerably but there was no expectoration. At the end of five days the blood was examined and numerous ring forms of the estivoautumnal parasite were found. Immediately upon receipt of the report from the laboratory, quinin was administered, and in two days the patient was so much better that he was able to sit up and was discharged from the hospital cured at the end of two weeks. I personally examined this patient during the period in which he was considered to be suffering from pneumonia, and at that time his condition was typical of such infection, although his temperature curve was very atypic, there being marked remissions each day.

CASE II.—C. S., aged 22, was admitted to this hospital with a diagnosis of acute lobar pneumonia of lower lobe, right lung, and at the time of admission was in a comatose condition. After recovery the following history was obtained:

The illness began two weeks before with a soreness in the chest and expectoration slightly bloodstained. Just before admission he had a severe chill, accompanied by pain in both sides of the chest, and spit up considerable blood. The pain was very distressing on deep inspiration, on both sides, but most marked upon the right. At the time of admission his respirations were 40, pulse 100, and temperature 104°.

An examination of the lungs showed the following: Both lower lobes were dull on percussion. There was increased vesicular breathing, almost bronchial in character; increased vocal fremitus, and numerous crepitant rales. The spleen was very much enlarged, and there was also a slight enlargement of the liver. He was admitted to the hospital January 20, 1904, and a blood-examination was made the next day. The blood showed numerous nearly full-grown tertian parasites, and a few ring forms of the quotidian estivoautumnal parasite. Before the blood-examination was made the diagnosis of lobar pneumonia had been concurred in by the attending surgeon, and a treatment for this condition instituted. On receipt of the report from the laboratory, quinin was administered, which was followed by rapid decrease of the patient's symptoms and the fall of the temperature from 104° to 96°. The administration of quinin was continued for five days, the temperature on January 22 reaching 101°, and on the evening of that day falling to 98°, never rising above normal from that time until the date of his discharge.

In this case we have a clear history at the outset of what was apparently true lobar pneumonia, the symptoms agreeing in every way with the classification and description of this disease. There was pain in the side, chill, high temperature, expectoration of bloodstained sputum, and the physical signs which are considered so characteristic of lobar pneumonia, yet two days' treatment with quinin brought the temperature to normal, and all symptoms had disappeared.

These two cases illustrate how closely malarial infection can simulate other wellknown conditions, and how important an examination of the blood is in all diseases, especially in patients who have been in malarial localities.

Frequency of Latent Infection.—To illustrate how thoroughly a body of men can become infected by malaria when serving in a malarial locality, and how important an examination of the blood is, even in those who do not present symptoms of the disease, the experience of Company "H," Sixteenth Infantry, United States Army, which was returned from the Philippine Islands in August, 1902, the men having served in the Cagayan Valley, a notoriously malarial region, is of much interest.

On August 16, 1902, this company, out of a total strength of 60 some men, had 14 men in the General Hospital at the Presidio suffering from malarial infection, all having had chills since arrival in the United States. On account of this large proportion of infected men I believed it would be advisable to make a blood-examination of the entire company, and accordingly, on August 17 I examined the blood of every man in Company "H," with the following result: Of the 47 men who were doing duty, including officers, I found that 27 showed some form of malarial parasite in their blood. Of these 27 cases, 25 were infected with the estivoautumnal parasite; 13 showing the presence of crescents of the tertian estivoautumnal type; 2 showing crescents and ring forms of the quotidian estivoautumnal parasite; and 10 showing infection with the crescents and ring forms of the tertian estivoautumnal; and 2 half and nearly full-grown forms of the benign tertian parasite. Thus, of a total strength of 60 men, 41, which includes those which were sick in the hospital, showed some form of malarial infection, the parasites being present in the blood, while 27, without presenting any symptoms of the disease, showed parasites in the blood. Of the 27 cases, in 3 showing crescents and ring forms of the tertian estivoautumnal parasite, the patients asserted they never had a chill or any symptoms of malaria. The remaining patients gave a history of having suffered from malaria in the Philippines, but most of them had not had a chill since the latter part of July. The majority showing crescents alone in the blood, had been taking quinin in small doses regularly. A study of the blood findings in this company is of great significance, not only as showing the importance of a blood-examination, but because, as will be noticed, the form of parasite present most frequently, *i. e.*, the crescent form, is that form which is intended to complete the life cycle of the organism in the mosquito; thus, these men would be a menace to the health of any locality to which they might be sent, in that their blood contained the crescent form of the estivoautumnal parasite, and if any of the species of the anopheles mosquito happened to be present in the localities to which they might be sent this would complete the chances of infecting such locality; the mosquitos biting these men would then be capable of transferring the infection. In this way I believe it is safe to say, that the estivoautumnal varieties of malaria will be introduced into entirely new localities in the United States and will become factors of great importance from a public health standpoint.

While the differentiation of latent and masked malaria is of great service to the physician, it is also very important to the operating surgeon. I have already spoken of those cases showing infection after operation, and in closing this report wish to give in detail a most interesting case in which malarial infection simulated acute appendicitis.

This case occurred in an officer of the army, who was transferred to this hospital with a diagnosis of suspected appendicitis, transfer being made with a view to operation if the diagnosis was verified. He gave a history of having intermittent attacks of malaria in the Philippines in 1900, which did not necessitate admission to sick report. He had been feeling unwell for some time, but on the day before admission to the hospital he had an attack of pain in the region of the ascending colon, which was aching in character. Upon admission to the hospital he complained of pain in this region, at times severe. His tongue was slightly coated; bowels regular; his temperature and pulse about normal. A blood count was made and a leukocytosis found. An examination was made of the abdomen, but no rigidity of the muscular wall was observed. He complained, however, of pain in the right iliac region on pressure, and after a careful examination an operation was determined upon, which was to take place the next morning. That evening he had a slight chill, and his temperature rose to 104°. F. An examination of the blood was requested immediately after the chill, and numerous ring forms of the tertian estivoautumnal parasite were found. Quinin was administered, which resulted in a prompt fall of the temperature, and the continued administration of it resulted in complete cure. This case is of much interest, as but for the blood-examination an operation for appendicitis would have been performed unnecessarily.

The relation of these incidents, together with a careful study of the table of diagnosis, certainly affords convincing evidence of the importance of a blood-examination as a routine measure in every case of disease.

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IS NOT THE TREATMENT OF CONGENITAL CLUBFOOT BEGUN TOO EARLY?[1]

A Plea for Infantile Hygiene and Feeding.

BY

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In studying the seal of your institution (the Medical and Chirurgical Faculty of Maryland) I find your birth began in the year of our Lord, 1799, and of American liberty, 23. At once I recalled the first knowledge I ever had of this venerable organization. Away back in the early seventies, my chief in the hospital, Dr. James Knight, the founder of the Hospital for Ruptured and Crippled, was wont to tell me of his early medical struggles in Baltimore, and with pride of his being licensed to practice medicine by the Medico-Chirurgical Faculty of Maryland.

Journeying from Atlantic City homeward at the close of the last meeting of the American Medical Association, I sat with my good friend, Dr. L. Emmett Holt, of New York, and we discussed infantile hygiene, and incidentally, clubfoot in the newly born. I told him my views on early treatment were undergoing a change. I found him applauding these changed views, and he urged me to put in a plea, "in season and out of season" for infantile feeding uninterrupted by surgical operations or mechanical appliances. This is my first opportunity, and the title of my address needs no further explanation or apology.

Dr. Herman Biggs has placed in my hand a table of infant mortality from 1891 to 1903, inclusive, in the old city of New York (Manhattan and the Bronx).

Population, Deaths and Deathrates, Children under One Year, 1891 to 1903, Inclusive, Old City of New York (Manhattan and the Bronx).

Year.	Estimated population	Deaths.	Deathrate.
1891	46,470	11,241	241.9
1892	47 827	11,396	238.3
1893	49,224	11,106	225.6
1894	50,662	10,824	213.6
1895	52,449	11,267	214.8
1896	53,371	10,677	200.1
1897	54,335	10,014	184.3
1898	55,344	10,163	183 [illegible]
1899	56,401	9.155	162.3
1900	57,511	10,008	173.9
1901	58,679	9,348	159.3
1902	59,910	9,481	158 2
1903	61,208	8,911	145 6

This gives us facts instead of fancies about the high mortality of infants during the first year of life. This table tells us that ten thousand babies every year die in the boroughs of Manhattan and the Bronx during the first year of life. I present no new problem when I tell you that the problem of how to save the infants is and always has been the one paramount in Boards of Health the world over.

The new foods introduced year after year, the zeal with which these foods are pressed upon the market, the money and the time devoted to the purification of milk, all bear eloquent testimony to the complex mechanism of the infant's digestive apparatus. The pediatrist insists on regularity of diet and outlines a hygiene that will secure as nearly as possible an ideal daily regime; the early morning feeding, the bath, the outing, the morning or noon nap, etc. All these, we are told, must go on with regularity.

The neurologist reminds us that reflex disturbances of all kinds inhibit digestion, and even the orthopedic surgeon, in the person of the late Lewis A. Sayre, taught us that a narrow meatus or a constricted preputial opening would cause spastic contraction, idiocy, *et id omne genus*.

The longer I handle the deformities of the feet in infants in arms, the more impressed I am that I am engaged often in meddlesome surgery, and that I am perhaps contributing my mite to this terrible mortality shown in the table presented. Yet the teachings of the textbooks have been along these lines. That eminent authority to whom I have already referred in connection with genital irritation, Dr. Lewis A. Sayre, insisted on beginning the treatment of clubfoot "as soon as the infant is washed." Walsham and Hughes, in "The Deformities of the Human Foot," insist that the treatment cannot be undertaken at too early a date, and endorse the forceful dictum of Sayre. Tubby, in a "Treatise on Orthopedic Surgery," advocates manipulation immediately after birth, justifies tenotomy during the first week, and regards it as an error to defer operation and subsequent treatment until after the child has begun to walk. Jackson Clark, another English writer on this subject, insists on the early use of an adaptable metal splint.

Referring again to the views of American orthopedic surgeons, we find Young, of Philadelphia, in a textbook, advising manipulation begun at birth with retention apparatus at once. "Whitman's Orthopedic Surgery" advocates manipulation from birth to the end of the second week, then plaster-of-paris.

The works on general surgery, with rarely an exception, teach early interference. Wyeth, for instance, affirms that all forms of clubfoot should be treated from birth. Park's "Surgery" advises manipulation as soon as possible, however young the infant may be, and this to be forthwith followed by a stiff bandage. Da Costa's "Modern Surgery" advocates the same, and the latest "Surgery," edited by Bull, says that treatment should be instituted soon after birth if the child is healthy, while corrective massage and manipulation may be begun immediately after birth.

Enough references have been made to establish the teachings of modern times, and the reason for early treatment is easy of comprehension. The deformity begins at an early period of fetal life, and from that date to birth the presumption is that there is a steady increase. At birth extrinsic forces no longer exist, but the intrinsic are still operative. Naturally the medical man, as well as the layman, feels that these forces must be counteracted, and considering the pliability of the tissues, no time should be lost in placing the foot in a normal or even an overcorrected position. What cannot be done by the hand, manipulation, must be done by retention apparatus. We naturally reason that the cartilaginous bodies soon to become bones of the foot, must be put in normal relationship one with another, so that as ossification proceeds, the foot may be normally developed. Then again, shortened ligaments, and tendons, and fascia may be more easily stretched just after birth, and the surgeon feels warranted in assuring the anxious parents that by taking these tissues early in hand operation may be avoided. Muscles, fascia, and ligaments that are too long, that is, those tissues opposing the shortened tissues, will shrink too, if tension is relieved. We have thus every reason anatomically and physiologically for early manipulation, overcorrection, and retention of the foot in the corrected position.

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[1] Read before the Medical and Chirurgical Faculty of Maryland at Ocean City, Maryland, September 9, 1904.

It is so easy, it would appear, to take the clubfoot at this early period and mould it into shape. We think of a twig or a plant, and if the little sufferer did not cry, we could still continue our analogy. The ease with which the tiny foot can be twisted into better shape by the surgeon's hands prompts us to enjoin upon the monthly nurse or the ever officious father, this function. And while the little piece of mortality resents, we teach how this manipulation may be carried out *secundum artum*. As the hand grows tired, we naturally devise simple forms of apparatus, the straight splint for the varus, the starch bandage, the plaster-of-paris bandage, and metal clubfoot shoes secured by strap and buckle.

Let me illustrate:

On August 23 of the present year, Mrs. S. brought her baby, 13 months old, into my office from a town on Long Island. The child was not robust, seemed to have suffered from malnutrition, and was not very well developed. It had a congenital talipes equino varus, one side, moderate in grade. The mother said that when the baby was two weeks old her doctor put the foot up in plaster-of-paris and this dressing was continued with a few interruptions for six months, during which time the child did not thrive well. The foot seemed straight at the end of this time and an ordinary shoe with rather high counters was substituted. Soon thereafter the foot began to turn again and she feared a relapse. Suffice it to say, the end is not yet.

In 1898, there came under my care two clubfooted babies, one a girl born July 6 and subjected to treatment two days later, the other a boy, born November 5, and treated for the first time 10 days later. Both presented double talipes equino varus of extreme type. I put the foot of the July baby, the girl, in adhesive strips over flannel bandages, because the monthly nurse was doing good work with her hand and the feeding was not satisfactory. At the end of a month, plaster-of-paris was substituted for the adhesive plaster, and a month later, there being a little tendency to scurvy, I suggested to the family practitioner the Walker-Gordon milk, a suggestion promptly adopted, with gratifying result. I was obliged to dispense with the plaster-of-paris at the end of six weeks, so as not to disturb the child's sleep. The doctor thought that bathing and manipulation would help along the nutrition, so I devised a metal splint with a hinge on the outer side of the tibiotarsal joint and secured this by a roller bandage. Up to this time, I had made no attempt to correct the equinus. Indeed, no attempt was made until the following spring. We waited for the "baby to get stronger." The varus was slowly yielding with very little home cooperation. The milk was not always properly modified. While remittances were not prompt, gratitude was freely tendered at all times, and I felt that I had patrons for whom it was a pleasure to labor.

Now returning to the other baby, the November boy, I put his feet up in plaster-of-paris at once, that is, 10 days after birth, but just as soon as I saw him. Before applying the plaster, however, I resorted to a little force with my hands until I had overcome the varus about one quarter. Then while the plaster was setting, I used a little more force, the child not going into convulsions. This plaster dressing remained in good condition for two weeks and the report was that the suffering had been trifling. This baby was nursed by the mother and there was no interruption in its nutrition. By the end of a month distinct progress was manifest. The deformity was so nearly overcome that the plaster-of-paris was omitted and the mother was taught how to twist the feet into an overcorrected position. In a week, I found it necessary to employ side splints well padded. There had been some obstruction to the circulation and a little excoriation by reason of the plaster-of-paris. Early in March, I noted a retraction of the great toes, that is, a hyperextension which depended on the shortening of the extensor proprius hallucis. On March 15, I divided under ether anesthesia the achilles tendons and succeeded in completely overcoming the deformity. I put the feet up in plaster-of-paris in an overcorrected position.

The same afternoon I did the operation on the July baby, the girl, and I had therefore two cases starting about the same time for the goal—the recovery post. Now let us follow the case of the girl.

On March 17, two days after the operation, the report was that the child was quite nervous, but under the influence of a hypnotic was getting on fairly well; was not enjoying food. On March 21, she was doing well; no swelling of the toes. April 11, the plaster was removed; no excoriations were found; the feet could be flexed to a little beyond 90°; clubfoot shoe was applied and heel held down well in the heel-cup. April 27, the feet were not held well in the braces and much force was required to make dorsoflexion to 90°. May 3, no improvement over condition at last date, feet put up again in plaster-of-paris at 90°. On May 10, feet were in fine shape, plaster-of-paris not removed, but on May 24, plaster was removed and the feet were easily flexed beyond 90° and quite flexible; braces were applied. June 20, a strong disposition to the return of the deformity was noticed; the patient taken to the country; parents instructed about the persistent use of the apparatus, and on October 18 the tendines achillis were found a little short, and dorsoflexion to 90° very difficult; plaster-of-paris again. November 2, 1899, the feet have slipped in the plaster, and both equinus and varus are present. From this date to May 7, 1900, the notes from time to time show a constant struggle to maintain a good position, and now fan-shaped pieces of moleskin plaster with webbing on distal ends are applied along the outer side of leg, and these ends are secured by buckle under the foot-plates of the clubfoot shoes. June 28, she has begun to walk, and the treatment adopted in May has proved successful It is continued, and on September 6, 1900, I find a prominence, with depression of the proximal end of the fifth metatarsal, the child walking in moderate varus. From this time to November 4, 1903, there was a gradual recurrence of deformity, notwithstanding the clubfoot shoes were worn all the time. These shoes, although quite strong, would get out of shape and a duplicate set was provided to guard against this very defect. On this date, November 4, under ether anesthesia, I resorted to the Lorenz redressement, breaking down the shortened fascia and the tendo achillis, and did not rest until I had the foot "like a wet rag." I applied heavy plaster-of-paris, and in a few days the child was walking. These casts were not changed for six months, and on removing them the feet were found cured. Ordinary leather shoes have been worn since then, and no relapse has occurred.

Let us follow now the case of the boy who, it will be remembered, had his achilles tendons divided the same day, March 15, 1899:

On March 22, the plaster had slipped a little on the right foot, and both feet were dressed again. I managed to get both feet in calcaneo valgus, complete overcorrection. By July 12, the braces (clubfoot shoes) had been applied, and the child was in the country, the feet being easily retained in normal position. January 2, 1900, no deformity, feet have outgrown the braces which are to be renewed. Toward the latter part of March, ordinary leather shoes were substituted for the braces, and the outer borders of the heels and soles were thickened so as to avoid the recurrence of varus. Although explicit instructions were given about the construction of the shoes, these were sometimes disregarded, and in June, 1900, while the feet were anatomically perfect, the child walked with toes turned in a little (pigeon toes). December 3, 1900, the gait was far from perfect, and dorsoflexion could not be made to 90°. In May, it was found necessary to resort to clubfoot shoes again. These extended above the knees and were used to correct the internal rotation as well; but in January, 1903, there was a slight recurrence of deformity, and under ether I did the Lorenz redressement, putting the feet up in heavy plaster-of-paris, over which large shoes were worn. The child got the weight-bearing function, and in six months the plaster was removed. No further treatment has been necessary, the case is complete, and my notes from time to time are but a record of that fact.

Here are two cases that may be regarded as typical at the outset. In one, treatment was interrupted by faulty nutrition; in the other, no such complication arose. While it was comparatively easy from time to time to correct deformity, it was not easy to maintain the correction. The actual time under treatment was in the one, five years, in the other, five and three-quarter years.

On September 16, 1901, I began the treatment of a case of double talipes equino varus in a male child one week old. The deformity was extreme, and I applied side splints, secured by a flannel bandage. December 6, 1901, "the treatment begun in September was omitted after two or three weeks, because of intestinal disorder, trouble with food, etc." The same treatment is now resumed. January 2, 1902, the case has not progressed as was expected because of poor nutrition, and because the father, a medical man, objected to the use of plaster-of-paris while the nutrition was so poor. Plaster-of-paris is now applied with the feet in as good position as can be obtained without an anesthetic. On January 24 and 31, the plaster was renewed, and on April 18 the varus being pretty well overcome, the achilles tendons were divided subcutaneously without anesthesia, and feet put up in plaster-of-paris, the position being complete overcorrection calcaneus. Needless to say the suffering was extreme, but the operation was done so quickly that it was regarded as more humane than the taking of ether. Opiates were required that evening, and the child suffered so much that another surgeon cut some of the plaster away, adding still more to the constriction about the toes. On the twentieth the plaster was removed from one foot, and on the twenty-first from the other. There were no excoriations, and much care was employed in reapplying. About a month later I was obliged to discontinue the plaster on account of the disordered stomach, and employed a clubfoot shoe extending from the foot to the thigh with a joint at the knee. I had also a pair of simpler clubfoot shoes to be worn at night, and on July 14, my notes show that the child was wearing braces and doing fairly well. On the thirtieth the right foot could be brought into normal position, but not beyond this, the left foot not quite so normal. During the summer and autumn the braces were worn very irregularly, and failed to keep the feet in good position. On December 15 I had Dr. Lorenz, of Vienna, see the patient with me, and he advised redressement.

This operation had been witnessed by the father of the child at some of the public clinics, and he was not at all impressed. So nearly a year elapsed, during which time there were all kinds of trouble in feeding, but the chief trouble was cyclic vomiting. The operation was therefore postponed, and on November 21, 1903, I did the Lorenz operation on both feet, and it was done thoroughly. The usual heavy plaster-of-paris was applied and shoes made shortly afterward to wear over the plaster looked so much like clubfoot that I was unable to get the mother to use them. The result was that the child did very little walking, and the good from that mode of treatment—that which comes from the weight-bearing function—was not obtained. On February 11, 1904, the plaster was removed. The left foot was found to be anatomically perfect, while the right was not perfect. From that date to the middle of April, present year, the plaster was changed from time to time, and it required a good deal of force on each application to get the feet in anything like a good position.

Recently I have been informed that a surgical friend in whose hands I have placed the child this summer, has applied plaster once or twice, but finally gave it up for a clubfoot shoe with spiral spring on the outside, to correct the internal rotation. The case, therefore, is not complete, but has been presented to illustrate the difficulties of treating clubfoot in a child whose digestion is so often disturbed, and especially when this rare occurrence of cyclic vomiting is a dominant feature.

You will pardon me, I know, if I give another illustration in a child in whom cyclic vomiting developed. I present this in detail because I want to impress upon you some of the disadvantages of early treatment:

On June 3, 1895, I saw the male child of a professional friend on the very day of its birth. The case was one of double talipes equino varus. As I examined the feet, I gave the mother a good prognosis, and it may be interesting to you to learn that I have given her many good prognoses, so that she now regards me as a poor prognostician. I postponed treatment until June 20, and put both feet up then in plaster-of-paris. I succeeded in overcoming the varus in the right foot completely, the left about two-thirds. From this date to October 14, I used plaster-of-paris, gradually overcoming the varus in both feet, at which time I abandoned the plaster, and used simple side splints, teaching the nurse how to employ them after manipulation. On October 23, double achillotomy with overcorrection was done, and plaster-of-paris employed for dressing. Paregoric was administered, but the next day I learned from the father that the child did not sleep and was quite feverish as a result of the nervous disturbance. At the end of two weeks I applied some metal clubfoot shoes, dispensing with the plaster altogether. I find a note under December 20, 1895: braces have worked well, feet held quite easily at right angles. The braces were worn pretty faithfully until the beginning of May, 1896. During this period the achilles tendons were getting short again, and on May 13, under ether, I repeated the former operation, using plaster-of-paris for a dressing. On July 15, 1896, the child was wearing the braces, stood up in them, and had begun to walk a little.

These were worn during the summer in the country, and on October 2 I found the left foot very nearly perfect, the right foot could be flexed to 90°, but not beyond this, and eversion not so good as in the left foot. These braces were continued until early in December, when they were discontinued, and shoes raised along the inner border of the soles with counters were substituted therefor. From this date to the beginning of the summer of 1899, it was a constant struggle to maintain the feet in good position. The braces were worn for a while, then shoes, vigorous manipulation, but the child began to toe in a bit, and there was a marked indication for further operative interference. During the summer, there was serious illness, involving the liver and kidneys, so that treatment was practically suspended. Then began this cyclic vomiting. Dr. Van Valzah and Dr. Holt were called in from time to time and the operation was indefinitely postponed. On December 15, 1902, Dr. Lorenz saw the child with me, and he strongly urged the operation of redressement. It was thought, however, that the use of ether or any anesthetic would induce the cyclic vomiting, but on January 28, 1904, Dr. Holt advised the operation, provided the parents were willing to have the anesthetic administered. He did not think it would induce vomiting if given carefully. The result has been that up to the present date the operation is still under consideration. The child is wearing braces attached to the shoes, and the deformity is not fully corrected. It will be seen, therefore, that from 1895 to 1904 this child has been under treatment, and yet a cure is not complete.

I have quite a list of cases, which, if presented in detail would but emphasize the points brought out by the narration of the foregoing. I am unwilling to admit that my cases differ so much from those of others because I can present a number in which colleagues have treated the patients long before they came under my care and in which the history given is almost identical with the histories I have thus far recorded.

At the Hospital for Ruptured and Crippled, it is the custom still to treat them early, and in talking with members of the out-patient staff, I find that the impression prevails that cures are effected very promptly by early treatment.

Many years ago I analyzed some cases taken from the hospital records, and found that results were put down as good which were far from being perfect. Relapses do occur, and it is not fair to pronounce a case cured until all apparatus has been discontinued for many months.

The long course of treatment to which nearly all cases of congenital clubfoot must be subjected leads me to question the propriety of beginning treatment before the child is ready to walk. I appreciate the ossification periods and all the arguments that are induced in favor of early treatment. Yet I am not convinced that enough is gained to justify the continued interference with the nutrition of the child at the time when every effort must be directed to the saving of life and the building up of the resistive power so essential to a strenuous life.

I am well aware that the acetabulum, for instance, can be deepened by the use of the head if the head of the bone is in proper position, and I see no reason why facets of tarsal bones cannot be modeled after the second summer, especially under the influence of the use of the foot.

Patients are admitted to the hospital after four years of age. On turning to our last annual report I find that there were 34 patients subjected to forcible stretching for clubfoot, while others were treated by fasciotomies, astragalectomies, or arthrodeses. In other words, we have a large number of admissions during the year for relapsing clubfoot, and I find myself wondering whether these prompt cures in infancy are not often deceptive.

Plaster-of-paris casts taken before and after treatment are very common, and usually convince the average physician that the result is all one can desire. Photographs before and after, naturally appeal to the unwary, but I could tell of many patients under a long course of treatment after the last photograph has been taken and the last cast from the mould.

My plea, therefore, for infant feeding and hygiene is rather in the direction of postponing treatment of clubfoot until after those important items have been attended to. The excoriations, the strained tendons and ligaments must surely inhibit digestion, and if digestion is inhibited, nutrition cannot proceed to our satisfaction.

During the past year or two I have declined treating cases of congenital clubfoot in young infants and have advised the parents to wait until the babies are old enough to walk. I have no doubt that some of these have gone elsewhere for treatment. Yet I want to put myself on record as questioning, to say the least, the beginning of vigorous treatment immediately after birth.

Let it not be inferred from the foregoing that nothing whatever is to be done in the way of correcting the deformity during the first 18 months. My contention has been along the lines of mitigating the severe forms of treatment. It is known to all orthopedic surgeons of average experience as well as to many general practitioners that a certain number of cases of clubfoot of moderately high degree are corrected fully 80% or 90% by the mother's hand alone. Such cases are seen from time to time, and we are called in to supplement this good work by simpler forms of apparatus.

There are, however, it must be said, a large number not successfully managed by the maternal hand, and one reason may be that the family practitioner is so embarrassed in the face of this congenital deformity that he, true to surgical teachings, proceeds at once to call to his aid the instrument-maker or the surgeon, and he gives the mother to understand that she can do little or nothing in the way of a cure. She can be taught to apply a side-splint with a soft roller bandage reinforced by a strip of rubber adhesive plaster, and this can be removed as often as she has time for manipulation and stretching and unrolling. The medical man or the surgeon in attendance can give her instructions, line upon line, precept upon precept. Her own maternal instincts will be sufficient guide, and it is often safer to say that the "worrying of the child" will not be carried to the extent of inhibiting digestion and as a corollary, nutrition.

There are babies who are fully able to stand treatment moderately vigorous and whose digestion is uninterrupted thereby. Yet these cases are rather the exception to the rule. What this paper is intended to accomplish is the importance of regarding the feeding and the hygiene as supreme. It is intended, furthermore to disabuse the mind, lay and professional, of the idea that a congenital clubfoot, to be cured, must be treated by mechanical as well as operative means immediately after birth. It is intended too, to emphasize the weight-bearing function as a very important factor in the treatment of the deformity.

INDICANURIA COMPLICATING TYPHOID FEVER.[1]

BY

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In the ten minutes allotted to this paper it is impossible to do more than briefly allude to a few of the important facts connected with this subject.

It has been fairly well established that the presence in the urine of varying amounts of indoxyl sulfate of potassium, greater than a trace, is significant of the absorption of the products of putrefaction. Indicanuria frequently exists without symptoms, and it would appear that sometimes these putrefaction substances are less poisonous than under other conditions. Some individuals seem to acquire an immunity, while others possess an unusual susceptibility to these poisons. As it is impossible to assert that no injury is being experienced by the patient, because of the absence of symptoms, and as we cannot forecast when the indicanuria will be a sign of a serious toxemia, it is the part of wisdom to view indicanuria as a complication of typhoid fever which should be removed.

Numerous tests have been offered for the determination of the presence of indican, all of which I have examined. The solution of the neutral or basic subacetate of lead, which is commonly employed to clear the urine, is not without disadvantage. Sometimes it removes a portion of the indican, in other cases it renders more easy its detection. As a deoxidizing agent, the solution of chlorinated soda is objectionable because of its instability. A 1% solution of potassium chlorate is to be preferred. If the urine contains iodids, the chloroform will be colored violet, which color may be removed by adding three drops of a 5% solution of sodium thiosulfate.

The test for indican which is employed in my laboratory is as follows: To 10 cc. of filtered urine add one drop of a 1% solution of potassium chlorate, then add 5 cc. of chloroform, and lastly, 10 cc. of pure hydrochloric acid of a specific gravity of 1.19. Thorough mixing is secured by pouring repeatedly from one test-tube to another. The indigo which is set free is dissolved in the chloroform, to which is imparted a blue color. The maximum coloration is secured in ten minutes.

Although putrefaction may take place in any part of the body, as for example, in bronchiectasis, gangrene of the lung and empyema, in the vast majority of cases it exists within the alimentary tract, more usually in the small or large intestines.

It is evident that the conditions usually present in typhoid fever peculiarly favor the occurrence of putrefaction of the contents of the intestines, as, for example, the ulceration of Peyer's patches, the enlargement of the solitary glands, the inflammation of the mucous membrane, the alterations in the various secretions in the alimentary tract produced by fever, and the interference with peristalsis, produced by the disease and by the absolute rest, which is a necessary and important part of the treatment of this affection. Occasionally, there seems to be an increase in the peristalsis of the small intestine and a decrease of peristalsis of the colon.

In recent years, according to my observation, the number of cases of typhoid fever associated with costiveness or constipation, has greatly exceeded those seen in the early '80's. In a few instances where diarrhea was well marked, and an autopsy could be secured, ulceration of the colon was usually present.

Almost a decade ago I began a systematic examination of typhoid urine, for the presence of indican, and was not surprised to discover that it was present in a notable proportion of cases. It was observed that indicanuria, although more common in those cases where extreme constipation existed, was also frequently observed where diarrhea was a marked symptom. I therefore concluded that indicanuria was a rather common complication of typhoid fever, and this led to a marked change in the treatment of this disease.

It is now routine practice to examine the urine of typhoid fever for indican every 48 hours, during the course of the disease, and less frequently during the convalescent period. If indoxyl sulfate of potassium is present in the urine in notable quantity, the mouth is examined and the nurse instructed to cleanse this cavity before and after the taking of food, and to employ for this purpose an abundance of a warm saturated solution of boric acid, and, when necessary, peroxid of hydrogen diluted with an equal part of water. A soft piece of linen, a match stick, upon the end of which is secured a quantity of absorbent cotton, or a very soft tooth-brush, is often required. If pyorrhea alveolaris, caries of the teeth, abscess of the gum, or any other similar condition is present, appropriate treatment for the relief of this condition is important.

Suppuration of the nasal chambers of the sinuses communicating therewith and retained decomposing material concealed within the crypts of the tonsils, demand local treatment. Preexistent disorders of the buccal cavity, pharynx or nares is usually aggravated when the patient suffers from continued pyrexia.

Food, more especially milk, in passing through an unclean oropharynx, speedily undergoes fermentation and putrefaction, hence the necessity of cleanliness of the mouth, pharynx, and nares.

In order to stimulate the secretions, more especially that of the liver, a twelfth of a grain of calomel, thoroughly triturated with a grain of sugar of milk, is administered dry on the tongue every second hour until a grain has been taken. This is followed by a dram of chemically pure phosphate of sodium, dissolved in a glass of freshly boiled water, taken upon awakening in the morning, while the stomach is empty, and no food should be permitted for an hour. If there is no contra-indication, the addition of the juice of half a lemon will add much to the palatability of this draught, which should be taken in sips as hot as possible. Moderate diarrhea does not contraindicate the use of calomel or phosphate of sodium, and the amount of the latter is reduced if more than three stools occur daily. Where the bowels are sluggish, or where indicanuria persists, despite this treatment, the colon is gently and thoroughly irrigated with one or two quarts of a warm, normal salt solution, by the aid of a soft rubber colon tube, introduced for a distance of eight inches, so that the outlet shall be above the sigmoid flexure. When indicanuria disappears these measures may be suspended, and if the bowels are constipated an ordinary enema is all that is necessary.

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[1] Read before the Pennsylvania State Medical Society, September, 1904.

The diet at first is exclusively animal broth, until the gastrointestinal canal has been thoroughly cleared of its contents, and then peptonized milk should gradually replace the broths. So soon as possible an ordinary patient should consume each day, at two-hour intervals, from one to two quarts of thoroughly peptonized milk, and at twelve-hour intervals, a good strong, animal broth. Milk and broth should not be consumed at the same time. Gouty and lithemic patients require several days before they are fully able to digest milk properly. Numerous modifications of this simple diet are necessary in different cases, but an improper diet will favor the recurrence of indicanuria. A liberal supply of pure water or imported vichy is often of value as furnishing the vehicle by which toxic substances may escape from the body. If the specific gravity of the urine is reduced to 1,018 or 1,020, the reaction but moderately acid and the quantity averages two ounces per hour, the amount of liquids absorbed by the patient is sufficient. Ordinarily the treatment for indicanuria is restricted to that period when the ulceration of the intestines is least active.

If indicanuria be present during the third week, and at any time when there are reasons for believing that the ulcerations are active, unless the toxic symptoms are serious, the treatment for indicanuria should be omitted.

ANGINA PECTORIS.

BY

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The subject of angina pectoris still remains a fresh and interesting one, and in the very nature of things is likely to continue so for a considerable time to come. The disorder is not sufficiently common to develop the familiarity which generates clinical carelessness or apathy, or some lower order of feeling. The varying and still unsettled views which have been held regarding its morbid anatomy give it the relative interest which a contradictory and keenly-debated inquiry is likely to elicit. Its genesis does not appear to have yet been claimed by the imperialistic bacteriologic pathologist as one of the territorial items which he must hold in trust for his all-conquering microbe. And the mysterious sudden death which is so likely to close the clinical history always forms a reliable germ of interest to both physician and patient.

The disease—if disease it can properly be called—is not of frequent occurrence in Ireland. As a medical student, I saw but one hospital patient; two of his paroxysms occurred in my presence. I have since seen five hospital cases, but in only two have I had an opportunity of witnessing the attack. I have from time to time been consulted by patients who described the symptoms more or less completely. They all came from a distance, and only three remained in town for a time, so as to afford me an opportunity of watching their symptoms and the effects of treatment. All these were males. Some I entirely lost sight of, two died suddenly while still in correspondence with me, and I heard of the deaths of two others from pulmonary disease. Having now a case from the west of Ireland under observation, I thought I would take the opportunity of placing my views on a still unsettled subject before the discriminating audience of my professional brethren of the most youthful, most vigorous, and most progressively enlightened of all the great nations.

From the nature and progress of the clinical symptom-group to which the name of angina pectoris has been given, the condition can seldom be so closely observed, and accordingly satisfactorily studied as in the case of most important diseases. On this account I consider myself especially fortunate in having had a case under daily observation for over seven months. As the symptoms were perfectly typical, I need hardly say that I derived more knowledge from their continued and repeated observation than I could ever have obtained from the occasional glimpses which this condition usually affords. I published some notes on that case a good many years ago, but a study of its features and progress forms the best nucleus which I can find for the various items of information on the subject that I have culled from other sources. The patient happened to belong to the sex which is less frequently affected by angina, a fact which did not discount the completeness of the word-painting of symptoms.

A lady, aged 78, consulted me for the relief of typical symptoms of angina pectoris. She was tall and stately in movements and demeanor, and had very pronounced sharply cut features, one of which was a very prominent aquiline nose. Her voice was decidedly harsh and unsympathetic. She was of English birth, of good family, had always lived in affluence, and had always been an active—extremely and restlessly active—woman. She was a widow, and had been so for a good many years, and had had a numerous family, most of whom had died after reaching adult life. The death of one son, which had occurred but a few years before, had probably given her as much sorrow as she was capable of feeling, for he was her special favorite.

She had never suffered from any pronounced form of illness during the long period of her memory till about three years before she consulted me, when as she stated, she was dreadfully tortured for 15 weeks by very severe intermittent pains in the upper part of the left side of the front of the chest. The diagnosis had been "acute muscular rheumatism," and the treatment was carried out by the local application of liniments and the internal administration of medicines. Neither had ever given her the slightest relief. Her present trouble had commenced one forenoon, when, as she returned from the transaction of some marketing business, she was suddenly seized, while ascending an incline to her residence, with intense pain in the front of the chest, and extending to the left side. The attack brought her to an immediate standstill; the pain soon subsided, and she walked very cautiously to the next lamp-post and supported herself by it with her arms raised, which was the position that she instinctively adopted. There was an intense fear that movement would bring on a return of the agony; this dread disappeared in two or three minutes, and she then slowly and cautiously walked to her house. She had no further pain that day. But on the succeeding days, she was seized—sometimes two or three times by successive attacks—on each day. The seizure always came on when making some sudden or strong exertion, or when she became involved in some fuss; and the attacks lasted a considerable time—up to a half hour or more.

On the day of my first visit—the fourth from the first seizure—she had had a very severe paroxysm, and described it to me very graphically. The onset was always instantaneous; she felt a sudden constricting sensation, of the most excruciatingly painful kind, in the precordial and midsternal regions. She emphatically indicated the exact midpoint of the angulus Ludovici as the focus of most intense torture. The pain was described as "crushing" and "grinding" in character; it rapidly girdled the chest about the level of the mammillas. It formed another special focus in the left infraclavicular fossa, from which it passed toward the shoulder-joint. In the worst paroxysms it radiated in all directions—around the whole chest, upward to the infraclavicular fossas, from which it passed under the collar bones to the sides and back of the neck, and even to the suboccipital region; it fastened on the middle of the mental tubercle—a prominent one in her case—with intense force, "compressing it as in a vice;" it also passed downward to the hypochondriac regions, to the inguinal areas, and even below the groins to the front and inside of the thighs; it passed laterally to the shoulder of each side, and thence down the inner side of the arm as far as the finger-tips, observing pretty accurately, in this course, the known distribution of the ulnar nerves.

In the milder paroxysms the left arm only was affected, in addition to the focal centers of midsternum, precordia, and left infraclavicular fossa, and their respective radial connections. The pain traveled upward from the precordial region to the subclavicular, and radiated outward from the latter toward the shoulder; the position of the bicipital groove was often indicated as a seat of peculiarly acute agony. Thence it passed downward on the inner aspect of the arm toward the elbow, and in the milder paroxysms, it frequently stopped short at the base of the internal epicondyle, into the upper side of which the sensation of "driving a nail in" was always felt during an attack. But in the more severe ones, the lightning pain always descended to the little and ring fingers; the sufferer was able to indicate with remarkable clearness the distribution of the terminal branches of the ulnar nerve in her description.

A specially interesting item in the catalog of symptoms which I had so clearly and graphically displayed before me day after day in this case was that in the worst paroxysms the patient frequently noticed that the initial pain commenced at the periphery, ulnar side of left little finger or (less frequently) base of left internal epicondyle, and, after one or two premonitory tingles, shot upward to the shoulder; whence it radiated inward to the midsternal and precordial areas.

Another feature of the clinical history which specially interested me was one which I discovered only after I had seen my patient a good many times; it was that her former attack of "muscular rheumatism" was similar in all its features to the condition for which I was called upon to treat her. She had been reticent on this head; I think it was because the treatment adopted had had no beneficial effect, and her principal medical attendant on that occasion had been a near relative. During these former attacks, as she frequently described to me afterward, she often felt obliged to kneel on the drawing-room hearth rug, and remain in that position for over two hours; with her head bowed down and her hands to the front of her chest, while the cold sweat dropped from her brows; fearing all the time to move a limb or draw a deep breath, lest her torture should be increased; and fearing that any increase of it must inevitably extinguish life.

I also ascertained that the first paroxysm of the kind from which she suffered had occurred as she lay in bed, about 6 a.m. I could get no clue to an exciting cause. For many years she had been a comparatively bad sleeper; and the general restlessness of her disposition served to make that a more serious predisposing cause of almost any conceivable neurosis than it might have proved in most other persons.

The respiration, heart's action and pulse were perfectly regular, and remained so throughout. I often hastily examined the chest and pulse during a paroxysm, and can positively state that there was never any pronounced effect on either the cardiac action or the respiration, more than would necessarily accompany the constrained position which was instinctively adopted, and the fear of moving—especially of expanding the chest, lest the agony should be increased. The breathing was necessarily shallow, but air entered the lungs everywhere; and the heart's action and pulse were slightly accelerated—nothing more.

Of course, I suspected the existence of atheroma, but could make out no evidence, as the superficial arteries displayed no special rigidity or tortuosity; in fact, considering the advanced age of the patient, there was a rather marked absence of such phenomena; and as there was no superfluous deposit of subcutaneous adipose tissue, there was special facility for examining them. I tried, over and over again, to discover an aortic aneurysm, but failed. Then there were no other pressure symptoms that I could make out. Her peculiarly raucous voice made me think of reflex laryngeal stimulation from such a source, but I ascertained from intimate friends of over 20 years' standing that it had always been "like that." I must, however, mention that I afterward heard from one of her attendants that during the last week or so of her life she spat up, without coughing, a little red blood from time to time.

The more severe paroxysms—on two of the days preceding my first visit, and most of those of the former date—lasted two and a half or three hours. I immediately procured a stock of amyl nitrite capsules, and gave her directions how to use them; this she continued to do during the remainder of her life. This remedy never failed to relieve and shorten the paroxysm—less rapidly, however, as the case grew older; when, instead of a single capsule sufficing, as it used to at first, she was in time obliged to use as many as three before the desired effect was obtained. I gave iron and digitalis in mixture, with apparent good effect; the heart showed no symptoms of actual failure at any time. The compound camphor liniment of the British Pharmacopeia was rubbed in over the surface of the specially affected parts of the chest, for 10 minutes every morning and evening. Sulfonal tabloids were given to procure sleep and succeeded without any compromising effects; but no medicinal or moral suasion that I could bring to bear upon the patient seemed to give any hope of rest during the day. She was never easy or comfortable herself, and seemed specially (and successfully) anxious that nobody in her immediate vicinity should be either. I hesitated for some days to tell her that the great danger of overexertion or worry in such a case as hers was the occurrence of sudden death; but when I felt at last constrained to communicate this intelligence, she gave me to understand that she considered she would be better prepared to meet her Maker by continuing the active discharge of her duties in this world so long as she was at all able to do so. She naturally soon grew tired of every medicine given her. She actually "struck" for a few days against the use of the amyl nitrite capsules; but that heroic experiment proved a dead failure; the paroxysms, in the absence of the accustomed remedy, and in presence of a superlative degree of mental combativeness, returned again and again with appalling violence—up to three or four in a day—and in less than a week convinced her that it was, upon the whole, better to follow my suggestions. She never again tried to give them up. During that interregnum I induced her to use trinitrin tabloids; but they appeared to have no effect whatever. I often changed the iron and digitalis mixture for something else, but always went back to it after a time. In those intervals I tried such remedies as belladonna, cannabis indica, stramonium, and valerian. During the time that the two last of these were taken in combination, the paroxysms certainly appeared to be less frequent in recurrence. I was, however, always obliged to change the mixture after the third bottle. I induced her to take morphin tabloids—and I had a good deal of trouble in doing it, as she did not like the idea of accustoming herself to the use of that drug—and I must say that for her general condition it seemed to do more good than anything else I tried. She was less restless in her movements, less emphatic in the expression of her opinions, and I fully believe that it prolonged her life. I advised her to treat herself generously in the way of use of the most carefully selected diet and the most generous wines. She began to take some champagne, but did not continue the use of even it long.

I should mention that each paroxysm was followed by the gaseous eructations and copious flow of urine, which have been so generally recognized as characteristic of this affection. The intense fear of impending dissolution which some authorities have professed to regard as an essential feature of true angina can hardly be said to have existed in a pronounced form in this case.

Before proceeding to general comment on this interesting affection, I will quote in full the original description of the original sponsor of angina pectoris. It is short and, even from its merits as a specimen of clinical word-painting, well deserves a careful perusal:

> There is a disorder of the breast, marked with strong and peculiar symptoms, considerable for the kind of danger belonging to it, and not extremely rare, of which I do not recollect any mention among medical authors. The seat of it, and sense of strangling and anxiety with which it is attended, may make it not improperly be called angina pectoris.
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> Those who are afflicted with it are seized while they are walking, and more particularly when they walk soon after eating, with a painful and most disagreeable sensation in the breast, which seems as if it would take their life away if it were to increase or to continue; the moment they stand still all the uneasiness vanishes. In all other respects the patients are, at the beginning of this disorder, perfectly well, and in particular have no shortness of breath, from which it is totally different.
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> After it has continued some months, it will not cease so instantaneously on standing still; and it will come on, not only when the persons are walking, but when they are lying down, and oblige them to rise up out of their beds every night for many months together; and in one or two very inveterate cases it has been brought on by the motion of a horse or a carriage, and even by swallowing, coughing, going to stool, or speaking, or by any disturbance of mind. I have heard one, and only one, person say that he had known it attack him while he was up and standing still, or sitting. But most whom I have seen have been perfectly unaffected with riding in any manner, with speaking, swallowing, laughing, sneezing, or vomiting. One has told me that this complaint was greatest in winter; another, that it was aggravated by warm weather; in the rest, the seasons were not suspected of making any difference.
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> I have observed something like this affection of the breast in one woman who was paralytic, and have heard one or two young men complain of it in a slight degree; but all the rest, whom I have seen, were men, and almost all above 50, and most of them with a short neck, and inclined to be fat.
>
> When a fit of this sort comes on by walking, its duration is very short, as it goes off almost immediately upon stopping. If it comes on in the night, it will last an hour or two; and I have met one, in whom it once continued for several days, during all of which time the patient seemed to be in imminent danger of death.
>
> When I first took notice of this distemper, and could find no satisfaction from books, I consulted an able physician of long experience, who told me that he had known several ill of it, and that all of them had died suddenly. This observation I have reason to think is generally true of such patients, having known six of them, for whom I had been consulted, die in this manner, and more, perhaps may have experienced the same death, which I had no opportunity of knowing. But though the natural tendency of this illness be to kill the patients suddenly, yet unless it have a power of preserving from all other

ills, it will easily be believed, that some of them, who are afflicted with it, may die in a different manner, since this disorder will last, as I have known it more than once, near 20 years, and most usually attacks only those who are above 50. I have accordingly observed one who sunk under a lingering illness of a different nature.

The os sterni is usually pointed to as the seat of this malady, but it seems sometimes as if it was under the lower part of it, and at other times under the middle or upper part, but always inclining more to the left side, and sometimes there is joined with it pain about the middle of the left arm. What the particular mischief is, which is referred to these different parts of the sternum, it is not easy to guess, and I have had no opportunity of knowing with certainty. It may be a strong cramp, or an ulcer, or possibly both.

The opinion of its being a convulsion of the part affected will readily present itself to any one who considers the sudden manner of its coming on and going off; the long intervals of perfect ease; the relief afforded by wine and spirituous cordials; the influence which passionate affections of the mind have over it; the ease which comes from varying the position of the head and shoulders, by straightening the vertebras of the thorax, or by bending them a little backward or forward; the number of years which it will continue without otherwise disordering the health; its generally bearing so well the motion of a horse or carriage, which circumstance often distinguishes spasmodic pains from those which arise from ulcers; and lastly, its coming on in certain patients at night, just after the first sleep, at which time the incubus, convulsive asthmas, numbness, epilepsies, hypochondriac languor, and other ills justly attributed to the disturbed functions of the nerves, are peculiarly apt either to return or to be aggravated.

The pulse is, at least sometimes, not disturbed by this pain, and consequently the heart is not affected by it, which I have had an opportunity of knowing by feeling the pulse during the paroxysm; but I have never had it in my power to see any one opened who had died of it, the sudden death of the patients adding so much to the common difficulties of making such an inquiry, that most of these, with whose cases I had been acquainted, were buried before I had heard that they were dead.

But though it be most probable that a strong spasm be the true cause of the disorder, yet there is some reason for thinking that it is sometimes accompanied with an ulcer, and may partly proceed from it; for I have seen two of these patients who often used to spit up blood and purulent matter, one of whom constantly asserted that he felt it come from the seat of the disorder. Another had a painful sensation in swallowing and upon pressing the part which seemed to be affected. From a fourth, who fell down dead without any notice, there immediately arose such an offensive smell as made all who happened to be present judge that some foul ulcer had just then broken.

Bleeding, vomit and other evacuations have not appeared to me to do any good. Wine and cordials taken at going to bed will prevent, or weaken, the night fits; but nothing does this so effectually as opiates, 10, 15, or 30 drops of tinctura thebaïca taken at lying down will enable them to keep their beds till morning, who had been forced to rise, and sit up two or three times every night, for many months. Such a quantity, or a greater, might safely be continued as long as it is required; and this relief afforded by opium may be added to the arguments which prove these fits to be of the convulsive kind. Time and attention will, undoubtedly, discover more helps against this teasing and dangerous ailment; but it is not to be expected that much can have been done toward establishing the method of cure for a distemper hitherto so unnoticed that it has not yet, as far as I know, found a place or a name in the history of diseases.

To this baptismal account of angina pectoris by William Heberden should now be added a note appended by the same writer to his subsequent description of the same malady in his famous "Commentaries on the History and Cure of Diseases": "Cælius Aurelianus, as far as I know, is the only ancient writer who has noticed this complaint, and he but slightly: 'Erasistratus memorat paralyseos genus, et *paradoxon* appellat, quo ambulantes repente sistuntur, ut ambulare non possint, et tum rursum sinuntur.'" Other descriptions of the more prominent features of the clinical entity now universally known as angina pectoris, have since been exhumed by other explorers in this department of medical literature. Parry (An Inquiry into the Symptoms and Causes of the Syncope Anginosa, commonly called Angina Pectoris), has quoted Seneca's description of his own symptoms; and Professor Osler, our illustrious contemporary of the Johns Hopkins University, has reproduced the translation given by Parry of a portion of the vivid portrait of his own agony which the Roman philosopher has bequeathed to posterity: "The attack is very short and like a storm. It usually ends within an hour. I have undergone all bodily infirmities and dangers, but none appears to me more grievous. Why not? Because to have any other malady is only to be sick; to have this is to be dying." To this very vivid statement of the intensity of his sufferings, Seneca adds that his physicians called the disease from which he suffered a *meditatio mortis.* Forbes and Gardiner regard this case as one of true angina pectoris, although Parry did not.

Descending the chronologic pathway of medicine toward modern times, we find a less disputable case of angina portrayed in that vast clinical mine of symptomatology and morbid anatomy, the *De Sedibus et Causis Morborum per Anatomen indagatis* of Morgagni (Book ii, Letter xxvi, Art. 31; Alexander's version):

The mother of a family, aged 42, had lived long in a state of infirm health and had long been subject to a kind of paroxysm, which appeared in the following manner: On using pretty quick exercise of the body, a kind of violent uneasiness came on, within the upper part of the thorax, on the left side, joined with a difficulty of breathing, and a stupor of the left arm; all which symptoms soon remitted when these motions ceased. This woman then, having set out about the middle of October, in the year 1707, from Venice, to go up the continent in a wheel carriage, and being cheerful in her mind, behold the same paroxysm returned: with which being seized, and saying that she should die, she actually died on the spot.

The body being brought back into the city, was examined by me on the following day; the face was somewhat livid; the other parts appeared to be quite of a good color and habit; but the upper parts were somewhat lank and wrinkled. And as, on account of those things already related, I had a suspicion of an aneurysm at the curvature of the aorta; the dissection was begun from the thorax. In this cavity was contained a serum, of itself bloody, and in equal quantity on both sides, and not inconsiderable; for it had been observed that no blood had fallen down thither in making the incision of the thorax. The lungs were sound, except that being cut into, as I saw afterward, they abounded with too great a quantity of frothy serum. The heart was rather large, very hard, and very strong. The aorta was not a little dilated at the curvature; but in other parts of the trunk, and the larger branches, of a proper width. But internally, wherever you cut into it, it was here and there unequal, and not without complete bony scales, of a small size; not to mention frequent marks of ossification being begun. And seeing this, I opened the whole trunk, and the larger branches: and in this trunk, from the very origin behind the semilunar valves, which were in some places hard, I observed the disorders that had been described, together with the beginnings of future bone, quite to the iliac arteries. Yet through these, and others that are even higher, and in particular the left subclavian, they were not propagated, if you except a part of that other artery, which gives origin to the carotid and subclavian on the right side. Carrying our eyes back from thence to the heart, and to the other vessels that are annexed to it, we saw no kind of disorder anywhere, except that the trunk of the pulmonary vein seemed to be somewhat larger than it naturally is. In this, and in the adjoining ventricle, was a small quantity of blood, which, like the blood in all other parts of the body, was black, and altogether fluid. But in the trunk of the pulmonary artery was no small quantity of blood; notwithstanding in the right ventricle, and its auricle, there was none; without doubt because it had flowed down through the vena cava, which had been previously cut into a little below the liver.

And in examining the viscera of the belly, we made the following observations: The small intestines were mostly somewhat red, and a little livid. The stomach was in a manner double, by reason of the antrum pylori being in some measure divided from the other part by a kind of constriction; but in other respects sound. The liver was extended very far to the left, and on the right side of it; and on the lobe which was continued from that edge, it was of a more saturated color for some space, both within and without, and rather hard. The pancreas was also very hard, and on the side which lay near the spleen, of a red and blackish color, from the blood that stagnated in it. But the spleen was lax; so that it could easily be broken down with the fingers. The testes were contracted. The osculum uteri was dilated, and subsiding; and the upper part of its fundus was tinged externally, of the same color with that which I said the small intestines were tinged with; and not without a disagreeable smell. And there was in the pelvis of the abdomen a serum of the same kind with that in the thorax, but in small quantity. The other parts had nothing worthy of observation. The head I did not touch, for it was already late at night, and the woman died while she was speaking, as I said before.

A curiously interesting item in the early literary history of angina pectoris is the fact that the perusal of Dr. Heberden's original description of this symptom-group elicited a letter to him on the subject, which, as Professor Osler truly observes, contains one of the best extant descriptions of its features. Heberden's first communication on the subject was read at the College of Physicians of London, July 21, 1768. On November 17, 1772, he read another paper on the same subject, the early portion of which forms one of the most instructive contributions which has, even to the present date, been made to the literature of this subject. It opens as follows:

> Soon after the publication of the second volume of the Medical Transactions, I received the following anonymous letter:
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> Sir:—Seeing among the extracts from the Medical Transactions in the *Critical Review* of last month, your account of a disorder, which you term the angina pectoris, I found it so exactly corresponds with what I have experienced of late years that it determined me to give you such particulars as I can recollect at those times to have felt, more especially as some sensations have frequently led me to think that I should meet a sudden death. I am now in the fifty-second year of my age, of a middling size, of a strong constitution, a short neck, and rather inclining to be fat. My pulsations at a medium are about 80 in a minute; the extremes, when in a perfect state of health, beyond which I scarcely ever knew them, 72 and 90. I have enjoyed from my state of childhood so happy a state of health as never to have wanted, nor taken, a dose of physic of any kind for more than 20 years. As well as I can recollect, it is about five or six years since that I first felt the disorder which you treat of; it always attacked me when walking, and always after dinner or in the evening. I never then felt it in a morning, nor when sitting, nor in bed. I never ride, and seldom use a coach, but it never affected me in one. The first symptom is a pretty full pain in my left arm a little above the elbow; and in perhaps half a minute it spreads across the left side of my breast, and produces either a little faintness, or a thickness in my breathing; at least I imagined so, but the pain generally obliges me to stop. At first, as you observe, it went off instantaneously, but of late by degrees; and if, through impatience to wait its leaving me entirely, I resumed my walk, the pain returned. I have frequently, when in company, borne the pain, and continued my pace without indulging it, at which times it has lasted from five to perhaps ten minutes, and then gone off, as well as I can recollect, rather suddenly, as it came on, than lessening gradually. Sometimes I have felt it once a week; other times a fortnight, a month, or a longer time, may elapse without its once attacking me; but, I think, I am more subject to it in the winter than in the summer months. As, when the pain left me, I had no traces of having the least disorder within me of any kind, either from spitting blood, or any corrupted matter, nor ever entertained the least thought of any abscess being formed, I never troubled myself much about the cause of it, but attributed it to an obstruction in the circulation, or a species of the rheumatism. I shall now proceed to acquaint you with those sensations which to me seem to indicate a sudden death, but which, not being concomitant with the above mentioned disorder, I am ignorant whether they are to be attributed to it or not. I have often felt, when sitting, standing, and at times in my bed, what I can best express by calling it an universal pause within me of the operations of nature for perhaps three or four seconds; and when she has resumed her functions, I felt a shock at the heart, like that which one would feel from a small weight being fastened to a string to some part of the body, and falling from the table to within a few inches of the floor. At times it will return two or three times in half an hour; at other times not once a week; and sometimes I do not feel it for a long time; and I think I have been less subject to it for a year past than for several former ones. As you have mentioned several, who within your own knowledge have died suddenly, that were troubled with the angina pectoris, I suspect they were subject to what I have delineated, as I think that much more likely to occasion a sudden death than either of the causes to which you attribute it. But, be the cause what it may, if it please God to take me away suddenly, I have left directions in my will to send an account of my death to you, with a permission for you to order such an examination of my body as will show the cause of it; and, perhaps, tend at the same time to a discovery of the origin of that disorder, which is the subject of this letter, and be productive of means to counteract and remove it.
>
> I am, sir, yours,
>
> UNKNOWN.

An extraordinary coincidence in the history of this case is then added by Dr. Heberden:

> In less than three weeks after he had sent this letter I was informed that in the midst of a walk, which he was taking after dinner, he leaned against a post and begged a passenger to assist him, by whose help he reached a neighboring house, where he vomited much and was bled, but died in less than half an hour. (The postmortem examination was made by the famous John Hunter, at the request of Dr. Heberden.) But upon the most careful examination no manifest cause of his death could be discovered. . . . The heart with its vessels and valves were all found to be in a natural condition, except some few specks of a beginning ossification upon the aorta. . . . The left ventricle of the heart was remarkably strong and thick, and as perfectly empty of blood as if it had been washed. . . . It was very remarkable that the blood was nowhere coagulated, and did not coagulate even after being more than two hours exposed to the air, but at the same time could not be called perfectly fluid, being of the consistence of thin cream, but there was no separation of any of its component parts.

This fluidity of the blood after death from angina pectoris has also been noticed in other cases, as, I will have occasion to point out afterward.

Of the series of published cases and comments on this disease which appeared within the few years following the date of Heberden's original description, one of the most skilfully reported and instructive came from Dublin. On November 3, 1776, Dr. David MacBride, of this city, made a communication on the subject to his friend, Dr. Fothergill, for transmission to the Medical Society of London. It contained the following report, which had originally been furnished to himself in a letter by a friend whose name he does not give. As it appears to me of peculiar interest, in the departments both of symptomatology and therapeutics, I extract it in full:

> A. B., a tall, well-made man, rather large than otherwise, of healthy parents, except that there had been a little gout in his family; temperate, and very attentive to the business of his trade (that of a watchmaker); led a life uncommonly sedentary. From a boy he had been remarkably subject to alarming inflammations of his throat, which seized him at least once in the course of the year; in all other respects he was well.
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> In 1767 (then 48 years of age) he was taken, without any evident cause, with a sudden and very dispiriting throbbing under his sternum; it soon afterward increased, and returned upon him every third or fourth week, accompanied with great anxiety, very laborious breathing, choking, a sensation of fulness and distention in his head, a bloated and flushed countenance, turgid and watery eyes, and a very irregular and unequal pulse. The paroxysm invaded almost constantly while he was sitting after dinner, though now and then he was seized with it in the morning, when walking a little faster than usual, and was then obliged to stop and rest on any object at hand; once or twice it came on in bed, but did not oblige him to sit up, as it was then attended with no great difficulty of breathing. In the afternoon fits, his greatest ease was from a supine posture, in which he used to continue motionless for some hours, until quite spent and worn out with anguish, he dropped into a slumber; in the intervals between these attacks, which at length grew so frequent as to return every four or five days, he was, to all appearance, in perfect health.
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> Thus matters continued for more than two years; and various antispasmodics were ineffectually tried for his relief. In 1769 there supervened a very sharp constrictory pain at the upper part of the sternum, stretching equally on each side, attended with the former symptoms of anxiety, dyspnea, choking, etc., and with an excruciating cramp, as he called it, that could be covered with a crown piece, in each of his arms, between the elbow and the wrist, exactly at the insertion of the pronator teres; the rest of the limb was quite free. The fits were sometimes brought on, and always exasperated, by any agitation of mind or body. He once attempted to ride on horseback during the paroxysm, but the experiment was near proving fatal to him. The differences of season or weather made no impression on him; still, in the intervals, his health was perfectly good, except that his eyes, which, before his illness, were remarkably strong and clear, were now grown extremely tender, and his sight much impaired; he had no flatulency of his stomach, and his bowels were regular.
>
> In this situation, February 22, 1770, he applied to me for assistance. I had seen, I believe, 8 or 10 of these frightful cases before, and two of the patients dropped down dead suddenly. They were men between 40 and 50, and of a make somewhat fleshy; the fate of the others I was not informed of, or at least cannot now recollect.
>
> Having formerly found the total inefficacy of blisters, and the whole class of nervous medicines, in the treatment of this anomalous spasm, I thought it now right to attempt the correcting or draining off of the irritating fluid. To this purpose I ordered a mixture of aq. calc. mag. c., with a little of the aq. juniperi com. and a small proportion of Huxham's antimonial wine; as an alterative, I put the patient on a plain, light, perspirable diet; and restrained him from all viscid, flatulent, and acrimonious aliments. By pursuing this course he was soon apparently mended; but after he had persisted in it regularly for at least two months, he kept for some time at a stand. I then ordered a large issue to be opened in each of his thighs. One only was made; however, as soon as it began to discharge,

> his amendment manifestly increased; the frequency and severity of the fits abated considerably, and he continued improving gradually, until at the end of 18 months he was restored to perfect health, which he has enjoyed without the least interruption till now, except when he has been tempted (perhaps once in a twelve-month), to transgress rules by making a large meal on salted meat, or indulging himself in ale or rum punch (each of which never failed to disorder him from the beginning of his illness); and even on these occasions he has felt no more than the slightest notice of his former sufferings, insomuch that he would despise the attack if it did not appear to be of the same stock with his old complaint. No other cause has had the least ill-effect on him. Though rum was so constantly hurtful, yet punch, made with a maceration of black currants in our vulgar corn spirit, is a liquor that agrees remarkably well with him. He never took any medicine after the issue began to discharge, and I have directed that it shall be kept open as long as he lives. The inflammation of his throat has disappeared for five years past; he has recovered the strength and clearness of his sight, and his health seems now to be entirely reestablished.

This treatment, which would probably find few advocates among the advanced scientific physicians of the opening years of the twentieth century, and certainly not one at all among the bacteriologic pathologists, was afterward adopted by the celebrated Dr. Erasmus Darwin, the grandfather of the still more famous author of the "Origin of Species." In a volume published in 1796, he tells his readers that: "Four patients I have now in my recollection, all of whom I believed to labor under the angina pectoris in a great degree; which have all recovered, and have continued well three or four years by the use, as I believe, of issues on the inside of each thigh; which were at first large enough to contain two peas each and afterward but one. They took, beside, some slight antimonial medicine for a while, and were reduced to half the quantity or strength of their usual potation of fermented liquor." That versatile and accomplished genius goes on to give "Dr. MacBride, physician at Dublin," credit for having first recommended the use of "femoral issues" in angina pectoris; and proposes to add: "I was further induced to make trial of them, not only because the means which I had before used were inadequate, but from the ill-effect I once observed upon the lungs, which succeeded the cure of a small sore beneath the knee; and argued conversely, that issues in the lower limbs might assist a difficult respiration."

Proceeding to comment on the foregoing case, Dr. MacBride makes the following very interesting observations:

> This very alarming disease is not so common in this country as it appears to be in England; as the gentleman who furnishes the foregoing history has not, in near 40 years' most extensive practice, met with more than 8 or 10 cases; and it is now above six years since he has heard of any—a sure proof of its not being frequent, since, if it had, he undoubtedly would have been often consulted. I have also, within these few days, conversed with some more of our most eminent practitioners, who have seen a great deal of business, but not one of them remembers any case exactly similar to the present, or those which have been so graphically described by yourself and Dr. Heberden. For my own part, I have never met with one, but if I may be allowed to turn theorist on this occasion, I should ascribe the exemption to two circumstances, wherein the people of the two kingdoms materially differ; the one respecting the proportional numbers of sedentary persons, the other regarding the general course of living. In England, and especially the capital, at least 50 people are occupied in the several branches of the finer mechanical arts for one that is so employed in Ireland, and the posture in which the most part of these ingenious artists are constrained to sit at their work necessarily tends to impede the circulation through all the parts contained in the thorax. With you, men of all ranks certainly eat larger quantities of gross animal food, and drink more freely of malt liquors and sophisticated wines, than we do, for our lower sort may be said to live entirely on a vegetable and milk diet, and those who are in anything like easy circumstances drink either punch or wines, especially French, and our port, as yet, is brought to us entire from abroad, the vintners not having found out the way of brewing it at home. Hence, I presume, it is that we much seldomer see morbid degrees of obesity than you do; and from all the dissections of persons who have been carried off by the disease in question it appears that an increase of fat is, at least, one predisposing cause. The immediate paroxysm, indeed, seems to depend on a spasm of the heart, which, we may well believe, can only take place in an inferior degree so long as the patient continues to survive the fits, since a spasm here of any violence or duration, must infallibly prove fatal. . . .

The keen observations embodied in the above quotation have been well corroborated by the collective experience of other physicians; that this disease (or group of symptoms) is English above all things, one of luxurious living and full feeding rather than of the contrary conditions, and occurring preferably in subjects with a tendency to fatty deposition, are facts attested by universal testimony.

What the internal conditions are which determine the external manifestation of the special group of symptoms connoted by the term angina pectoris, is a query which has proved a monumental specimen of a pathologic pons asinorum. The various items of the following list of views have been individually advocated by various authorities: Dr. Heberden attributed it to spasm, which he did not, however, locate definitely; he seems to have looked upon the characteristic pain as a "cramp"—somewhere. Dr. MacBride, of Dublin, as we have seen, located the spasm in the muscular substance of the heart. In this view he was followed by Dr. Latham. The famous evangelist of vaccination, Dr. Edward Jenner, was the first to advance the view that the symptoms were dependent on the existence of calcification of the coronary arteries; and this idea was further expanded by Sir Everard Home, who explained the pain by the pressure of the cardiac nerves against such calcified arterial tubes during spasm of the surrounding muscular fibers. Desportes made it a neuralgia of the pneumogastric, Laennec of the sympathetic, Bouillaud of the phrenic, Jolly of the intercostal nerves, Piorry of the brachial (and some thoracic) nerves, and Romberg of the cardiac plexus. Bamberger, with his characteristic superrefinement of nomenclature, made it a hyperkinesis with hyperesthesia of this plexus. Erasmus Darwin attributed it to spasm of the diaphragm, and Butler regarded the symptoms as indicative of the presence of diaphragmatic gout—a view in which he was followed by MacQueen, Johnston, and Blackall. Rougnon attributed all the phenomena to the results of ossification of the costal cartilages. Virchow ascribed them to embolic plugging of the coronary arteries.

The most important evidence of any has, to my mind, been furnished by Lancereaux and Peter, who, in several cases, reported the existence of distinct evidence of neuritis in the nerves of the cardiac plexus. This would account for the pain and the irritative reflex inhibition, which would be a very possible consequence of the involvement of the branches of the pneumogastric nerve involved in that plexus, and offer an efficient cause of the sudden death which so often marks the period of this painful affection.

In the face of the varying conditions which have been found on examination of the bodies of persons who have died with the symptoms of angina pectoris, it is somewhat curious to find this condition defined as follows by the author of the article on this subject in the *Twentieth Century Practice of Medicine:* "Angina pectoris . . . is an affection of the heart characterized by paroxysms of agonizing pain of sudden occurrence, which irradiate usually to the shoulder and left arm, attended with an awful sense of impending death, caused by sclerosis of the coronary arteries at or about the aortic orifice." On the next page but one we read: "As certain cases, even fatal, have been found without discoverable anatomic lesion . . . ;" and later on: "Tacchi reports the following lesions observed in 70 cases: Lesion of the coronary arteries, alone or accompanied with lesions of the heart or great vessels, 38 times; insufficiency of the aortic sigmoids, 12 times; aneurysm of the arch of the aorta, 5 times; fatty degeneration of the heart, 4 times; hypertrophy and dilation, 4 times; pericarditis, 3 times; suppuration in the mediastinum, 1 time; negative results, 3 times." It requires no very special knowledge of either medicine or logic to be able to see that a chain of 70 links, of which three essential ones have been subjected to a process of instantaneous evaporation, has ceased to function as a bond of union between a fact and a theory.

That the great majority of cases of angina pectoris are accompanied by structural changes in the heart or aorta, or both, is a necessary conclusion from the sum total of the evidence which has been collected on the subject up to the present. Of 19 cases tabulated by Dr. Ogle in a very able communication to the Pathological Society of London, 12 presented calcification of the coronary arteries; 12, fatty degeneration of the cardiac muscle; 10, atheroma of the aorta; and 6, valvular disease of pronounced character.

A shrewd attempt at a pathologic solution of the mystery of angina pectoris was made by Wall, whose communication to Heberden on the subject was, like the letter from the "Unknown," elicited by the publication of his original description. Both letters were read at the same meeting of the College of Physicians; and that of Wall contains the first account of a postmortem examination of a patient who had succumbed in a paroxysm, which, so far as I know, followed Heberden's baptism of the symptom-group. This man "died after having struggled in the fit about two hours," and "the heart appeared of an uncommon size, and was covered with a great quantity of fat; the pericardium contained not less than a pint of fluid . . . no part appeared diseased till we opened the left ventricle; and there, the semilunar valves, placed at the origin of the aorta, were found to be perfectly ossified. They did not, as usual, lie flat upon the divided orifice of the vessel, but stood erect and appeared to be immovable. They were entirely osseous through their whole substance . . . ; the aorta was at its curvature considerably enlarged; and for near an inch from the heart was in part ossified; there being several bony scales or laminæ in it, but not connected with one another." On this condition he makes a series of interesting remarks, of which the following forms the concluding paragraph: "It is possible that this induration of the semilunar valves may not be always the cause of this disease; though it seems not improbable that some malformation in the heart or vessels, immediately proceeding from it, may be so. Indeed, when we consider how frequently such indurations in the valves of the heart have been found; that the disease in question does not come on till a person is advanced in years, and consequently till a rigidity in every part naturally comes on; we shall, I think, be inclined to imagine that a preternatural induration of the parts necessary to the circulation through the heart may be the predisponent, if not the efficient cause of this disorder."

To the famous Edward Jenner, the philanthropic evangelist of vaccination, is attributable the credit—if, indeed, any credit really exists—of having tried to explain the symptoms by the presence of disease of the walls of the coronary arteries. This suggestion is contained in a very interesting (and otherwise remarkable) letter—also communicated to Dr. Heberden—on the case of his revered friend and former teacher, John Hunter, whom he had seen (in 1776) after a second attack of angina pectoris. The intrinsic interest of this letter makes it well worth reading at the present day, even apart from the passing inspiration which every true lover of medicine must feel from the association of the great names connected with it.

> When you are acquainted with my motives, I presume you will pardon the liberty I take in addressing you. I am prompted to it from a knowledge of the mutual regard that subsists between you and my worthy friend, Mr. Hunter. When I had the pleasure of seeing him at Bath last autumn, I thought he was affected with many symptoms of angina pectoris. The dissections, as far as I have seen, of those who have died of it, throw but little light upon the subject. Though in the course of my practice I have seen many fall victims to this dreadful disease, yet I have only had two opportunities of an examination after death. In the first of these I found no material disease of the heart, except that the coronary artery appeared thickened.
>
> As no notice had been taken of such a circumstance by anybody who had written on the subject, I concluded that we must still seek for other causes as productive of the disease; but about three weeks ago Mr. Paytherus, a surgeon at Ross, in Herefordshire, desired me to examine with him the heart of a person who had died of the angina pectoris a few days before. Here we found the same appearance of the arteries as in the former case. But what I had taken to be an ossification of the vessel itself, Mr. P. discovered to be a kind of firm, fleshy tube, formed within the vessel, with a considerable quantity of ossific matter disposed irregularly through it. This tube did not appear to have any vascular connection with the coats of the artery, but seemed to lie merely in simple contact with it.
>
> As the heart, I believe, in every subject that has died of the angina pectoris, has been found extremely loaded with fat, and as these vessels lie quite concealed in that substance, is it possible this appearance may have been overlooked? The importance of the coronaries, and how much the heart must suffer from their not being able duly to perform their functions (we cannot be surprised at the painful spasms), is a subject I need not enlarge upon, therefore shall just remark that it is possible that all the symptoms may arise from this one circumstance.
>
> As I frequently write to Mr. H., I have been some time in hesitation respecting the propriety of communicating the matter to him, and should be exceedingly thankful to you, sir, for your advice upon the subject. Should it be admitted that this is the cause of the disease, I fear the medical world may seek in vain for a remedy, and I am fearful (if Mr. Hunter should admit this to be the cause of the disease) that it may deprive him of the hopes of a recovery.

And in another letter Jenner says:

> Soon after Mr. Paytherus met with a case. Previous to our examination of the body I offered him a wager that we should find the coronary arteries ossified. This, however, proved not to be exactly true; but the coats of the arteries were hard. . . . At this time my valued friend, Mr. John Hunter, began to have the symptoms of angina pectoris too, strongly marked upon him; and this circumstance prevented my publication of my ideas on the subject, as it must have brought on an unpleasant conference between Mr. Hunter and me.

Although neither Cline nor Everard Home would condescend to adopt his views at first, we are afterward told that:

> When, however, Mr. Hunter died, Mr. Home very candidly wrote to me immediately after the dissection, to tell me I was right.

In the year (1775) before Jenner had communicated his letter to Heberden, Dr. Fothergill had been treating a victim of angina pectoris, and "in the evening, in a sudden and violent transport of anger, he fell down and expired immediately." A postmortem examination was made "by that very skilful and accurate anatomist, John Hunter, F. R. S.;" and "the two coronary arteries from their origin to many of their ramifications upon the heart, were become a piece of bone."

In his postgraduate lectures of eight years ago, Professor Osler treated this subject with characteristic brilliancy, and gave an excellent summary of the up-to-date knowledge of the morbid anatomy of angina pectoris, to which hardly anything of importance has since been added. His special authority on the statistics of the subject was Huchard. "In a supplementary chapter to this work you will find a summary of 145 autopsies in cases of angina, gathered from the literature. In 17 cases there was mention only of a lesion of the coronaries without further specification; of 128, there were 68 with lesions of both coronary arteries, 37 of the left vessel, 15 of the right, and in 12 the seat of the lesion was not stated. In the 128 cases, obliteration or stenosis of the vessels had occurred; and of these, in 121 there was atheromatous narrowing or thrombosis, in 5 embolism, and in 2 compression. Fatal cases are on record in which the coronary arteries have been found normal; most of these are instances of adherent pericardium or valvular disease." It is hardly necessary to dwell further on the still unsatisfactory state of our knowledge of the morbid anatomy of a very important clinical condition.

The pain—the urgent symptom—in angina pectoris has not, to my mind, been ever satisfactorily explained. The early idea that it was due to cramp of the cardiac muscle, might be thought to account for that part which is localized in the precordial area, and has of recent years been ably advocated by Dr. Goodhart, of Guy's Hospital, London. But this theory cannot account for the central focus of midsternal pain, which I have observed to be the most severe, and which was so in the experience of Heberden himself. Wall, whose paper I have already quoted, and who was one of the earliest followers of Heberden in contributing to the literature of this subject, attempted to account for the humeral pain which is usually so prominent a characteristic of the anginal paroxysm. "It may be difficult to account satisfactorily for the symptom above taken notice of, when the pectoral muscle is so particularly affected, but this appears to be merely spasmodic, and to arise from an irritation on the nerves of the thorax and heart. Perhaps it may throw some light on this affair to consider that the nervi intercostales, or sympathetici, distribute many branches to the heart, arteria pulmonalis, and aorta; the other branches of the same nerves surround the subclavian arteries and veins, and communicate with the cervicales, which latter terminate at the insertion of the deltoid muscle into the os humeri, which is precisely the place affected by the spasm already mentioned."

Erasmus Darwin, in his description of the paroxysmal agony of angina pectoris, observes that:

> A pain in the arms, about the insertion of the pectoral muscle, generally attends, and a desire of resting by hanging on a door or a branch of a tree by the arms, is sometimes observed.

His theory of the phenomenon, which he advances elsewhere, is as follows:

> As a principal branch of the fourth cervical nerve of the left side, after having joined a branch of the third and of the second cervical nerves, descending between the subclavian vein and artery, is received in a groove formed for it in the pericardium, and is obliged to make a considerable turn outward to go over the prominent part of it, where the point of the heart is lodged, in its course to the diaphragm, and, as the phrenic nerve of the right side has a straight course to the diaphragm, and as many other considerable branches of this fourth pair of cervical nerves are spread on the arms, does not a pain in the left arm distinguish a disease of the pericardium, as in the angina pectoris, or in the dropsy of the pericardium? and does not a pain or weakness in both arms distinguish the dropsy of the thorax?

The accounts contained in the extracts which I have already given include the best descriptions which, so far as I have been able to ascertain, have hitherto been published of the curious, interesting, and comparatively uncommon group of symptoms which are connoted by the term angina pectoris. I will now proceed to compare and contrast the prominent features of my own test case with those of the principal examples furnished, and in the light of the statistics collected by the other prominent authorities who have dealt with the same subject.

With regard to the radiations from the central focus of pain, Huchard tabulates the reflexions as follows:

> Irradiation occurs (1) preferably to the upper extremities, and especially to the left arm; (2) to the cervical plexus, with pains in the neck, face, tongue (Trousseau), chin, and ear (Butler, Wichmann), to the temporomaxillary articulation, where it may produce a kind of trismus; (3) to the external cardiac branches of the pneumogastric to the throat, larynx, stomach, and liver, producing aphonia, a kind of globus hystericus, a sensation of heat in the epigastrium, nausea, eructation, vomiting, gaseous distention, pains in the hypochondrium simulating hepatic colic; (4) to the intercostal and diaphragmatic nerves, with pains in the thorax, vertebras, breast, and hyperesthesia in the mammary region, as observed by Laennec; (5) to the hypogastric region (Blackall); to the testicle with swelling (Hoffmann, Laennec, Gintrac); ilioscrotal neuralgia (Axenfeld); strangury (de Lorme); dysuria (Blackall, Lartigue); and (6) to the lower extremities (Friedreich).

The prognosis of sudden death, which appears to have been so prominently before the minds of the older physicians, was not verified in this case. On this point Dr. Heberden, in the later description of angina pectoris which is found in his "Commentaries," observes: "The termination of the angina pectoris is remarkable. For if no accident intervenes, but the disease goes on to its height, the patients all suddenly fall down and perish almost immediately, of which, indeed, their frequent faintness and sensations, as if all the powers of life were failing, afford no obscure intimation." Dr. Wall, who was inspired by Dr. Heberden's original communication to the College of Physicians of London, to write to him on the subject, states: "I have seen 12 or 13 persons afflicted in this manner, of which number, one who applied early in the disease, was relieved considerably by the use of antimonial medicines joined with the fetid gums. He is still living, and goes about with tolerable ease. Two were carried off by other disorders, all the rest died suddenly." In this connection, Professor Gairdner (of Glasgow), has remarked: "The fact of sudden death, superadded to the evidence of certain sensations preceding death, may be considered to afford the nearest approach we have to an accurate definition of this disease."

With regard to the sex of the subjects of angina pectoris, universal experience bears testimony to the vastly greater degree of frequency of its occurrence among males, so that my patient formed a unit of the small minority. Heberden himself states in his "Commentaries": "I have seen nearly 100 people under this disorder, of which number there have been three women." Of 88 cases collated and commented upon by Sir John Forbes, 8 only occurred in females; and the experience of other authorities is found to be very similar. Lartigue tabulated 67 cases, of which 7 were in women. Huchard, in his very exhaustive discussion of this question, has collected the principal data of 237 cases of true angina, of those 42 were in females. Professor Osler collated a series of 40 cases of the same disorder, of which but one was in a woman.

In connection with the question of the age at which angina most frequently appears, M. Lartigue has tabulated 65 cases. Of this number 1 occurred at 17 years, 1 at 21, 1 at 25, 1 at 29, 6 between 30 and 35, 2 at 40, 11 between 41 and 51, 25 between 51 and 60, 13 between 60 and 70, and 4 between 71 and 77. My patient surpassed the "record" limit of this statistical table. Even by her own account she was 78, and some of her more intimate lady friends more than once insinuated to me that she had, to their own personal knowledge, remained at that age for a considerable number of years. Professor Osler's paragraph on this subject is admirably clear and succinct: "The age at which it is most common is that of arteriosclerosis—after the fiftieth year of life. Of the 40 cases on my list, there were only 4 patients under 40. One of these, a man aged 30, had had syphilis five years before; the other patient, a woman aged 32, had mitral valve disease; the third patient had terrible attacks of angina following chronic pleurisy. In the fifth decade there were 13, in the sixth, 13, in the seventh, 9, and in one case I did not get the exact age. The average of the 39 patients was about 53 years. Cases are reported of quite young individuals, even children, but such are almost invariably the subjects of chronic valvular disease or adherent pericardium." The age of 52 has indeed been so frequently observed to be a favorite period for the onset of true angina that some have suggested that it might deservedly be designated the "anginal climacteric." Of the 88 cases collected by Forbes, 72 had passed the age of 50 before the initial attack.

With regard to the nationality of angina pectoris, my patient belonged to the majority. As I have already observed, the preference of this symptom-group to select its victims from the Anglo-Saxon population has been noticed by the most observant authorities on the subject—almost from the date of Heberden's original article. My readers will, of course, recall the remarks of Dr. MacBride on this head.

It has been said of angina pectoris, as Sydenham said of gout, that it more frequently victimizes "the rich than the poor, and the wise than the foolish." In regard to these qualities, my patient was also on the side of the majority. She was well-born, well-connected on both sides of the house, and had always lived in affluence. With regard to mental endowments, she was also enrolled on the longer list. Her activity (or restlessness) of mind (as well as of body) has been already referred to.

As I have remarked in the preceding paragraph, angina possesses this feature in common with gout: It manifests a decided preference for the higher types of cerebral function. "The intellectual and anxious" are specially prone to its invasions. It has often notably displayed the best discriminating powers in the selection of its sufferers; the list of the latter actually includes some of the very best known specimens of artistic and scientific culture. Medicine and natural history are represented by John Hunter and Charles Darwin, theology by Dr. Chalmers, general literature by Matthew Arnold, sculpture by Thorwaldsen, and her "rainbow sister" by John Leech.

Obesity has often been noticed as a frequent concomitant of the existence of angina pectoris. Even John Hunter, whose restless activity of both mind and body has seldom been surpassed in the history of the human race, waxed fat after he had become an elect victim of anginal attacks. This was attributed by his biographer—and I have no doubt, justly—to deficiency of accustomed exercise. Many other observers have also pointed out the greater frequency of the occurrence of angina in stout persons. My patient was, however—in this particular, as in that of her sex—a member of the minority. She was rather spare as well as tall. Accordingly, the short neck and broad shoulders which have so often been noticed in connection with angina, as they have been with the attentions of gout and apoplexy—pathologic conditions which, I must remark in passing, are also so intimately associated with atheroma—such significant outlines of structure were conspicuously absent.

The temper of the sufferer has often been observed to constitute a rather characteristic feature—and sometimes a most influential clinical one—of the origin and progress of angina, of the force, the frequency, and even the fatality of its attacks. John Hunter's classic case, in which he "felt his life to be in the power of any rascal who choosed to annoy or tease him," is well known to every one of my readers who is interested in the personal history of the intellectual giants of our profession. The temper of my patient corresponded fairly well with that of the great pathologist. It has been said of a frequently-associated clinical entity that "a fit of the gout is often a fit of bad temper;" and, with corresponding limitations, the same may also be said, I think, of angina pectoris.

One more clinical feature of this case is, I think, worthy of remark. Trousseau's conception of angina as an epileptiform neuralgia, or cardiac epilepsy, is well known. The remarkable way already mentioned, in which the aura-like pain often commenced at the periphery and shot up to the shoulder in my patient, and thence inward to the precordial and midsternal regions, was curiously suggestive of the view of the great physician of the Hôtel Dieu.

I have already expressed the opinion that all writers on the subject appear to have failed to offer anything like a satisfactory explanation of the radiations of the paroxysmal pain, which characterize the attacks of angina pectoris. If I may venture to rush in where so many wiser and more experienced observers have significantly failed to tread with success, I would point out to my readers what has appeared to me to be a considerable similarity between the paroxysms of angina and the painful cramps of alcohol neuritis. Having regard to the different systems of nerves affected, I venture to suggest that the analogy will hold good. Adopting, as I do, the idea based upon the theory of Romberg, and the postmortem demonstrations of Lancereaux and Peter, that the symptoms are primarily caused by the affection of the cardiac plexus, the variable amount of radiation of pain may simply be due to the varying extent to which this neuritis has extended to other filaments of the vasomotor nerves. May not this vasomotor neuritis be more intimately associated with the distribution of atheroma than pathology has yet pointed out?

With regard to the treatment of angina pectoris, but little explanation is required of the action of the anodyne and antispasmodic medicines that are usually employed. Cures have been recorded under the use of powdered valerian root (Wichmann, Jurine), of asafetida, of camphor, of extract of hemlock (Johnstone), of sulfate of zinc (Perkins), of flowers of sulfur (Munk), of Fowler's arsenic solution (Alexander, Cahen). Bretonneau persuaded himself that he had cured a number of patients by the copious administration of sodium bicarbonate, sometimes associated with belladonna. I am doubtful—more than doubtful—of the reality of a genuine cure of true angina by such remedies.

The effects of wine I have nearly always found unsatisfactory; and more especially in the case in which I had the fullest opportunities for testing—that which forms the text of the present communication. They have been, in my experience, precisely what might have been anticipated in the presence of chronic neuritis; and very similar indeed to what Sir Everard Home noticed in the case of John Hunter. "As he had not drank wine for four or five years, he was advised to try it, which he complied with; but found the spasms more easily brought on after using it than on those days on which he drank none; and they were always more readily produced after eating a hearty meal."

The application of amyl nitrite to the relief of the paroxysms of angina pectoris is a boon which has been conferred upon suffering humanity by Sir Lauder Brunton; and, even if that great physiologist and therapeutist had done nothing else original in the whole of his professional career, I conceive that this achievement alone should have won for him the high reputation which he so deservedly enjoys as a scientific benefactor of the human race.

The theory of the action of amyl nitrite on the circulation which appears to be generally accepted is that it is due to the liberation of nitrous acid:

$$\underset{\text{Amyl nitrite}}{C_5H_{11}NO_2} + \underset{\text{Water}}{H_2O} = \underset{\text{Amyl alcohol}}{C_5H_{11}.OH} + \underset{\text{Nitrous acid}}{HNO_2}$$

The nitrous acid thus produced rapidly undergoes full oxidation:

$$3HNO_2 = HNO_3 + H_2O + 2NO.$$

The oxid of nitrogen so formed instantaneously exerts its wellknown affinity for oxygen:

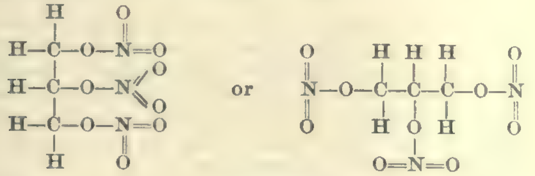
$$NO + O = NO_2.$$

And the dioxid so produced unites at once with water to form more nitric acid:

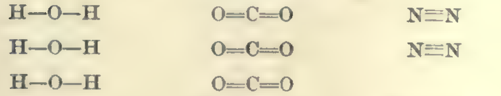
$$3NO_2 + H_2O = 2HNO_3 + NO.$$

Several other nitrites have, we are told, actions very similar to that of amyl. *Nitroglycerin* (trinitrin, glonoin) is the nitro compound which, after amyl nitrite, has achieved the highest reputation in this connection. Its action is said to be similar to that of the latter remedy, but manifesting itself more gradually, and lasting a longer time. Some authorities appear to have been greatly impressed by its effects; Trussewitsch conferred upon it the appellation of angioneurosin, and recommended its use in spastic migraine and other forms of neuralgia, in seasickness, and various other conditions in which the symptoms of cerebral anemia happen to form a prominent feature.

The intimate structure of the nitroglycerin molecule indicates the likelihood of rapid chemic transformation, which is borne out by a study of its explosive properties. I will turn aside for a moment to consider its constitution, although I have been badly disappointed in its therapeutic action. A high authority on organic chemistry gives us the following account of its molecular formula and atomic disposition: "Nitroglycerin has been analyzed, and unless the principles of our modern chemistry are all wrong, its molecules have the composition indicated by the symbol $C_3H_5N_3O_9$. Note that there are already in the molecule nine atoms of oxygen, more than enough to satisfy all the atoms, both of carbon and of hydrogen. When carbon burns, C_3 takes only O_6, H_5 only $O_{2.5}$ and why is not the affinity of these atoms for oxygen satisfied already? The only answer that can be suggested is, because the oxygen atoms, although parts of the same molecule, are not in combination with the carbon or hydrogen atoms in those molecules; and what is this but an admission that the molecules have a definite structure by which these atoms are kept apart?



Nitroglycerin.



Water Carbon dioxid Nitrogen gas

Now, when the substance explodes, what takes place is simply this: The oxygen atoms at one end of the molecule rush for the carbon and hydrogen at the other end, and the molecule is broken up, as our next diagram indicates; only, as there are not enough atoms to form even molecules, we must consider that one atom of hydrogen and one of nitrogen are borrowed from the fragments of a neighboring molecule broken up at the same time. It is seen, therefore, that the chemic action is very nearly the same as in the burning of gunpowder, the difference being that while in the powder the carbon and oxygen atoms belong to different molecules, in nitroglycerin they belong to the same molecule. In both cases the carbon burns, but in nitroglycerin the combustion is within the molecule. This difference, however, which the theory indicates is one of the great importance, and shows itself in the effects of the explosion.

In gunpowder the grains of charcoal and niter, although very small, have a sensible magnitude, and consist each of many thousand if not of many million molecules. The chemic union of the oxygen of the niter with the carbon atoms of the charcoal can take place only on the surface of charcoal grains; the first layer of molecules must be consumed before the second can be reached, and so on. Hence the process, although very rapid, must take a sensible time. In the nitroglycerin, on the other hand, the two sets of atoms, so far from being in different grains, are in one and the same molecule, and the internal combustion is essentially instantaneous. (Cooke.)

This lucid description of the structure and subsequent demolition of the nitroglycerin molecule would lead one to anticipate striking results from its internal administration. When we consider that the said molecule *cannot* exceed the size of a cube each of whose sides measures $\frac{1}{25000000}$ of an inch, our admiration must be increased for the wondrous architecture of nature; and also, I must add, for the discoveries (and discoverers) of modern science. I will then merely say, in dismissing the subject, that I have personally been disappointed in nitroglycerin; not chemicly, but therapeuticly.

Chloroform or other general anesthetics I did not think it desirable to try, on account of the age and general restiveness of the patient.

The other remedies which I used hardly call for special discussion.

MODERN MEDICINE.[1]

BY
WILLIAM B. ULRICH, M.D.,
of Chester, Pa.
President of the Society.

Among the subjects that we shall consider at this meeting is the instruction of children on matters relating to health. The committee on textbooks for use in our public schools has been charged with a very important duty. In its appointment, this society showed that it appreciates the fact that a responsibility rests upon the medical profession with regard to the proper teaching of physiology and hygiene, a responsibility which has been met by the appointment of a committee to supervise school textbooks. The chief object in naming this committee was to aid the efforts that are now being made to educate the children on these important subjects, and especially upon the effects of narcotics and stimulants, and the injury that results to health and vigor from excessive indulgence in tobacco and alcohol. The purpose sought to be attained is merely to insure that teaching on these subjects shall be of a reliable, scientific character. Regarding the moral, economic and social aspects of the question, and the propriety or impropriety of the use of alcohol or tobacco, this society of course has nothing directly to do. Personally, however, it is within the province of every member, and it is by many considered a high professional duty, to discountenance, both by example and precept, the use of spirituous liquors as a beverage, or if used at all, in this way, to see that they are not abused. No class in the community is more painfully aware of the great harm that results from the intemperate use of alcohol than physicians—its pathologic consequences are brought to our notice daily. I think, therefore, that I am correct in stating that we are in accord with the motives that inspired the practical and earnest philanthropists, who form the department of scientific temperance instruction in schools and colleges, of that noble organization, the Women's Christian Temperance Union. Through their energy and persistent effort, with the aid of the physicians, and humanitarians, instruction in physiology and hygiene, including the nature and effects of alcoholic drinks and other narcotics, is now required by law in every State and Territory of the United States, including Porto Rico and Hawaii. It is of interest to note that at the St. Louis Exposition a large number of the States have exhibits of the pupils' work in this branch, as a part of their regular school exhibit. This shows that the study is settling into its proper place in the school curriculum as a regular subject of instruction. Upon inquiry into the working of the recent laws upon the teaching of this subject, I have learned that in New York and in Illinois, where the laws specifically require this instruction to be given to all pupils in all grades of the public schools below the second year of the high schools, under penalty of forfeiture of public money in case of nonenforcement of the laws, there are between two and three million children in the public schools to whom this instruction must be given at least for a portion of each year. In Pennsylvania, where the law is nearly as specific and on the whole very well enforced, there are over one million pupils in the schools. The number of children therefore actually receiving hygienic instruction in this broad land of ours must be many millions. Some criticism has been aroused of the textbooks now used in our schools as to their teaching of physiology, and especially in their statements with regard to alcohol, it being claimed that some of them show the effects of haste in preparation, and unscientific prejudice.

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[1] Address delivered at the meeting of the Medical Society of the State of Pennsylvania, held at Pittsburg, September 27 to 29, 1904, and published in abstract synchronously with *The Pennsylvania Medical Journal* by courtesy of the editor.

For several years this society had this subject under consideration and has had the services of an active and industrious committee, whose reports have appeared in our proceedings. You are familiar with the work done by that committee, which was arduous and, I fear, not fully appreciated by the society. At our last meeting, as stated, another committee was appointed to carry on this work and its report will be presented for your consideration later.

It is noteworthy that the socalled medical, temperance education laws have incidentally brought into our public schools a systematic study of physiology and the laws of health. Previously this subject was not regularly taught, or was pursued only in a fragmentary way in the higher schools. Now, anatomy and physiology, with their applications to daily life, especially in relation to food, drink, clothing, exercise, ventilation, etc., are taught even to the youngest children in the lower classes and continued right up to the high school. The effect of this great educational movement, quite aside from its bearing upon the use of alcohol and tobacco, has been greatly to extend popular hygienic and physiologic knowledge. The result must inevitably lead to improved personal hygiene, to a steadily growing sentiment in favor of public sanitation and to popularization of sanitary science. When the public is acquainted with the dependent relation of cholera, typhoid fever, dysentery and other diseases upon the drinking of infected water, they will more readily follow the advice of the health boards to boil drinking water, in times of epidemic. It will also be easier to keep our large cities in good sanitary condition when the public is sufficiently intelligent, and sufficiently informed upon the subject of the causes of filth diseases, to cooperate with the health officers, in removing such causes, and keeping their premises clean.

I am somewhat of an enthusiast upon this subject of instructing the people, and especially the children, on the causes of health and disease—how to gain the former and avoid the latter. In my opinion this is the most important teaching that could be given in early life, and one that is sure to be followed by the most beneficial results. This opinion is gaining recognition elsewhere. For instance, a petition has been recently signed by more than 16,000 physicians of England requesting parliament to inaugurate compulsory systematic instruction in the schools of Great Britain, in the requirements of health, including the nature and effects of alcoholic drinks, by laws similar to those in force in this country. The success of such legislation and instruction in our own country has been quoted as a precedent and a powerful argument for introducing such teaching into the schools of Great Britain.

I hail the dawn of preventive medicine, that we are now inaugurating. People are being taught that the laws of their physical organism are fixed, immutable laws and that they absolutely govern growth, reproduction, and final dissolution. When individuals do not make their actions accord with these physiologic laws they must inevitably suffer according to the law of compensation. We are rewarded for keeping our lives in harmony with these laws; we shall be punished if we violate them. This is the doctrine that I have been teaching my patients all my professional life. If a man does well he shall be rewarded; if he does ill he shall not escape the consequences of his evil doing. I have done my best to disabuse the public of the erroneous and harmful view that a man may with safety constantly violate the laws of health, and subsequently go to the doctor and "be fixed up" so that he shall escape the consequences. He may, it is true, receive temporary relief from ill feeling; but he should be made to realize that persistent evil doing will inevitably lead to ultimate pathologic results, from which there is no relief except by death.

When this teaching is more universal and is generally acted upon by the public, less medicine will be used, because less will be needed, and the general vigor and health of the people will be immensely improved. In this opinion I have the support of such an eminent clinician as the late Austin Flint, Sr., who in his address written for the annual meeting of the British Medical Association in 1886, declared that to him it was "a pleasant thought that hereafter the practice of medicine may not be so closely interwoven as hitherto, in the popular mind, with the use of drugs. The time may come when the visits of the physician will not as a matter of course involve the cooperation of the pharmacist; when medical prescriptions will be divested of all mystery and have no force in the way of fortifying the confidence of the patient. The medical profession will have reached a high ideal position when the physician, guided by his knowledge of diagnosis, the natural history of diseases, and existing therapeutic resources, may, with neither self-distrust, nor the distrust of others, treat an acute disease by hygienic measures without potent medication."

In this connection I will also refer to the report of a British Commission on Physical Deterioration, which has just been issued in England as a parliamentary Blue Book. It is a full confirmation of the views that I have just expressed as to the connection between health and habits of life, and the importance of instruction of the people in sanitary matters. The commission examined a large number of imperfectly developed children. It is a significant fact that of all the undergrown children examined 98% had been habitual smokers of cigarets. The abuse of alcohol ranks high as a cause of physical degeneration in both adults and children. Excessive tea drinking is a veritable scourge, accounting for much deterioration among the poor. Overcrowding in the tenements is denounced, and it is recommended that radical measures be taken to fix the limits of congestion in large cities, beyond which it shall be unlawful to go.

To know the cause of an evil is to take the first step toward its correction, and education lies at the very foundation of progress. All efforts to promulgate correct ideas as to cause and effect, between offenses against sanitary laws and the occurrence of diseases, therefore, should receive the encouragement of every one interested in the welfare of the community in which he lives, and in this regard none stands higher than the scientific, educated physician.

I should like to direct attention to some of the recent striking illustrations which we have had of the scientific character of modern medicine. Some years ago Professor Tyndall spoke, in a public address, of three great principles which in after time will be regarded as the glory of the present age—the conservation of energy, the doctrine of evolution, and the germ theory of disease. Recently, through the discovery of radium and radioactive bodies, the theory of the conservation of energy has been brought seriously into question. The doctrine of evolution also has been greatly modified by the successors of Darwin, and is no longer regarded as indisputable among authorities on natural science. But the germ theory of disease, as taught by our own J. K. Mitchell, and by William Budd, of England, Pasteur, of France, and Koch, of Germany, by Schwann, Lister, and many others, has steadily grown from humble beginnings to the broad proportions of a distinct branch of medical science, with an imposing literatnre of its own, and special laboratories for its study in all of our colleges and hospitals.

I shall not attempt to enumerate the benefits that have followed the introduction of bacteriology into medicine. It is trite to say that it has given to us an entirely different point of view of pathologic problems and has placed in our hands the means of accomplishing results that previously had been beyond our resources, but it is true, and will bear repetition. Among the recent achievements of surgeons in our own State, made possible by the antiseptic or aseptic method, I will simply mention the treatment of an incised perforating wound of the heart by the interrupted ligature, with the recovery of the patient. You also recall the case of a young girl with a bullet wound of the spinal cord, the severed ends of the cord being promptly united by animal ligature. I am informed that this patient is living, a year after the operation, with evidence of returning power of movement in the limbs. By the aid of the röntgen rays our surgeons have accurately located foreign bodies in the eye, and have removed them with preservation of function of vision. These are a few striking illustrations of the value of antiseptics in surgery. In general medicine, the germ theory strikes the keynote in all infective diseases, and points the way to prevent and control them. The triumphs in gynecology and obstetrics are no less great. I will not dwell upon this attractive subject, but will leave it with one very practical observation. Our knowledge of the causes of puerperal septicemia makes it the positive duty of a physician, when called to a confinement case, to protect his patient, by the use of strict antiseptic precautions, from becoming infected either by himself or others. When the methods of prevention are such familiar knowledge and the effective means so easily applied, a wilful neglect of these means and methods surely can be regarded as only a little less than criminal; indeed, the physician who fails to safeguard such a patient by absolute cleanliness ought to be in jail. I may further remark, before leaving this subject, that in no department of medical practice is surgical cleanliness more appreciated by patients than in dentistry. I hope the time will soon arrive when every dentist shall practise the same precautions against infection as are now scrupulously observed by surgeons.

The special topic which I wish to bring before you for consideration, in the time that remains at my disposal, is "Medical Organization; Its Advantages to the Profession and to the Public." We have before us a great object lesson, the American Medical Association, and its branches. Fifty years ago, the advantages were problematic; now they are assured, and we are reaping the results. It seems a proper time to review some of the salient benefits that have been already obtained by the organization of the medical profession in the United States. Let us first briefly recall some of the advantages to the physician:

1. *Increased Harmony and Mutual Regard among Medical Practitioners.*—Our honored ex-secretary, William B. Atkinson, in his sketch of the "History of the Medical Society of the State of Pennsylvania," in commenting upon the state of the profession before this society was organized, observed that, even as late as 1850, a great objection on the part of many of the more prominent physicians to hold allegiance to any form of medical organization; especially was this the case in the large cities and towns. Living in the light of the valuable results obtained from many societies of the present day, he says it is difficult to realize the heartburnings and jealousies then prevailing. One of the beneficent results of the Civil War was that the constant association of physicians in the army, in camp, and in hospital, led, after their return to their homes, to a more fraternal feeling. This gave an impetus to the formation of medical organizations, with both social and scientific features, which they have never lost, and which has culminated in a united medical association, bringing physicians, in all parts of this country, into fraternal relationship with each other. The contrast between the present state of affairs, when the leaders of professional thought are among the most faithful in their attendance at our meetings, and that of which Dr. Atkinson wrote, is very great indeed. It is attributable in my mind solely to the influence of medical organization upon the profession.

2. *Advancement of Medical Practice and Mutual Improvement.*—I think that it will be admitted without argument that discussion on medical subjects and the preparation and reading of papers have a decided educational influence. The meetings of the district and county medical societies, particularly, afford a sort of postgraduate course of medical study, of which every physician should avail himself; it is an aid to keeping up with the progress of medicine, which no one can afford to ignore, if he wishes to retain his standing in the profession.

3. *Elevation of the Standards of Medical Education.*—The records of this society show the zeal and the faithfulness with which this great object has been pursued. It has persistently insisted upon certain educational qualifications for students, to be determined by an examination prior to matriculation, until such are now required by all of our medical colleges. It has advocated more thorough teaching, and our colleges have lengthened their course from four months to seven, and from two terms' attendance to four, with the prospect held out for an additional year. Furthermore, chiefly through the influence and labors of this society, a State Board of Medical Examiners has been created in order to ascertain the fitness of recent medical graduates to be licensed to practise medicine. The results of these reforms are now evident to all the world. Medical matriculants are more highly educated, and the qualifications of those graduating from the colleges are much higher. Socially, a marked change has been observed in the character of the graduates, even within the last few years. Being asked with regard to the result of his personal observation of the work of the Board of Medical Examiners of Pennsylvania, Dr. Henry Beates, Jr., the president of the Board, states that it has exerted unquestionably a refining effect.

> He holds that the second decade of its operations is ushered in under conditions that are very encouraging and full of promise. Specifically, he states in his letter, that "eleven years ago a large percentage of the candidates were conspicuous for want of refinement and of a proper standard of intellectual development. Their papers were conspicuous for lack of preliminary education, and bore all the evidences of illiteracy, with the consequent ignorance of matters medical. The Act of Assembly demands an adequate preliminary education. The medical schools have learned that to graduate men without this is futile, because their alumni find it impossible to appear before any board for examination for license."

He remarks further:

> As the colleges began to realize that our law was a reality, they were careful to admit gentlemen as students, and were obliged gradually to augment their curriculum and their methods of teaching and instruction, until the present finds us with the degree conferred upon men of character, who have had the advantages of a more liberal preliminary education as a preparatory process, and of an elaborate medical curriculum essential for the degree.
>
> In the examination-room this year, each man conducted himself as though he were the only one present. The appearance of the class of candidates impressed one as characteristic of intellectual development, while the deportment was that of refinement and the observation of gentlemanly proprieties. Thus, the beginning of our second decade finds the administrators of our law dealing with that type of individual which the high office of physician has every reason to expect and to demand. He concludes with the comment that the time now seems to be reached when the entire medical profession really merits the title of learned, and as such worthily deserves and actually commands the trust and confidence of the public.

I can add nothing to the force of this testimony in support of the statement that medical organization has brought the elevation of the standards of medical education.

4. *Increased Influence of Physicians in the Community.*—The opportunity that organizations offer for the united profession to be heard on great questions of sanitation and to influence public opinion is so obvious that no argument is needed on this subject.

5. *Improvement in Medical Literature.*—I need only point to the transactions of the American Medical Association to demonstrate that by medical organization we have succeeded in creating a weekly medical periodical which is larger in size and better in quality than any of its competitors throughout the world, not even excepting its older contemporary the *Journal of the British Medical Association*, which we mention with the highest respect and with regard bred of long and valued acquaintance.

The foregoing are a few of the advantages that have accrued to the medical profession; let us inquire if any advantages have resulted to the public from medical organization:

1. The public health has been greatly advanced by medical organizations, through the securing of medical legislation, as already mentioned, establishing Boards of Health, Medical Examining Boards, health instruction in schools, etc. If any should question this statement, I will refer him to the admirable and convincing reports of our State Board of Health. The achievements of this Board under the energetic direction of its secretary, Dr. Benjamin Lee, are known and read by all. In addition I need only point out the decreasing deathrate in our large cities, and the steadily manifest improvement in the health of the people wherever these sanitary laws are in force, to show they have been highly advantageous to the public.

2. The advancement of medical science by medical organization has led to the more intelligent and scientific control of disease and the successful treatment of conditions that were formerly beyond the ability of the profession to relieve. The present successful treatment of pulmonary tuberculosis at White Haven, Pa., is a striking example of the truth of my statement. The exemption of Cuban cities from yellow fever while under American control, is another convincing fact.

3. The protection of the sick, in a large degree at least, from the sad effects of ignorant and unskilled treatment, has been one of the objects attained by medical organization. Through the efforts of medical societies, nearly all of our States and Territories have passed laws which forbid persons to offer their services as physicians unless they have duly obtained a license to practise medicine, after the regular college course of study. This has resulted in direct sanitary and pecuniary benefit to the community.

4. Dissemination of medical and physiologic information, by medical organizations, among the people at large, has been of immense service in the past, and is capable of rendering even greater service. Not only has this influence been manifested in obtaining legislation for higher standards of medical education, and for the protection of the public health, but it has also been repeatedly shown in advocating and accomplishing improvements in the water-supply, the supervision of dairies, the prevention of adulteration of food and drugs, and in many other ways. In the presence of threatened epidemics it has taught the public the lessons of sanitation, and also how to keep the babies well during the heated term; has urged the performance of vaccination upon the public and, in the effort to stamp out smallpox, even consenting to the free performance of vaccination in our large cities, to all persons applying for it. Through the influence of medical organizations, laboratories belonging to the department of public health have been established, where blood-examinations in cases of suspected typhoid fever are now made, and cultures from supposed diphtheria cases are tested, entirely without charge. Diphtheria antitoxin is also gratuitously supplied and physicians sent to administer it, when requested in our large cities. Certainly, the organized medical profession has most potently and unselfishly made its influence felt in creating a proper sentiment in matters relating to the public health, and the prevention of disease. Through its efforts and cooperation, Boards of Health have been constituted and are now engaged in protecting the people from committing sanitary sins, in preventing epidemics, and in collecting and recording vital statistics. The benefits from such work cannot be estimated, but they are evident to all.

It occurs to me that if our medical societies were occasionally to arrange for open or public meetings, such as the health conferences which have been held under the auspices of our State Board of Health, it would not only instruct and interest the public in very important questions, but it might lead to better understanding and more hearty cooperation with the profession in matters affecting the general health. It was my privilege recently to attend an open meeting of the Bucks County Medical Society—the majority of the audience being ladies, many of them mothers. Dr. John B. Roberts, of Philadelphia, delivered an extempore lecture on tuberculosis, in such language as made it thoroughly comprehensive to the lay mind; forcibly setting forth the danger of neglecting physical laws, laws just as divine in their origin as those which govern our divine nature and the observance of which should be just as sacred. The profit of such meetings cannot be questioned. I would urge that every county society hold similar meetings, three or four times each year. Medical knowledge thus disseminated would be immeasurably beneficial to the public and creditable to our profession. There is a great deal of latent talent in our local societies which would be brought forth with great profit to the individual as well as to the public in meetings of this kind.

5. The public is greatly benefited by medical organizations in a very direct and personal way, by the fact that the physicians, who regularly attend such medical societies, are not only *ipse-facto*, of good standing in the profession, but are well posted. By their work in reading papers and discussing cases they are incited to take greater interest in their patients, and are required to keep up their medical studies. I have already shown that the individual physician derives great advantage from such association with his brother physicians, and is made a better doctor thereby; I now claim that it is a fair deduction, that being a better physician his patients must necessarily derive a reflected advantage from the medical organization, of which he forms an integral part.

I have not time to pursue this attractive theme any further. The older members of this society will recall the many reforms which this particular organization has been active in bringing about, not only in securing higher medical education (to which I have already referred), but also in bringing about improved care of the insane and in the management of State hospitals; the admission of women into the ranks of the medical profession, and their reception as active members of our society; the training of nurses, the inauguration of State sanatoriums for epileptics and for the tuberculous, and in many other ways, which have wrought inestimable benefits to the public.

Before closing my address, I would appeal to all physicians to be loyal to their local medical society, and to the American Medical Association. The man who has the right to wear the official button as a member in good standing of the representative medical organization of his country, should be proud of the distinction it conveys. It is a public announcement of his good standing in the profession, and proves that he enjoys the respect and confidence of other physicians. Every man is a debtor to his profession. By becoming a member of his local medical organization, he places himself in a better position to acquit himself of this duty, which should be regarded as a sacred obligation. As I have already shown, he thereby not only benefits himself, but he also benefits the public. In a neighboring State, a physician, who had been rejected by a county medical society on purely personal grounds, applied to the courts for relief on the ground that his inability to become a member of the county society was an injury to him in his practice, as it affected his standing as a physician. The court acknowledged the justice of this appeal, and he was thereupon admitted as a member of the society. It is the function of local medical organizations to represent *all* the reputable physicians within their geographic limits, and in this way they bring every reputable physician into organic relationship with the central national medical association, and incidentally, but no less truly, they also place him in his proper position before the public.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

October 22, 1904. [Vol. xliii, No. 17.]

1. Laminectomy: A Further Contribution. John C. Munro.
2. Rupture of Mesenteric Glands during Typhoid Fever Simulating Intestinal Perforation: Report of a Case with Operation and Recovery. Robert G. Le Conte.
3. A Case of Retroperitoneal Fibrolipoma. George Ben Johnston.
4. The Family Physician as a Factor in the Solution of the Tuberculous Problem. S. A. Knopf.
5. Problems for the Tuberculous Convalescent. A. Mansfield Holmes.
6. The Differential Leukocyte Count as an Aid to the Diagnosis of Fevers. William Krauss.
7. Physiologic Optics: New Experiments for Demonstration and New Apparatus. Winfield S. Hall.
8. Poisoning by Wood Alcohol: Cases of Death and Blindness from Columbian Spirits and Other Methylated Preparations. (Continued.) Frank Buller and Casey A. Wood.
9. Reflex Apnea and Cardiac Inhibition in Operations on the Respiratory Tract. W. G. B. Harland and William Harmar Good.
10. The Radical Treatment of Nonstrangulated Inguinal Hernia from the Standpoint of the Modern Surgeon. J. M. Banister.
11. Acidosis: Experimental Evidence that Its Nervous Symptoms Are Not Wholly Due to Lack of Alkali. Ray Lyman Wilbur.
12. A New Method of Lateral Anastomosis: Preliminary Report. Axel Werelius.

1.—See *American Medicine*, Vol. VIII, No. 3, p. 94.

2.—See *American Medicine*, Vol. VII, No. 25, p. 962.

3.—See *American Medicine*, Vol. VII, No. 26, p. 1006.

4.—See *American Medicine*, Vol. VIII, No. 6, p. 225.

5.—See *American Medicine*, Vol. VIII, No. 6, p. 227.

6.—See *American Medicine*, Vol. VIII, No. 5, p. 182.

7.—See *American Medicine*, Vol. VIII, No. 1, p. 10.

8.—See *American Medicine*, Vol. VIII, No. 6, p. 228.

9.—See *American Medicine*, Vol. VII, No. 24, p. 927.

10.—Radical Treatment of Nonstrangulated Inguinal Hernia.—J. M. Banister adduces facts showing that by the methods of Bassini and Halsted the surgeon has two absolutely reliable operations for the radical cure of hernia. With strict asepsis, the operation is as safe as any in surgery and risk of fatal result is so insignificant as not to be worthy of consideration. The danger of relapse is remote, and the writer believes that every operable case of hernia in patients between the ages of 4 and 50, and without disease of vital organs, should be subject to the radical operation, as is the custom of our military service. [h.m.]

11.—Acidosis.—R. L. Wilbur describes his experiments on rabbits, showing that neutralized beta oxybutyric acid is toxic and that it produces symptoms similar to those of the acid itself. It seems probable that in some of the cases of diabetic coma the effects produced by this acid in the body are not due entirely to its withdrawal of alkali from the blood, but that its salts, arising from combination with the blood alkali, are still toxic, though in a lesser degree. The failure or only partial success of sodium carbonate infusions and of the alkali treatment in general is probably due to the poisonous action of the neutralized organic acids which are not removed from the organism. The pathologic effects of acidosis then cannot be wholly due to the withdrawal of alkali from the tissues. [h.m.]

Boston Medical and Surgical Journal.

October 20, 1904. [Vol. cli, No. 16.]

1. The Modern Conceptions and Methods of Medical Science. W. T. Councilman.
2. Heart Complications in Diphtheria: A Clinical Study of 946 Cases. Franklin W. White and Howard H. Smith.
3. The Assouan Cure. F. Gordon Morrill.

2.—Heart Complications in Diphtheria.—White and Smith, in the study of the 946 cases which form the basis of his paper, found a great frequency of heart murmurs and of irregularity of the pulse. The prognosis does not depend on the mere presence of these signs, but on the severity of the infection, the length of time without treatment, the rate and degree of irregularity of the pulse, and the presence of the graver signs of cardiac disturbance. Moderate disturbance is common; severe complications are infrequent. Frequent examinations are necessary, on account of marked changes from hour to hour. Gallop rhythm, late vomiting, and epigastric pain and tenderness are danger signals, the association of the first two rendering the outlook almost hopeless. Early use of antitoxin prevents grave heart complications. They most frequently occur in the second and third weeks of illness. Bronchopneumonia is more frequently fatal than heart disease. Sudden death from the latter is rare when patients are kept in bed a proper period. Prolonged rest is necessary in all severe cases; it is not necessary to keep in bed all who have murmurs and a somewhat irregular pulse. One should be governed by the stage of the illness and the patient's general condition. If no serious heart trouble has developed within four weeks, patients are usually safe from this complication. Murmurs and irregularity of the pulse make it necessary to watch the patient long after convalescence in all severe cases. [h.m.]

3.—The Assouan Cure.—F. G. Morrill finds that the diseases which are most benefited by a prolonged stay at Assouan are as follows: 1. Nervous exhaustion from any cause and delayed convalescence from prolonged illness. 2. Chronic bronchitis with emphysema and cardiac dilation perhaps accompanied by asthma. When the larynx or nasopharynx alone is affected the climate is unsuitable. 3. Rheumatic affections and neuralgias. 4. Cases of prolonged albuminuria in which the prognosis is doubtful. The writer has known more than one of these "border line" cases which have cleared up completely. 5. He has also observed two or three cases of incipient pulmonary tuberculosis which have done remarkably well. The climate is better than anything which can be found in Europe between January 1 and the middle of April. Dryness is its main characteristic (an average relative humidity of 41° during the "season") together with a comfortable degree of warmth. [h.m.]

Medical Record.

October 22, 1904. [Vol. 66, No. 17.]

1. The Gynecologic Importance of Prolapsed Kidney. Augustine H. Goelet.
2. The Pathogenesis and Treatment of Edema. Wm. J. Dougherty.
3. The History of Tuberculosis. John B. Huber.
4. My Experience with Light Therapy. Julius Rosenberg.
5. Ainhum: Report of a Case. Henry N. Blum.
6. Report of Two Fatal Cases: 1. Hypertrophic Cirrhosis of the Liver; Talma's Operation. 2. Cancer of the Head of the Pancreas; Cholecystenterostomy. Irving S. Haynes.
7. Aural Reflex Phenomena. J. J. Richardson.
8. A Case Illustrative of the Unclassified Troubles of Women. Eugene Coleman Savidge.

1.—The Gynecologic Importance of Prolapsed Kidney.—A. H. Goelet points out the intimate relation between prolapse of the kidney and pelvic disorders in women, and shows by illustrative cases how frequently the obstinate affections of this sort are permanently relieved by fixation of the movable kidney. The kidney, when prolapsed, overlaps the ovarian vein, and compresses it, thus obstructing the return circulation from the pelvis when the waist is constricted by the corset or clothing. This may occur even in the early stages of prolapse. The ureter may become bent by the traction of the organ, and thus drag on the vein, and distention of the obstructed ureter at this point will also cause pressure on the same structure. Almost every woman having prolapse of the kidney also suffers from some associated pelvic disease, and a cure is not likely without fixation of the kidney. Repeated examinations may be necessary to determine the existence of the prolapse, but the condition should be looked for as a matter of routine in every case. The kidney itself is frequently the seat of disease, owing to the circulatory disturbance resulting from the displacement, and the author has found that the urine of such patients showed evidences of already existing inflammation in 75% of the cases. The author has done 197 consecutive nephropexies, in 47 of these fixing both kidneys at the same time, without mortality.

2.—The Pathogenesis and Treatment of Edema.—W. J. Dougherty reviews the recent work, principally of French authors, which has been done with a view to discovering the relationship of the sodium chlorid ingested to the causation of edema in nephritis and cardiac disease. The statement of Widal and Lensierre, to the effect that in the treatment of edema, sodium chlorid should be withheld from the patient, because the ingestion of any considerable quantities of this salt by nephritics is often, though not always, followed by edema, has been corrobrated by many other observers. The author describes two cases of marked edema and ascites, one of cardiac and the other of renal origin, observed by him, which were greatly benefited by the abstraction of all salt from the diet. In both cases the effect was pronounced; the quantity of urine secreted at once increased, and the accumulations of fluid quickly disappeared, while at the same time the general condition greatly improved. After return to ward diet it was several times found necessary to resume temporarily the salt-free food, owing to a partial return of the edema.

3.—The History of Tuberculosis.—John B. Huber gives an interesting review of the history of tuberculosis and of the views of older physicians concerning its nature, together with some of the sanitary regulations that arose from their conception of the disease. The ravages of this plague are more dreadful than those of cholera, smallpox, or the black death, and yet, owing to its slow and insidious course, it causes none of the consternation attending the outbreak of those scourges. The disease has not been without its influence in art and literature, and an interesting list is given of personages eminent in various walks of life who have succumbed to the great white plague.

4.—Experience with Light Therapy.—Julius Rosenberg supplements a former contribution by giving an additional series of 27 cases treated by means of the ultraviolet rays. He considers these rays as remedial agents of the greatest value, especially for the relief of pain. The cases reported cover a very wide range of material, and the results were encouraging in nearly all instances. The author employs a 35-ampere arc with mirror reflectors, and attaches importance to the use of iron-carbon electrodes. He concludes that the ultraviolet rays obtained in this way are a specific remedy in acute muscular pain, such as lumbago, torticollis, and pleurodynia. In cases of acute and chronic neuritis these rays will always relieve pain, and in most cases, especially acute forms, effect recovery. The bactericidal powers of the chemic light rays are easily demonstrated in inflammatory conditions of the skin of parasitic origin. In acne and furunculosis the curative effect is prompt and certain. The results in rheumatic arthritis have not been encouraging, thus differing from those reported by German authors. In acute and chronic pleurisy and bronchitis the ultraviolet rays are beneficial. The author believes that the ultraviolet rays will be of benefit in gonorrheal and tuberculous infections of the joints; also that the pains accompanying locomotor ataxia may be relieved and controlled.

5.—Ainhum: Report of a Case.—H. N. Blum reviews what is known concerning this peculiar disease, and cites a series of typical cases from the literature. The affection occurs almost always among the dark-skinned races of tropic and subtropic regions, and is characterized by a progressive constricting sclerotic ring around the bases of the digits of the hand or foot, especially selecting the little toe of either or both feet, and ending in a gradual amputation. The condition is local, there being no manifestations except on the toes or fingers, and it never recurs at the site of amputation. It is sometimes confused with leprosy or Raynaud's disease, but may be differentiated from these by its duration, its purely local nature, the characteristic "scleroderma" and the absence of the specific bacilli of leprosy. Very little is known as to its cause, and the author agrees with Matas in terming it a trophoneurosis. His own case occurred in a negress of 65, whose right little toe was affected in the characteristic way. The toe was disarticulated at the metatarsophalangeal joint under cocain anesthesia, and the cicatrix has since remained in healthy condition.

6.—Two Operative Fatalities.—I. S. Haynes reports two cases in which operative procedures resulted unsuccessfully. The first was one of Talma's operations in a whisky drinker of 45, with large liver and ascites. The first two days after operation were uneventful, but after that the pulse rose steadily, and the patient died on the sixth day. Autopsy not permitted. The second case was a typical one of carcinoma of the head of the pancreas, in which the diagnosis was made before and confirmed by the operation. A palliative operation for the jaundice was undertaken by performing a cholecystenterostomy, but the Murphy button used, which had not been reinforced by peritoneal sutures, failed to produce firm union and allowed leakage of bile after the slough had freed the button. The patient died on the thirteenth day.

7.—Aural Reflex Phenomena.—J. J. Richardson calls attention to the frequency with which obscure and puzzling disorders of the most varied types may be traced back to some hitherto unnoticed aural affection. The nervous connections, both of the meatus externus and of the inner ear, are extremely numerous, and as impulses from this region have but a short distance to travel to reach the brain, their effects may be profound. Impacted cerumen is one of the commonest sources of obscure symptoms often referred to more remote organs. Among these are conditions simulating incipient locomotor ataxia, or traumatic cerebral irritation, vertigo, vomiting and asthma. Epilepsy, morbid irritability, loss of memory, and melancholia are of not uncommon occurrence in chronic catarrhal and suppurative affections of the tympanum. Persons affected with ear disease often faint, but the phenomenon differs from ordinary syncope in the absence of pallor, sighing, dilated pupils and nausea, and there is also less sense of anticipation.

8.—A Case Illustrative of the Unclassified Troubles of Women.—E. C. Savidge publishes a case illustrating his standpoint in regard to conservative gynecology. Many features in this patient's condition seem to render operation necessary, but a careful consideration of the case as a whole and the institution of appropriate treatment yielded a restoration to health and enabled the woman to become a mother. The patient was a woman of 30, highly neurotic and suffered twice every seven weeks from very profuse and painful menstruation, the attacks being so severe as to require the strongest anodynes and even chloroform. Physical examination showed an infantile uterus, sharply anteflexed, with a narrow os, and both appendages large and tender. In addition, there were many "unclassified troubles," such as polyuria, cold feet, pelvic congestion, diarrhea, rapid heart, swelling thyroid, and great venous relaxation. Anemia was also severe. By treatment, consisting of rest in bed, massage, muscle wringing, resistant movements, feeding, free diuresis, and tamponage at and between menstrual periods, iron, intestinal disinfectants, and vasomotor constrictors, the condition rapidly improved, and after 40 days the cure was completed by a simple dilation under primary anesthesia. Three years later the patient was delivered of a healthy child, and for the two years preceding pregnancy, menstruation was painless and regular.

New York Medical Journal.

October 15, 1904. [Vol. LXXX, No. 16.]

1. A Discussion on Several New Points Concerning the Theory and Practice of Immunity.. PROF. A. WASSERMANN.
2. Aids to the Recognition of Disease. JUDSON DALAND.
3. Diffuse Dilation of the Esophagus Due to Cardiospasm. JAMES TYSON, EDWARD MARTIN and JOSEPH S. EVANS, JR.
4. When to Operate for Appendicitis. S. C. STREMMEL.
5. Vulvovaginitis in Little Girls: A Clinical Study of 190 Cases. (Continued.) SARA WELT-KAKELS.
6. The Surgical Treatment of Bunions and Hallux Valgus. W. L. KELLER.

3.—Dilation of the Esophagus.—James Tyson, Edward Martin, and J. S. Evans, Jr., have made an extensive review of the literature of this subject, and report two cases in detail. In each of these cases a diagnosis of diffuse dilation of the esophagus with spastic contraction of the cardiac orifice of the stomach was made. The man, aged 33, had been suffering from dysphagia since he was 12 years old. He was a neurotic. The dysphagia was sudden in its onset, and was increased by the taking of certain articles of food. There was regurgitation without nausea, and a sensation of burning pressure back of the ensiform cartilage. The capacity of the dilated esophagus was measured by having the patient drink water until he felt it regurgitate into the mouth. Thirty-two ounces were drunk, and in a short time he regurgitated 34 ounces of water mixed with mucus. In the case of the woman the onset was insidious. She was not neurotic, and was free from hysteria. The inability to overcome the obstruction by voluntary effort, the positive result of Rumpel's double tube test, and the regurgitation of accumulated food products all pointed to a diagnosis of either a sacculation, or a diverticulum of the esophagus. The treatment of this condition depends upon the character of the case. In those patients who are able to force food into the stomach, little is required except lavage to combat the tendency to acute esophagitis, but in those cases in which total obstruction is periodical or permanent, nourishment must be administered by systematic tubal feeding, and this entails the danger of producing acute esophagitis. In the few cases in which the cardiospasm is so marked that the passage of an ordinary stomach-tube is impossible, a flexible whalebone stylet may be used to give the necessary rigidity. If tubal feeding becomes impossible, due either to an esophagitis or to increased spasm, rectal feeding may be employed to relieve irritation, or preferably, gastrostomy may be performed. Gastrostomy is not curative, but it gives the esophagus complete rest, and permits forced feeding. Electricity, passage of bougies, and retrograde sounding have been advised, but have proved unsatisfactory. The rational treatment is repeated, overstretching of the cardia in order to destroy its tonicity. The prognosis as to complete restoration of normal activity is bad, but the condition though pitiable, is not necessarily hopeless. [C.A.O.]

4.—When to Operate for Appendicitis.—S. C. Stremmel concludes as follows: 1. The safest and best time to operate for appendicitis is during the interval. 2. The very early operation in the great majority of cases is the same as the interval operation. 3. If all cases were operated early or during the interval, there would be practically no mortality, if the operations were done by experienced surgeons. 4. When cases are not seen until late, or refuse operation, the Ochsner treatment should be given. 5. If, however, the patient gradually or rapidly gets worse, operation should be urged and such operation advised as will give the patient the best chance for his life at the time. 6. That it is a serious reflection on the doctor who is caught with a moribund patient on his hands without having advised early operation. 7. In view of the fact that the mortality of late cases is from 14% to 20%, and that the mortality of interval cases is from .2% to .1%, it is self-evident that the interval operation should be the operation of choice. [C.A.O.]

6.—Bunions and Hallux Valgus.—W. L. Keller advocates an operation which has given him excellent results, and which eliminates all interference with the tripod of the foot or its normal level. A longitudinal incision, two inches in length, is made along the inner side of the foot, exposing the first metatarsophalangeal articulation. The skin and tissues over the head of the metatarsal bone are retracted; the joint is then opened and opposing articular ends are separated; the periosteal covering over the lateral enlargement and adjoining part of bone are pushed back; and the exostosis with about an eighth of an inch of the bone is removed by a rongeur forceps or, preferably, with a small saw. The tendon of the flexor longus hallucis is freed by blunt dissection from the under surface of the base of the first phalanx, sufficiently to pass a Gigli saw around the bone; the periosteum is pushed back, disarticulation accomplished, and the articular head of the first phalanx is removed. Particular care should be taken throughout the operation to protect the periosteum from needless destruction, and an effort should be made to preserve enough of it to cover the exposed surface of the bone. A small gauze drain is inserted between the head of the metatarsal bone and the sawed end of the phalanx (this drain is removed after 48 hours), the wound is carefully sutured, the toe being maintained at normal extension by a narrow internal lateral splint. Passive motion is begun on the fifth day. [C.A.O.]

Medical News.

October 22, 1904. [Vol. 85, No. 17.]

1. The Surgical Physiology of the Lymphatic System. C. H. MAYO.
2. A Contribution to the Study of Infections of the Prostate from the Urethra. FREDERIC BIERHOFF.
3. The Use of Absorbent Paper in the Service of Practical Hematology. T. W. TALLQVIST.
4. The Climate and Waters of Hot Springs, Virginia. GUY HINSDALE.
5. Three Cases of Probable Psittacosis. HERMAN F. VICKERY and OSCAR RICHARDSON.
6. The District Nurse in Her Relation to Cases of Pulmonary Disease. ARTHUR WILLARD FAIRBANKS.

1.—Surgical Physiology of the Lymphatic System.—This article by C. H. Mayo sets forth the importance of the lymphatic system, as related to infectious processes, malignant disease, etc. For a long time it was believed there were but two lymph ducts of entrance into the hemic circulation. Leaf recently found communications between the lymphatics and small veins of the groin, and it is probable that others exist. Particularly the brain, but also the interior of the liver and the kidneys, are poorly supplied with lymph vessels; hence the phenomenon that abscess may exist in any one of these organs, provided the normal covering of the organ be not involved, without toxic absorption and consequent rise of bodily temperature. The lungs, on the contrary, are rich in lymphatics and infections or toxins are quickly delivered into the general circulation, with consequent rise in temperature. The peritoneum of the upper part of the abdomen and that covering the small intestines is rich in lymphatics, while the pelvic portion and that covering the colon is poor in lymphatics. Hence after aseptic laparotomy, involving considerable bruising and denuding of peritoneum, the pelvis should be elevated by raising the foot of the bed. On the contrary in septic conditions just the opposite should be done. The fundus of all organs is deficient in lymphatics, hence acute obstruction gives rise to cyst formation and chronic inflammation causes shrinking and thickening of the organ. Practically all advancement in the modern surgery of cancer has been through a study of the areas of lymph distribution involved in any malignant focus. Cancer in the young is more rapidly fatal, and recurrence is more frequent and after a shorter lapse of time because of the greater activity of the lymphatic system. Cancer statistics as to cure improve with each decade of life. The article contains discussion on a number of interesting points which cannot be condensed in abstract. [A.B.C.]

2.—Infection of the Prostate from the Urethra.—Bierhoff says though under the antiseptic plan of treatment extension of gonorrheal infection to the posterior urethra and prostate is less frequent than formerly, still it yet occurs in a large percentage of cases in spite of the most careful treatment. Why this extension of the process should occur, sometimes early, and why when it does occur it should in the majority of cases run so mild a course, are questions which he discusses in the present paper. The article is interesting and exhaustive, and should be read in the original by those interested in the subject. [A.B.C.]

3.—Absorbent Paper in Practical Hematology.—T. W. Tallqvist describes a hemoglobin scale constructed by himself. A drop of blood is soaked into a piece of white absorbent paper, after which it can be compared with a color scale of 10 different tints. The results are as exact as those of Gower's method and do not fall far short of determinations by the Fleischl hemometer. Like other methods, it requires practice to get reliable results. This easy method can be used even in a consultation hour. When a moist ring extends around the colored spot, especially visible when the paper is turned toward the light, it denotes a great decimation of the red cells. It first appears when they are about half of normal. The greater the diminution the broader the ring. As a rule, it does not appear in chlorosis, but is seldom absent in socalled pernicious anemia. In leukemia, in striking contrast to the usual conditions, the drop is sucked up by the absorbent paper very slowly, and the shade does not accord with any of those on the scale. Only a great augmentation in the white cells is thus made evident. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

EDITORIAL COMMENT

The Action of the Röntgen Rays on Lymphoid Organs.—During some recent researches undertaken with a view to demonstrate the manner of action of röntgen rays, Heineke[1] was able to show that the effect of these rays was first manifest in the spleen by the destruction of the malpighian corpuscles. This very destructive action of the rays begins to take place within a few hours after exposure of the animal to them, and attains its maximum of intensity in from eight to 10 hours; within 24 hours it has completely subsided. The process of destruction is first made evident by the occurrence of fragmentation of the nuclei of the lymphocytes contained in the splenic corpuscles. The fragments and globules thus formed are seized upon by the phagocytes, which, in their turn, are not long in disappearing, so that in a short space of time the corpuscles of Malpighi alone remain. The changes take place at a time when no other modification arises in any other of the viscera, even in the splenic pulp, and when it cannot be a question of cutaneous lesions. These rays consequently appear to exercise a true elective action on the glomerulæ of Malpighi during the first few hours following their application. This being the case, Heineke sought to discover if other lymphoid organs would react in a similar way to the rays, and the results of his researches in this direction fully confirmed the hypothesis in question. A process similar to the destruction of the splenic corpuscles takes place simultaneously with this destructive process, in all the groups of lymph-nodes, in the intestinal follicles, and in the thymus. As to the length of time of the exposure to the rays necessary for producing these lesions, one should remark that, in a general way, it is short. An exposure of 15 minutes may be quite sufficient to provoke in a few hours the fragmentation of the nuclei in the splenic follicles in medium-sized dogs, as well as those of the mesenteric and intestinal glands. Now, the lapse of time during which the rays are allowed to act is too short to influence the general health of the animal in any marked degree, or even to produce the slightest reaction on the part of the integuments. Basing his conclusions on these facts, Heineke believes that cells exist in the animal organism which are much more sensitive to the röntgen rays than are the epidermic cells, which have generally been considered up to the present time as the first to be attacked by the rays. The reaction of the lymphatic follicles occurs much earlier than that of the external epithelium, so that the latent period of the action of the rays and the effects of accumulation, which depend upon it, so characteristic in the cutaneous reaction, are, on the contrary, absent so far as adenoid tissue is concerned. This authority thinks that it is to be supposed that in man as well, a short exposure to the rays will produce analogous changes in the lymphatic follicles. Now, since the action derived from the röntgen rays on adenoid tissue is essentially a destructive one, it might be employed as a therapeutic measure in those cases where this tissue gives rise to morbid disturbances, either by an exaggerated development or by a pathologic hyperactivity. Thus radiotherapy would be susceptible of rendering good service in chronic splenic hypertrophy, which has been usually classed under the general term of pseudoleukemia, and also in cases of malignant lymphoma or lymphosarcoma of this organ, as well as the various forms of leukemia. The röntgen rays might also be tried on patients in whom there is reason to believe that the pathologic disturbances are due to an excessive development of the thymus. It should also be pointed out that the experimental researches of Heineke, and the conclusions that he draws from them, compare most favorably with the results obtained from radiotherapy by Brown, Steinwand, Guilloz, Senn, and others, in cases of leukemia and pseudoleukemia. It may also be added that recently Bryant and Crane[1] and Krone[2] have each recorded a case of splenomedullary leukemia successfully treated by the röntgen rays.

REVIEW OF LITERATURE

Immunization and Cure of Pulmonary Tuberculosis with Perlsucht Tuberculin.—C. Spengler[3] manufactures a new tuberculin from the tubercle bacilli of bovine tuberculosis and calls it "Perlsucht Original Tuberculin" (P. T. O.). He finds this less toxic for man than the tuberculin prepared from human bacilli, and also much better as an immunizing and curative agent; it cures in half the time and with less danger to the patient. It heals a large number of patients hitherto considered incurable. It is the filtered bouillon in which perlsucht bacilli have been grown until they form a very thin film over the surface. The bouillon is evaporated to a half and the evaporated fluid replaced by glycerin. The initial dose is from .5 mg. to 1 mg., depending on the strength of the patient, and this is diluted with a .5% carbolic acid solution. The injection is made centrifugally into the forearm and it is not repeated until every sign of the inflammatory reaction has disappeared. Thickening of the skin and nodules without rise of temperature does not contraindicate further injections, but edema does. As the injections are repeated they are doubled or gradually increased, depending on the condition of the patient; with weak patients he recommends great caution in increasing the dose. In very acute or very low patients he rubs the tuberculin into the skin of the forearm until the skin is quite dry, instead of injecting it. He rubs daily or every other day, using constantly increasing quantities until a decided reaction occurs; he then waits 14 days before again rubbing. Especially in children with acute tuberculosis has this method been found valuable. The injection method may be taken up after employing the percutaneous method for some time. If 50 mg. P. T. O. are absorbed without reaction the intervals may be prolonged from 8 to 14 days; some of the other tuberculin preparations may be varied with it, but the dose of the new preparation must always be smaller than the preceding preparation. A patient is cured when he can take an alternating dose of 100 mg. P. T. O. and 100 mg. of old tuberculin without reaction and with constantly negative sputum findings. Employing this method, the largest doses may be tolerated without much reaction after a short period of treatment, and even human tuberculin can be absorbed in comparatively large doses. There is absolutely no danger from the perlsucht tuberculin. It has never produced hemoptysis in any case treated by the author, and its reaction is not a temporary deterioration of the patient, but only an increase in symptoms due to congestion. The author believes bovine and human tuberculosis to have been one originally, but that the bacilli have adapted themselves to their hosts until each has become the vaccine material for the other. [E.L.]

Anilin Colors and Salicylic Acid in Articles of Food and Drink.—Charles H. LaWall[4] says there is but little use in arguing the question as to the real harm in prohibited substances, as he considers this not so much a question of the injury to health as a matter of fraudulently manipulating inferior products so as to enable the seller to obtain the price of a much higher class of goods. Regarding the use of salicylic acid, he said it would surprise many persons to learn that an ordinary wintergreen lozenge contains as much salicylic acid as does the average tumbler of jelly which has been preserved with this substance. The presence of anilin colors and salicylic acid is most important then from the standpoint of compliance with the food law. The object of LeWall's paper is to show how readily druggists may easily and effectually determine the presence or the absence at least of these substances, the quantitative determination not being particularly desired. With such investigation the druggist can, by these methods, assure persons of the absence of the products from the articles which they are handling, and thus cause them to feel entirely safe from prosecution. The tests in question are given at length and do not lend themselves to abstracting. [A.G.E.]

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[1] Münch. med. Woch., May 3, 1904.

[1] Med. Record, April 9, 1904.
[2] Münch. med. Woch., May 24, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 1129, No. 31.
[4] American Journal of Pharmacy, October, 1904.

The "Cachectic Leukocytosis" in Carcinoma.—According to the investigations of J. Arneth,[1] there is little toxic influence exerted on the leukocytes in uncomplicated carcinoma, even though there be developed an advanced secondary anemia and cachexia. In such uncomplicated cases there may be a slight increase in the leukocytes, especially the neutrophiles, this increase extending very little beyond normal limits. If complications set in, however, the total leukocyte count may be diminished or increased and changes occur in the proportions of the various forms of neutrophiles. In a case of general carcinosis the blood picture resembled that of pernicious anemia from the side of the red corpuscles and leukemia from the side of the neutrophile leukocytes. The conclusion drawn is, that it is not proper to speak of a "cachectic leukocytosis" in carcinoma, as the changes in the leukocytes are due to complications and not to the primary disease. [B.K.]

Treatment of Pernicious Anemia.—E. Grawitz[2] disputes the existence at any time of a primary disease of the blood or bone marrow in pernicious anemia, but considers the blood changes always secondary, and the marrow changes due to regenerative activity incited by the action of the poison on the red blood-corpuscles. In rare cases the poisons producing the disease are introduced from without (lead, carbonic acid, arsenic, morphin, etc.), but in the greater number of cases the poisons are produced in the gastrointestinal tract. The poisons may be due to a faulty construction of the albumin molecules or a proliferation and toxin formation of saprophytic and pathogenic microorganisms. By removing the causes leading to this supposed poison-formation, the degeneration of the erythrocytes can be influenced and the blood forming function even returned to normal. If this can be proved, the statement that pernicious anemia is incurable must be wrong, and the treatment of the disease with arsenic, mixed diet, and absolute rest, nonsensical. The author's first patient was a woman, presenting the typical picture of the disease; blood changes, edema, hemorrhage, prostration, splenic tumor, icterus, ascites, etc. Her teeth were in very bad shape, there was no free HCl, and the motility of the stomach was diminished. The oral cavity was thoroughly cleansed; vegetable diet in the form of purees, and finely cut dishes given by mouth; the stomach washed daily with warm saline solution and lemonade given freely. By rectum the patient was given two nutritive albuminous enemas daily. In the line of medicines, only a few drops of digitalis were given at first. Improvement was noted at once; in the third week the lavage and enemas were stopped, the patient was given more to eat and of medicines, HCl, and Fowler's solution. She recovered completely. The second patient gained 23 pounds in three and a half months on practically the same treatment. Two of his patients died, but the autopsy showed that they died in spite of improvement of the anemia; one of a purulent renal disease, the other of tuberculous peritonitis. From the cases here reported, as well as others previously recorded, he believes himself justified in claiming for the larger number of pernicious anemia cases an enterogenic origin. In proof of its curability he speaks of two patients whom he treated as above described respectively six and four years ago; both are still perfectly well; it seems that few of these patients ever regain their free HCl, which explains to an extent their liability to remission. [E.L.]

Percussion of the Skull in Children.—Henry Koplik[3] discusses this method of examination with special reference to the occurrence of Macewen's sign in meningitis and cerebral disease of children. He has made observations upon every case of meningitis coming under his notice and also upon normal children. The sign is much less useful in children under the age of 2 than in older ones when the bones are fully formed and the sutures closed; in the former class it must be accepted with great caution. Above the age of 2 it is especially useful in those forms of cerebral disease, as tumor and pachymeningitis, in which there is accumulation of fluid within the ventricles. In tuberculous meningitis resonance is increased from the earliest stages of the disease. Failure to obtain the sign in suppurative meningitis is considered due to the presence of a thin layer of exudate between the dura and pia mater thus making the brain and the cranium a continuous medium. This fact makes one of the most useful differential signs between tuberculous meningitis and the cerebrospinal form, the Macewen sign being present in the former. In seeking this sign the patient must assume the sitting posture or error is inevitable. [A.G.E.]

Chronic Changes in the Pancreas in Arteriosclerosis.—G. Hoppe-Seyler[1] details and tabulates nine cases of arteriosclerotic changes in the pancreas with diabetes, and nine cases in which such changes occurred without diabetes. The lesions consisted of a thickening of the intima, narrowing of the lumen of the vessels, thrombosis in some places, and an increase in the connective tissue. The latter arose from the altered bloodvessels, and was found principally in and between the acini. Fat formation was often found in the connective tissue. The parenchyma cells became atrophied, partly owing to contraction of the connective tissue, and partly due to disturbances of nutrition. In the diabetic cases these changes were more marked than in the nondiabetic, and were especially well pronounced in and around the islands of Langerhans. The interstitial pancreatitis accompanying hepatic cirrhosis is to be distinguished from the arteriosclerotic form by the absence of endarteritic and periarteritic changes, and the marked development of connective tissue around the lobules. The syphilitic pancreatitis approaches closely that of arteriosclerosis, but is to be distinguished by the formation of young, cellular, connective tissue, while the latter has a more fibrillar connective tissue. Granular atrophy of the pancreas is characterized by round-cell infiltration, absence of vascular lesions, and extension of the inflammation to surrounding tissues. Interstitial pancreatitis arising from the pancreatic ducts is distinguished by the accumulation of connective tissue in the neighborhood of those ducts, and in the absence of changes in the islands of Langerhans. The arteriosclerotic pancreatitis is a slow, progressive process, and is usually accompanied by vascular changes in other organs. The diabetes is of slow development, and may be overlooked in its first stages; its first appearance is usually in the form of an alimentary glycosuria. Disturbances of pancreatic digestion are rare in this disease. If the diagnosis is made early, by means of the test for alimentary glycosuria, much may be done to arrest the process by adopting careful rules of diet and mode of living. [B.K.]

Morphin in Heart Disease.—K. Grassman[2] brands the statement that morphin is a cardiac poison within therapeutic limits, and that its use in diseases of the heart at all times is therefore limited, as totally wrong and misleading. The sudden deaths which are noted occasionally after its use are not necessarily due to the drug, but much more likely to the low state of health of the patient. He formulates the following rules to be applied in its employment: In patients with cardiac weakness and who, along with the cardiac disease also suffer from a respiratory condition, especially of acute nature, it must be employed cautiously. The same is true of acute endocardial and myocardial processes. In cases of purely nervous cardiac disturbance, especially in angina pectoris, not resting upon an organic basis, morphin may be given without hesitancy; even in angina pectoris with organic base and in stenocardia, it may be given in small doses. In very grave cases of cardiac asthma it is the only drug for immediate and emergency application. In the chronic dyspnea of ambulant patients with cardiac disease, its scope is very limited. When digitalis and other cardiac stimulants are unable to relieve existing conditions, or have ceased to relieve, morphin finds one of its indications. It is also very valuable as a preliminary drug to digitalis in debilitated cardiac patients, when excited and unable to sleep. [E.L.]

Pulmonary Tuberculosis in the Aged.—J. A. Wilder[3] reports a case of pulmonary tuberculosis possessing several interesting features: 1. The age of the patient, who is a woman of 74. Wilder's experience in Denver is that tuberculosis beginning after the age of 70 is very uncommon. 2. The disease appears to have been contracted in Colorado. 3. Within nine months from the onset, notwithstanding the advanced age of the patient, the disease has apparently been thoroughly arrested, the patient has gained 12 pounds in weight, cough and expectoration have disappeared since three months, physical examination of the lungs is negative, temperature and pulse are normal. The patient is stronger than she has been for years. Tubercle bacilli were found in the sputum and there appears to be no doubt whatever of the diagnosis. [A.G.E.]

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[1] Zeit. für klin. Med., Bd. liv, p. 238.

[2] Deutsche medicinische Wochenschrift, 1904, xxx, 1092 and 1135, Nos. 30 and 31.

[3] Archives of Pediatrics, September, 1904.

[1] Deut. Arch. f. klin. Med., Bd. lxxxi, p. 119.

[2] Münchener medicinische Wochenschrift, 1904, li, 1238, No. 28.

[3] Colorado Medical Journal, May, 1904.

Symptomatology of Sclerosis of the Aorta.—According to A. Bittorf[1] sclerosis of the aorta may occur in two forms—either as a diffuse disease of the aortic wall or in the form of an insular sclerosis. He tabulates 54 cases, of which 34 were diffuse and 20 insular. He distinguishes between the two forms by the character of the heart-sounds over the aorta; in the diffuse form the first sound is soft and muffled, or even inaudible, while the second sound is ringing and musical; in the insular sclerosis there is a systolic murmur, while the second sound is normal or accentuated. In most of the patients the face showed a remarkably pale, ashen-gray color. Inequality of the pupils was often observed, due to some obscure influence on the sympathetics. Abnormal pulsations were seen in the subclavians, carotids and jugulars, while dilated veins were observed on the anterior chest wall. Associated with the latter was frequently found a slight edema on the upper part of the sternum. The most frequent respiratory symptom was pulmonary emphysema. Hypertrophy of the heart was evident in 24 cases, questionable in 22, and not at all demonstrable in 8 cases. The apex beat was usually heaving and prolonged. In only 9% of the cases of diffuse sclerosis could weakness of the heart muscle be demonstrated, while fully 50% of the insular sclerosis cases showed signs of this weakness. An enlargement of the ascending aorta and the arch could be demonstrated by percussion in 49 cases. Arteriosclerosis was evident in the peripheral vessels in 42 cases, while increase in the blood-pressure was demonstrated in 35. The subjective symptoms consisted principally of palpitation and dyspnea on exertion, attacks of vertigo, ringing in the ears, weakness of the extremities, all referable to defective blood supply. The diagnosis of aortic sclerosis is to be made by a careful consideration of all the symptoms and physical signs, as there are no particular phenomena which are typical of this condition. [B.K.]

A Case of Antimonial and Lead-poisoning Resulting from the Use of Linotype.—L. Roberts[2] reports the case of a man of 29, who had been a compositor since his seventeenth year. For some years he had pain in his limbs and tenderness in his fingers, constipation and excessive perspiration. His symptoms always improved when he ceased working. He became so bad as to be forced to stop his work entirely. His condition then consisted of hyperidrosis of palms, soles and head; smooth flat papules on both hands; tenderness on pressure of palms and soles: trembling of muscles of upper extremities; chronic constipation; absence of colic, vomiting or other evidence of intestinal disturbance; the urine yielded lead, but no antimony. The author concludes that the patient was suffering from double poisoning with lead and antimony, and that the second metal modified the symptoms of the first. The tremor and constipation were due to the lead, the other symptoms to the antimony contained in the linotype metal. The histologic picture of the skin was identical with that produced by a nitrogen poison, as antimony. [E.L.]

Diabetes and Albuminuria.—Bernhard Vas[3] found albumin in the urine of diabetics in 69.5% to 80.5% of the cases during an experience of seven years in the laboratory of Policlinic in Budapest. He studied the urine in 1,821 cases, of which 77.27% contained albumin. In 268 cases the sediment contained kidney structure. He divided his cases into three groups: 1. Cases in which albumin was found, but without clinical or morphologic evidence of change in the kidney structure. 2. Cases in which albuminuria was associated with structural kidney changes, but without clinical symptoms. 3. Cases in which clinically and morphologically there was evidence of inflammation of the kidneys. Of these groups the first is the most frequent. Those of the second group are cases showing a high degree of glycosuria for a long time. Vas states that the question of the influence of inflammation of the kidney upon the course of diabetes is not so academic as would appear at first sight. Exact analyses of the blood in cases of diabetic nephritis should go hand in hand with a clinical study of each case. [J.H.W.R.]

Poisoning by Fool's Parsley (Aethusa Cynapium).—H. E. Davison[1] reports the case of a woman who had eaten a considerable quantity of an herb which she believed to be "mustard and cress." It proved to be "fool's parsley" of very young growth. Twenty hours later the symptoms of poisoning came on; they consisted of severe abdominal pain, persistent vomiting, and diarrhea. The vomitus was stained green. The patient was collapsed, her skin cold, the radial pulse could not be felt, and the heart-beats were 120 a minute; the sounds were very feeble; the temperature was so low that the mercury in a thermometer registering 95 did not rise to the first mark. Morphin and stimulants produced recovery. [E.L.]

Oxyuris Vermicularis in the Intestinal Wall.—O. Wagener[2] reports a case in which several Peyer's patches were studded with numerous small grayish granules of sandlike consistency. Microscopic examination showed the granules to be calcareous deposits, containing the oxyuris. The parasites were separated from the surrounding tissue by a chitinous sheath. The author believes that the young parasites gained entrance to the intestinal wall through the necrotic surfaces of the follicles, and bored their way to the bottom of Peyer's patches, where they became enclosed in calcareous deposits. He claims that this is the first case recorded of the oxyuris in the intestinal wall. [B.K.]

An Unusual Variety of Pleurisy in Children.—C. Riviere[3] reports six cases of loculated pleurisy occurring over the middle lobe, not secondary to pneumonia, which is a condition hitherto undescribed. Its special claim to recognition rests on the fact that it so closely simulates by its signs other pathologic changes occurring in the same situation in children. The onset and general symptoms are those commonly found in primary pleurisies of children, the physical signs later localizing the effusion. The condition is liable to be confused with cardiac enlargement, empyema, collapse of the middle lobe, or fibrosis and bronchiectasis of the middle lobe. In none of the cases reported was the diagnosis confirmed by the use of the aspirating needle, that expedient not appearing justifiable. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Results of the Suprapubic Cystotomy.—Of the 47 operations that Wieting and Cassape[4] record, 45 were performed by this method, and 2 by perineal section. Of the 45 cases, the bladder was closed in 42 at the time of operation, and allowed to remain open 3 times. In 7 of the 42 cases a fistula developed in each case, but they all healed by second intention; they note that many of the operations were performed by assistants and students. Where severe cystitis or kidney complication was present, the bladder was left open; where the cystitis was slight, the bladder was closed immediately, and the patient catheterized every three or four hours, except at night; in order not to disturb the patient, continuous drainage was used. They do not favor the use of continuous drainage because of the urethritis which it produces. As meeting the objection filed against this method, they say there is little danger of infecting the peritoneum if this membrane is pushed up carefully before the bladder is opened; then, too, the cavity of the bladder is thoroughly cleaned before the operation. Because of a previous supracystotomy which produces extensive adhesion so that the peritoneum is pushed up with difficulty they believe that the transverse incision into the bladder is preferable, owing to this condition they performed perineal section in one case. Although perineal section is an easy operation, the injuries to which neighboring organs are subjected and the tardiness with which healing takes place make it less desirable. [J.F.]

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[1] Deut. Arch. f. klin. Med., Bd. lxxxi, p. 65.
[2] British Journal of Dermatology, 1904, xvi, 259, No. 7.
[3] Wiener klin. Woch., 1904, No. 30.

[1] British Medical Journal, 1904, ii, 124.
[2] Deut. Archiv f. klin. Med., Bd. lxxxi, p. 328.
[3] The Practitioner, September, 1904.
[4] Arch. f. klin. Chirg., 1904, Bd. lxx, Heft 2.

Epithelioma of the Tongue in Women.—Charles R. Keyser[1] reports cancer of the tongue in women in 10 hitherto unreported cases. Statistics are given concerning the relative frequency of cancer of the tongue in the female. Butlin and Spencer state that the disease is found in women in 15% of all cases of epithelioma of the tongue; A. E. Barker found that out of 293 cases of cancer of the tongue collected from seven different clinics at home and abroad, there were 46 female, or 15.6%. From the reports of four London hospitals, Keyser collected 593 cases, of which 48 (8.09%) were in women. Fripp and Swan found epithelioma of the tongue was seven times more common in men than in women, whereas sarcoma was only twice as common. According to Jessett, in 400 cases, 15% were in women; in Whitehead's 104 collected cases, 15%; Gurlt's statistics show 14.6%; Lardau found 16% in women. Concerning the etiology of cancer in the tongues of women, Keyser believes that, as among men, the newgrowth is almost invariably preceded by prolonged local irritation, the result of either rough carious teeth, or badly-broken tooth-plate, or syphilis of the tongue. Excessive smoking has been adduced as a cause, but Barker states that in Finisterre, where all the women smoke short pipes, Hertaux collected 100 cases of cancer of the tongue, and not a single case occurred in women. In Wales, where the women commonly smoke short clay pipes, the disease is not often seen. The series of 10 cases is reported in detail. [A.B.C.]

The Surgery of Visceral Ptosis.—A. Depage, E. Rouffart, and L. Mayer[2] reviewed and analyzed the abundant literature of this subject, and came to the following conclusions: Franz Glénard has made great progress by his methods of examining the abdomen, especially by palpation, by which our knowledge of diseases of the abdominal organs has been increased. Atmospheric pressure plays an important role in maintaining the intraabdominal equilibrium. It is important to remember that simple physical modification can be the cause of pathologic alterations of the visceral organs, and that surgical measures will readily cure these conditions when they remain obstinate to medical therapeutics. By splanchnoptosis is meant a syndrome characterized by lack of tone of the abdominal walls, resulting in ptosis of the abdominal organs, especially the kidney and intestine. Treatment consists of the application of the Glénard bandage or by laparotomy if the orthopedic measure is insufficient. Frequently other operations become necessary, such as hepatopexy, or hysteropexy. When an isolated organ is at fault the operation is followed by rapid and permanent cure, when all other forms of treatment have been in vain. Nephropexy, hepatopexy and splenopexy are the operations of choice, and are efficacious. Colopexy and gastropexy, on the contrary, sometimes do not realize all that is to be desired. In determining upon operation it is important to decide that the symptoms bear a certain relation to the visceral ptosis, and that the existence of both is not coincidental. [J.H.W.R.]

Talalgia and Its Surgical Treatment.—Talalgia, or "pain in the heel," is a condition usually associated with gonorrhea, but may be due to other causes. M. E. Vincent[3] has observed nine cases, of which seven were due to gonorrhea and two to rheumatism. The seat of the trouble is usually in the subcalcaneal bursa, and the points of greatest pain are at the attachment of the tendo-achillis and between the tuberosities of the os calcis. The cause of the pain in some cases, however, may lie in an inflammation in the tissues surrounding the calcaneum, and not in the bursa itself. Three forms of talalgia may be recognized: 1. Hygroma of the bursa. 2. An ossifying form, with marked hyperostoses, especially at the osteofibrous insertions of the calcaneum. 3. Talalgia vulgaris, without deformity of any kind. All forms are accompanied by a neuritis, the origin of which may be central or peripheral. The various lesions of talalgia are produced by the local irritant effect of toxins, usually elaborated by the gonococcus. The treatment may be palliative, consisting of prolonged rest, hydrotherapy, massage, hot applications, etc. But frequently a more radical surgical treatment is required, consisting of incision and curetment of the bursa and its surrounding fibrous tissue. [B.K.]

Technic of Osteoplastic Amputation.—With the method recommended by Bier, the results have been somewhat disappointing to Frommer,[1] who attributes the necrosis and the formation of sequestrums to the separation of the periosteum from the skin. With the method which Frommer describes as follows there has not been one bad result in 30 operations. He makes a four-cornered flap the length of which corresponds to twice the radius and the width to half the circumference of the amputated limb. The incision goes directly to the bone the length of the skin flap. To correspond at the base of the four-cornered flap, a circular flap is made upon the other which includes all the layers to the bone. The bone is then cut off at the margin of the circular flap and then a bone flap, 1 mm. to 2 mm. thick is made by sawing parallel to the plane of the four-cornered flap and in the direction of the long axis of the bone for a distance which corresponds to the diameter of the bone or bones amputated. When this is accomplished the soft structure of the circular flap with the periosteum are pushed back and the bone is again cut at right angles to meet the upper limits of the longitudinal saw cut. The bone flap is now still adherent to the four-cornered flap and to the stump of the bone. In order to bend this flap over the bone stump, it is cut through 1 mm. or 2 mm. from the stump, so that there is an offset which acts as a support; then the bone flap is fixed with sutures, the soft tissues are then fixed and pressure is applied in the extended position. It is very important, he says, to stop all bleeding so that a hematoma is avoided. [J.F.]

The Abortive Treatment of Acute Gonorrhea.—S. Bettmann[2] considers it the duty of every practitioner to attempt the abortion of every case of acute gonorrhea which comes to him for treatment. He recommends for the purpose a 20% mixture of protargol in glycerin and water; he prepares it by dissolving 10 gm. (2½ dr.) of protargol in 45 gm. (1½ oz.) of water; the vessel is neither touched nor shaken until solution is complete, when the same amount of glycerin is added. If the discharge containing gonococci increases, the treatment is to be stopped at once, but in most of the cases the attack is checked without further discharge; sometimes an increased discharge without gonococci occurs and is due to the glycerin; as this substance tends to assist in destroying the organism, this amount of irritation is not a contraindication. He tried injections, but has given them up for local applications by means of a camel's hair brush, which he introduces a distance of 6 cm. to 8 cm. into the anterior urethra. The applications are made daily, but are rarely necessary more than six times. Pencilling is not painful nor is it distasteful to the patient. Of 42 patients so treated, 20 were cured, in 7 the result was doubtful, and in 15 it was negative. Of the cases treated as early as the third day, most were cured; no attempt was made to abort in cases of more than five days' standing. Even in the cases where the method failed to abort, an influence on the disease was noticed; not one of them developed a complication, not even a posterior urethritis. [E.L.]

Tuberculosis and Appendicitis.—C. G. Cumston[3] says that while ordinary appendicitis will arise in tuberculous patients from the same cause as in subjects otherwise in a healthy condition, there are certain points regarding the relation of the two conditions which need to be taken into account. In the majority of cases the specific bacillus reaches the appendix by way of the intestinal tract. Cumston believes that very extensive tuberculous lesions of the appendix may exist with absolute absence of symptoms. There may be enlarged hyperplastic appendices buried in the midst of adhesions with their mucosa almost entirely destroyed, their walls filled with cold abscesses or masses of caseous material, with points of ulceration on the verge of perforation, or even complete perforation with periappendicular foci of pus, and all these lesions are only discovered when the case comes to autopsy, they not having given rise to a single symptom pointing to the iliac fossa during life. On the contrary the disease occasionally manifests itself by symptoms in every way similar to an ordinary attack of appendicitis. From these facts it is plain that in the majority of cases the diagnosis presents many difficulties; sudden onset and sharp pain are more frequent in ordinary appendicitis than in the tuberculous form, but there are exceptions to this rule. When large collections of pus have formed they may be mistaken for those arising from Pott's disease in the lumbar region. In case of perforation with general peritonitis the diagnosis is usually easy; the prognosis of tuberculous appendicitis is always serious, and it is most exceptional for the lesion to undergo changes leading to a cure. There can be no fixed rules regarding surgical interference in tuberculous appendicitis. If the symptoms are such as to be of immediate danger to the patient, operation is advisable, but if the infection is slight, if extensive tuberculous lesions are suspected, or if the general condition of the subject is fairly good, abstention is the proper course to pursue. [A.G.E.]

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[1] The Lancet, September 17, 1904.
[2] Jour. Méd. de Brux, October, 1904, p. 527.
[3] La Semaine Médicale, September 7, 1904.

[1] Arch. f. klin. Chirg., 1904, Bd. lxx, Heft 2.
[2] Münchener medicinische Wochenschrift, 1904, li, 1240, No. 28.
[3] Colorado Medical Journal, May, 1904.

The Cause of Death after Bilateral Nephrectomy.—According to the investigations of H. Couvée,[1] rabbits live about 100 hours after both kidneys are removed. The author endeavored to discover the poisons which apparently caused death, but was unable to accomplish this, either in the blood or the various organs of the animals. He is convinced, from his experiments, that retention of toxic substances is not the cause of death. He injected extracts made from the livers and muscles into other animals that had likewise been deprived of their kidneys; the result was that their lives, instead of being shortened, were lengthened to about 150 hours. The author believes that the cause of death in nephrectomized animals is to be sought in the high molecular concentration of the blood and tissue juices. This theory is supported by the increase in osmotic tension of transudates, where such occur, and the marked depression of the freezing-point of the blood-serum, together with the known effects of such influences. When the author employed measures in his experiments to reduce the osmotic tension, life was prolonged, and when the tension was further increased, the animals died still earlier. [B.K.]

Bullet Wound of the Brain.—William Sheen[2] reports that a man of 23 was struck on the forehead by a revolver bullet; he fell, but loss of consciousness was only momentary. He walked to a train and was taken a distance of 20 miles and admitted to a hospital. Detailed examination made immediately after admission showed entire absence of symptoms; there was no evidence of the position of the bullet. A skiagraph showed distinctly the position of the ball. The patient was anesthetized, the wound thoroughly cleansed, but the bullet was not removed. Subsequent progress of the case showed paralysis of the right arm and right side of the face, and motor aphasia. A second operation was done some ten weeks after the injury. By the aid of the skiagraph the bullet was removed after being secured at a depth of 6.5 cm. from the skull surface. The after-progress was uneventful, there was no paralysis or aphasia, the drainage-tube was removed on the following day, sutures removed on the eighth day when the wound was healed completely. The patient was out of bed in three weeks; there was still weakness of the right arm and leg. The gradual onset of the symptoms some hours after the injury must be attributed to a localized edema of the brain. There was no concussion so common in injury by high bullets, and the symptoms were not sufficiently immediate for hemorrhage, and not sufficiently delayed for inflammatory process. The chief point in the ability to remove the bullet was the assistance rendered by the skiagraph. [A.B.C.]

Surgical or Traumatic Rheumatism, with a Note on Corrigan's Button.—J. Weir[3] discusses what might be termed rheumatoid affections subsequent to an injury. It is not true rheumatism and is intractable to rheumatic remedies. The trouble may arise from either slight or severe injuries. After fractures, dislocations, and sprains, the parts are often kept too long at rest and a predisposition to overstrain is engendered, developing a chronic periarthritis after efforts to bring them into unaccustomed play. Earlier removal of splints would diminish the number of these cases. The parts should be freed from support as soon as the pain has abated. The condition is common in certain occupations. The wrists of oarsmen, dressmakers, and pianists, the ankles of commercial travelers, servants, and hospital nurses are often affected. Flat-foot predisposes to it. He reports a case in a dressmaker. Freedom from pain during passive movement proved that it was not the joint but the periarticular structures which were involved and there was almost immediate relief from the blistering with Corrigan's button. When the joint is not thickly covered with muscles or when their lesion is periarticular, extensive and deep cauterization is not usually required and anesthesia is unnecessary. The cautery should be heated sufficiently to destroy only the superficial layer of skin. [H.M.]

Decapsulation of the Kidney in Bright's Disease.—P. Rosenstein[1] reports six cases of Bright's disease operated upon in Israel's clinic according to the method of Edebohls. Their results do not correspond with those of Edebohls; one patient died as the result of the operation; one became worse; two were not influenced in the least; two were improved, and none was cured. He explains the difference between the results obtained by Edebohls and himself by stating that none of the patients cured by Edebohls were true cases of Bright's disease, but rather inflammatory processes due to abnormal mobility of the kidney. Most of Edebohls' cured patients suffered from "unilateral" Bright's disease, but as true Bright's disease is a toxic condition produced by poisons, in solution it can obviously never be a unilateral disease. Leaving these cases out, Edebohls' list counts but 23 cases; six of these died (26%), not one was cured, eight were not improved, and nine were improved. The author's conclusions concerning the operation are: Decapsulation of the kidney in grave Bright's disease is a dangerous operation; a permanent cure has not been recorded in any one case; improvements were noted, but in one of the improved cases the albumin and casts continued to exist, only the edema disappearing; in the other, headache and scotoma persisted. [E.L.]

A New Operation for Varicocele.—Vince[2] has for four years used a new operation for the cure of this condition. He first makes an incision from the inguinal ring to the superior border of the testicle. Then follows a longitudinal section of the tunica albuginea, after which the cremaster muscle is incised longitudinally and the spermatic cord isolated and pushed backward by means of a compress. The cremaster muscle is then seized by two forceps 6 cm. from each other, and the part of the muscle between the forceps is resected. The two extremities are then sutured, the cord is replaced on the surface of the muscle, and the longitudinal incision is closed over it. Finally the tunica albuginea and the skin are sutured. When the varicocele is very voluminous, or the veins are profoundly changed, resection is indicated. By this operation the testicle is elevated 5 cm. to 6 cm. Two of Vince's patients operated upon four years ago were examined recently and showed no return of the condition. [J.H.W.R.]

Ascaris in the Common Duct and Choledochotomy.—Neugebauer[3] in discussing this subject speaks of a woman who was taken sick about one year before he saw her with great pain in the abdomen, chills, vomiting and jaundice which never disappeared entirely and would become intensified after attacks of lasting pains, during these periods the stools became clay-colored and the urine dark-red. Just prior to the time that Neugebauer saw her she began to loose weight. At the operation he found that the gallbladder appeared normal but discovered a mass in the choledoch duct and upon incising over this mass he found the duct occupied by a round worm doubled upon itself and higher up in the duct two gallstones. He operated with the purpose of finding gallstones. [J.F.]

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[1] Zeit. für klin. Med., Bd. liv, p. 311.
[2] The Lancet, September 17, 1904.
[3] Glasgow Medical Journal, July, 1904.

[1] Deutsche medicinische Wochenschrift, 1904, xxx, 1132, No. 31.
[2] Jour. Méd. de Bruxelles, October, 1904, p. 525.
[3] Arch. f. klin. Chirg., 1903, Bd. lxx, Heft 2.

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Years of Reputable Practice to Count in Examinations for Licensure.—Most of the opposition to the State Board Examinations, and the heart of the plans suggested to better the methods, was the injustice to the older practitioners. The young men fresh from college might pass, but, as we all know, those who have been in practice many years are unable to answer the questions. Even the details and accuracies of the subjects studied in our medical schools are soon forgotten; but the new courses of study instituted since graduation double the difficulty. It is plainly unjust, unnecessary, and impossible for the older physicians, who may move from one State to another, to pass the new examinations of the State Boards. Recognizing this, the State Board of Health of Illinois has adopted an ingenious form of compromise. The older practitioner is given credit (beginning January 1, 1905) for 5% upon the required average of 75%, for each period of five years of reputable practice. As an entering wedge the 5% may be allowed to stand, but we think it should have been made 10%. In urging other State Boards to adopt some such measure we think they should consider if this greater generosity to the older practitioner is not better politics and professionalism.

Army Surgeons to Study the Medical Methods in the Eastern War.—We have several times spoken of the strange fact that the Japanese army medical department and Red Cross service are vastly superior to anything yet illustrated by occidental nations. These criticisms of our medical science and art, together with others, especially that of Major L. L. Seaman before the military surgeons at St. Louis, has moved our government to despatch army surgeons as attaches to the Japanese and Russian armies operating in the far East, providing the consent of the authorities can be secured. The military observers already in the field with the belligerent armies have reported so many interesting facts touching the operations of the medical departments of the two armies that it has become evident to the general staff that there has been almost a revolution in field hospital methods as a result of the war so far as it has gone, and it is regarded as desirable that the United States Medical Department should lose no opportunity of gathering lessons from the great conflict now going on with a view of improving our own army medical service. It is probable that when accurate statistics are published it will be found that never in the history of war have there been so few deaths from disease and wounds, compared with the number of actual deaths in battle, as in the Japanese army during this campaign. The study of the methods whereby the Japanese have brought about this magnificent result well deserves the most serious attention of our government. It is evident that the "yellow peril" may imperil white vanity, and that the occident must again realize the truth of the old proverb, *ex Oriente lux.*

School Influences in a Great City.—In the entire history of the past the greatest and best educational influence in the lives of the young was the home. In the great city there are no homes. The tenement and the apartment house cannot be called homes in any true sense of the word. Next to the home in molding the child's mind were the playgrounds, the garden, orchard, fields, and woods, to which the boys and girls could fly. All this for the child living in great cities is also gone. The new education, to some extent and in some poor ways, is seeking to bring back to the child these lost most valuable things. The new movements in pedagogics look to establishing manual training, gynasiums, school gardens, recreation, and amusement places, school baths and swimming tanks, family resorts, club-houses, small parks, the school nurse, and the school doctor. The play instincts of the child must be given outlets, and the demands for sociability and physical exercise. For the girls there must be added sewing, clothes-making, cooking, etc. But all need games, with folklore echoings, music, etc., to give back anything of the healthy and brightening habits of the old lost country homes. The school, it has been well said, is called upon to assume functions which used to be performed by the home and other agencies, as well as new ones, to meet the needs of our rapidly developing civilization. This means increased resources and heavier expenditures. It means, among other things, a body of teachers more richly equipped and more highly cultivated than we have been content with in the past. These things we must be willing to pay for, if we would make of our schools our most powerful weapons against the corruption, the lawlessness, the disease, the materialism, the selfishness, and greed which imperil this democratic venture of ours.

Pediatrics to the Fore!—There are two great specialties in medical science and art which are destined to grow in power and scope and to occupy more and more of the world's attention. The two which up to the present time have held the places of honor, surgery and internal medicine, must henceforth more and more share their distinctions with pediatrics and ophthalmology. With ophthalmology, because of the vast role which vision plays in all ages but increasingly in civilization, with the resultant effects of pathologic vision; with pediatrics, because "the child is father to the man," and the beginnings of disease in the child are of infinitely more importance than the end-products in the completed and senile organism. It was most fortunate, but perfectly natural and logical, that to Dr. Jacobi should have fallen the duty of representing pediatric science at the Congress of Arts and Science. Others might have treated the subject with an equal scholarship and literary ability, but perhaps none would have shown its relations to certain other phases and specialties of human activity with as striking cogency and originality. Few would have found in pediatrics such grounds for peace, against war, and against "the mud-streaked and blood-stained man hunter." Few would have thought or dared to link pediatrics and politics in such an intimate way. His plea for the therapeutics of our social and governmental diseases by means of the participation of the educated and high-minded physician should be heeded by all who recognize the dawning power of preventive medicine to cure so many of our social diseases.

Mothers Must Nurse Their Babies.—Perhaps Dr. Jacobi's most praiseworthy pleading, rising to command, is that the mother's milk is the best. It is of course an old story, older than the enthusiasm of Jean Jacques who with his own hands made gifts for those mothers who obeyed the most primitive and fundamental of duties. The splendid optimism of the knower of his function and the lover of his kind breathes in these weighty sentences of advice and warning. Those mothers who are able should even be compelled to nurse their infants because no additions or abstractions can ever change the cows milk into the human milk. Artificial infant feeding, unknown to antiquity is verily a disease of modern times. "It takes modern civilization to expose babies to disease and slow extinction." The ancient and oriental infanticide was indeed more humane, and better for the race than our later hypocritic methods. The call for the State to take upon itself its proper duty of protecting the young and of making them better procreators and citizens is altogether admirable. One must quote:

> We are building hospitals for the sick of all classes, and insist upon their being superior to the best private residences; asylums for the insane, neuropathics, and drunkards; nurseries and schools for epileptics, cretins, and idiots; refuges for the dying consumptives; and sanatoria for incipient tuberculosis. We are bent upon curing and upon preventing. Do we not begin at the wrong end? We allow consumptives and epileptics to marry and to propagate their own curse. We have no punishment for the syphilitic and the gonorrheic who ruins a woman's life and impairs the human race. Man, however, should see that his kind must not suffer. One-half of us should not be destined to watch, and nurse, and support the other half. Human society and the State have to protect themselves by looking out for a healthy, uncontaminated progeny. Laws are required to accomplish this; such laws as will be hated by the epileptic, consumptive, the syphilitic, and the vicious. No law ever suited the degenerates against whom they were passed, and it is unfortunate that while health and virtue are as a rule not contagious, disease and vice are so to a high degree.

Dust and Disease.—It is perhaps a little too soon to accept, *in toto*, the conclusions of Dr. Robert Hessler[1] as to the existence of a dust disease. Some physicians long have recognized the part played by dust in the conveyance of disease. However, whether there is one "dust disease" or several dust diseases, Dr. Hessler has done a notable service in so graphically drawing attention to a symptom-complex closely associated with city dust. While his study lacks bacteriologic confirmation, few physicians who have had their attention directed to the role played by street dust in the production of disease will fail to accept Dr. Hessler's work as well founded in fact. Certainly, here is real progress—final fact may later come to light. Very many physicians everywhere in the United States after reading this paper will readily recall many cases whose history can best be explained as resulting directly from exposure to dust infection. Whether due to a coccus infection, a bacillus infection, or perchance a hyphomycetes infection, is a problem of great interest, but we need not await its solution before acting on the knowledge of its existence. Means of prevention and treatment are partially known, and we can actively attack the cause.

The campaign against all the dust-raising activities of cities should be waged with renewed force. Municipal authorities must be told and retold the misery undoubtedly due to unnecessary dust prevalence in cities. Dust-free pavements are needed, dust-free methods of cleaning streets must be devised, street sprinkling must be more thorough, and improved methods of sweeping public meeting places are urgently necessary. In fact, a sterilizing and dust-free plan of sweeping theaters, churches, etc., should be enforced. Streets should frequently be flushed. All these things and more should be demanded of all city authorities by our medical societies. The public must be educated, so we can have the aid of public opinion in securing these desideratums. Authoritative literature on the subject should be favorably presented to the newspapers, and their active and sustained assistance invoked. The dwellers in cities who are susceptible to dust infecton of course cannot all remove to the country to be free from their disagreeable and dangerous idiosyncrasy; they are too many, and new means of gaining livelihood are not readily found. New means of prevention and cure while in the midst of infection must be devised. One point not mentioned by Dr. Hessler, probably because at present seeming impracticable, is the search for means to prevent the inhalation of dust. No present device is sightly or satisfactory, but surely some inventive genius can contrive an unseen and fairly effective one. The hairs in the nostrils have adapted themselves, imperfectly, to this purpose. Special students of the diseases of the nose and throat should turn their attention to means of rendering the mucous membrane of the upper respiratory passages less susceptible to infection. Progress along all these lines is possible, and Dr. Hessler's suggestive paper deserves such a result.

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[1] Atypical Cases and Dust Infection, and Preliminary Description of Dust Disease. By Robert Hessler, M.D., of Logansport, Ind. *American Medicine*, October 1, 1904.

An Example That Should Be Followed by Every Medical Society.—As our columns have borne frequent witness, the evils of contract medical practice continue to grow. It is plain that they must be met, and in no half-hearted way. It simply comes to this, that the "club doctor" must be shut out of the profession. He is at heart a quack and his methods are as injurious to the profession as the most brazen advertiser. It may take some time, and prove expensive, to demonstrate to the public that contract medical practice and auctioneer methods are neither good in a business nor a scientific sense, but we had better at once set about the work. Delay will not help us, but will allow the evil to become more entrenched. This is evidently the opinion of the New York Fulton County Medical Society, which at a regular meeting, on October 13, passed unanimously the following resolution:

> On and after the first day of January, 1905, no member of this society shall accept the position of club, society or organization physician, or agree, or continue to do any medical or surgical work for any club, society or organization at a less rate than the regular or customary charges for like services rendered by other physicians for patients not members of such club, society or organization.
>
> Also, that in no case shall any physician agree to attend the families of the members of such club, society or organization at half price or a less price than the regular rate.
>
> Nothing in this section shall be construed as preventing any member from attending the worthy poor at a less rate or to give free service to those who are too poor to pay anything, or acting as city, county or town physician, health officer, or under any political appointments.
>
> Any violation of this by-law shall be considered unprofessional conduct, and render the member guilty thereof liable to suspension or expulsion from this society, as the society may determine.

The Cheap Quack and the High-priced One.—The greed of the nostrum seller usually leads him to take one of two ways to delude his dupes: He either gives his great discovery to the "poor dying sufferer" for little or nothing, at tremendously reduced prices, because of his intense love for him and desire to cure him, or he plumply asks an unmercifully high price and demands his money in advance. An instance of the latter method lies before us in a type-written circular offering for $31, four pieces of something to put under the casters of the bedstead to prevent the draining away of the precious nerve force, and thus curing every imaginable disease which afflicts the "poor suffering human race." An example of the cheap and cheaper, guaranteed, no-cure-no-pay method is the Force of Health Company, who have a series of a score or more of circulars, folders, letters, etc., which start with great figures and step down from grade to grade of reduced prices, ending finally in the deposit-in-your-own-bank-until-you-are-cured plan of getting a trial order. It is incredible the number of these brazen all-promising fraudulent companies, promising everything, bolstered by capitalists, D.D.'s, LL.D.'s, bankers, professors, and testimonials. Are there so many foolish sick people who pay these enormous printing bills? And they all make free use of the U. S. mails!

EDITORIAL ECHOES

Japan's Medical Service and Ours.—From the address of Major-Surgeon Louis L. Seaman, before the International Congress of Military Surgeons at St. Louis, October 12, published in part in the *Literary Digest* of October 29, we quote the following pertinent facts:

> *If wars are inevitable, and the slaughter of men must go on* (and I believe wars *are* inevitable, and that most of them are ultimately beneficial), then, for the love of God, let our men be killed legitimately on the field, fighting for the stake at issue—not drop them by the wayside by preventable diseases as we did in the Spanish-American war—1,400 for every 100 that died in action. It is for the 1,400 poor devils who are sacrificed—never for the 100 who fall gallantly fighting—that I offer my prayer. And yet, should occasion arise for the gathering of another army of 250,000 next summer, what evidence is submitted to prove that the lamentable scenes of 1898, with all their nauseating details, would not be repeated? Where, as in Porto Rico, Tampa, and Chattanooga, no fighting was done, but where more sick and invalided were gathered at one time than would overload any dozen transports and hospital ships with men who never smelled powder or saw a hardship of real war, and who, had they been properly subsisted on the principle of the Japanese today, would have returned to their homes and vocations, healthy and happy as after a summer's outing? I ask what tangible evidence is submitted to show that history would not repeat itself, and that such an army, gathered hastily, would not again be brought almost to its knees, through the same ignorance and incompetency? We have recently heard much of the reorganization of the American army and the creation of a general staff. Commanding that staff is an officer as courageous, as gallant, as heroic, and, I believe, as representative as ever drew a sword, and yet the importance of this momentous subject, the study of preventable disease, and the saving of 80 men out of every 100 that always die in war is considered of such minor import that no place is found on it for a medical representative. The three great lessons to be learned from the Japanese war [are] from the medical, the commissariat, and transport departments. The Japanese authorities permitted our Government to send five military attaches to accompany their army in the field. Was a surgeon or a quartermaster or a commissary officer detailed? No. They represented the life-saving and life-preserving departments and were omitted. The killing departments got the appointments—the cavalry, ordnance, infantry, etc.—and today Japanese officers are laughing in their sleeves at our senseless failure to have representatives on what they consider their three vital points, while the only weak feature of their army, its cavalry, is considered worthy of special study. Certainly 'it is to laugh.' But what can be expected of a government that after its terrible lessons of 1898-99—still insists—especially in the tropics—of subsisting its army on a ration so rich and elastic (lovely term, that elastic), so elastic that when in the emergency of war its elasticity is tested, it bursts its bands, and is found to consist of pork and beans and fermenting canned rubbish that in six weeks prostrates 50% of its 250,000 units with intestinal diseases, and sends 3,000 to their last homes, to say nothing of the enormous number of invalided and the 75,000 pension claims? That in its famous reorganization fails utterly to recognize one of the most important of all the departments, namely, that of sanitation, as it is recognized by the Japanese today? That holds its great life-preserving department in such light esteem, that but one officer in the entire army can even reach the rank and emoluments of a brigadier-general? That on its general staff fails to have a single representative of this department, and if any, only a young, inexperienced man of inferior rank, instead of the ablest and most experienced officer in or out of the service, one of international reputation like our retired Surgeon-General Sternberg, whose rank should not be less than that of a major-general, and whose opinions would carry weight in councils of war? . . .
>
> Why, I ask again, should we expect reforms from authorities who, in their great preparatory schools, West Point and Annapolis, furnish the cadets no instruction in the important studies of physiology and hygiene, so that when they come to command the fighting units of the army they can be prepared to guard them against the silent foe, which scores 80% of the deaths! Like the rest of the world, we go blundering on, spending millions annually for the maintenance of these great military schools and arsenals and war colleges, educating men in the art of human destruction, while the more formidable

adversary in the ranks—the grim specter that kills 80%—is left comparatively unheeded! . . .

Gentlemen, it is time for this association of military and naval surgeons to voice its sentiments in no uncertain notes—to demand another reorganization of our army, in which that branch of its service that grapples with the foe that causes 80% of the mortality shall have equal recognition with other branches, which combined fight the enemy who destroys but 20%, whereby the Government of the United States shall give to its guardians the rights to which, as citizens of the republic, they are justly entitled. The State deprives the soldier of his liberty, prescribes his exercises, equipment, dress, diet, the locality in which he shall reside, and in the hour of danger expects him, if necessary, to lay down his life in its defense and honor. It should, therefore, give him the best sanitation and the best medical supervision that the science of the age—be it Japanese or Patagonian—can devise. How this great moral obligation has been fulfilled in a land, which 50 years ago was regarded by the Occidental world as semibarbarian, I have endeavored to show. If we cannot improve on this system, then we had better meekly follow it.

AMERICAN NEWS AND NOTES

GENERAL.

"Train Catarrh" in America.—The London *Chronicle* says: Train catarrh has as yet no name in America or anywhere else, but here is its christening. The present writer has lately spent four nights in sleeping berths on American trains, and he has spent many other nights on Continental trains. Always there has resulted the catarrh, produced, one may presume, by changes of temperature and dust. Many travelers have suffered in the same way. What do the doctors say about this form of disease?

Miscellaneous.—The American Public Health Association in its preliminary announcement calls attention to the proposed meeting to be held at Havana, Cuba, January 9, 10, 11, 12 and 13, 1905. Delegates are expected to attend from the United States, Canada, Mexico, and Cuba.—**Philadelphia: Dr. Harte Resigns.**—Dr. Richard H. Harte has resigned his position as attending surgeon to the Episcopal Hospital. The vacancy on the surgical staff will be filled by the Board of Managers at their meeting on November 24.

American Surgeons to See the Russo-Japanese War.—Late news from Washington states that the army general staff has decided to despatch army surgeons as attaches to the Japanese and Russian armies operating in the Far East, providing the consent of the authorities can be secured. From reports of the military observers in the Far East it is evident that there has been almost a revolution in field hospital methods, and it is desired the American medical department of the Army should profit by the experiences of the belligerent nations.

The Fourth Pan-American Medical Congress will be held in Panama on January 2 to 6, 1905, and Dr. G. Hudson-Makuen, 252 South Sixteenth street, Philadelphia, has been appointed secretary of the Section on Laryngology and Rhinology. It is his desire to secure as many good papers as possible in this country, for presentation at the Congress. He therefore asks that any specialists in laryngology and rhinology who desire to present papers at the Congress will kindly communicate with him at the earliest time possible.

Alvarenga Prize of the College of Physicians of Philadelphia.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for a year of the bequest of the late Senor Alvarenga, and amounting to about $180, will be made on July 14, 1905, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the secretary of the college on or before May 1, 1905. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1904 was not awarded, no essay of sufficient merit, in the judgment of the committee, having been submitted in competition.

Copper Sulfate in Drinking Water Again.—In a recent address made in Philadelphia on the above subject, Dr. George T. Moore, the scientist connected with the Agricultural Department of the United States, to whom is accredited the discovery of the asserted efficacy of copper sulfate in the treatment of drinking water, is quoted with the following remarks: "In spite of a considerable number of articles appearing which seem to clearly demonstrate that copper in such small quantities will not destroy algæ and certain disease-causing bacteria, the fact remains that it has been done and is being done in millions of gallons of water in various parts of the country. It is like the old arguments against the Atlantic cable, or the treatise carried by the Great Eastern on her first trip scientifically demonstrating the impossibility of such a ship crossing the ocean. It is also interesting to note that without exception the amount of copper necessary to produce death of both algæ and bacteria in a large reservoir has always been less than the theoretic amount determined in the laboratory by the use of aquariums and test-tubes. It is probable that there will always be a certain amount of opposition to the use of copper for the purification of water, just as there is to vaccination, or antitoxin, but as more and more cases are added to the list of supplies successfully treated without harm to the consumer, this aspect of the question will disappear."

Vaccination in Its Relation to Various Acute Diseases.—According to the Chicago Bulletin of the Health Department, Dr. Leonhard Voight has been Director of Vaccination in Hamburg, Germany, since 1874. Since that date 400,000 persons have been vaccinated at his institution, and 600,000 within the Hamburg territory. Since 1884, 589,586 children have been vaccinated. Voight has made a careful study of all anomalies following vaccination, and since 1890 all such cases, and the causes of all deaths occurring shortly after vaccination, have been reported to him. He shows by careful records that not only is it not true that the three weeks following vaccination are weeks of exceptional danger, but that the exact reverse is the case, namely, that those weeks constitute a period in which the deathrate from such diseases as bronchitis, pneumonia, diphtheria, measles, scarlatina, cholera, convulsions, brain inflammation and diarrhea, falls to a seventh to a twentieth of that to be expected from the known mortality for the given ages. Thus, for pneumonia and diphtheria, there should have died 51.6 and 20.8 respectively, whereas actually only 7 and 3 died; and similarly, whereas for diarrhea a mortality of 200 should have occurred, only 10 died. It would thus seem that the vaccination process prevents, or possibly only delays, the development of other zymotic diseases.

Passenger Car Ventilation.—Repeated references have been made in our columns to the notoriously insufficient ventilation of passenger cars on our railways, particularly the sleepers, but including also day coaches. Of interest on this subject is a recent publication of the Pennsylvania Railroad Company prepared by its chemist, Charles B. Dudley. He shows what the company is doing in the way of ventilating cars and points out the difficulties met with. To maintain the desired standard 180,000 cubic feet of fresh air should be furnished each car every hour. By the mechanism now employed by the company 60,000 cubic feet are supplied each hour. The system which has been devised consists in taking air from the outside in through two hoods at diagonally opposite corners of the car, thence through the down-takes underneath the hoods to spaces under the car floor, one on each side. From these spaces the air passes up through the floor, over the heating systems, and out into the car. Escapes for the vitiated air are provided on the center line of the car roof. Smoke, dust, cinders, except of considerable size, and noxious gases are taken in with the air. Screens over the hoods keep out larger particles and this vitiation has not given rise to practical difficulty. All new cars on the Pennsylvania lines are being thus equipped, as are also old cars as fast as practicable. East of Pittsburg 800 such cars are in daily use. The system has not yet been applied to a sleeping car, the reason for this not being given.

Dispense with the Plush Seats in Cars.—The Kentucky State Board of Health, in its war on unsanitary conditions in railway coaches, will receive a godspeed from every railroad passenger in whatever part of the country, who stops to think on the dangers of dirt and disease to which he is subjected. The plush seat is the central evil which the Kentucky board is attacking. It has been placed under State ban, and the board proposes to indict every railroad official it can reach in the State who can by any possibility be held responsible for operating cars with such seat coverings. Either leather or cane is permitted as a substitute. The requirement extends both to sleepers and day coaches. There is no question but that the plush seat is one of the finest receptacles for filth that could be devised. The dust that blows in through the open car windows is caught and held fast, and if any disease germs are in the air they are pretty sure to find a camping out place on the plush until a human victim comes along. Leather seats are not open to any such sanitary objection, but they are hot and often uncomfortable, and not at all to be compared for downright ease with the cane seats, which are usually set aside for day coaches, tourist sleepers, and the least pretentious cars. Another good seat covering is of linen, which can be taken off and cleaned at frequent intervals. It would be well for every State to make provision by legislation for sanitary seats, sanitary bed clothing in berths, and the best possible ventilation. The railway companies have had much more interest in mere appearances than in healthfulness in the past. Some of them are learning that looks are comparatively a minor detail, but others need to be taught.—[*Chicago Record-Herald.*]

EASTERN STATES.

Street Car Ventilation.—In the opinion of the Board of Health of Cambridge, Mass., the street cars operated in the city are not properly ventilated and are a menace to the health of the citizens. Accordingly the board at its meeting recently adopted an order calling the attention of the State Board of Health and of the Railroad Commissioners to the condition of the cars, and asking them to take such steps as are necessary to secure proper ventilation.

Free Vaccination Lymph.—Vaccine virus is now being sent out, free of charge, by the State Board of Health of Massachusetts, in accordance with the legislative act of 1903. A circular announcing that the lymph is ready, and stating the conditions on which it may be obtained, has been sent by the board to all the boards of health in the State, and to the physicians in Boston, as well as to hospitals and dispensaries. Requisitions have come already from the Tufts Dispensary, the Boston Dispensary, some Boston physicians, and from the health boards in Braintree, Brookline, Colrain, Cummington, Hanson, Lawrence, Maynard, Melrose, Palmer, Quincy, Salisbury, Watertown, Wakefield, West Brookfield and Worcester. All these orders have been filled, and the board is ready to supply the demands of the State.

NEW YORK.

Fewer Medical Students in New York City.—In the annual report of Chancellor MacCracken of New York University he says to the Board of Trustees both the city of New York and the State of New York have lost ground relatively in a shameful degree in their work for medical education. The report of the United States commissioner 20 years ago states the whole number of medical students in the United States as 10,600. Of these, the city of New York had 1,979, or nearly a fifth. The schools outside the city, at Albany, Buffalo, and Syracuse, had 106 additional, making 2,085 in the whole State. The latest report of the United States commissioner states the whole number of medical students in the United States as 26,821. Of these there are in the State of New York 2,374; of these only 1,800 are in the city; 574 in the rest of the State outside of the city. Thus we have the surprising result that there are fewer medical students in New York city today than there were twenty years ago. The decline in numbers is attributed to the failure of moneyed men to contribute to medical education.

PHILADELPHIA, PENNSYLVANIA, ETC.

Railroad Men to be Taught First Aid.—By the end of January the Pennsylvania Railroad Company will have 30,000 men trained in rendering first aid to the injured. Since October 1 the medical department has been giving daily lectures to the employes selected to perform this work. All locomotives have had installed in them a box containing articles for "the first aid to the injured," and in every baggage car there is a stretcher.

Hospital Management Discussed.—Discussions on hospital economy and internal administration, proposed legislation relating to the registration of nurses, uniformity of rates and conditions in the hospital training schools took place recently at the quarterly meeting of the Hospital Association of Philadelphia. Frank J. Firth, vice-president, presided, and representatives from the 25 hospitals allied with the association were present. The following officers were elected: Frank J. Firth, president; John Sailer, vice-president; William H. Haines, secretary and treasurer.

WESTERN STATES.

To Combat Tuberculosis.—At the conclusion of a lecture on "Tuberculosis and the Possibility of its Eradication," delivered by Dr. S. A. Knopf before the Indianapolis Medical Society, recently, an organization to be known as the Indiana Antituberculosis Society was effected, with the following officers: Dr. Theodore Potter, secretary-treasurer; directors, Dr. J. N. Hurty, Albert Metzger, John C. Dean, George Shirts of Noblesville, Dr. W. J. Fairfield of Anderson, George McCoy of Columbus, Dr. G. W. Bence of Greencastle, Dr. Hugh Cowing of Muncie.

Chicago Demands Inspected Meat.—A Chicago exchange states that the recommendation of the Civic federation that something be done to inspect the meat sold in Chicago has been taken up in earnest by the Council Committee on Health. The investigation of the federation led it to report that while there was perfect inspection by United States inspectors of the meat intended for export, no attention at all is paid to that eaten in the city in which it is killed. A well-informed member stated that there was not much to be feared from the large packing houses, as practically all of their meat was inspected by the government employes, but there had grown up around the yards a number of small slaughter houses which killed entirely for local consumption, sometimes buying cattle which had been rejected by the exporting houses, and there was no inspection at all of their products. A subcommittee was appointed to take up the matter, and the committee will make a demand on the council that the next appropriation bill provide for inspectors at the stockyards.

FOREIGN NEWS AND NOTES

GENERAL.

The Russian Red Cross Society is interested in a portable hospital made by a Danish firm. It has two wings containing ten beds each, and the center accommodates medical men and nurses. There is a bath and a stove, guaranteeing an interior temperature of 60°, even during very cold weather.

Miscellaneous.—Dr. Koch and "Coast Fever:" Dr. Koch, the celebrated bacteriologist, has announced that he will soon leave for German Africa with the special purpose of studying a malady among cattle known as "coast fever." This disease is not very serious when it seizes a young animal, which after one attack is immune, but its ravages are frightful among older cattle. It affects them much as scarlet fever affects human beings. "Coast fever" is caused by a microscopic parasite, which lodges in the red corpuscles of the blood; an insect transmits the parasite from one to other animals. The disease is not extremely rare in Europe, but its study is difficult, because the insect which propagates it exists only in summer. In tropical countries it lives all the year, so Dr. Koch is going to Africa to investigate "coast fever" under the most favorable circumstances.

OBITUARIES.

Mordecai Price, one of the most eminent surgeons of Philadelphia and an authority on gynecologic and abdominal diseases, was found dead in his office in the early morning of October 29. Since Dr. Price had previously enjoyed good health it is supposed that apoplexy was the immediate cause of death. He was 60 years of age having been born in Rockingham County, Va., in 1844. He was educated in the public schools of Philadelphia and at Kennett Square, New York, and was graduated in medicine from the University of Pennsylvania, in 1866. He early began specializing in abdominal and gynecologic surgery and gradually built up a large practice in the city. Some 15 years ago, in connection with his brother Dr. Joseph Price, he established a private hospital in Philadelphia for the treatment of patients in his special line of work. The city of Philadelphia loses a valuable member in the profession by the death of Dr. Price.

Theodore F. Prewitt, at his home in St. Louis, Mo., October 17, aged 70; a graduate of St. Louis Medical College in 1856. He was a member of the American Medical Association, formerly president of the American Surgical Association, of the Medical Association of the State of Missouri, and of the St. Louis Medical Society. He was formerly professor of the principles of surgery in the medical department of Washington University and the Missouri Medical College in St. Louis.

Montefiore L. Maduro, of New York City, at St. Luke's Hospital, October 23, from injury received 6 years ago in a bicycle accident; a graduate of the College of Physicians and Surgeons, New York City. He was at one time on the house staff of Lebanon Hospital, and visiting physician to the Mt. Sinai Hospital. He was a member of the American and State Medical Societies.

Frederick Adams, of Pocomoke City, Md., October 28, at the University Hospital, Md., from blood-poisoning contracted while conducting an operation; a graduate of Jefferson Medical College, Philadelphia. He was one of the oldest and most prominent physicians of Somerset county, having practised medicine there for the past 40 years.

Joel Cloud Kendrick, at his home in Greenville, Ala., October 9, aged 72; a graduate of the University of Nashville (Tenn.), medical department, in 1852; surgeon in the Confederate service during the Civil war, and for many years health officer and one time mayor of Greenville.

Florence Solomon-Pressler, of Attleboro, in Boston, October 27. She was graduated from the Woman's Medical College of Philadelphia, and in recent years received a diploma from the College of Physicians and Surgeons in Boston. She had been in ill-health some 4 years.

Thomas J. Pritchard, at his home in Huntington, W. Va., October 5, aged 44; a graduate of the Medical College of Ohio, Cincinnati, in 1883; a member of the American Medical Association, of the West Virginia Medical Association, and of various local medical societies.

William Bishop, at his home in Annapolis, Md., from tuberculosis, October 6, aged 60. He had been a practitioner in Annapolis for many years, where he was the only colored physician, enjoying a large practice among the people of his race.

Joseph B. Draper, at his home in Westford, Mass., aged 42, of typhoid fever; a graduate of Harvard Medical School in 1888. He was active in the Massachusetts and Middlesex medical societies and in various fraternal organizations.

Louis Royer, from apoplexy, at his home in Pottstown, October 25, aged 82. He had formerly lived at Trappe, Pa. He was graduated from the University of Pennsylvania, in 1845; was a member of the State Senate from 1878 to 1882.

Clarendon L. Willey, formerly house physician of the Lynn Hospital, committed suicide, October 12, by inhaling illuminating gas. He was 28 years old, and had graduated from the University of Vermont, Burlington, in 1903.

C. H. Thomas, of New Orleans, October 29, at Johns Hopkins Hospital, Baltimore, Md., after an operation. A number of years ago he retired from medical practice and was engaged in commercial pursuits.

John J. Tobin, at his home in Austin, Texas, October 12, aged 60, after an operation; a graduate of the New Orleans School of Medicine in 1861; a surgeon in the Confederate service during the Civil war.

Richard Sweet, assistant surgeon in the 123d United States Infantry in the Civil war and surgeon during the Franco-Prussian war, at the Soldier's Home, Marshalltown, Ia., October 11, aged 69.

Hamilton E. Smith, aged 64, suddenly, at his home in Detroit, October 8, from heart disease; a graduate of the University of Buffalo in 1859; a surgeon in the Federal service during the Civil war.

David G. Hartzell, one of the oldest physicians in West Philadelphia, October 25, aged 68; a graduate of Jefferson Medical College in 1858; surgeon in the Federal service during the Civil war.

Gideon F. Lower, of Canal Dover, Ohio, at his former home, Port Washington, Ohio, October 12, aged 54; a graduate of the University of Wooster, medical department, Cleveland, Ohio, in 1890.

John Wellner, aged 22, of Titusville, Pa., at the Mercy Hospital, Pittsburg, at which place he was an interne, October 9, of typhoid fever; a graduate of Jefferson Medical College in 1903.

Nathan S. Hatfield, at his home in Bowling Green, Ohio, aged 59, October 6, from cancer of the intestine; a graduate of the University of Wooster, medical department, Cleveland, in 1879.

Oscar S. Erskine, at his home in Winterport, Maine, October 8, from tuberculosis; a graduate of the Medical School of Maine, at Bowdoin College, Brunswick, in 1887.

William L. Severance, at his home in Greenfield, Mass., from tuberculosis, October 1, aged 46; a graduate of the University of Vermont, Burlington, in 1884.

James W. Lowell, at his home in South Portland, Me., October 8, aged 62; a graduate of the Medical School of Maine, at Bowdoin College, Brunswick, in 1866.

Austin Lord, at his home in New Haven, Conn., October 11, aged 83; a graduate of the medical institution of Yale College, New Haven, Conn., in 1844.

Richard C. Lee, at his home in Baltimore, October 28, aged 71; a graduate of the University of Maryland, School of Medicine, Baltimore, in 1859.

Eugene H. Mead, from spinal disease, at his home in Winsted, Conn., October 6, aged 51; a graduate of the University of Michigan, Ann Arbor.

William T. Owsley, at his home in Glascow, Ky., October 1; a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1889.

Andrew Wolfe Lyons, suddenly at his home in Bridgeport, Conn., October 8, aged 52; a graduate of Columbus (Ohio) Medical College in 1875.

Jacob E. Mohr, formerly of Quakertown, Pa., at Las Vegas, N. M., October 19, aged 42; a graduate of Jefferson Medical College in 1888.

Benjamin F. Reynolds, at his home in Carlisle, Ky., October 10, aged 68; a graduate of the Medical College of Ohio, Cincinnati, in 1864.

Clarendon B. Harris, at his home in Wellston, Ohio, October 5, aged 52; a graduate of the Columbus (Ohio) Medical College in 1884.

Francis B. Greenough, at his home in Brookline, Mass., aged 67; a graduate of Harvard University Medical School, Boston, in 1867.

M. A. Pusey, at his home in Chanceford, York County, Pa., October 28; a graduate of Jefferson Medical College, Philadelphia, in 1882.

George A. Bloss, at his home in Tarentum, Pa., October 15, aged 49; a graduate of Jefferson Medical College, Philadelphia, in 1883.

J. M. Cecil, of Hiawatha, Kan., in St. Joseph, Mo., October 3, aged 45; a graduate of the Rush Medical College, Chicago, in 1889.

O. S. Belden, at his home in Camden, N. J., October 26, aged 70. He served in the Confederate service during the Civil war.

Campbell Sheridan, at his home in Johnstown, Pa., October 18, aged 85; a graduate of Jefferson Medical College in 1849.

Calvin L. Klopp, at his home in Reading, Pa., October 8, aged 41.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended October 29, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Illinois:	Chicago	Oct. 15–22	30	2
Michigan:	At 42 places	Oct. 8–15	Present	
Missouri:	St. Louis	Oct. 15–22	30	[illegible]
Ohio:	Cincinnati	Oct. 7–21	3	
Pennsylvania:	Philadelphia	Oct. 15-22		1
	Steelton	Oct. 15-22	1	
South Carolina:	Greenville	Sept. 25-Oct. 1	3	
Wisconsin:	Milwaukee	Oct. 8-22	12	

SMALLPOX—FOREIGN.

Brazil:	Pernambuco	Sept. 1–15.		25
	Rio de Janeiro	Sept. 18–Oct. 2	655	247
China:	Shanghai	Sept. 3–10		1
France:	Paris	Oct. 1–8	8	
Great Britain:	Edinburgh	Oct. 1-8	1	
	London	Oct. 1–8	1	
	Newcastle-on-Tyne	Oct. 1–8	8	
	Nottingham	Oct. 1–8	1	
	South Shields	Sept. 18–24	1	
India:	Bombay	Sept 20–27		2
Italy:	Catania	Sept. 28-Oct. 6		1
	Palermo	Sept. 25-Oct. 8	14	5
Malta:		Sept. 25-Oct. 1	1	
Russia:	Moscow	Sept. 25-Oct. 2	7	2
Spain:	Barcelona	Oct. 1-10		7

YELLOW FEVER.

Costa Rica:	Limon	Oct. 8-15	1	
		Imported from Sequires.		
Cuba:	Santiago	Oct. 24	1	
		From Puntasal.		
Mexico:	Coatzacoalcos	Oct. 8–15	3	2
	Merida	Oct. 2–15	1	1
	Tehuantepec	Oct. 2–15	4	2

CHOLERA.

India:	Bombay	Sept. 20-27		9
	Calcutta	Sept. 17–24		2
Turkey:	Bagdad and vicin	Aug. 20-Sept. 3	585	405

PLAGUE—INSULAR.

Philippine Islands:	Manila	Sept. 3–10	1	1

PLAGUE—FOREIGN.

Africa:	Cape Colony	Sept. 10–17	3	
	Johannesburg	Mar. 26–July 9	156	95
Brazil:	Rio de Janeiro	Sept. 18–Oct. 2	56	24
China:	Hongkong	Aug. 27–Sept. 10	6	6
India:	Bombay	Sept. 20–27	11	85
	Calcutta	Sept. 17–24		3
	Karachi	Sept. 18–25	11	7
Japan:	Formosa	Aug. 1–31	34	38
Straits Settlements:	Singapore	Oct. 2	Present	

Changes in the Medical Corps of the U. S. Navy for the week ended October 29, 1904.

CURTIS, L. W., surgeon, ordered to the Pensacola and to additional duty at the Naval Training Station, San Francisco, Cal.—October 21.

ASSERSON, F. A., passed assistant surgeon, ordered to the Navy Yard, New York, N. Y.—October 22.

TOLFEE, H. M., assistant surgeon, (orders issued by the commander-in-chief of Asiatic fleet) detached from the Wilmington and ordered home—October 26.

BACHMANN, R. A., assistant surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the Wilmington—October 26.

VICKERY, E. A., assistant surgeon, ordered to the Naval Museum of Hygiene and Medical School, Washington, D. C.—October 27.

SCOTT, S. L., assistant surgeon, detached from the Massachusetts, November 28 and ordered home, resignation accepted to take effect December 1—October 27.

Changes in the Public Health and Marine-Hospital Service for the week ended October 26, 1904:

BROOKS, S. D., surgeon, relieved from duty at Savannah, Georgia—October 26, 1904.

MCINTOSH, W. P., surgeon, granted leave of absence for twenty-five days from November 8—October 24, 1904.

SMITH, A. C., passed assistant surgeon, to proceed to New York, N. Y., and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of surgeon—October 25, 1904.

SCHERESCHEWSKY, J. W., assistant surgeon, to proceed to New York, N. Y., and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of passed assistant surgeon—October 22, 1904.

WILLE, C. W., assistant surgeon, to proceed to New York, N. Y., and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of passed assistant surgeon—October 22, 1904.

WILSON, R. L., assistant surgeon, to proceed to New York, N. Y., and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of passed assistant—October 22, 1904.

TRASK, J. W., assistant surgeon, granted leave of absence for one month from October 22—October 20, 1904.

HANRATH, F. R., pharmacist, granted leave of absence for thirty days from September 26—October 21, 1904.

GIBSON, F. L., pharmacist, granted leave of absence for thirty days from December 2, 1904, and thirty days from January 1, 1905—October 22, 1904.

Resignation.

Acting Assistant Surgeon B. McV. Mackall resigned to take effect October 10, 1904.

Casualty.

Assistant Surgeon-General George Purviance died, result of accident at Philadelphia, Pa., October 20, 1904.

SOCIETY REPORTS

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Fifty-fourth Annual Meeting Held at Pittsburg, September 27, 28, and 29, 1904.

[Specially reported for *American Medicine.*]

[*Concluded from p. 752.*]

Acute Gastric Dilation following Surgical Operation and Accidents.—T. B. APPEL (Lancaster), after detailing the characteristic symptoms and reporting three cases under his care, entered into a discussion of the exciting cause from an analysis of 63 cases reported in literature. Of these, 20 followed operations; accidents, 7; disease, 18; overloaded stomach, 10; and without cause given, 10. He concludes that acute gastric dilation is a neuroparesis occurring in a certain class of patients predisposed to such conditions as a result of a toxemia or trauma, or both, affecting the sympathetic abdominal ganglion. The treatment recommended is the use of the stomach-tube, rectal feeding, strychnin, and physostigmin.

On the Cause of Death in Operated Cases of Intestinal Perforation occurring in Typhoid Fever.—J. H. ANDERSON (Pittsburg). This paper will appear in a future number of *American Medicine.*

A Case of Cesarean Section Done after Failure to Effect Version in an Impacted Transverse Presentation.—G. W. WAGONER (Johnstown) reported the following case: A Slavish woman, aged 34, mother of three living children, was admitted to the hospital after being several hours in labor. An attempt had been made at her home to deliver her, but it had failed. After preparing the patient an examination was made. The parts were found to be normal; the os fully dilated, the child presenting transversely with the right shoulder impacted in the superior strait, and the right arm prolapsed. Pains were frequent and excessively strong. Repeated attempts, under complete anesthesia, were made to turn the child, but failed, while the uterus became more and more frantic to expel its contents, until the danger of rupture was imminent. After considering the dangers attending the operations of embryotomy and cesarean section, the latter was deliberately chosen as offering the best chance of recovery for the woman. The child was not considered as it was already dead. The section was done, the uterus was found to be at the point of rupturing in its anterior inferior segment, being soft and black from the compression of the child and the manipulation. The case progressed favorably and the patient was out of bed on the twenty-sixth day. The case is interesting in that it is one of the very few reported as having been done from relative indications rather than from positive ones. The trend of authority has been against the operation under the indications present in this case, but latterly there appears to be a disposition upon the part of a few authorities to accept the relative indications of an impacted transverse presentation with danger of rupture of the uterus as sufficient justifications for the operation of cesarean section. The writer is convinced that any other method of treatment would have resulted in the death of the woman.

One Hundred Consecutive Abdominal Sections in Hospital Practice without Mortality: A Critical Review.—F. F. SIMPSON (Pittsburg). This paper will appear in a future number of *American Medicine.*

The Diagnosis of Tumors of the Cerebellum and Cerebellopontile Angle, Especially with Reference to Their Surgical Removal.—This communication by C. H. FRAZIER (Philadelphia) is a companion paper to one presented by C. K. MILLS, with whom most of the cases discussed were seen. The existence of a tumor in the cerebellum or its immediate environs is, according to Mills, comparatively easy of diagnosis, but the same is not true of its accurate localization. The general symptoms of cerebellar tumor are optic neuritis, headache, vertigo, nausea and vomiting. Optic neuritis is present in a large percentage of cases. Operation should be speedily performed as soon as its presence is noted, in order to save the sight or a remnant of it. Headache, nausea and vomiting are present in more than half of the cases, and vertigo in a much higher percentage. The focal symptoms most uniformly present in cases of cerebellar tumor are ataxia, asthenia, atonia and nystagmus. A tumor of the cerebellopontile angle may be one involving the cerebellum or one of its peduncles and the oblongata pontile substance, or it may originate in one or two of the cranial nerves and be confined thereto. Mills insists on early operation in cases of cerebellar and cerebellopontile tumors; in the first place to remove the tumor when this is possible, and second, even when successful removal cannot be hoped for, to relieve the urgent, distressing, and destroying general symptoms, such as headache and optic neuritis. The conclusions reached by Frazier are based upon the observation of six operations, the study upon cadavers of the anatomic relations, and upon a study of 116 cases collected from various sources. Of the 6 cases of this series, 3 recovered after removal of the tumor, 1 was considerably improved after a palliative operation, 1 died after the first stage of the operation, and in 1 the tumor was not found. He believes that the dangers attending cerebellar operations have been exaggerated and that discredit has been brought upon these operations as a class because of the inexperience in the great majority of cases of the operator with this particular field. He has been impressed with the comparatively slight depression in the patients operated upon and with the rapidity with which reaction ensues. From a statistical study of 116 operations he has been able to follow the course and development of this branch of surgery for the last 15 or 20 years. There has been a manifest improvement from every point of view. The percentage of tumors found is yearly growing larger, the percentage of partial or complete recoveries is larger, and the mortality has fallen from 70% to 38%. Taking the cases of the last five years alone, we find that 24% of the cases are reported as recoveries, 29% improved, and only 11% unimproved. He says that exploratory operations for confirmation of diagnosis are as positively indicated in cases of suspected tumors of the cerebellum as are those of the stomach. A palliative operation consists not only in the removal of the overlying bone as is the case in cerebral tumors, but in a considerable portion from a third to a half of one lateral hemisphere. He calls attention to the impunity with which large portions of the cerebellar hemisphere may be removed without disturbance of function or without contributing appreciably to the shock of the operation. Tumors of the cerebellopontine angle, including those taking their origin from the eighth nerve, may be approached and exposed with greater facility and less danger by following a route parallel with the petrous portion of the temporal bone. The greatest danger attending these operations is that which arises from an injury to the pons or medulla.

A case of congenital elongation of the left lobe of the liver is reported by L. J. HAMMOND. The case was that of a girl of 16, who had been suffering from spells of distressing discomfort at times for about two years, although the painless tumorous distention had been noticed for nine years. A median incision was made and it was found that the left lobe of the liver extended entirely across the lesser curvature into the left hypochondrium, where it was flattened out at the extremity over the spleen. It was found impossible to replace any of the elongated lobe into normal position so the entire lobe was held up against the abdominal wall and sutured. The girl made an uninterrupted recovery. Hammond believes that there had been a process of gradual extension of this congenital tongue from the main body of the organ during the last two years, due to the patient's occupation, that of laundress, which caused a sufficient amount of trauma to encourage growth.

The Advantages of Performing Capital Operations in Certain Cases without Anesthesia.—J. J. BUCHANAN (Pittsburg) after referring to the dangers inherent in the use of general anesthesia, in certain cases, and the inefficience of local anesthesia in extensive and deep operations, gave the following indications for the performance of operations without anesthesia: 1. Profound septic infection, 2. Severe collapse from loss of blood and shock. 3. Fecal vomiting, with liability to drowning during operation, or aspiration pneumonia subsequently. 4. Collapse or compression of lung, with liability to respiratory failure. 5. Obstruction of esophagus. 6. Advanced kidney disease, with liability to anuria. 7. Ease of performance with minimum of pain. He gave an extensive list of operations he had performed in the presence of these indications, without anesthesia, including laparotomies for appendicitis, intestinal obstruction, visceral exploration, colostomy and intraperitoneal abscesses; amputations of thigh, leg, arm and forearm, ligature of arteries for aneurysm, craniotomy for depressed fracture of the skull, wiring fractured patella by open incision, operations on chest wall, trachea, perineum, prostate and bladder, herniotomy for strangulation, operations for radical cure of hernia and intestinal resection. He emphasized the comparatively slight pain usually produced by even formidable operations, and the great tolerance and cooperation of the patients, even children, foreigners and delirious patients. He stated that the surgeon should always have sufficient reason for withholding the anesthetic, and should always secure the cooperation of the patient if he be of a reasoning age. No restraint is necessary or should be employed. Promise of anesthetic should be given if pain should be beyond endurance. Fulfillment of such promise is rarely required. Words of encouragement are amply sufficient for nearly all patients, and information as to the progress of the operation serves to keep up their courage. The experience of the writer in operating without anesthesia extends over a period of 10 years, and has been almost invariably satisfactory.

Anal Fissure.—W. M. BEACH (Pittsburg) said that the location of an anal fissure is in one of three planes in the anal rectum, the special point affected bearing an important relation to the symptoms produced, especially that of pain. The lesion may be over the site of the internal sphincter, between the sphincters, or over the external sphincter extending into the skin and may involve all three of these planes. Proctitis is generally a concomitant symptom of fissure in which we find the presence of feces that find lodgment in one of the crypts of Morgagni. These pockets are effaced during the act of defecation as the levator muscles lift the anal canal over the protruding column. A foreign body already lodged behind the crypt, and causing the valve to swell, prevents the normal effacement and invites further damage by a fecolith or by pressure from the column itself. By further study of the mechanics of defecation we may determine causal factors of fissure. The line of axis changes in various planes of the rectal cavity. In the ampulla, the axis directs posteroanteriorly, to change analward to anteroposteriorly just at the site of the anal pockets which form the floor of the rectal pouch. By virtue of the angle of the two axes at this place, the object to be expelled would most likely be caught in the pocket in whatever quadrant it might happen to be located. Ball teaches us that tears are most likely to occur in the commissures, owing to the fact that the crypts are most highly developed there. Further observation by Tuttle has shown a well-developed crypt on each side of the rectum. The reflex phenomena become quite interesting when we consider the anatomic distribution of nerves of the parts; the anal branch of the internal pudic nerve gives off numerous end-organs in the anal pilasters and Hilton's line. These nerves are exceedingly sensitive and, when exposed by a laceration, become congested and swollen. By their intimate relation to the spinal plexuses, both local and remote, reflexes are easily understood. The bladder, prostate, urethra, and testicles, ovaries, tubes, and uterus, are apt to bear the onus of direct disease, when, in fact, the pain of fissure is reflected to these organs. To locate an ulcer rarely requires the use of a speculum. I must herewith urge the importance of a direct examination, also that the mistake is often made by many in digital examination of inserting the finger too far. Most diseases of the anal rectum are found between the ental and extal sphincters. The problem of treatment and cure of anal fissure will depend upon the stage of the disease, whether we shall invoke medical or surgical measures. In the first stage, a laxative and topical use of ichthyol will generally suffice. But in the sphincteralgic stage nothing short of surgical procedure will avail. General anesthesia is unnecessary. The operation may be done in the office. To overcome the paroxysmal contractions is the secret. He protests against the teaching that stretching the sphincter is *sine qua non* in surgical operations about the rectum. He says no matter how much you divulse, short of tearing, retraction will occur in 24 hours. The safest and most rational procedure is to cut a few fibers directly back of and beneath the ulcer, then cut through the base of the lesion; the second incision should extend above and below the margin of the sore, then the indurated margins should be trimmed and all the pyrogenic membrane cureted. Local anesthesia can be secured by the use of sterile water or 100 drops of .1% solution of beta-eucain.

Professional Responsibility in Accident Cases Involving Litigation.—JOHN B. ROBERTS (Philadelphia) stated that the experience of the public had caused a justifiable distrust of surgeons employed by corporations as well as of experts paid by patients endeavoring to recover damages. Medical men could do no more than other citizens to dispel this doubt as to the reliability of professional testimony. The duty of the medical attendants employed by the party sued, and that of the doctor of the patient injured are identical. The duty of each is to obtain promptly a return of health and a just settlement of the claim. Many unjust verdicts against railroads and other corporations are due to the patient becoming neurasthenic or hysteric because of the unwise, ignorant, or dishonest suggestions of attending physicians, lawyers, and friends. Immediate and careful examination, accurate record of the patient's statements and the symptoms at the time of injury, the avoidance of injurious suggestions with prompt institution of scientific treatment, and an early settlement of damages will diminish litigation and hasten the recovery of the patient. The doctor should make several examinations. He should remember that disease may exist before injury, that disease may follow injury, and yet not be due to it; that the patient may be mistaken, and not dishonest, and that hysteria and neurasthenia are common conditions, existing sometimes with organic lesions without being connected with these lesions. Roberts believes that corporations liable to be sued would save money by always employing experienced practitioners to examine the injured patient early, in company with the medical attendant, and by insisting upon at least two such examinations. Delay in settlement, too many examinations, unwise suggestions of friends, and numerous conferences with lawyers are often productive of traumatic neuroses, and have unjustly drawn thousands of dollars from corporation treasuries.

ADOLPH KOENIG (Pittsburg) was elected president for the ensuing year. The meeting of 1905 will be held in Scranton.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, Held in Cincinnati, Ohio, October 11, 12, and 13, 1904.

[Specially reported for *American Medicine*.]

[*Continued from page 752.*]

The Treatment of the Morphin Habit.—CURRAN POPE (Louisville, Ky.) pointed out the peculiar state of mind of these patients, and the necessity of appreciating it. A sympathetic understanding of the needs would facilitate treatment. Too much importance could not be attached to the condition of the excretory organs. Preliminary examinations were imperative in each case. There should be thorough and complete elimination before commencing the reduction of the drug, after which reduction might be painlessly carried to a certain point, and all shock avoided. All this time help should be given, not as a substitute, but in the shape of a neurocardiovascular support. When the drug was entirely removed, a substitute should be used, not hyoscin. The value of the nonmedicinal treatment, such as massage, vibration, electricity, hydrotherapy, isolation, and moral control, could not be overestimated in these cases. The value of after-treatment and the need of keeping in touch with the patients were a part of the system. Personality also entered a great deal into the question.

Discussion.—FRANK P. NORBURY (Jacksonville, Ill.) had not always had idealistic experience in the treatment of these cases. Recovery was not always smooth, and relapses were not infrequent. It was advisable to place these patients at rest in bed at once, and after perhaps two weeks the drug might be withdrawn. Often sodium bromid was useful as a substitute for the morphin, and cannabis indica was frequently of value as a stimulant. Relapse was especially frequent in neurasthenic women. He reported a case in which the patient used heroin instead of morphin. J. PUNTON. We must give the patient to understand at the start that the physician must have his cooperation. The idiosyncrasies of patients to the drug differed, hence it was necessary to treat the patient. Hyoscin was a most valuable drug when properly used, but it was very dangerous when used promiscuously. The majority of physicians who came for treatment claimed they could not spend the time that was regarded as necessary to effect a cure. ALBERT E. STERNE (Indianapolis) agreed with the essayist in general, but did not think he laid sufficient stress on the reduction of the basis upon which the drug habit rested. One must take into account the fundamental nerve weakness. Even the physically strong might present nerve weakness. Habituation was not purely functional. There was a structural change in the nervous system, which supplied the physical basis for the condition. The use of drugs was to be deprecated. Many of the socalled abstinent symptoms were really not such symptoms. Often hyperacidity required treatment. Furthermore, every morphin habitue was a liar, and absolutely untrustworthy concerning his condition. T. B. GREENLEY (Kentucky) said that many morphin habitues were able to work and earn sufficient to pay for the drug consumed, and made barely a living, but could not afford to take proper treatment. GEORGE P. SPRAGUE (Lexington, Ky.) was surprised that the essayist did not begin at once the reduction of the drug, as there was every reason why it should be withdrawn immediately. The patient might be taken off the drug in from 5 to 10 days, except in perhaps 1 case in 20. Often the patient was sustained by a minute quantity of morphin. Some patients claimed that an eighth of a grain was satisfactory, and the reduction to that point was not objected to by them. Often it was better not to stop the drug altogether until one had reached a decreased dosage of a twentieth of a grain or less, until 24 hours could be passed without the drug, without unpleasant symptoms. R. E. HAUGHTON (Richmond, Ind.) regarded this condition as a practical toxemia affecting the cellular elements of the brain. After deciding upon the withdrawal of the drug, we must secure absolute control of the patient in order to be successful in treatment. We must sustain the individual and at the same time secure elimination. T. D. CROTHERS said a melancholy fact was the large percentage of the profession that were victims of morphin. The treatment employed must depend upon the individual. Psychotherapeutics and hydrotherapeutics were useful. Nerve rest was important. Drugs should be avoided. FALK said that in prison practice he withdrew the drug from patients at once. The use of ergot and the administration of elixir of chloral and bromid at night he had found was not followed by any unpleasant results. None of the patients had been cured permanently. B. F. BEEBE said the removal of the drug in a week or ten days was too short. The patient should be built up as the drug was withdrawn. The medicine must be withdrawn; elimination should be as rapid as possible and the system built up. POPE, in closing, insisted upon four to six weeks for the after-treatment, because nutrition must be improved. Treatment during convalescence was important. When the patient stopped treatment he should be instructed to return at once if there were any unpleasant symptoms.

Effect of Direct and Indirect Violence upon the Skull and Brain.—ALBERT E. STERNE (Indianapolis, Ind.) presented the following summary: 1. Injuries of the skull and brain may be classed under two heads, those of impact, and those of momentum, either of which may be occasioned either directly or indirectly. 2. Injuries of impact, however extensive, offer a better immediate and remote prognosis, but must be treated with as little delay as possible, and almost always surgically. 3. Injuries of momentum show graver probabilities both in the immediate and remote effects. 4. In injuries of momentum lesions through *contrecoup* are more apt to occur, with extensive damage to brain structures and often without fracture of the skull, or external wound. 5. After trauma to the skull and brain, the immediate necessity is free drainage and avoidance of intracranial pressure. 6. The possibility of fracture should ever be kept in view after injuries to the head, and scalp wounds should, if necessary, be freely enlarged to determine the wisdom of further operative interference. 7.

Progressive coma, after momentum injuries, is a strict indication for operation.

A Clinical Study of the Mental Disorders of Adolescence.—Frank P. Norbury (Jacksonville, Ill.) discussed this subject under the following heads: 1. Adolescence presents a physiologic study of contrasts revealed in (*a*) normal psychology of this period, (*b*) psychophysical symptomatology, and (*c*) pathologic symptomatology. 2. Clinical groupings of symptoms leading to classification of the mental disorders of adolescence; dementia præcox, katatonia, hebephrenia, hysteric excitement, etc. 3. Clinical considerations of prognosis: (*a*) evolution of mental disorders; (*b*) recoveries, complete, partial; (*c*) terminal dementia. 4. Treatment: (*a*) Prophylaxis; (*b*) immediate. 5. Conclusions: (*a*) The family physician must recognize early these important mental disorders; he must cooperate with the alienist in treatment; (*b*) prompt and energetic treatment is imperative; (*c*) prognosis should be guarded.

[*To be continued.*]

MEDICAL SOCIETY OF THE STATE OF VERMONT.

Ninety-First Annual Meeting, Held at Rutland, Vermont, October 13 and 14, 1904.

[Specially reported for *American Medicine.*]

The society was called to order by President W. N. Bryant, M.D., of Ludlow. Prayer, offered by Rev. John Duffield, of Rutland, Vermont, was followed by the reading of the records by the secretary, G. H. Gorham, of Bellows Falls, Vermont, and then the report of the Committee of Arrangements, by the chairman, S. W. Hammond, of Rutland. In program order, came the reports of officers and board of license censors.

Henry D. Holton, secretary of the Vermont State Board of Health, and delegate to the American Medical Society, which was held at Atlantic City last summer, gave his ideas regarding the benefit to be derived from attending such meetings and urged each and every physician to attend yearly. He urged the advisability of going through the program and picking out the subjects to be presented upon which they wished information, and making it a point to attend and take part in the discussions. He said that while you could easily procure a copy of the transactions of these different societies, the benefit gained in this way could not be compared to the benefit gained by attending the meeting and hearing the author discuss the subject. He was followed by other physicians, who attended and testified to the benefits received.

B. H. Stone, of Burlington, Vermont, treasurer of this society, read his report on the financial condition, which showed that the society had a balance of cash on hand of $119.97.

Obituaries of F. W. Carpenter and D. P. Webster were read by F. C. Liddle, of Dorset, and G. H. Gorham, of Bellows Falls.

An Experimental Study of the Movements Produced in the Stomach and Bowels by Electricity.—G. G. Marshall (Wallingford, Vermont). The animals experimented upon were three cats, one rabbit, and one white rat. The stomachs of the cats were full of milk at the time of the experiment; the rabbit's stomach was partially distended with half digested grass, on which it had been feeding; and that of the rat was filled with food of a semisolid nature. The currents used were the faradic, two cells, and the galvanic, 32 cells, and the faradogalvanic. The animals were etherized, the hair over the front of the abdomen was cut away and a median incision was made through the wall of the abdomen which exposed the stomach and bowels. An electrode sponge was applied to the exposed stomach and the pole applied to an indifferent part of the animal's body. Next both poles were applied to the stomach, one at either end. The three currents above mentioned were used consecutively. Now a small incision was made through the cardial end of the stomach just as it appears below the diaphragm. One pole was inserted into the stomach through this incision by means of an insulated copper wire. The other pole, which was a damp sponge, was applied to the exterior of the animal's body at different points, and was finally placed directly on the outer surface of the stomach. The stomach or bowels failed to contract by this method, while the bowels contracted when the outer pole was placed on the voluntary muscles. When the metal electrode was placed in the stomach and a metal electrode on its outer wall, feeble contractions of its pyloric end could be produced, but none at its cardial two-thirds. The application of external electrode to the intestine caused distinct circular contractions. Where the metal electrode touched the intestine, the latter immediately became blanched, and a prompt constriction took place, the constriction lasting quite a few minutes. If a thin layer of wet cotton was wound about the electrode, no contraction would take place. Placing one pole in the rectum and the other electrode still in the stomach, no contraction of either stomach or bowels took place, but the muscles of the back contracted. The conclusion of these experiments is that neither stomach nor bowels contract readily by the direct application of electricity. By applying a small electrode the pyloric end of the stomach contracted feebly, and the bowels uniformly. But when a thin layer of wet cotton was placed over the metal, no contraction would take place. Thus we may conclude that electricity as generally administered, either percutaneously or directly, never causes contractions or increased peristalsis of the stomach or bowels.

Further ideas were expressed as to the advisability of arranging for the physicians of Vermont to attend in a body the American Medical Association convention next to be held in Portland, Oregon, in July, 1905. C. W. Peck, of Brandon, Vermont, made a motion that a committee be appointed to complete such arrangements. This motion was seconded and carried, and the chair appointed a committee of three, consisting of C. W. Peck, of Brandon; E. R. Campbell, of Bellows Falls; and H. C. Hawley, of Burlington.

J. E. Eastwood, of Brandon, gave a verbal report of the doings of the society at White River Junction, to which he was a delegate.

The afternoon session opened at 2 o'clock by the introduction of delegates from other societies, comprising Johnson, of Hartford, Conn.; John C. Munro, of Boston; J. S. Sturtevant, of Maine; Eastman, of Woodsville, N. H., and M. E. Varney, of Saratoga Springs, N. Y., all of whom made pleasing remarks and brought the greetings of their respective States to the Vermont State Medical Society.

Extrauterine Pregnancy.—P. E. McSweeney (Burlington, Vt.) The discussion of this paper was opened by C. W. Bartlett, of North Bennington, and Bartlett was followed by E. M. Pond, of Rutland, C. W. Strobell, of Rutland, Lyman Allen, of Burlington, J. C. Munro, of Boston.

Diseases of Children.—D. C. Hawley (Burlington) said that the age and period of development (we do not take into consideration whether or not a child of eight months has the development of eight months or five months) are the things of great importance. It has been said that so many foods are now manufactured and sold that we do not know our business. We do not know specifically enough what we want. It is the testimony of men of large experience in hospitals, etc., that cows' milk properly modified, according to the age and digestive power of the little patient, is the best food. Then, I would say, there is nothing equal to fresh air for the children. Have a system of exercise in the open air and carry it out every day. This paper was very interesting, and called forth an animated discussion at quite a length, and which was participated in by G. F. B. Willard, of Vergennes, who said that while he thought the paper very interesting and able, he would take issue from some of the points brought out. He said it is impossible to prescribe any particular food for an infant. Some infants from the first week are able to take oatmeal gruel and are raised on it with no trouble at all. Some children I know of have had everything from a wet nurse to all the prepared foods, and finally Fairchild & Foster's milk powders and still they all agreed with them and have no digestive troubles. My experience has been, said Willard, that it is not practical to stick to any one particular food for an infant when it is taken from its mother's milk. Willard's discussion was taken up by J. W. Jackson, of Barre, who insisted on the advisability of protecting children under five years of age against contagious diseases. He said perhaps other sections throughout Vermont were not afflicted as was Barre. In my report of last month as health officer of the town, I reported five deaths out of 15 among infants under one year of age from whoopingcough. It is very difficult to protect children against such diseases as whoopingcough, as the cases are rarely reported. The parents or guardians do not think it necessary to report the cases. They think the children have got to have the disease some time, and do not realize that it is good to keep the child protected as long as we can. We all know that infant mortality is on the increase, and we should all take an interest in the study and prevention of this mortality. John Blodgett, of Saxton's River, followed Jackson, saying: I believe that first, mother's milk is the best thing and then modified cows' milk for infant's feeding. Almost any baby can take cows' milk. We do not know how to modify it. I worked up the subject somewhat, and prepared a paper in which I tried to present a method for feeding babies. I use Winslow's method. It is the best method, and I believe any physician here could soon work it up and find it very beneficial. C. W. Peck, of Brandon, narrated a case of a child, infant baby, who had been out of doors every day. It has its nourishment and is put out in the air again, and I think it is very beneficial. When it rains, they put it on the porch. This child will not go to sleep if it is not out of doors a part of each day.

Surgery of the Stomach.—John C. Munro (Boston). The subject was taken up by H. C. Tinkham, a wellknown Burlington surgeon, and was followed by C. W. Peck (Brandon). The discussion was closed by Munro, who spoke of the criminology of opening the abdomen for the purpose of experiment, and the feeling generally denoted by the public that such is done by most surgeons, which he emphatically denied.

L. W. Burbank (Cabot) presented a paper on **Acute Articular Rheumatism.** The discussion of this subject was passed on account of the lateness of the hour.

The last paper of the afternoon was read by C. W. Strobell (Rutland). **A Clinical Demonstration of What can be Accomplished in Certain Cases of Chronic Traumatic Arthritis Deformans.** This paper was not discussed and was immediately followed by adjournment taken until 7 o'clock.

[*To be continued.*]

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

JEWISH ENCYCLOPEDIA.

BY

JOHN KNOTT, M.D.,

of Dublin, Ireland.

In turning over the pages of the most recent volume (VII) of the *Jewish Encyclopedia*, I noticed a couple of small slips in connection with the one department of the contents of this truly splendid work of which I happen to possess any critical knowledge—the history of my own profession. Under the heading, Juan Rodrigo de Castel-Branco (generally known to medical historians by his Latinized surname of Amatus Lusitanus) are found the following sentences: "In 1546 Juan was in Ferrara, delivering lectures on anatomy and medicinal plants. At one of his lectures he dissected 12 cadavers—a great innovation at that time—in the presence of many scholars, among whom was the anatomist Jean Baptiste Cananus, who through his experience on this occasion *discovered the functions of the valves in the circulation of the blood*." [Italics mine.] There are few subjects inscribed in the annals of scientific research and discovery regarding which so much nonsensical misstatement has been published as that of the discovery of the circulation of the blood. As a mere matter of fact the continuous movement of the blood within the vascular system under the influence of the action of the heart was known to the "Father of Medicine" himself, who actually uses the term *circle* (*κυκλος*) in reference to its interminable progress. The only item in the mechanism of the *general* circulation of which the knowledge cannot with certainty be said to have been familiar to Hippocrates is the continuously definite direction of the venous currents—which is secured by the arrangement of their valves. As every forward schoolboy now knows these structures are arranged like locks on a canal, with their free edges directed toward the heart; and so prevent regurgitation of any portion of the venous blood in its passage toward the latter organ.

Of his own observations in that direction, Amatus Lusitanus informs his readers that: "If you put a tube in the upper part of the vena cava and blow downward, both the vena cava and the azygos will be inflated; but if you blow into the lower part of the vena azygos the air will not pass into the cava, because of a valve and operculum which exists at their junction. And there is not the least doubt of this, for I have proved it a thousand times. For, in 1547, at Ferrara, I caused 12 bodies of men and animals to be dissected, and both myself and a great company of learned spectators saw all that happened as described. As also was observed by that admirable anatomist, J. B. Canani." And Vesalius wrote to Fallopius regarding the observations of Canani; "When I met him in consultation at Ratisbon on the case of Francis of Este, he told me he had seen valves in the vena azygos, in the renal veins, and at the bifurcation of the vena cava near the promontory of the sacrum, resembling in shape those of the aorta and pulmonary artery and serving to prevent the reflux of blood." Vesalius, the "Father of Anatomy," failed in his own subsequent researches to find such valves. And the strange truth is that if valves were really present in the positions indicated by Amatus, and arranged so as to function in the way supposed by him and by Canani, they would have the inevitable effect of *preventing* a flow of blood *toward* the heart. The agency which must have evolved those valves from the internal consciousness of Amatus was, very evidently, a desire to prove that the blood was driven along the veins by the right ventricle of the heart, as it was along the aorta by the left. The valvular system of Amatus and Canani was as diametrically opposed to truth in fact as in theory!

The second item which calls for comment is one that occurs under the head of Koplik, Henry. The reader is there informed that: "Koplik was the first to describe an early diagnostic sign in measles, since known as 'Koplik's spots.'" As a matter of fact, the spots in question—which merely represent the *earlier* eruption which is likely to form on the *thinner internal* skin—were recognized as such and described pretty exactly a century ago, by William in England, and by Heim in Germany—not to mention a host of subsequent writers. One of the specially vivid reminiscences of my student life is that of being present at a "prize examination" of the students of the Meath Hospital at the close of the clinical session—now over a quarter of a century ago. The competition was conducted *viva voce*; and one of the questions asked by Dr. (now Sir John W.) Moore was regarding the early eruption which appeared on the mucous membrane of the mouth in measles. And the same distinguished physician has pointed out in his classic work on "The Continued and Eruptive Fevers" that Dr. Hilton Fagge had described them in his wellknown textbook; while, with characteristic modesty, he makes no reference to the fact that he himself had been demonstrating their presence in his clinical teaching for years before Dr. Hilton Fagge's work was published. I will close these few observations with the remark that Sir John Moore's own textbook on fevers was published some years before Dr. Koplik's very careful description of "Koplik's spots."

AN INTERESTING CASE.

BY

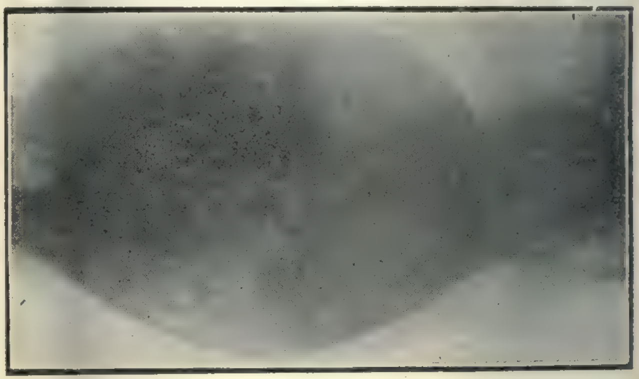
HERMAN BESSER, M.D.,

of New York City.

Miss E., aged 28, consulted me for rhus poisoning. On her last visit she incidentally called my attention to a swelling which occupied the lower and upper two-thirds of her left arm. It felt hard to the touch, measured 15 inches in circumference, and was irregular in outline.

The following history was obtained:

When about 13 she fell and injured her left arm. Witchhazel was applied by her parents, who regarded the injury lightly, and no physician was consulted. In two weeks swelling and bruising had disappeared and the arm no longer bothered her. Six months later the arm became painful, felt heavy, and considerable swelling soon set in. The parents now summoned a physician, who after investigating the history and examining the arm, advised that a surgeon be called in consultation.



Instead of following this advice, the parents took the child to a hospital, where the diagnosis of osteosarcoma was made, and amputation at the shoulder-joint advised without delay.

The parents declined operation, and took the child home. She was put to bed and her arm kept elevated in a sling, which her father made. No further medical treatment was employed by the parents, who regarded the condition hopeless and were averse to surgical intervention. This line of treatment (or lack of treatment) was continued for almost a year, with the most gratifying results, the child complaining less and less as the days passed. After a while entire absence of pain was established and the child was allowed to leave the bed and play about the room.

Although pain and discoloration had by this time disappeared, deformity of the arm still remained; and the circumferential diameter 14 years later has not decreased a fraction of an inch. Despite this fact, however, some decrease in the size of the growth has actually taken place, for the difference in the musculature between a girl of 13 and a woman of 28 is an item to be considered, and this difference is responsible for the apparent lack of a decrease in the size of the tumor. The accompanying skiagraph shows the situation as observed by me, and the arm, aside from its cosmetic defect, has lost none of its usefulness.

ORIGINAL ARTICLES

THE HISTORY OF PEDIATRICS AND ITS RELATION TO OTHER SCIENCES AND ARTS.[1]

BY

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The most human of all the gods ever created by the fancy or the religious cravings of mortal men was Phœbus Apollo. It was he that gave its daily light to the wakening world, flattered the senses of the select with music, filled the songs of the bards and the hearts of their hearers with the rhythm and wonders of poetry, that inspired and reveled with the muses of the Parnassus, cheered the world with the artistic creations of the fertile brains and skilful hands of a Zeuxis and Phidias—he, always he, that inflicted and healed warriors' wounds and sent and cured deadly diseases.

In the imagination of a warm-hearted and unsophisticated people it took a god to embrace and bestow all that is most beneficent and sublime—physical, moral, and mental light and warmth; the sun, the arts, poetry, and the most human and humane of all sciences and arts, namely, medicine.

Ancient gods no longer direct or control our thoughts, feelings, and enjoyments, either physical or intellectual. The kinship and correlation of hypotheses and studies, experience and knowledge are in the keeping of the philosophical mind of man, who is both their creator and beneficiary. To demonstrate this rational affinity of all the sciences and arts, some far-seeing men planned this great Congress. The new departure—in the arrangement for it—should be an example to future general and special scientific gatherings. Indeed, some of its features were adopted by the organization committee of the International Medical Congress which was to take place at St. Louis, but was given up on account of the limited time at the disposal of the great enterprise.

Congresses are held for the purpose of comparing and guarding diversified interests. A free political life requires them for the consulting of the needs of all classes. Scientific congresses are convened to gather and collate the varied opinions, experiences and results of many men, and to create or renew in the young and old the enthusiasm of youth. Their number has increased with the modern differentiation of interests and studies. Specialization in medicine is no longer what it was in old Egypt, namely, the outgrowth of the all-pervading spirit of castes and sub-classifications, but as well the consequence as the source of modern medical progress. It is difficult, however, to say where specialization ends and over-specialization begins, or to what extent specialization in medicine is the result of mental and physical limitation or of the spirit of deepening research; or, on the other hand, of indolence or of greed; or whether, while specialization benefits medical science and art, it lowers the mental horizon of the individual, and either cripples or enhances his usefulness in the service of mankind. For that is what medical science and art are for. José de Letamendi is perhaps correct when he says that a man who knows nothing but medicine does not even know medicine. What shall we expect, then, of one who knows only a small part of medicine and nothing beyond?

Congresses in general have been of two kinds. They are called by specialists for specialists, or they meet for the purpose of removing or relieving the dangers of limitation. This is what explains the great success of international and of national gatherings, such as the German, British, American, and others, and what has given the Congress of American Physicians and Surgeons with its triennial Washington meetings its broadening and chastening influence.

Nor are medical meetings the only attempts at linking together what has a tendency to get disconnected. Look at our literature. The rising interest in the history of medicine as exhibited in Europe and lately also among us, and individual contributions, such as Gomperz's great book on Greek thinkers; or even lesser productions, such as Eymin's Médecins et Philosophes, 1904; or the important pictorial works of Charcot, Richet, and Holländer, prove the correlation of medicine with history, philosophy and art.

Our special theme is the history of Pediatrics and its relations to other specialties, sciences and arts. Now Friedrich Ludwig Meissner's Grundlage der Literatur der Pädiatrik, Leipzig, 1850, contains on 246 pages about 7,000 titles of printed monographs written before 1849 on diseases of children, or some subject connected with pedology. Of these, 2 were published in the fifteenth century, 16 in the sixteenth, 21 in the seventeenth, 75 in the eighteenth. P. Bagellardus *de aegritudinibas puerorum*, 1487, and Bartholomeus Metlinger, "Ein vast nützlich Regiment der jungen Kinder," Augsburg, 1473, opened the printed pediatric literature of Europe. In the sixteenth century, Sebastianus Austrius, *de puerorum morbis*, Basileae, 1549, and Hieronymus Mercurialis, *de morbis puerorum tractatus*, 1583, are *facile principes;* in the eighteenth, Th. Harris, de morbis infantum, Amstelodami, 1715; Loew, de morbis infantum, 1719; M. Andry, l'orthopédie ou l'art de prevenir et corriger dans les enfants les difformités du corps, 1741; Nils Rosen de Rosenstein, 1752; E. Armstrong, An Essay of Diseases most Fatal to Infants, 1768; and M. Underwood, Treatise on the Diseases of Children, 1784; also Hufeland, established pediatrics as a clinical entity; while Edward Jenner, 1798, An Inquiry into the causes and Effects of the Variolæ Vaccinæ, opened the possibilities of a radical prevention of infectious and contagious diseases, the very subject which, a century later, is engaging the best minds and a host of assiduous workers in the service of plague-stricken mankind.

In the United States pediatrics was taught in medical schools, or was expected to be taught, by the professors of obstetrics and the diseases of women and children. The reorganization of the New York Medical College in East Thirteenth street facilitated the creation, in 1860, of a special clinic for the diseases of the young. Instead of the united gynaecologic and obstetric clinics held by Bedford, Gilman, and G. T. Elliott in their respective medical colleges, there was a single clinic for the diseases of the young exclusively. When the Civil War caused the College to close its doors forever, in 1865, they transferred the clinic to the University Medical College, and in 1870 to the College of Physicians and Surgeons. Meanwhile other medical schools imitated the example thus presented. The teachers were classed amongst the clinical professors; only in those schools which are forming part of universities and are no longer proprietary establishments, a few now occupy the honored position of full professors; in a very few the professor of pediatrics is a full member of the "faculty."

In the English Colonies of America the earliest treatise on a medical, in part pediatric subject was a broadside, 12 inches by 17. It was written by the Rev. Thomas Thacher, and bears the date January 21, 1677–8. It was printed and sold by John Foster, of Boston. The title is "a brief rule to guide the common people of New England how to order themselves and theirs in the Small-Pocks, or measles." A second edition was printed in 1702.

Before and about the same time in which American pediatrics received its first recognition at the hands of the New York Medical College, European literature furnished a new and brilliant special literature. France which almost exclusively held up the flag of scientific medicine during the first forty years of the eighteenth century, furnished in C. Billard's Traité des maladies des enfants nouveau-nés, 1828, and in Rilliet's and Barthez's Traité clinique et pratique des maladies des enfants, 1838–43, standard works which were examples of painstaking research and fertile observation. England, which produced in 1801 I. Cheyne's Essays on the diseases of children, gave birth to Charles West's classical lectures on the diseases of infants and children in 1848, and F. Churchill's treatise in 1850.

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[1] Read before the Congress of Arts and Science, St. Louis, Mo., September 21, 1904.

The German language furnished a master-work in Bednar's die Krankheiten der Neugebornen und Säuglinge, 1850–53. A. Vogel and C. Gerhardt, both general clinical teachers, gave each a textbook in 1860, Henoch in 1861; and Steffen in 1865–70, published a series of classical essays.

The number of men interested in the study and teaching of pediatrics grew in proportion to the researches and wants of the profession at large. That is why three large and influential cyclopedias, the works of many authors, found a ready market, namely, C. Gerhardt's Handbuch der Kinder-Krankheiten, 1877-93; John M. Keating's Cyclopedia of the Diseases of Children, Medical and Surgical, 1889-90, and I. Grancher's and I. Comby's Traité des Maladies des Enfants, in five volumes, the second edition of which is being printed this very year.

The collective and periodic literature of pediatrics began at a comparatively early time. There was a period towards the end of the eighteenth century when the influence of Albrecht von Haller seemed to start a new life for German medical literature before it lost itself again in the intellectual darkness of Schelling's natural philosophy, from which it took all the powers of French enthusiasm and research, and the epoch-making labors of Skoda, Rokitansky, and finally Virchow, to resuscitate it. About that early time of Haller, there appeared in Liegnitz, 1793, a collection of interesting treatises on some important diseases of children (Sammlung interiessanter Abhandlungen über etliche wichtige Kinderkrankheiten). France followed in 1811 with a collection bearing the title "La Clinique des Hôpitaux des enfants, et revue retrospective médico-chirurgicale et hygiénique. Publiées sous les auspices et par les médecins et chirurgiens des hôpitaux consacrés aux maladies des enfants." Next in order are five volumes of Franz Joseph von Metzler's Sammlung auserlesener Abhandlungen über Kinderkrankheiten, 1833-36. Twelve fascicles under the title Analekten über Kinderkrankheiten oder Sammlung ausgewählter Abhandlungen über die Krankheiten des Kindlichen Alters; la clinique des Hôpitaux des enfants, Redacteur en chef Vanier, Paris, 1841; and I. Behrend and A. Hildebrandt, Journal für Kinderkrankheiten, which appeared regularly from 1843 to 1872. It gave way to the Jahrbuch für Kinderheilkunde, which appeared in quick and regular succession from 1858 to the present time. Three series of Austrian Journals between 1855 and 1876 consisted of a dozen volumes only. They contain among other important contributions the very valuable essays of Ritter von Rittershayn, who deserved more recognition during his life and more credit after his death, for his honesty, industry and originality, than he attained.

Special pediatric journals have multiplied since. The United States has two, France three, Germany five, Italy two, Spain one. As long as they are taken by the profession we should not speak of over-production. I attribute their existence to the general conviction that there is no greater need than of the distribution of knowledge of the prevention and cure of the diseases of the young. The literature of pediatrics seems to prove it. Not 7,000, as before 1850, not even 70,000 titles of books, pamphlets, and magazine articles exhaust the number.

Pediatric societies have increased at the same rate. The American Medical Association and the British Medical Association founded each a section 25 years ago, the New York Academy of Medicine, in 1886. The American Pediatric Society was founded in 1889, the Gesellschaft für Kinderheilkunde connected with the German Gesellschaft der ärzte und Naturforscher in 1883, the English Society for the Study of Disease in Children, in 1900. There are pediatric societies in Philadelphia, in the State of Ohio, in Paris, Kiew, St. Petersburg, and many places, all of them engaged in earnest work which is exhibited in volumes of their own or in the magazines of the profession. If we add the annual reports of hundreds of public institutions, which are so numerous indeed that a large volume of S. Hügel, "Beschreibung sämmtlicher Kinderheilanstalten in Europa," was required as early as 1848 to enumerate them; and an enormous number of text-books of masters, and of such as are anxious to become so, and monographs, and essays, and lectures, and notes preliminary and otherwise, which fill the magazines that most of us take or see, and some of us read—we may form an idea to what extent a topic formerly neglected has taken hold of the conscience and the imagination of the medical public.

Before 1769 there was no institution specially provided for sick children. They were admitted now and then to foundling institutions and general hospitals. In that year Dr. G. Armstrong established a dispensary in London, which was carried on until he died. A similar institution was founded in Vienna by Dr. Marstalier, in 1784. Goelis took charge of it in 1794, L. Politzer developed it, and it is still in existence. Before the French Republic was strangled, it founded the first and largest child's hospital in Europe, the Hôpital des Enfants malades, in 1802. The Nicolai Hospital was established in St. Petersburg, in 1834, by Dr. Friedburg; the St. Anne's Child's Hospital, in Vienna, 1837, by Dr. Ludwig Mauthuer; and the Poor Children's Hospital, of Buda Pesth, in 1839, by Dr. Schöpf Merei, who afterwards founded and directed the Child's Hospital of Manchester, England.

Since that time the increasing interest in the diseases of children on the part of humanitarians and of physicians and teachers has multiplied children's hospitals. Most of them are small, but they are numerous enough both to exhibit and disseminate the sense of responsibility to the sick and to the necessities of teaching. The United States has been the last country to participate in these endeavors. The mostly proprietary medical schools did not find pediatric teaching to their advantage, and it took the hearts and purses of the public a long time to be opened. The waves of humanitarianism, sometimes directed by a church, and the demands of science have finally overcome previous indolence. There are many general hospitals that gradually opened special children's wards. You find pediatric hospitals in some of the larger cities—New York, Boston, Philadelphia, Albany, St. Louis, and others. It has so happened, however, that real specialties have appealed more to the general sympathy than pediatrics. That is why the number of beds in orthopedic and other special hospitals are mostly favored. Practical teaching has not been extensive. Children's hospitals that should be used for that purpose, and that are directly connected with a medical school, are but few. It has taken the medical faculties, even of Universities, too much time to appreciate the necessity of special and well-regulated bedside teaching. In some instances lay trustees, guided by their medical advisers, have opened their wards before faculties have consented to open their eyes. At the present time, however, there is hardly a great medical school that does not give amphitheatre or bedside instruction, either in a children's ward of a general hospital or in a special children's or babies' hospital. To a certain extent the teaching of pediatrics in a general hospital has its great advantages. It is not a specialty like that of a special sense or a tissue. For the purpose of study it had to be segregated, but it will never be torn asunder from general medicine. Vogel and Gerhardt were both general clinicians.

The comparative anatomy and physiology, hygiene, etiology, and nosology of pediatrics have been discussed before you by one of the most prominent pediatrists of our era. It will be my privilege to explain, as far as time will permit, its relation to general medicine, to embryology and teratology, obstetrics, hygiene, and private and public sanitation, to therapeutics both pharmacal and operative, and to the specialties of otology, ophthalmology, dermatology, and the motor system, to pedagogy, to neurology and psychiatry, forensic medicine and criminology, and to social politics.

Infancy and childhood do not begin with the day of birth. From conception to the termination of fœtal life evolution is gradual. The result of the conception depends on parents and ancestors. Nowhere are the laws of heredity more perceptible than in the structure and nature of the child. Physical properties, virtues and sins, and tendencies to disease may not stop even with the third or fourth generation. Hamburger and Osler trace an angio-neurosis through six generations, the first case in the series being observed by Benjamin Rush. In many instances still-births, early diseases, atrophy, and undue mortality of the young depend on ante natal happenings. The condition and diet of the mother influences her offspring. The danger of a contracted pelvis, and the necessity of premature delivery may be obviated by the restriction of the diet, or even by appropriate (thyroid and other) medication of the pregnant woman. Experience and experiment tell the same story. The continued practice of preventing conception causes endometritis. Alcoholism causes chronic placentitis, premature confinement, or still-birth. So does chronic phosphorus and lead poisoning. Fortunately, however, the usual medication resorted to during labor is rarely dangerous, for even morphine or ergot doses given to the parturient woman on proper indications affect the newly-born rarely, and chloroform anesthesia almost never.

Scanty amniotic liquor, by the prevention of free intrauterine excursions, may cause club-foot; or close contact of the surfaces of the embryo and the membranes give rise to adhesions of the placenta and the head, to filaments and bands whose pressure or traction produces grooving or amputation of limbs, cohesion of toes or fingers, umbilical, meningeal, encephalic, or spinal hernia; not in extra-uterine pregnancy only, where such occurrences are very frequent. Even the majority of harelips and fissured palates have that origin. Arrests of development and fœtal inflammation are the headings under which most of the anomalies of the newly-born may be subsumed; congenital diseases of the ear and of the heart may result from either cause or from both. Obstructions of the intestines, the rare closures of the œsophagus, the ureter, and the urethra, with hydro-nephrosis and cystic degeneration of the kidneys are probably more due to excessive cell proliferation in the minute original grooves than to inflammation.

The insufficient closures of normal embryonic fissures or grooves explains many cases of spina bifida, many of encephalocele, most of the split lips and palates, all of porencephalus, bifid uvula and epiglottis, pharyngeal and thyroglossal fistulæ, the communications between the intestinal and uro-genital tracts, and the persistency and patency of the urachus.*

Heredity need not show itself in the production of a fully developed disease. It exhibits itself normally either in equality or resemblances, either total or partial, of the body, or some one or more of its external or internal organs. In this way it may affect the nervous, the muscular, the osseous, or other tissues. That is why dystrophies in different forms, obesity, achondroplasia, hyperplasia, or atrophy may be directly inherited, while in other cases the disposition to degeneration only is transmitted.

Hereditary degeneracy is often caused by social influences. The immoral conditions created by our financial system make women select not the strong and hearty and the young husband, but the rich and old, with the result of having less, and less vigorous, children. Certain professions, the vocations of soldiers and mariners, and subordinate positions of employees in general, enforce complete or approximative celibacy, with the same result. The nations that submit to the alleged necessity of keeping millions of men in standing armies, are threatened with a degenerated offspring, for not only do they keep the strongest men from timely marriages, but they increase prostitution and venereal diseases, with their dire consequences for men, women, and progeny. Wars lead to the same result in increased proportion, for tens and hundreds of thousands of the sound men are slain or crippled, or demoralized. Those who are inferior and unfit for physical exertions remain behind and procreate an inferior race; those who believe with Lord Rosebery that an empire is of but little use without an imperial race will always, in the interests of a wholesome civilization, object to the untutored enthusiasm which denounces the "weakling," and the "craven cowardice" of those who believe in the steady evolution of peace and harmony amongst men, and, in sympathy with the physical and moral health of the present and future generation, will prefer the cleanly and washed sportsmanship of an educated youth to that of the mud-streaked and blood-stained manhunter.

A great many diseased conditions cannot be thoroughly understood unless they be studied in the evolving being. Tumors are rarely inherited, but many of them are observed in early life. Lymphoma, sarcoma, also lipoma and carcinoma, and cystic degeneration, are observed at birth, or within a short time after, and seem to favor Cohnheim's theory, according to which many owe their origin to the persistence in an abnormal location of embryonic cells. This theory does not exclude the fact that congenital tumors may remain dormant for years or decades and not destroy the young.

So much on some points connected with *embryology* and *teratology*. The connection with *obstetrical practice* is equally intimate. Three percent of all the mature living fœtuses are not born into postnatal life this very day. To reduce the mortality even to that figure, it has taken much increase of knowledge and improvement in the art of obstetrics to such an extent that it has become possible by Cesarean section not only to save the fœtus of a living, but also of a dead mother, for the fœtus in her may survive the dying woman.

But after all, many a baby would be better off, and the world also, if it had died during labor. There are those, and not a few, who are born asphyxiated on account of interrupted circulation, compression of the impacted head, or meningeal or encephalic hemorrhage, which destroys many that die in the first week of life. Those who are not so taken away may live as the result of protracted asphyxia only to be paralytic, idiotic, or epileptic. Many times in a long life have I urged upon the practitioner to remember that every second added to the duration of asphyxia adds to the dangers either to life or to an impaired human existence. Besides fractures, facial or brachial paralysis, cephalhæmatoma and hæmatoma of the sterno-cleido mastoid muscle, gonorrheal ophthalmia, with its dangers to sight and even life, may be daily occurrences in an obstetrician's life. All such cases prove the insufficiency of knowledge without art, or of art without knowledge, and the grave responsibility of the practical obstetrician. To lose a newly-born by death causes at least dire bereavement; to cripple his future is not rarely criminal negligence.

Within a few days after birth the obstetrician or the pediatrist has the opportunity of observing all sorts of microbic infections, from tetanus to hemorrhages or gangrene, and the intense forms of syphilis. Not an uncommon disease of the newly-born and the very young is nephritis. It is the consequence, in many cases, of what appears to be a common jaundice, or of uric acid infarction, which is the natural result of the sudden change of metabolism. The diverticula of the colon, as described by Hirschsprung and Osler, and what nearly 40 years ago were characterized as congenital constipation, which depends on the exaggeration of the normally excessive length of the sigmoid flexure, belong to the same class. Their dangers may be avoided when they are understood. Of the infectious diseases of the embryo and the fœtus, it is principally syphilis that should be considered; amongst the acute forms variola and typhoid are relatively rare.

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*J. W. Ballantyne, in his manual of antenatal Pathology and Hygiene, 1902, has a separate chapter on the relations of antenatal pathology to other branches of study, to general pathology, to the biological sciences, such as anatomy, embryology, physiology, botany, and zoology, and to the medical, including obstetrics, public health, pediatrics, medicine, psychology, dermatology, surgery, orthopedics and medical jurisprudence, finally to gynæcology and neo-natal pathology.

What I have been permitted to say is enough to prove the intimate interdependence and connection between pediatrics and the diseases of the fœtus with embryology and teratology, obstetrics, and some parts at least, of social economics.

After birth there are anomalies and diseases which are encountered in the infant and child only. There are also, common to all ages, though mostly found in children, such as exhibit a symptomatology and course peculiar to them. The first class, besides those which are seen in the newly-born, is made up mostly of developmental diseases—scrofula, rachitis, chlorosis. The actual or alleged ailments connected with dentition, most forms of stomatitis, Bednar's so called aphthae, the ulceration of epithelial pearls along the raphe, amygdalitis, pharyngitis, adenoid proliferations, latero- and retro-pharyngeal abscesses belong here. Infectious diseases, such as variola, diphtheria, scarlatina, measles, pertussis, and tuberculosis of the glands, bones, joints, and peritoneum have been most successfully studied by pediatrists or those clinicians who paid principal attention to pedology. Meissner prints the titles of more than 200 actual monographs on scarlet fever published in Europe before 1848. Pleurisy and pneumonia of the young have their own symptomatology. Empyema is more frequent and requires much more operative interference. Tracheotomy and intubation are mostly required by the young, both on account of their liability to œdema of the larynx and to diphtheria, and of the narrowness of the larynx. Of invagination, 25% occur under one year, 53% under 10. Appendicitis, sometimes hereditary and a family disease, would long ago have been recognized as a frequent occurrence in the young if it had not been for the difficulty, mainly encountered in the young, and sometimes impossibility of its diagnosis. That is what we have been taught by Hawkins and by Treves, and lately by McCosh. Operations on glandular abscesses, osteotomies, and other operations on the bones and joints, particularly in tuberculosis, and on malformations, such as have been mentioned, require the skilful hand of the operating physician in a great many instances. Omphalocele, exstrophy of the bladder, undescended testicle, spermatic hydrocele, multiple exostoses, imperforate rectum, atresia of the vagina, or an occasional case of stenosed pylorus, belong to that class, some requiring immediate operation, some permitting of delay. It is principally infancy that demands removals of angioma, which are almost all successful, and of hygroma, mostly unsuccessful, mainly when situated on the neck and resulting from obstruction of the thoracic duct sometimes connected with thrombosis of the jugular vein. Childhood requires correction of kyphosis and scoliosis, and operations for adenoids and hypertrophied tonsils, and furnishes the opportunities for lumbar puncture and laparotomy in tubercular peritonitis; also supra-pubic cystotomy, and mastoid operations. That gum-lancing is no operation indicated or permissible in either the young or adult, and not any more so in the former than in the latter, is easily understood by those who acknowledge its necessity only in the presence of a morbid condition of the gums or teeth, and not when the physiological process of dentition exhibit no anomaly. It scarcely ever does. Altogether operating specialists would work and know very much less if a large majority of the cases were not entrusted to them by the pediatrist, who recognizes the principle that those who are best fitted to perform it should be trusted with important medical work. So well is the seriousness and difficulty of operative procedures, as connected with diseases of children, recognized by experts, that 1,500 pages of Gerhardt's handbook are dedicated to external pathology and operations, and that special works, besides many monographs by hundreds of authors, have been written by such masters as Guersant, Forster, Bryant, Giraldès, Holmes, St. Germain, Karewski, Lannelongue, Kirmisson, and Broca.

Ear specialists recognize the fact that otology is mostly a specialty of the young. The newly-born exhibit changes in the middle ear which are variously attributed to the presence of epithelial detritus, to the aspiration of foreign material, or to an œdema *ex vacuo* occasioned by the separation of formerly adjacent mucous surfaces. Pus is found in the middle ear of 75% of the stillborn or of dead nurslings. It contains meconium, lanugo, and vernix. Aschoff[1] examined 50 stillborn, or such as had lived less than two hours; 28 of them had pus in the middle ears (55%). He also examined 35 infants that had lived longer than two hours; 24 had pus (70%). Evidently the latter class had been exposed to a microbic invasion. The diagnosis in the living infant is very difficult, mostly impossible, on account of the large size of the Eustachian tube, which after having admitted the infection, allows the pus to escape into the pharynx and the rest of the alimentary canal. Many of the newlyborn that die with unexplained fevers perish from the septic material, or its toxins, absorbed in the middle ear or the intestines. Nor are older children exempt. Geppert (Jahrb. f. Kind., xlv, 1897) found a latent otitis media in 75% of all the inmates of the Children's Hospitals. Both latent and known otitis is often connected with pneumonia, or with pneumonia and enteritis. In individual cases it may be difficult to decide which of the two or three is the primary, which the secondary affection.

The great vascularity of the middle ear, but still more the accessibility of the funnel-like Eustachian tube in the infant, renders otitis media very frequent. Schwartze's assertion that otitis media furnishes 22% of all ear cases in general or special practice is surely correct. Besides, difficult hearing is very frequent in the young, a fact of the greatest import to pedagogy. As early as 1886 Bezold found that of 1,900 school children 25% had only one-third, and 11% of the others only one-fifth of normal hearing. The frequent affections of the nose and pharynx in the young explain these facts and exhibit the possibilities of preservation. Finally, the immature condition of the mastoid process and of the floor of the external canal is best appreciated by the practitioner, general or special, who deals with their abscesses.

Whether deafmutism is the result of consanguineous marriage cannot be definitely asserted. It is not often hereditary, quite often it appears to be the result of family alcoholism, it sometimes depends on arrest of development and fœtal inflammation, but is more frequently an acquired condition. Not rarely children are affected after they have been able to speak. The majority of cases are caused by cerebral or cerebro-spinal inflammation. According to Biedert, 55% are of that class, 28% are caused by infectious diseases (cerebro-spinal meningitis, scarlatina, typhoid fever, diphtheria, also variola and measles), 3.3% by injuries, and only 2.5% are original ear affections. Thus many of the congenital cases, and most of the acquired, are preventable. More and more will our deaf-mute institutions avail themselves of this knowledge, and will learn how to teach their children not only how to read and write, but also how to hear.

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[1] Aschoff, z. f. Ohrenh. Vol. xxxi.

Not to the same, but to a great extent, pediatrics and *ophthalmology* join hands. Infectious diseases, such as diphtheria, affect the conjunctiva and sometimes the cornea. Syphilis of the cornea, with or without chronic iritis, is the form of parenchymatous or diffuse keratitis. A frequent tumor in the eye of the young is glioma, and frequent symptomatic anomalies are strabismus and nystagmus—both of them the results of a great many and various external or internal causes, with sometimes difficult diagnoses.

The connection of pedology with *dermatology* is more than skin deep; some of the most interesting problems of the latter must be studied on antenatal and postnatal lines. The congenital absence of small or large parts of the surface is probably due to amniotic adhesions; seborrhea and the mild form of lichen, also the furunculosis of infant cachexia and atheroma, to the rapid development, in the second half of intra-uterine life, of the sebaceous follicles; ichthyosis, to the same and to a hypertrophy of the epidermis and the papillæ of the corium, sometimes with dilatation of their blood-vessels and with sclerosis of the connective tissue. Congenital anomalies, such as lipoma, sarcoma, nævus pigmentosus, open all the questions of the embryonal origin of neoplasms; and the eruptions on the infant surface unclose to the specialist the subject of infectious diseases. We recognize in the pemphigus of the palms and soles syphilis; in herpes, gangrene, in what I have described as chronic neurotic pemphigus, the irritable nervous system; in eczema, constitutional disturbances of the nutrition; in erythema, local irritation or intestinal auto-infection; in isolated or multiple forms ranging between hyperæmia and exudation, the effect of local irritation or the acute or chronic influence of drugs. A dermatologist who knows no embryology or pedology, a pediatrist who knows no dermatology, is anything but a competent and trustworthy medical practitioner.

The diseases of the *muscles* interest the pediatrist, the surgical specialist, the orthopædist, the neurologist, to an equal extent. Many forms of myositis are of infectious origin. Amongst the special forms of muscular atrophy it is the hereditary variety which concerns the first. The spinal neuritic atrophy the myogenous pediatrist, progressive dystrophy, including the so-called pseudo-hypertrophy, Thomson's congenital myotonia, and (atrophy) defects of muscles—mainly the pectoral, but also the trapezius, quadriceps, and others—no matter whether they are primary or myogenous (this probably always when there is a complication with progressive dystrophy), are of special interest. I need not do more than mention torticollis in order to prove that neither the special pediatrist nor the special orthopædist, nor the general surgeon can raise the claim of ownership.

The relations of pediatrics to *forensic medicine* are very close. Nothing is more apt to demonstrate this than the immense literature in every language on infanticide and all the questions of physiology, physics, and chemistry connected with that subject. The monographs and magazine essays of the last two centuries written on the value or the fallacy of the lung test in the dead newly-born would fill a small library. Much attention has been paid by physicians and by forensic authors to lesions and fractures of the newly-born head, and to anomalies of the female pelvis causing them. Apparent death of the newly-born and the causes of sudden death in all periods of life have been studied to such an extent as to render negative results of police investigation and of autopsy reports less numerous from year to year. Most sudden deaths receiving the attention of the authorities occur in the young. There were (Wm. Wynn Westcott in Brit. M. J., Nov. 7, 1903) in England and Wales during ten years 15,009 overlain infants; in 1900, 1,774. In Liverpool, out of 960 inquests there were 143 on babies that had died of such suffocation by accident or malice aforethought; in London, in 1900, 615; in 1901, 511; in 1902, 588. In London they had annually 8,000 official inquests, one of 14 of which were on overlain infants. The etiology of sudden deaths would be far from complete, indeed the most difficult questions could not be solved except by the facilities furnished by the observations on the young. Foreign bodies in the larynx, beans, shoe-buttons, and playthings generally, even ascarides (Bouchut), bones and pieces of meat aspirated during vomiting, acute œdema of the glottis, aspiration of a long uvula, or of the retracted tongue, the rupture of a pharyngeal abscess or of a suppurating lymphoid body into the trachea, a sudden swelling of the thymus in the narrow space between the manubrium and vertebral column, which at best measures only 2.2 cm., even a coryza in the narrow nose of a small infant filled or not with adenoids—are causes of sudden death.

The *nervous system* furnishes many such cases. It is true there is no longer a diffuse interstitial encephalitis, such as Jastrowitz would have it, nor is the hypertrophy of the brain by far so frequent as Hüttenbrenner taught, but there are sudden collapses and deaths by falls on the abdomen, by sudden strangulation of large herniæ and other shocks of the splanchnic nerve. There are sudden and unexplained deaths in unnoticed attacks of convulsions, in the first paralytic stage of laryngismus stridulus, in glottic spasms from whatever cause, in the paralysis—or, according to Escherich, laryngo-spasm—of what since Paltauf has been denominated status lymphaticus, in cerebral anemia, no matter whether it is the result of exhaustion or, as Charles West taught us 60 years ago, from the mere change of position of a pneumonic or otherwise sick baby, when suddenly raised from its bed. Or death may occur suddenly (a very frequent occurrence) in the heart failure of parenchymatous degeneration of the heart muscle as it occurs in and after diphtheria, influenza, and other infectious diseases, or in the acute sepsis of appendicitis and other intraperitoneal affections, whether recognized or not. For the absorbing power, even of the normal peritoneum, is enormous. Of a very acute infection, ("infectio aoutissima,") Wernich spoke as early as 1883.

In gastroenteritis, the terminating broncho-pneumonia may destroy life quite suddenly; there is a capillary bronchitis of the very young with no cry, no moan, and no cough, but with sudden death; there are in extreme atrophy, fatal emboli into the pulmonary, sometimes renal, more often cerebral arteries. There are the cases of uremic convulsions, sudden, with sudden death, which are often taken to be merely reflected or "providential," because the frequency of acute nephritis in the newly-born and the infant, with its fever and its uremia, in spite of the publications of Martin and Ruge, Virchow, Orth, Epstein, and my own, is not yet fully appreciated. That is so much the more deplorable as the diagnosis of nephritis at any age is readily made by the examination of the urine, which is so easy to obtain in the young. Other suddenly fatal conditions, such as the acute or chronic sepsis I mentioned before, often quite unsuspected, entering through the umbilicus, the intestine, or the middle ear, are quite frequent.

I have been careful not to mention any cause of death that may just as well be and has been studied in the adult: hemorrhages, the many forms of sepsis of later periods of life, poisons, such as carbolic acid and iodoform, intense cold or heat, insolation, etc., for it is my duty to exhibit the relation to forensic medicine of pediatrics only. Forensic medicine has to guard the interests of all. Nothing in all medicine is more difficult than the discovery of the cause of death. The best knowledge of the advanced practitioner, of the pathologist, of the chemist, of the bacteriologist, of the obstetrician, should be at the service of the people.

Every European country understands that and acts on that knowledge. Our own Massachusetts has broken away from the coroner's institution, which was a fit authority for a backwoods municipality, but is so no longer for a cultured people of eighty millions. Now and then, even an expert, or a body of experts, does *not* succeed in discovering the cause of death. What shall we say of a system which *now and then does* discover the hidden cause of a sudden death? When the New York State Legislature half a year ago passed a bill abolishing the no longer competent office of coroner, our good cultured mayor, a gentleman and author, vetoed it for the reason that the new law was not perfect. It was not pronounced perfect by anybody, no law is nor ever was. That is why it appears he prefers something that always was and is, and always will be perfect, namely, the absurd incompetency and anachronism of the coroner's office. That is perfect. I have not hesitated to express myself strongly and positively, for I have been called upon to speak to you about the relation of pediatrics to other sciences and arts—politics included, than which there is no more profound practical and indispensable science and art. The greatest historical legislators understood that perfectly well, when they knew how to blend hygiene and religion with their social and political organization.

One of the greatest questions which concerns at the same time the practical statesman, the humanitarian and the pediatrist, is that of the *excessive mortality* of the young. The Paris Academy of Medicine enumerated in its discussions of 1870 the following amongst its causes: Poverty and illness of the parents, the large number of illegitimate births, inability or unwillingness on the part of mothers to nurse their offspring, artificial feeding with improper material, the ignorance of the parents in regard to the proper food and hygiene, exposure, absence of medical aid, careless selection of nurses, lack of supervision of baby farms, general neglect and infanticide. *If there be* anybody who is not quite certain about the relationship of sciences and arts, he will still be convinced of the correlation and cooperation of ignorance, indolence, viciousness and death, and shocked by the shortcomings of the human society to which we belong. Most of them should be avoided. Forty percent of the mortality of infants that die before the end of the first year takes place in the first month. That is mostly preventable. A few years ago the mortality of the infants in the Mott Street barracks of New York City was 325 per mille. Much of it is attributable to *faulty diet.**

Amongst those who believe in the omnipotence of chemical formulæ, there prevails the opinion that a baby deprived of mother's milk may just as readily be brought up on cow's milk; that is easily disproved. In Berlin they found that amongst the cows'-milk fed babies under a year the mortality was six times as great as amongst breast fed infants. Our own great cities gave us similar, or slightly smaller, proportions, until the excessive mortality of the very young was somewhat reduced by the care bestowed on the milk, introduced both into our palaces and tenements. Milk was examined for bacteria, cleanliness, and chemical reaction. It was sterilized, pasteurized, modified, cooled, but no cow's milk was ever under the laws of nature changed into human milk, and with better milk than the city of New York ever had, its infant mortality was greater this summer than it has been in many years.

That hundreds of thousands of the newly-born and small infants perish every year on account of the absence of their natural food is a fact which is known and which should not exist. Why do we kill those babies or allow them to be killed? Why is it that they have no breast milk? A large number of women work in fields, still more in factories. That is why their infants cannot be nursed, are farmed out, fed artificially, with care or without it, and die. It is the misrule prevailing in our social conditions which compels them to withhold milk from the infant while they are working for what is called bread for themselves and their families. Many of these women, it is true, would not have been able to nurse their newly-born, for their own physical condition was always incompetent. The same may be said of women in all walks of life. Insufficient food, hard work, care, hereditary debility and disease, tuberculosis, alcoholism of the woman's own father, modified syphilis or nervous diseases in the family—aye, the inability of her own mother to nurse her babies, are ever so many causes why the mother's fountain should run dry. Statistics from large obstetrical institutions (Hegar) prove that only about 50% of women are capable of nursing their offspring for merely a few weeks. In the presence of such facts what are we to say of the refusal of well-situated and physically competent women to nurse their infants? I do not speak of the "400," I mean the 400,000 who prefer their ease to their duty, their social functions to their maternal obligations, who hire strangers to nurse their babies, or worse yet, who make-believe they believe the claims of the infant food manufacturers, or are tempted by their own physicians to believe that cow's milk casein and cow's milk fat may be changed into woman's casein and fat, that chemistry is physiology, that the live stomach is like a dead laboratory bottle, that the warmth of the human bosom and that of a nursing flask are identical, and that cow's milk is like human milk when it carries the tradesmark "Certified," or "Modified." Physiological chemistry itself teaches that the phosphorus combinations in woman's milk in the shape of nuclein and lecithin are not contained in cow's milk, and that the large amounts of potassium and sodium salts contained in cow's milk are dead weights rather than nutrients, and particularly the large amount of calcium phosphate occurs in a chemical, not in a physiological, combination. But lately, by no means the first time, Schlossmann and Muro (Münch. med. Woch., 1903, No. 14), have again proved that the albuminoids of woman's and cow's milk are essentially different, both in their lactalbumin and the globulin, and Escherich and Marfan, that every milk has its own enzymes.

The quantitative and many of the qualitative differences of cows' and human milk have been known a long time. No addition or abstraction of salts, no addition of cow's fat will ever change one into the other. But it appears that every new doctor and every new author begins his own era. There is for most of modern writers no such thing as the history of medicine or of a specialty, or respect of fathers or brothers. In modern books and essays you meet with footnotes and quotations of the productions of yesterday that look so erudite, but also with the new discoveries of old knowledge which you would recognize if the quotation marks had not been forgotten by accident. So it has happened that many learn for the twentieth time that the knowledge of the minimum amount of required food is a wholesome thing, that the amount of animal fat in infant food is easily overstepped, that we have discovered that the Dutch had a clever notion when they fed babies on buttermilk with reduced fat; we are even beginning to learn what our old forefathers practised a hundred years ago, and physiologists taught a third of a century ago—namely, that the newly-born and the very young infant not only tolerate small quantities of cereals but that they improve on it. Indeed, the names of Schiller, Korowin, and Zweifel have been rediscovered. We have also learned—just lately, it appears—what was always known, that morning and night, idleness and work, health and illness, while altering the chemical composition of woman's milk do not necessarily affect its wholesome character. We are beginning to learn that it is impossible to feed a baby on fanatical chemical formulæ, for they are not prescribed by Nature, which allows latitude within certain limits. We are even beginning to learn that if that were not so there would be no artificially fed babies alive, and possibly very few participants in the St. Louis Congress of Arts and Sciences.

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* Measures taken for the purpose of obtaining wholesome milk are not quite new. Regulations were given in Venice, 1599, for the sale of milk. Milk and its products of diseased animals were forbidden. The Paris municipality of 1792 enjoined the farmers to give their cows healthy food. Coloring and dilution of milk were strictly forbidden, and in 1792 they knew in France how to punish transgressors.

The inability or reluctance of women to nurse their own infants is a grave matter. From a physical, moral, and socio-political point of view there is only one calamity still graver, that is to refuse to have children at all. It undermines the health of women, makes family life a commercial institute or a desert, depopulates the child world, reduces original Americans to a small minority, and leaves the creation of the future America in the hands of twentieth century foreigners. The human society of the future will have to see to it that no poverty, no cruel labor law, no accident, no luxurious indolence, must interfere with the nursing of infants. I believe in the perfectibility of the physical and moral conditions of the human race. That is why I trust that society will find means to compel able-bodied women to nurse their own infants. Infants are the future citizens of the republic. Let the republic see that no harm accrue from the incompetence or unwillingness to nurse. Antiquity did not know of artificial infant feeding. The first information of its introduction is dated about 1500. Turks, Arabs, Armenians, and Kurds know of no artificial feeding today. It takes modern civilization to expose babies to disease and extinction. I know of no political or social question of greater urgency than that of the prevention of the wholesale murder of our infants caused by the withholding of proper nutriment. May nobody, however, feel that all is accomplished when an infant has finally completed his 12 months. Society and family owe more than life—they owe good health, vital resistance, and security against life-long invalidism.

But even willing mothers may have no milk. We require a stronger, healthier race, and one that physically is not on the down grade. The nursing question is a social and economic problem like so many others, like the childbearing question, that confront modern civilization.

We are building hospitals for the sick of all classes, and insist upon their being superior to the best private residences; asylums for the insane, neuropathics, and drunkards; nurseries and schools for epileptics, cretins, and idiots; refuges for the dying consumptives; and sanatoria for incipient tuberculosis. We are bent upon curing and upon preventing. Do we not begin at the wrong end? We allow consumptives and epileptics to marry and to propagate their own curse. We have no punishment for the syphilitic and the gonorrhœic who ruins a woman's life and impairs the human race. Man, however, should see that his kind must not suffer. One-half of us should not be destined to watch, and nurse, and support the other half. Human society and the State have to protect themselves by looking out for a healthy, uncontaminated progeny. Laws are required to accomplish this; such laws as will be hated by the epileptic, consumptive, the syphilitic, and the vicious. No law ever suited the degenerates against whom they were passed, and it is unfortunate that while health and virtue are as a rule not contagious, disease and vice are so to a high degree.

Modern *Therapeutics*, both hygienic and medicinal, has gained much by the close observation of what is permitted or indicated or required in early age. Since it has become more humane (remember it is hardly a century since Pinel took the chains off the insane in their dungeons, and not more than half a century since I was taught to carry my venesection lancet in my vest pocket for ready use) and more scientific, so that whatever is outside of strict biologic methods is no longer "a system," but downright quackery—the terrible increase of the latter as a world-plague is deemed by rational practitioners and the sensible public an appalling anachronism. It appears that the States of the Union are most anxious (and have been partially successful) to rid themselves of it, while some at least of the nations of Europe are greater sufferers than we. According to the latest statistics, there is one quack to every physician in Bavaria and Saxony; ten quacks in Berlin, with its emperor and other accomplishments, to every forty-six physicians. Its general population has increased since 1879 by 61%; the number of physicians, 170, 2%; that of the quacks, 1,600%.

One of the main indications in infant therapeutics is to fight anemia, which is a constant danger in the diseases of the young, for the amount of blood at that age is only one-nineteenth of the whole body weight, while in the adult it is one-thirteenth. The newly-born is particularly exposed to an acute anemia. His blood weighs from 200 to 250 grammes. It is overloaded with hæmoglobin which is rapidly eliminated, together with the original excess of iron. This lively metabolism renders the infant very amenable to the influence of bacteria, and the large number of acute, sub-acute, or chronic cases of sepsis is the result. Besides, the principal normal food is milk, which contains but little iron. That is why pediatrics is most apt to inculcate the lessons of appropriate posture, so as not to render the brain suddenly anemic, and of proper feeding and of timely stimulation before collapse tells us we are too late, and the dangers of inconsiderate depletion. The experience accumulated in pediatric practice has taught general medicine to use small doses only of potassic chlorate; large doses of strychnine and alcohol in sepsis, of mercuric bichloride in croupous inflammations, of heart stimulants, such as digitalis, when a speedy effect is wanted, of arsenic in nervous diseases, of potassic iodide in meningitis; it has warned practical men of the dangers of chloroform in status lymphaticus;[*] it has modified hydrotherapeutic and balneological practice, and the theories of hardening and strengthening according to periods of life, and to the conditions of previous general health.

The appreciation of electricity as a remedy has been enhanced by obstetricians, pediatrists and general practitioners. It is but lately that we have been told (P. Strassmann, Samml. Klin. Vortr., 1903, No. 353) that a newly-born and an infant up to the third week are perfectly insensible to very strong electrical currents. The incompetency of mere experimental work, not corrected or guided by practice, cannot find a better illustration, for there is no more powerful remedy for asphyxia and atelectasis than the cautious use of the interrupted or of the broken galvanic current.

The domain of preventive therapeutics expands with the increased knowledge of the causes of disease. That is why immunizing, like curative serums, will play a more beneficent part from year to year, and why the healthy condition of the mucous membrane of the nose, mouth, and pharynx, which I have been advising these forty years as a prevention of diphtheria, has assumed importance in the armamentarium of protection against all sorts of infectious diseases.

Amongst the probabilities of our therapeutical future I also count the prevention of congenital malformations, which, as has been shown, are more numerous than is generally known or presumed, and often the result of intrauterine inflammation. In a recent publication F. von Winckel (Samml. Klin. Vortr., 1904, No. 373) emphasizes the fact that the general practitioner or the pathologic anatomist sees only a small number, that indeed the majority are buried out of sight, or are preserved in the specimen jars of the obstetrician. The known number of malformations compared with that of the normal newly-born varies from one to thirty-six, to one to one hundred and two or more. They are met with in relatively large numbers on the head, face and neck—altogether in 53.2% of all the 190 cases of malformation observed in Munich during 20 years. A number of them is the result of heredity, of syphilis or other influences. How many are or may be the result of consanguineous marriages will have to be learned. In all such cases the treatment of the parents or the prohibition of injurious marriages will have to be insisted upon. The number of those recognized as due to amniotic adhesions or bands is growing from year to year. Kümmel could prove that of 178 cases, 29 were certainly of that nature. External malformations have long been ascribed to them; proximal malformations, such as auricular appendices, harelip, anencephalia, cyclopia, flattening of the face, anophthalmia, hereditary polydactylia (Ahlfeldt and Zander, Virchow's Archiv, 1891), and lymphangioma of the neck, have been found to be caused by amniotic attachments or filaments. Is it too much to believe that the uterus, whose internal changes, syphilitic or others, are known to be very accessible to local and general medication, should be so influenced by previous treatment that malformations and fœtal deaths will become less and less frequent?

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[*] In the meeting of the Society for the Study of Disease in Children, May 27, 1904, Mr. Thompson Walker alluded to the collection of ten cases with status lymphaticus in which death had occurred at the commencement of chloroform administration, or during it, or immediately after the operation. In addition to the usual changes, a hyperplasia of the arteries had been noted, leading to narrowing of the lumen.

The problem of the health and hygiene mainly of the older child refers to more than its food. The *school* question is in the foreground of the study of sanitarians, health departments, physicians, and pedagogues. Its importance is best illustrated by the large convention which was organized in Stuttgart, April, 1904, as an International Congress for School Hygiene. Pediatrists, pedagogues, and statesmen formulated their demands and mapped out future discussions. Rational pediatrics would consider the following questions: Is it reasonable to have the same rule and the same daily sessions for children of eight and perhaps of fifteen years, and for adolescents? Certainly not. The younger the child the shorter should be the session, the longer and more frequent the recesses. There should be no lessons in the afternoon, or only mechanical occupations, such as copying, or light gymnastics. There should be no home lessons.

The problem of overburdening was carefully considered by Lorinser in 1836, and by many since. It deals with the number of subjects taught, the strictness and frequency of official examinations, and should consider the overcrowding of school rooms. We should try to answer the question whether neuroses are more the result of faulty schooling or of original debility, heredity, underfeeding, lack of sleep, bad domestic conditions, or all these combined. In Berlin schools they have begun to feed the hungry ones regularly with milk and bread. No compulsory education will educate the starving. The child that showed his first symptom of nervousness when a nursling, the child with pavor nocturnus, or that gets up tired in the morning, or suffers from motor hyperæsthesia, pointing or amounting to chorea, unless relieved instead of being punished by an uninformed or misanthropic or hysterical teacher, gets old or breaks down before the termination of the school term or of school age. There should be separate classes for the feeble, for those who are mentally strong, or weak, or of medium capacity. All of such questions belong to the domain of the child's physician, the physician in general. The office of school physician is relatively new. Whatever we have done in establishing it in America has been preceded by countries to which we are not in the habit of looking for our models. Bulgaria and Hungary have no schools without physicians. On the other hand, Vienna has none for its 200,000 school children. It is reported that the aldermen refused to appoint one. One of them objected for the reason that the doctor might be tempted to examine the Vienna lassies too closely. His business would be, and is, to look out for the healthfulness of the school building, its lighting, warming, cleanliness, the cleanliness of the children and their health, and that of the teachers. A tubercular teacher is a greater danger to the children than these, who rarely expectorate, to each other. He would take cognizance of the first symptoms of infectious diseases, examine eyes, ears, and teeth, and inquire into chronic constitutional diseases, such as rachitis and scrofula in the youngest pupils. He might undertake anthropometrical measurements and benefit science while aiding his wards. He would be helped in all these endeavors by the teachers who must learn to pride themselves on the robust health of their pupils, as they now look for the accumulation of knowledge which may be exhibited in public examinations.

They would soon learn what Christopher demonstrated, that physical development, greater weight, and larger breathing capacity, correspond with increased mental power, joining to this the advice that a physical factor as well as the intellectual one, now entirely relied upon, should be introduced in the grading of pupils. (Charles F. Gardiner and H. W. Hoagland, Growth and Development of Children in Colorado.—Trans. Am. Climatological Ass'n, 1903.)

Our knowledge of the physiology and pathology of the *nervous system* of all ages would be defective without lessons derived from the fœtus and infant. Amongst the newly-born we have often to deal with arrests of development, such as microcephalus, or with that form of fœtal meningitis or of syphilitic alterations of blood-vessels which may terminate in chronic hydrocephalus. When the insufficient development of reflex action in the newly-born up to the fifth or sixth week has passed, the very slow development of inhibition during the first half year or more, together with the rapid increase of motor and sensitive irritability explains the frequency of eclampsia and other forms of convulsions. Many of them require, however, an additional disposition, which is afforded either by the normal rapid development of the brain, or the abnormal hyperemia of rachitis. The last 25 years have increased our knowledge considerably in many directions. Congenital or premature, complete or partial, ossification of the cranial sutures lead mechanically to idiocy, or paralysis, or epilepsy; it is a consolation, however, to know that the victims of surgical zeal are getting less in number since operators have consented to fear death on the operating table, and thoughtful surgeons have come to the conclusion to leave bad enough alone. In the very young the fragility of the blood-vessels, the lack of coagulability of the blood, the large size of the carotid and vertebral arteries, the frequency of trauma during labor and after birth, the vulnerability of the ear and scalp, contribute to the frequency of nervous diseases, which before the fifth year amounts to 87% of all the cases of sickness. Rapid exhaustion leads to intracranial emaciation and thrombosis, the so-called hydroencephaloid of gastro-enteritis. The large size and number of the lymph vessels of the nasal and pharyngeal cavities facilitate the invasion into the nerve centers of infections which show themselves as tubercular meningitis, cerebro-spinal meningitis, and polio-encephalitis, or more so, poliomyelitis, and as chorea of so-called rheumatic — mostly streptococcic — origin. Nose and throat specialists, as well as anatomists, have contributed to our knowledge on these points —another proof of the intimate dependency of all parts of medicine upon one another. Now all these conditions are not limited to early life, but their numerical preponderance at that time is so great that it is easy to understand that general nosology could not advance without the overwhelming number of well-marked cases amongst children. Amongst them are the very numerous cases of epilepsy. They escape statistical accuracy, for many an epileptic infant or child dies before his condition is observed, or diagnosticated; a great many cases of petit mal, vertigo, dreamlike states and somnambulism, fainting, habit-chorea, truancy, imbecility, incompetency, or occasionally wild attacks of mania, or the perversity of incendiarism, or in older children religious delirium, even hysteric spells, are overlooked or perhaps noticed or suspected by nobody but the family physician; or, in the cases of the million poor, by nobody. They are cared for or neglected at home, and the seizure is taken to be an eclamptic attack due to bowels, worms, colds, and teeth, exactly like three hundred years ago.

Of equal importance in this disease to the pediatrist, the pedagogue, the psychiatrist, the judge, the statesman, no matter whether in office or a thoughtful citizen, is the influence of heredity. The old figures of Echeverria, which have been substantiated by a great many observers, tell the whole story. One hundred and thirty-six epileptics had 553 children. Of these, 309 remained alive; 78 (25%) were epileptic; how many of the 231 that died had some form of epilepsy or would have exhibited it nobody can tell. He observed a dozen cases in one family. While in his opinion 29.72% showed a direct inheritance from epileptic parents, Gowers has a percentage of 35, and Spratling, who has lived among epileptics nearly a dozen years, 66.

Epilepsy is acknowledged to be one of the causes of imbecility, or genuine idiocy. In very many instances it should be considered as the co-ordinate result of congenital or acquired changes in the skull, the brain, and its meninges, and particularly the cortex. In a single idiot institution, that of Langenhagen, 15% to 18% of the 395—668 inmates were epileptic; in another, Dalldorf, 18.5% to 24.3% of 167—344; in a third, Idstein, 36% of 101 (Binswanger, in Nothnagel, Syst. Path. u. Ther., Vol. xii, 1,310).

Its main causes are central. External irritations, worms, calculi, genital or nasal reflexes, may be occasional proximate causes. But cauterization of the nares, and still more, circumcision, and clitoridectomy prove more the helplessness or recklessness of the attendant than the possibility of a cure. The individual cases of recovery by the removal of clots, bones, or tumors, are great and comforting results, but if epilepsy and its relations are ever to disappear, it is not the knife of the surgeon but the apparatus of human foresight and justice that will accomplish it. Most of the causes of epilepsy are preventable. To that class belong syphilis and alcoholism in various generations, rachitis, tuberculosis and scrofula, many cases of encephalo-meningitis, and most cases of otitis. A question is attributed to a royal layman, "If preventable, why are they not prevented?" If there is a proof of what Socrates and Kant said, namely, that statesmanship cannot thrive without the physician, it is contained in the necessities of epilepsy. Prevention, preventives, and hygienic, medicinal, and surgical aids have to be invoked, unfortunately with slim results so far.

The influence of hereditary syphilis on the diseases of the nervous system has been studied these 20 years, both by neurologists and pediatrists. Its results are either direct—that means characteristically syphilitic—or metasyphilitic—that means merely degenerative. Hoffmann cured a case of syphilitic epilepsy in a girl of nine years in 1712. Plenk describes convulsions and other nervous symptoms depending on hereditary syphilis, and Nil Rosen de Rosenstein describes the same in 1781. The literature of the later part of the eighteenth, and of the first half of the nineteenth century is silent on that subject, though the cases of affections of the nervous system depending on hereditary syphilis are very frequent (thirteen percent of all the cases, according to Rumpf die Syph. Erk. d. Nervensystems, 1889). Jullien (Arch. Gén., 1901) reports 206 pregnancies in 43 syphilitic matrimonies. Of the children, 162 remained alive. Half of them had convulsions or symptoms of meningitis.

According to Nonne (die Syph. d. Nervens., 1902) hereditary syphilis differs from the acquired form in this—that several parts of the nervous system are affected simultaneously; and that arteritis, meningitis, gummata, and simple sclerosis occur in combination. Simple cerebral meningitis and apoplexies are very rare. Encephalitis is more frequent. Probably spinal diseases are more frequent, according to Gilles de la Tourette, Gasne, Sachs, and others. Tabes dorsalis is not frequent, but may rather depend on an atavistic syphilitic basis; for altogether the nerve syphilis of the second previous generation as a cause of disease in the young is not very rare. (E. Finger, W. klin. Woch., 13, 1900.)

What we call neuroses are not infrequent in infants and children. Neuralgias are not so common as in the adult, but would be more frequently found if sought for. Even adipositas dolorosa has been observed in childhood. Hysteria is by no means rare and its mono-symptomatic character, so peculiar to early age, adds to its nosological importance. Its early appearance is of grave import. Its often hereditary origin makes it a serious problem, under-alimentation or ill-nutrition, rachitis and scrofula, frequently connected with and underlying it, may make it dangerous and a fit subject for the study of educators, psychologists, judges, and all those whose direct office it is to study social and socialistic problems. Hysteria is not quite unknown amongst males, though the large majority are females.

Some of the vaso-motor and trophic disturbances are less, others more frequent, in the young than in the adult. Amongst 129 cases of akroparæsthesia there is only one of Frankl Hochwart in a girl of 12 years, and one of Cassirer in a girl of 16. Sclerodermia is met with mostly in mature life, but the cases of Neumann at 13 days, and those of Cruse, Herxheimer, and of Haushalter and Spielmann, who observed two cases in one family, all of them when the infants were only a few weeks old, prove that the same influences which are at work in advanced age, namely, hereditary disposition, neuropathic family influence, low general nutrition, colds, trauma, and so on, may play their role in infant life. Nor are infant erythromelalgias numerous. Henoch saw one in a teething infant, Baginsky in a boy of 10, Heimann one in a girl of 13, Graves one in a girl of 16; that means three or four cases below 13 or 16 years of age, out of a number of 65 collected by Cassirer in his monograph. (Die Vasomotorisch-trophischen Neurosen, Berlin, 1901.) In half a century I have seen but one that occurred in early age, namely, in a boy of 12, who got well with the loss of two toes. On the other hand, the symmetrical gangrene of Raynaud and acute circumscribed œdema of Milton and Quincke, 1882, treated of by Collins in 1892, are by no means relatively rare in infancy and childhood. There are a few cases of the former that occurred in the newly-born. Two I have seen myself. There are those which have been observed at 6 months (Friedel), 9 months (De France), at 15 months (Bjering), at 18 months (Dick). In the year 1889 Morgan collected 93 cases, 13 of which occurred from the second to the fifth, 11 between the fifth and tenth, and 15 between the tenth and twentieth years. Amongst the 168 cases collected by Cassirer, 20 occurred below the fifth, 8 between the fifth and tenth, and 25 between the tenth and twentieth years of life. Like most nervous diseases, these cases had either congenital or acquired causes, amongst which a general neuropathic constitution, and the hereditary influence of alcohol, chlorosis, and anemia are considered prominent. Of acute circumscribed œdema, 28 cases are found below nine years of age in Cassirer's collection of 160 cases, one of which at the age of one and a half months is reported by Crozer Griffith, one at three months by Dinckelacker. Again hereditary influence is found powerful. Osler could trace the disease through five generations.

The connection of pediatrics with *psychiatry* is very intimate. Insane children are much more numerous than the statistics of lunatic asylums would appear to prove, for there are, for obvious reasons, but few insane children in general institutions. It is only those cases which become absolutely unmanageable at home that are entrusted to or forced upon an asylum. The example of the French, who more than 50 years ago had a division in the Bicêtre for mentally disturbed children, has seldom or not at all been imitated. Thus it happens that though not even a minority of the cases of idiocy become known, its statistics is more readily obtained than that of dementia of early life. Some of its physical causes or accompaniments have been mentioned—asphyxia with its consequences, ossification and asymmetrical shape of the cranium, accidents during infancy and childhood, neuroses that may be the beginning or proximate causes of graver trouble. Infectious diseases play an important part in the etiology of intellectual disorders. Althaus collected 400 such cases. They were mainly, influenza 113, rheumatism 96, typhoid fever 87, pneumonia 43, variola 41, cholera 19, scarlatina 16, erysipelas 11. In most of the cases there were predisposing elements, such as heredity and previous diseases, or over-exertion of long duration. The overworked brains of school children were complained of as adjuvant causes of lunacy by Peter Frank as early as 1804. We are as badly off, or worse, a hundred years later.

There is one ailment, however, that appears to hurt children less than it does adolescents or adults, that is masturbation. There are those cases, fortunately few, which depend on cerebral disease, and original degeneracy, but in the large majority of instances masturbation, frequent though it be, has not in the very young the same perils that are attended with it later on when the differentiation of sex has been completed and is recognized. Babies under a year, and children under 8 or ten will outlive their unfortunate habit, and do not appear to suffer much from its influence. Whatever is said to the contrary is the exaggeration of such as like to revel in horrors. The same exorbitant imagination is exhibited in other statements. What Lombroso and his followers have said of the faulty arrangement of the teeth, prognathic skulls, retracted nose, short and attached lobes of the auricle, as distinct symptoms of mental degeneracy, belongs to that class, and need not always be taken as the positive signs of insane criminality. There is so much poetical exaggeration and word painting in them that Lombroso and also Krafft-Ebing are the pets of the prurient lay public. In its midst there must be many who are anxious to believe with Lombroso that brown hair and eyes, brachycephalic heads, and medium size of the body characterizes the insane criminal, if only for the purpose of scanning the hair and eyes and heads of their near friends and their mother-in-law's relatives.

It is certainly not true that, as Lombroso will have it, children are cruel, lazy, lying, thievish, just as little as according to him all savages are like carnivorous animals, and essentially criminal, while others are convinced that by nature they are amiable, like Uncas, and virtuous like Chingacook, and have been rendered savage only by the strenuousness of conquering immigrants. Nor is it true that the idiot brain is merely arrested at a stage similar to anthropoid, or even saurian development, for it is less arrest of development than the influence of embryonal or fœtal disease, beside amniotic anomalies that cause the irregularities of the encephalon.

Amongst the worst causes of idiocy is cretinism, both the endemic, and the sporadic. Every cretin is an idiot, not vice versa. The first could be prevented by State interference which would empty the stricken valleys; the latter depends on thyroidism, with or without a shortening of the base of the skull, and is partially curable. The idiotism of cretinism causes a fairly uniform set of symptoms; that which depends on other causes exhibits varieties, though not so many as imbecility, which, too, should not be taken to be the result of a single cause. Osseous and cartilaginous anomalies about the nose are pointed out by William Hill, chronic pharyngitis and nasal polypi by Heller, enlarged tonsils by Kafemann in one-third of the cases, some pharyngeal or nasal anomaly in four-fifths by Schmid-Monnard. Adenoids are frequently found as complications. Operations to meet all these anomalies have been performed with improvement of the mental condition in some, of the physical in many more, mainly when the anomalies were complications only. But after all we should beware of the belief in miracles and in infallible cures. Mainly the tonsils have been puffed up to be the main causes of many human troubles and their removal a panacea. According to a modern writer it prevents tuberculosis, but the prophet is a little too bold, for he adds that with the exception of himself there are very few able to accomplish it. Defective or diseased brains are frequent in most conditions. The former class allows even imbeciles to excel in some ways. In that class may be found calculating experts, chess-players, or mechanical draughtsmen.

Imbecile persons may be taught sufficiently to prepare for the simple duties of life. There are however many transitions between the complete imbecile, the mild imbecile, and the merely slow and dull. That is why the condition is frequently not appreciated. In his school the imbecile child is slightly or considerably behind his class, and the laughing-stock of the rest. As he is intellectually slow, so he is morally perverse or is made to become so. He knows enough to lie and libel, to run away from school, and from truant to become a vagrant. It is true it will not do to declare the imbecile *per se* identical with the typical criminal, but as many of them are illegitimate, or of defective or alcoholic parents, or maltreated at home, or diseased and deformed, they get by necessity, into conflict with order and the law. Thompson found 218 congenital imbeciles among 943 penitentiary inmates. Knecht, 41 amongst 1,214. When the imbecile is once a prisoner his condition is not liable to be noticed on account of the stupefying monotony of his existence.

What is more to be pitied, the fate of the immature or imbecile half-grown child that naturally acts differently from the normal, or the low condition of the State which instead of procuring separate schools for the half-witted, or asylums, has nothing to offer but contumely and prison walls, and increasing moral deterioration? There is the stone instead of the bread of the gospel.

Modern society has commenced, however, to mend old injustices. Every civilized country admits irresponsibility before the law below a certain age, and gradually the mental condition of the criminal is taken into consideration and made the subject of study. But still thousands of children and adolescents are declared criminal before being matured. The establishment of children's courts is one of the things, imperfect though they be, that make us see the promised land from afar. When crime will be considered an anomaly, either congenital or acquired in childhood, a disease; when society will cease to insist upon committing a brutality to avenge a brutality; when self-protection will take the place of revenge, and asylums that of State prisons—then we shall be a human, because humane, society.

CONCLUSIONS.

Pedology is the science of the young. The young are the future makers and owners of the world. Their physical, intellectual and moral condition will decide whether the globe will be more Cossack or more Republican, more criminal or more righteous. For their education and training and capabilities, the physician, mainly the pediatrist, as the representative of medical science and art, should become responsible. Medicine is concerned with the new individual before he is born, while he is being born, and after. Heredity and the health of the pregnant mother are the physician's concern. The regulation of labor laws, factory legislation, and the prohibition of marriages of epileptics, syphilitics, and criminals are some of his preventive measures to secure a promising progeny. To him belongs the watchful care of the production and distribution of foods. He has to guard the school period from sanitary and educational points of view, for heart and muscle and brain are of equal value. It is in infancy and childhood, before the dangerous period of puberty sets in, that the character is formed, altruism inculcated, or criminality fostered. If there be in the commonwealth any man or any class of men with great possibilities and responsibilities it is the physician. It is not enough, however, to work at the individual bedside and in a hospital. In the near or dim future, the pediatrist, the physician, is to set in and control school boards, health departments, and legislatures. He is the legitimate adviser to the judge and the jury, and a seat for the physician in the councils of the republic is what the people have a right to demand. Before all that can be accomplished, however, let the individual physician not forget what he owes to the community now. Mainly to the young men amongst us I should say, do not forget your obligations as citizens. When we are told by Lombroso that there is no room in politics for an honest man, I tell you it is time for the physician to participate in politics, never to miss any of his public duties, and thereby make it what sometimes it is reputed not to be in modern life—honorable. A life spent in the service of mankind, be our sphere large or narrow, is well spent. And never stop working. Great results demand great exertions, possibly sacrifices. After all, when everything in science and politics that now is our ideal will be accomplished while we live or after we shall be gone, we shall still leave to our progeny new problems.

DANGERS IN THE USE OF THE GLASS CATHETER DURING PARTURITION.

BY

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On July 31, 1904, Dr. M. called at my office, bringing with him the large section of a glass female catheter, shown in the accompanying cut. He stated that on that day, during the delivery of a primipara, aged 21, he discovered the bladder full of urine after the patient had been in the first stage of labor for eight hours; and, as was his custom, he catheterized the patient with an ordinary sterilized glass catheter. The child's head was in the superior strait, and had to be pushed up before the catheter could be introduced. During the catheterization a labor pain came on, with the result that the catheter was caught between the descending head and the symphysis pubis and almost half its length was left in the bladder.

The labor proceeded normally except for a slight perineal tear, for which four catgut sutures were inserted. Dr. M. informed the husband of what had happened, and advised him to say nothing about the occurrence to the patient.

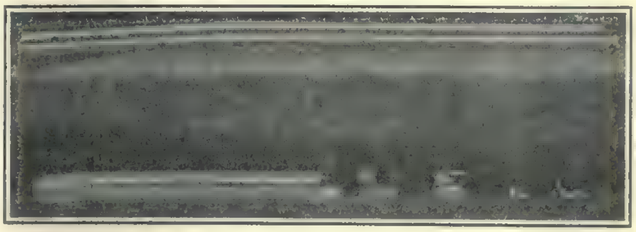
Knowing the discomfort it would cause the patient to be disturbed by cystoscopic manipulations immediately after labor, and in view of the dangers of infection attending such manipulation, we decided to defer a search for the missing portion of the catheter until the patient should be convalescent.

I appreciated that such a delay would almost certainly mean a traumatic cystitis from the presence of the foreign body, but my experience with such cases has demonstrated that they usually respond readily to treatment.

The patient was not told of the foreign body in her bladder, and she had no bladder symptoms until the morning of the tenth day, when some frequency of micturition was noticed. She had convalesced rapidly, and we therefore decided to examine her with the cystoscope that day.

She was lifted from the bed to a padded table and placed in the Sims' position. The room was darkened, and we used a kerosene lamp and head mirror for illumination. All but one of the perineal sutures had been absorbed, and this one was removed. The vulva was carefully sponged with cotton pledgets soaked in a solution of boracic acid, and the vaginal vault was mopped out with dry cotton pledgets to prevent aspiration of the vaginal contents into the uterine cavity. Using a small pipet, the entire urethra was bathed with a 10% cocain solution, and the tissues being edematous and soft, I had no trouble to introduce a No. 10 Kelly speculum without causing pain. I easily discovered, and with the alligator forceps withdrew the largest of the five pieces of glass shown in the cut. Because of the curve in this piece of catheter I was obliged to withdraw the speculum, together with the catheter, as soon as they were engaged. On reintroducing the speculum I failed to see any more glass, but could see that the vertex of the bladder was not fully ballooned with the patient in the Sims' position. I therefore aspirated what urine had collected in the fundus vesicæ, and then had Dr. M. and the nurse support the patient in the knee-breast posture. With the full dilation of the bladder thus obtained, it took but a few moments to discover and remove the four small pieces of glass shown in the illustration.

The urine catheterized before cystoscopy was turbid and showed every evidence of cystitis, and cystoscopy revealed a decided hyperemia of the bladder. A bacteriologic study of the urine was not made. The patient was given cystogen three times a day, and copious draughts of water. She did not complain further of cystitis symptoms, and some weeks later Dr. M. reported the urine as normal.



Comment on such a case seems superfluous. Dr. M. told me that for years he had always used a metal catheter during labor, and had only recently replaced it with the glass catheter because it was so difficult to keep his metal catheter from corroding and appearing objectionable. I am sure that the use of the glass catheter is not confined alone to the general practitioner, for I have seen it used repeatedly by nurses and physicians in some of our best institutions.

Theoretically there would be some danger of perforation in having a metal catheter caught between the oncoming head and the symphysis during a severe labor. Although the manipulation of a soft rubber catheter in an aseptic manner is a more difficult procedure, it undoubtedly offers the only secure method of avoiding traumatic injury in catheterization during the first and second stages of labor.

TAINE'S ILL-HEALTH.

BY

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of Philadelphia.

His teacher, Vacherot, said of Taine at the age of 22, that he was the hardest worker and the most remarkable student he had ever known at the École Normale; that he was prodigiously learned for his age; that he had an ardor and an avidity for knowledge such as his teacher had never before known. Those who have read Taine's works must have been struck by his marvelous power of absorbing and digesting knowledge, and his ability —he was philosopher, historian, and critic, all in one—to present the systematized results of his erudition with a thoroughness, sympathy, succinctness, and brilliancy rarely, if ever, equaled. Few, however, are aware of the difficulties this great litterateur encountered in carrying out his scholarly ideals, his poverty, the opposition of the church and of those envious of his remarkable talents and industry, and particularly the ill-health, which like a vindictive fate pursued him so relentlessly. Even those who may have learned something of these things have probably not an adequate conception of the exact nature and origin of the man's sufferings and of how they prevented the realization of his aims in literature, which, without the crippled executive ability, would have resulted in wonders.

Taine was born in 1828, and at the age of 11 "he had devoured everything in the way of books that came into his hands, especially the classic authors of the seventeenth and eighteenth centuries." This precocious ripening of his mind and enormous amount of reading seems not to have produced serious evil results to his health during adolescence. He was "somewhat fragile" at 12, and needed to pick up health and strength at 20. At 21 his troubles began. The following excerpts from his letters and from his biographer's notes are sufficiently self-explanatory and illuminative of the nature of his disorder, so that they may be given without the interruptions of annotations:

> It often happens to me to fall into a state of languid depression, during which I spend hours on my bed or in an armchair, in that sort of mental prostration so dreary and oppressive, which you know. (21.)
>
> I have a bad headache at this moment, and am incapable of serious thought—I am even going to take a few days' rest. (21.)
>
> Cholera, or a sort of mild imitation of it, seized hold of me, and laid me low those few days. (21.)
>
> When my head aches with work (study). (23.)
>
> If my head aches. (23.)
>
> Hegel makes my head ache. (23.)
>
> Studies so fatiguing that I feel I never really appreciated rest before. (23.)
>
> I am in the dumps. It happens to me when my head aches, and I have no resource but to laugh at myself and others. (23.)
>
> Sometimes I have headaches, moments of weakness, when my solitude palls upon me. (23.)
>
> Struggling in the most marshy depths of the bog of melancholy. (24.)
>
> This last resource—writing—is failing. I am not well, and in such depressed spirits that I find it impossible to string two ideas together. My last refuge against myself has failed. (24.)
>
> There are days when I am so sick of myself that I should like to throw myself away. (24.)
>
> My aching brain prevents me from finding a relief in work. (24.)
>
> The country is an opiate for troubled brains. (24.)
>
> When my head aches. (25.)
>
> This horrid scribbling dazzles me, and my head seems full of pages, letters, lines, corrections, etc. (25.)
>
> Bored when my head aches. (25.)
>
> The immoderate labor of those years began to exhaust his powers. In October he was seized with a granular laryngitis, from which he suffered for several years. (Biography 25.)
>
> The bad state of his health lasted during the winter. His physician advised spending his vacation at St. Sauveur. (Biography 26.)
>
> He was obliged to limit his work hours and lectures. (Biography 27.)
>
> For a month I have not spoken six sentences aloud. (25.)
>
> The cure of the throat is slow. (26.)
>
> Impossible to study with the least appreciation; immediate head symptoms. My winter is being lost. May the beautiful, lovely spring be medicine for me. (26.)
>
> I am doing everything to be cured, without much success. (26.)
>
> My throat does not better. I shall probably be compelled to go to some watering place and pass the winter in the South. (26.)
>
> The worst is that my head is so bad that I am unable to apply myself for an hour, beside having an increase of feverishness.—
>
> If I had not this fever and a head so ailing. (26.)
>
> My throat is better, the homeopath prescribing phosphorus, which perhaps will cure me. (26.)
>
> I am an old man, used up, tired of everything, hopeless. (26.)
>
> Sick today. (26.)
>
> When I do not have headache I write. (26.)
>
> To what watering place I do not know, the physician will decide. (26.)
>
> I have left the homeopath, who was tiresome. The good I thought he was doing to me was really the summer season and the company of my mother. Many physicians are sceptics in medicine. Some believe only in quinin and surgery. (26.)
>
> Worse for several days. I leave in July. (26.)
>
> The necessity of doing nothing, six weeks of it under a burning sun, without distraction, except to drink rotten-egg water, etc. (26.)
>
> A poor machine out of repair. (26.)
>
> The waters of Eaux-Bonnes are as valueless as those of Saint-Sauveur. (26.)
>
> Not cured, not curable. (26.)
>
> Since I have been ill I think everybody is ill, or should be. (26.)
>
> If I may believe the medical men, a race little to be trusted, I shall be better in a month, the waters acting only at a distance. (26.)
>
> When I do not have headache. (26.)
>
> . . . more frequently it creates headache; I stick in my room, badly cured, working seldom. (26.)
>
> I continue extracting descriptions from my sick head. (26.)
>
> I am no better. Take care of your health; if it goes you can't tell when it will come back again. (26.)
>
> Three months in the Pyrenees in complete idleness, trying to cure my sick head and throat. (29.)
>
> Try never to be sick. (26.)
>
> He returned from his trip to the Springs suffering severely. Lecturing tired his voice. (Biography 27.)
>
> I was sick and could not visit you. Neuralgias, congestions, huge nails in the nerves of my neck—for a month utterly crippled. (27.)
>
> I am studying the influence of the body upon the mind, and I ask myself what is the use of sensory nerves scattered so abundantly in our physical machine, unless to make us suffer uselessly, for the glory of God. (27.)
>
> The Eaux-Bonnes waters left me *statu quo.* I failed in faith, in that as in other things, and am punished. (27.)
>
> I have swallowed a cargo of books. (27.)
>
> What woes of the eyes and of the head? How many hours of mechanical reading? I am only a machine disgusted with itself. (27.)
>
> If Eaux-Bonnes cured his laryngitis (*sic*) he had to pay dearly the ransom for his excess of work . . . He was halted by a crisis of cerebral fatigue and nervous depression lasting for two years. He had to suspend entirely his work in philosophy, and was able to resume it only ten years later. He had also to renounce literary work in part; he wrote less and less frequently, condemned to long months of complete inaction during which he was unable to read much. (Biography 27.)
>
> For long hours, lying in his room, the eyes closed to avoid the light of day, which wounded his suffering head, he was read to by a little secretary helper. (Biography, 27.)
>
> At times, in order to get sleep which had disappeared, he undertook fatiguing exercise, splitting wood, etc. (Biography, 27.)
>
> After a year of this rusting he was able for a few months to work (study) for two or three hours a day. (Biography, 27.)
>
> Finding himself again suffering, he undertook voyages for the sake of diversion and to revive his intellect. But the threatening crisis was not conjured away by these journeys. He became more ill than before, and 1859 was the year the most saddening and sterile of his life. He believed seriously that his intellectual powers were entirely broken. He tried to take up his work, but the pen or the book soon slipped from his hands, and he fell back into his old cruel inactivity. Only at the end of the year with infinite devices did he begin to write. He has had since then frequent periods of forced leisure, but never one so persistent and intense. (Biographer 31.)
>
> Sick for four months, unable to write and even to read, having a cap of lead on my head and frequent neuralgias. Nothing did any good, neither hydrotherapy, iron pills, or dieting. My physicians tell me to have patience and to keep still. I have renounced all work. (28.)
>
> Pardon me that I write so little; I am no longer a man, only an inferior sort of mollusc, and I feel my head no more except to suffer with it. (28.)
>
> A sick man who plants cabbages and walks five miles a day. (28.)
>
> Against orders I have lately made use of my poor head. (28.)
>
> Far from cured. I work two or three hours a day, in the morning, with the greatest precautions; the rest of the time I rub myself with cold water, sleep, digest, etc.—I go to bed at 9. This is why I do not write. (30.)
>
> One has to adapt one's self to his readers, if he would have his book sell at the newsstands. (30.)
>
> I accustom myself to live even though suffering. I am becoming patient. I bend my back. I am 30. I am going into the country to better my health. (30.)
>
> My voyage is delightful. Flanders has beautiful landscapes, and it encourages ideas. (30.)
>
> Especially I, who have bad eyes, and have abused them. (30.)
>
> I am suffering very much, always from my head. I read or write scarcely two hours in the morning, and the rest of the day I am idle and kill time sadly. (30.)
>
> Not cured, although it was the chief object. I am forced to pass my life in walking the streets—what can one learn when he has to go to bed at 9 o'clock? (30.)
>
> I am entirely down, commanded neither to write nor read. (31.)
>
> A little better, not much, I read one hour a day. (31.)
>
> I wander sadly through the woods. I am a steam engine without fire, rusting, and rotting. (31.)
>
> He did not dare to undertake his great work in his state of weariness. (Biography, 32.)
>
> He had entirely given up private teaching, but he knew how study, pushed to an extreme, exhausted his forces. (Biography 32.)
>
> Appointed examiner. It had the advantage of demanding only three months work a year, and compelled him to stop his studies during the summer, which had been an affliction to him. (Biography 32.)
>
> I have headache. It is my vicious habit. (33.)

My excuse for not writing for three months is my headache; it is only half well now; I have done nothing for several weeks and even now I work at the most only three hours a day, so that I am cross when it comes to writing even to my excellent friend. (33.)

Head as usual. I have reading done aloud to me; go to bed at 9, walk the quays. (33.)

Keep your health, it is the substratum of the essence of substance. (33.)

The literary life here, the necessity of earning one's bread by black lines drawn out of the head is too hard. (34.)

Shall I be able to work? For a month I have not written a line; I had too great headache. I should have had to erase it all. I do not know when I can recommence my book, and the undesired inaction and empty revery ends in eating away my life. (34.)

I tried to occupy my forced leisure. I made notes in London, went up the Thames, to the Derby, to balls, to the slums, to the docks, to country houses. I copied, at the British Museum, an English Medieval author, etc. (34.)

On my return to England I had to blot out a month, and that made two which were lost. (34.)

I have exhausted my brain; I am obliged to stop and remain idle several times a year, sometimes for three or four months; I have remained for two whole years incapable of writing, and even of reading. Writing requires a tremendous effort on my part, and after two or three hours, sometimes one hour only, I am obliged to leave off, having become quite unable to string two ideas together. My manner of writing must be contrary to nature, since it is so laborious. Several people, friends, have told me that it is strained, wearisome, and difficult to read. (34.)

I have much more difficulty in writing, to order facts or ideas, than formerly. A school-boy's task is an enormous weight which I lift only with effort. (34.)

. . . constant efforts and very little result. If I succeed in reaching the necessary state of mind, it only lasts an hour or half an hour, and it kills me. It is probable that I have tried to unite two irreconcilable faculties; one must choose and be either an artist or an orator.

I think I have found the root of my complaint, for my fundamental idea has been that the particular passion or emotion of the man who is described should be reproduced, and all the degrees of logical generation stated. In fact, that a character should be painted after the manner of artists and constructed at the same time after the manner of reasoners. It is a true idea productive of powerful results when it can be applied, but it is unhinging to the brain and we have no right to destroy ourselves. (34.)

If all this is correct, I must change my style, which is a serious undertaking. A rest, and an extensive one, is first necessary, then a search among my remaining faculties, such as I may put to use. I shall finish my "History of English Literature" in accordance with the former method. . . . But after this work is finished I must change. But what is left of me? What ability? (34.)

During his long periods of forced idleness and suffering he had dreamed, etc. (Biography 34.)

He set out for Naples and a softer climate. (Biography 36.)

There is so much emptiness, physical lassitude, and spleen, etc. (36.)

I shall return next month and study—study is the proper word; I have already bought some books, but I have too bad eyes, and also a hurrying imagination, which spoils everything in advance. I admit that I have found things in the engravings more beautiful than the reality itself. (36.)

It was well to go. I had to shake myself up, I was becoming sick. (34.)

My pleasure was not great as I was too used up. Yesterday curled up in bed or in my chair, and all this morning. (34.)

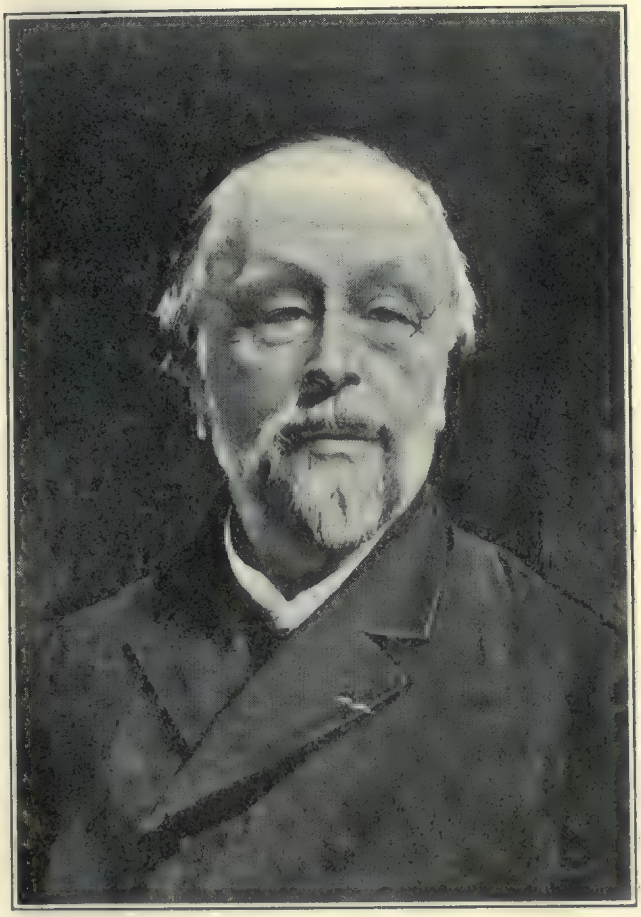
It was even an effort to write a letter. My eyes are painful, attention is immediately exhausted, anxiety supervenes, and with that, spleen. (34.)

I am 36 years old. My life which is in the past is the healthy and strong part. The second part now commencing will soon be a descent; but through work I may make something of it. (36.)

Sightseeing for four or five hours (at Padua) produces not only pain in the neck, back, etc., but attention is also exhausted; I am incapable of a single idea, and I have to close my eyes while I sit. (36.)

Your poor Marcelain (himself) is exhausted; he works to excess, has a suffering head, is too sleepless. I am much troubled that he is using up his forces. His mother (he is writing to her) is much tormented. His affairs otherwise go well—subscribers, announcements, esteem, success, are here. Let us hope that, like Woepke, he will not fall on arriving. The day is filled with public duties, and it is only toward midnight, on the return home, that he becomes an artist. He can then not resist the need of noting down his ideas and systematizing them. And the waking causes so much suffering! (36.)

If the intelligent reader has looked over the foregoing excerpts attentively, the cause of this life tragedy and the harm done to literature, will be plain. Especially if the similar histories gathered in the two volumes "Biographic Clinics," are known. The case histories of all patients with the same morbidity-producing cause at work seem to a careless eye to differ from each other in marked degrees. To the physician's discrimination, however, the differences are either in the external circumstances of the patient, or in his peculiar or individual differences of inheritance, resisting powers, tasks, etc. In the case of the reflexes of eyestrain the clinical histories are likely to vary astonishingly according to the organs that bear the brunt of the derouted nerve discharges. This is a fact now familiar to modern oculists. But even in the most aberrant types there are certain facts and phases common to all: The suffering, of whatever kind, is directly consequent upon the use of the eyes; it increases in intensity with the lessening of the accommodative power; the sole method of stopping the suffering is by nonuse of the eyes; the depressing effect upon the mind and feelings is always present; the disease being functional, and not organic, the essential health and vitality are not at first, nor for a long time, and usually never, irremediably affected. After the crisis the mental and physical energies suddenly return with astonishing promptness and energy.[1]



In the 15 biographic clinical cases I have studied, these and a number of other characteristics, such as insomnia, depression, limited power of working, etc., usually present, have been found, and the notes from Taine show them also present in his life.

When an otherwise healthy young person has headache upon near use of the eyes, every physician nowadays knows what is the cause of it. When melancholy, physical and mental weariness, inability to use the eyes, insomnia, etc., become marked, when an excessive amount of reading and writing makes old symptoms more intense and produces others, there is no doubt as to what a scientific correction of the existing ametropia will do. No patient of the 16 studied saw this simple relation of effect and cause, nor did any of their physicians. Each and all traced it to the peculiar character of the intellectual work done, or to the excessive amount of it. The popular newspaper nonsense about "brain fag," shows the old error much alive among us now, although the simplest observation would make it manifest that where there is one who has "brain exhaustion" from overwork, there are a hundred who have no such symptoms from an equal or a greater amount of intellectual labor. This brilliant genius was a cynic in philosophy, but in real life pitiful and charitable, a determinist in scientific ethics, but at the end he confessed, as applied to the French Revolution, that such a creed could not explain. How much his unnecessary suffering molded his character would be impossible to decide, but it is certain that it hardened it to an appreciable degree.

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[1] His letters often speak of being in "good health" during the very weeks when he was temporarily suffering from migraine—a wellknown clinical fact.

Taine was forced to go through the hydropathy and water cures, the dieting, etc., just as all the other migraine sufferers of the last century did—those who were financially able to do so. The vast majority had not the money for such vagaries. Taine was one; he was so poor that he had to undertake guidebook compilation, and all sorts of pedagogic and literary potboiling tasks in order to carry out the cult of these superstitions. Travel, open-air walking, "change of scene," etc., gave the others some relief, at least temporarily, except those who, like Taine, were doomed by an insatiable hunger and a driving necessity to carry books with them or find great numbers of them wherever they went. When the eyes were really rested there was the inevitable relief.

Taine's "granular laryngitis," "cured by the waters at a distance," shows the possible reflex of eyestrain to the upper air passages, a fact noted by observant oculists. When it was cured his head symptoms grew worse.

The dip into homeopathy is not so amusing as that of the Carlyles, but shows the clear-headedness of Taine, who had a not inconsiderable medical education.

My notes stop at the age of 36, with the two columns of the *Life and Correspondence* that have been issued. He lived for 28 years after this till 1893, and died at 64. It is comparatively useless to continue the study for the rest of the life, even if the remaining volumes had been published. Either the patient got some glasses several years before he died, which in some measure lessened his evident eyestrain, or his sufferings continued, probably increased, until the end of the presbyopic period, or until his myopia lessened the usual reflexes of this time of life. That he was myopic even in middle manhood is plain from some of the sentences quoted. It is the old story repeated—the production or increase of myopia by uncorrected ametropia. That he was also astigmatic and anisometropic is beyond question from the fact of his most severe reflexes caused by use of his eyes, both to the eyes themselves, and to the brain. Only Professor Möbius of Germany still believes that there is no eyestrain, nor any migraine due to it, in myopia—by which term he means, what is unknown to him, compound myopic astigmatism. All of these inferences would be sufficiently clear without the demonstration given by a late photograph of M. Taine, which I reproduce. This picture shows that toward the end of life there was paretic, almost paralytic, ptosis or drooping of the lids, a somewhat frequent result of long-continued eyestrain. In the right it is greater than in the left, showing the longer and more severe, but at last ineffectual, effort to keep the right eye in function. The entire expression of the eyes and neighboring structures speaks plainly of the struggle. "His eyes showed a cast behind their spectacles," says one who knew him in later life. The date at which the right eye gave up the attempt at binocular vision is not suggested in the life and letters. In the picture it is plainly strabismic, or turned in. Its exclusion from use marked the end of long and painful period of effort, which, while it lasted, produced great suffering, and when completed would probably bring a decided, possibly an entire, measure of relief. How easy it is at present to prevent in modern patients the entire list of evils which is evident in the case of Taine! And yet there are still many thousands in the civilized world enduring them as he did only 30 or 40 years ago!

A TYPICAL CASE OF "CHRONIC DYSPEPSIA" (SURGICAL ULCER OF THE STOMACH AND DUODENUM): OPERATION, RECOVERY.[1]

BY

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of Cincinnati, Ohio.

The following case is selected for record because it is typical of a large number that insist upon medicinal and dietetic treatment and realize little or, at best, only temporary benefit from it. They are patients that are generally variously treated, as was this patient during a period of 13 years, for "chronic dyspepsia," "gastralgia," "painful digestion," "cardialgia," "dilated stomach," and "gallstones." They, however, fail to get well or to realize expected relief, and so become thorns in the flesh of their medical attendant until further complications end their career, or until he places them in the surgical category where they belong. And it must be conceded that such a temporizing course with medicines and foods is too frequently warranted by the more or less vague teachings of many textbooks on practice, which fail properly to interpret the organic and, consequently, surgical conditions underlying the symptomatology embraced in histories such as the ensuing:

Mrs. S., aged 30, was referred to me October 10, 1904, by her physician, Dr. Fred. A. Grossman, of Cleves, Ohio.

Previous History.—Thirteen years ago she had "dyspepsia," characterized by a ravenous appetite, acidity of the stomach, regurgitation of food and occasional water brash. The pain accompanying these conditions was at times intense, of a hot, burning character and usually came about two hours after meals. She was treated with alkalies and digestants, with but little relief. A few years later the pain became heavy and boring in character, and would ordinarily continue until she again took either sodium bicarbonate or some food. She became so tender over the stomach that she was "too short in front," "could not stand straight," nor could she tolerate either the weight of her clothing or the pressure of her corset. Five years ago she was given the rest cure and the milk diet, but with an aggravation rather than an amelioration of symptoms. Her hunger increased, but she was afraid to eat, because of the pain that remorselessly followed a couple of hours later. She then tried the various patent foods, but without satisfactory results. She then placed herself in the hands of first one and then another gastrologist in Chicago, who used and taught her to use the stomach-tube. This brought her relief, and she thought at times that she was cured, only, however, to have a recurrence more severe than before. She was constipated; her urine was high colored and irritating, for which she was given laxatives and diuretics until her stomach rebelled. She had attacks of nausea associated with vomiting, but there was no history of blood in the matter thus rejected. She suffered with distention of the stomach, which at times interfered with her breathing and gave her irregularity of the heart, and an almost constant pain that was experienced chiefly at the fundus of the stomach. At this juncture she consulted Dr. Grossman, who advised an exploratory incision.

Examination.—Patient looked like a fat anemic, although her weight, 130, is 26 pounds under normal. The abdominal wall was tense over the stomach, the resonance of which occupied the whole triangular area between the umbilicus and the ensiform, but disappeared on the introduction of the stomach tube. No tumefaction could be felt. Inflation of the stomach by air pumped into it redeveloped the distention. Analysis following a test-breakfast revealed marked hyperchlorhydria. The blood showed a leukocytosis of 11,000, with only 65% of hemoglobin.

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[1] Read before the Union District Medical Society, Eaton, Ohio, October 27, 1904.

Diagnosis.—The previous history of the case alone justified the presumptive diagnosis of surgical ulcer. This was confirmed by the physical signs presented, the distention of the stomach and the residual food in it, indicating partial occlusion of the pyloric orifice. The time of the worst pain—about two hours after meals—indicated ulceration of the duodenum. An opinion was given to this effect, and an exploratory incision advised.

Operation at the Good Samaritan Annex, Clifton, October 14, in the presence of Drs. Grossman and McGrath. A large ulcer was found near the pyloric orifice, which was contracted to less than a third of its normal caliber. There were several mottled areas, indicating underlying ulcers in the upper two inches of the duodenum, between which and the pancreas there were extensive and firm adhesions. An opening was made in the meson of the transverse colon, through which a loop of the duodenum was brought up and anastamosed to the posterior wall of the stomach; a supplementary duodenoduodenostomy was made three inches below the union to the stomach; the bile current was cut off from the stomach by plicating the proximal segment of the duodenum between the two artificial openings; complete occlusion of the pylorus was also effected by plication; the abdomen was closed and the patient put to bed in excellent condition.

After-course.—The patient vomited a little bloody mucus a few hours after being put to bed. She slept seven and a half hours the first night, and longer each subsequent night without having taken a single dose of morphin or other anodyme during her entire convalescence. Her pulse never went above 86, while her temperature, generally normal, touched 100° F. only twice. The bowels moved spontaneously in 38 hours, the first time that they had moved without a laxative for over a year. On the second day she took beer with a relish and retained it with comfort, although it had made her vomit whenever she had taken it before the operation. In addition to beer, she took broths and water during the first six days, after which she was given light diet. She was permitted to occupy any position in bed that she found the most comfortable, generally choosing the semirecumbent until the tenth day, when the abdominal wound having healed by first intention, she was permitted to get up.

Remarks.—The conditions revealed in the case were such as are found with but slight variation in all patients giving a similarly classic history. They are all chronics, and ordinarily as distressing to their physicians as to themselves. The actual condition—gastric ulcer—with which they are afflicted, has been found in from 2.7% to 13% of autopsies in long series. That many of them if left alone develop into cancer, seems to be established by the observations of Audisten. London hospital records show that of those not operated upon, 60% died or were not cured, while no record is given of the remainder. The only rational principles of treatment are rest and drainage. The only way absolute rest can be given to an ulcerated pylorus is to close it, while the only way drainage can be effected is to divert the food current. The operation exemplified in the preceding case has a mortality varying from 3% to 7.5% at the hands of the most skilled operators, and in all classes of subjects. The deathrate is, naturally enough, higher in old, complicated cases, in patients with run-down constitutions, while it is practically nil in patients yet in fair general health. The postoperative period is almost painless, while the subsequent history of these cases is almost invariably that of a normal appetite, painless digestion, rapid increase in weight and prompt return to the ordinary activities of life. As Max Einhorn, the leading American gastrologist, says: "They all feel as if 'newborn.'"

ACUTE PANCREATITIS WITH DISSEMINATED FAT NECROSIS: A REPORT OF TWO CASES.[1]

BY

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of Philadelphia.

CASE I.—*Clinical Report:* J. M., white, aged 57, widower, carpenter. The family history is good. The patient's previous history includes some vague information concerning "heart disease" for a number of years, but this had never given him serious trouble. He occasionally had attacks of indigestion with belching, but never vomited, and so far as is known was never jaundiced. He was a quiet man, of regular habits, and partook very sparingly of alcoholic beverages.

For two days he had had some slight abdominal pain, but on the third day felt well enough to eat a large dinner of beefsteak, potatoes and strawberries. Three hours afterward, while at work, he was suddenly taken with violent pains in the abdomen and quickly became collapsed. A physician was hurriedly sent for, and administered aromatic spirits of ammonia, which he immediately vomited. Three hours later he was seen by his family physician, who found the patient rational, but pale, prostrated and evidently in the greatest pain. Paroxysms of pain, lasting but a few minutes, occurred frequently, and were referred to the epigastric and left hypochondriac regions. The bowels usually moved regularly every day, and the patient stated that he had had a movement the night before, though the stool was small and hard. There was great thirst. The temperature was normal. The pulse was 78 and regular. Attempts to palpate the abdomen caused excruciating pain. An enema was ordered at this time, 6 p.m., and was given without result. At 9 p.m. the patient vomited again, and a second enema was given with a negative result. The patient then received 8 mg. (⅛ gr.) of morphin and rested fairly well during the night, though the next morning he said he felt no better. Five enemas were given during the day without effect, and vomiting began to occur frequently. The abdomen was distended, tympanitic, and very sensitive, and with the tentative diagnosis of bowel obstruction and peritonitis, the patient was sent to the Hahnemann Hospital about 10 o'clock in the evening.

On admission his temperature was 98.2° F., pulse 104, and respirations 36. The urine, examined at once, was found to be amber in color, cloudy, acid, with a specific gravity of 1,028. Albumin and sugar were both present, but quantitative tests were not made. Microscopically, granular casts, pus cells, red blood cells, flat and round epithelial cells and amorphous urates were observed.

An exploratory incision was decided on, and the patient was operated upon about 11 p. m. An incision in the median line of the abdomen revealed a very large amount of subcutaneous and omental fat, though the patient was not at all stout. The omental fat and the appendices epiploicæ were everywhere studded with small areas of fat necrosis. There was a little less than a liter of serosanguineous fluid in the peritoneal cavity. A microscopic examination of the fluid revealed red blood cells and polynuclear leukocytes loaded with fat globules; culture media remained sterile. There was no evidence of bowel obstruction. In the region of the pancreas was a large mass covered with fat. No gallstones could be detected in the bladder or ducts. The wound was packed and the patient returned to the ward. He reacted quickly from the operation, but soon began to vomit, and kept it up at short intervals until his death. Enemas were given after the operation with some result, and the patient had one natural movement. His condition, however, gradually became worse, his temperature fell to 96.8° F., and death occurred 31 hours after the operation. He lived 63 hours after the acute onset of his illness.

Pathologic Report: The *autopsy* was held four hours after death. The body was that of a heavy-built, muscular man. Rigor mortis was marked. There was no jaundice or other external features of interest.

On incision, the large amount of subcutaneous fat was at once noted. Fat necrosis, however, was absent here. The diaphragm was at the second rib on the right side, and at the third on the left. There were no pleural lesions. The right and left lungs weighed 450 gm. and 405 gm. respectively, and showed no morbidities but hypostatic congestion. The pericardial fat was, perhaps, a little abundant, but no areas of fat necrosis were seen anywhere in the thorax. The heart weighed 410 gm., and its left ventricle was 22 mm. in thickness. The heart muscle was of good color and consistency, and there was no gross evidence of fatty or fibrous change, except slight sclerosis just around the coronary orifices. Valvular lesions were absent. The mediastinal lymph-glands showed no special changes.

The peritoneal cavity contained a small amount, (not measured), of bloody, greasy fluid. Exceptionally large in amount was the intraabdominal fat. All parts of it, that of the omentum, mesentery and the appendices epiploicæ, as well as the retroperitoneal fat, were densely studded with small areas of fat necrosis from 1 mm. to 4 mm. in diameter. These areas resembled small circles of white paper showered on the very yellow abdominal fat.

The spleen was small and firm, with a wrinkled capsule. Both kidneys and adrenals showed no gross pathologic changes, but were buried in a large amount of intensely yellow fat, which, like the abdominal fat, was dotted with numerous areas of fat necrosis. The liver was somewhat fatty, and weighed 1,960 gm. The gallbladder was normal in size and appearance, and contained no stones. The bile ducts were also free from calculi. The intestines were adherent about the operation wound, but there was no evidence of bowel obstruction throughout the tract. There was no peritonitis. Meckel's diverticulum, 7 cm. long, was found one meter above the cecum. The stomach showed no gross pathologic changes.

The pancreas was imbedded in a large amount of discolored, necrotic, fatty tissue. On removal of the fat, the organ was found much enlarged, quite firm and weighed .440 gm. Its dimensions were 20 cm. long, 5 cm. wide and 4 cm. thick. On section it was seen to be the seat of a hemorrhagic pancreatitis affecting especially the body, which portion was almost entirely black and red. The head was least affected. The posterior portion was also free in part. The tail showed many hemorrhagic areas. These hemorrhagic portions presented a blackish red mottling, the red color predominating. The apparently unaffected parts, which were indeed small in proportion to the areas, the seat of morbid change, had a rather glazed or coagulated appearance. The interlobular tissue was clearly outlined by white lines which were evidently areas of fat necrosis. The peripancreatic tissue was also the seat of fat necrosis. The larger bloodvessels in connection with the pancreas were not involved. The common bile duct, the duct of Wirsung and the diverticulum of Vater were examined, but no evidence of stone was found. It was noted, however, in sectioning the organ that both the common duct and the duct of Wirsung, where they lie in apposition before uniting, were stained bright green with bile.

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[1] Read before the Philadelphia Medical and Surgical Society, May 22, 1904.

The *microscopic* examination was largely confined to sections from the pancreas. The liver showed parenchymatous degeneration and fatty change. Numerous crystals, presumably of bilirubin, were observed among the liver cells, especially those which had undergone fatty degeneration. The spleen exhibited no marked change; a brownish pigment was abundant. The kidneys had undergone very slight interstitial changes and there was some hyaline degeneration of the glomeruli.

Numerous sections of the pancreas from both hemorrhagic and apparently normal areas were examined. In the nonhemorrhagic areas, there was a slight increase of the interstitial tissue between the individual acini, while interlobular increase was practically absent. In some sections there was no other change. In others, small areas of necrosis were seen; this, in some instances at least, had occurred where the interstitial tissue was relatively abundant and infiltrated with fat. In other words, they were areas of fat necrosis. The islands of Langerhans in the nonhemorrhagic parts of the pancreas were unaffected.

In two sections, a small carcinomatous growth was most unexpectedly discovered. This growth was microscopic in size and occupied but a small field in an ordinary section of the pancreas. It was not in evidence in any of the other sections examined. The pancreatic tissue surrounding it was fairly normal and there seemed to be no tendency to infiltration.

In areas which macroscopically presented the mottled black and red appearance was found extensive necrosis, and only faint traces of the pancreatic structure could be observed. Deposits of coarse, golden brown, amorphous granules were seen everywhere in the necrotic areas. Special aggregations of this matter were about round or oval openings, which, on account of the great destruction of tissue, were difficult to identify. It was thought, however, that the remains of a columnar or cubical cell lining could be seen in several, and for this reason these were believed to be pancreatic ducts. In such areas the granules not only filled the opening but formed a thick zone around it. The pigment was repeatedly tested for iron with potassium ferrocyanid and hydrochloric acid, but failed to give the reaction.

The demarcation between normal and necrotic pancreatic tissue was quite sharp, and a zone of inflammatory reaction consisting of fibrin, erythrocytes, neutrophiles and fragmenting cells, was present, as in cases described by Opie. There was hyaline thrombosis of the small vessels at and just within the necrotic margin.

In various areas of fat necrosis, it was noted that the periphery showed a line of inflammatory reaction in which neutrophiles were prominent. Within this line, in nearly every instance was observed a zone of amorphous, golden-brown granules, similar in appearance to those seen in the pancreas, though much less abundant.

Summary: The patient was taken suddenly and seriously ill, and died within 63 hours of the onset of his acute symptoms, which were referable to the epigastrium. There was glycosuria. An operation for bowel obstruction revealed no such condition, but showed disseminated fat necrosis, indicating some grave pancreatic lesion. The autopsy revealed an extensive hemorrhagic pancreatitis with disseminated fat necrosis. Obstruction of the diverticulum of Vater, the common cause of such a lesion, could not be demonstrated, and no gallstones were found in the gallbladder or ducts. Deposits of pigment, perhaps biliary in nature, were abundant throughout the pancreas. In one portion of the pancreas there was a microscopic carcinoma, probably coincidental and having no etiologic relation to the fatal affection.

CASE II.—*Clinical Report:* M. M., white, aged 49, widow, laundress. There were no features of import in the famly history. The patient had had scarlatina at 9, typhoid fever at 19, and rheumatic fever at 30. Since then she has been in general good health. She gave no history of illness which could be attributed to gallstones. She never had had attacks of indigestion or of vomiting. She used alcohol moderately. Two years ago menstruation ceased. Twenty months ago there occurred a uterine hemorrhage lasting two or three days, and causing considerable weakness. The same thing occurred 10 months ago. Since the first hemorrhage, she has had an excoriating vaginal discharge without odor. There was no loss of weight.

The patient was brought to the Hahnemann Hospital as a medical patient, complaining of distress in the stomach, which began sudddenly one week before and had continued since. She belched frequently, was quite nauseated, and vomited repeatedly a large amount of sour fluid. She spoke of being often nauseated without vomiting. She had suffered with severe pain in the right iliac fossa for a week. Bowel movements were involuntary. Dyspnea and frontal headache were complained of.

It was noted that the patient was well nourished. There was a lipoma in the left infraaxillary region. No murmurs were detected over the heart; it was thought the muscular element was weakened. Bronchial rales were heard over the chest posteriorly. The lips were dry and cracked. There was general tenderness over the abdomen. Vaginal examination revealed an eroded cervix and a small, retroverted, fixed uterus with a hard, firm mass extending outward to the left side of the pelvis. The urine was acid, with a specific gravity of 1,012; albumin was present in small amount; sugar was absent; no casts were found. The temperature was 98°, the pulse 100, and respirations 30.

The patient lived two weeks after her admission to the hospital. During this time she gave no very characteristic symptoms, though several of them were suggestive. She was restless and very hard to handle, continually tossing about the bed and complaining of pains all over the abdomen. The pains were never referred to the epigastrium especially. No tumor could be detected at any time. During the last week vomiting became much more frequent, and finally resembled blood, though the odor was fecal. The bowel movements, five to eight a day, were involuntary. The chart refers to them as being "liquid yellow," "creamy liquid yellow," and "resembling undigested milk." The Widal reaction was negative. Urination was also involuntary. The urine was repeatedly examined and after the first day always showed albumin and hyaline and granular casts. The specific gravity averaged 1,010. The amount averaged 1,500 cc. Sugar was not found at any time. The temperature was normal during the first week; during the second week it rose to 100° F. in the evening.

Pathologic Report: The *autopsy* was held by Dr. Webster six hours after death. The body was that of a well-nourished female of about 50. The hair was brown, the teeth were decayed, and the face gave evidence of dissipation. There was no jaundice. Rigor mortis was fairly well marked.

On incision, the superficial fat was found to be abundant and bright yellow in color. In opening the abdominal cavity the lesser peritoneal cavity was accidentally broken into and discharged about a liter of dirty, grayish-brown fluid without odor and containing no solid particles. The relationship of the rest of the abdominal contents was not markedly disturbed. The diaphragm was at the fourth rib on the right side and at the fifth rib on the left. There was a very large amount of intraabdominal fat. Areas of fat necrosis studded this fat everywhere. The foci were quite large and showed a dark zone extending out from them into the surrounding fat. On incision through these areas it was found that the dark zone represented a small collection of dirty-looking grayish-brown fluid, from 5 cm. to 10 cm., resembling that which came from the lesser peritoneal cavity. Some of the foci of fat necrosis showed only the customary white deposit, but over half of those examined were surrounded by the little zone of fluid.

Both pleura were adherent and both lungs showed slight hypostatic congestion. There was a fibrinous pericarditis with a thin deposit of fibrin and easily broken adhesions. There was no pericardial effusion. The heart showed no abnormalities except three, minute, verrucose vegetations on the mitral leaflets. There was no enlargement of the mediastinal lymphglands. Search was made for areas of fat necrosis in the thoracic cavity and several were found in the subpericardial fat, but not elsewhere. The foci in the pericardium were smaller than those of the abdominal cavity and were not surrounded by the zone of fluid.

The liver exhibited cloudy swelling. There was no biliary staining. The gallbladder was normal in size and contained tar-like greenish bile, and one rough, "mulberry" white stone, 2 cm. in diameter, and without facets. The spleen was normal in size and soft; the follicles were prominent. The stomach showed no special changes.

The pancreas was imbedded in a large amount of necrotic fat. The areas of fat necrosis with surrounding liquefaction were notably in evidence here. The organ itself, however, unexpectedly presented little gross change. It was somewhat decreased in size and quite hard, especially the tail. The pancreatic and bile ducts were carefully examined, but presented no evidence of stone or obstruction from tumor or other causes. The intestines were removed, opened and searched for calculi that might have passed from the ducts, but none was discovered. Neither the small nor large bowel showed gross pathologic changes.

The condition of the kidneys was remarkable. The right kidney was large, soft, congested and weighed 250 gm. It was imbedded in considerable fat, showing areas of fat necrosis. The left kidney was imbedded in an immense amount of fat which seemed to be directly continuous with that surrounding the pancreas. This perinephritic fat contained many large foci of fat necrosis surrounded by the areas of liquefaction before described. The collections of grayish-brown fluid were the largest found in the abdominal fat. It was difficult to find the kidney in all this embedding substance, and, when removed, the double cause of the difficulty was apparent inasmuch as the organ was infantile in size and weighed but 30 gm. It was obviously sclerotic.

Examination of the genitals revealed an inflammatory mass involving the left tube and ovary. There were no glandular enlargements in the abdomen or any evidence of malignancy. There were no marked changes in the bloodvessels.

The *microscopic* examination of the pericardium revealed a fibrinous deposit with the beginning formation of connective tissue. The heart muscle was little changed. The mitral vegetations were stained for bacteria, but the results were negative. The spleen showed no noteworthy changes; pigment was inconspicuous. The right kidney exhibited an acute diffuse nephritis. The small left kidney was in the most advanced stage of sclerosis. Many glomeruli could be seen in one field—as many as 25 with the No. 3 objective and eye-piece of a Leitz microscope. The tufts had undergone hyaline degeneration and sclerosis almost without exception.

Many sections of the pancreas were examined. There was an interstitial pancreatitis of the interacinar type and also an increase of the interlobular tissue, the head of the organ being principally affected. But these chronic types of change altogether were very slight indeed. The islands of Langerhans were well preserved and showed no sclerotic alterations. The cells of the acini were, in general, in good condition. In some sections, however, especially those from the tail of the gland, there were areas of apparent inflammatory reaction. These were included in or in close connection with broad bands of interlobular tissue and consisted of round-cell infiltration and numerous dilated, small bloodvessels. In a few sections the pancreatic acini were surrounded and included in the process and were evidently being replaced by new connective tissue. In others, what had formerly occupied the area now replaced by inflammatory tissue could not be demonstrated. In some places, small offshoots of round cells had made slight invasions into adjacent pancreatic tissue. It must not be thought that these inflammatory areas were numerous in proportion to the amount of pancreatic tissue examined. On the other hand they were comparatively few. They are particularly described because it was thought they might represent foci which had previously been the seat of slight hemorrhage and which were now attempting to heal. This was suggested to me by Dr. Opie as a possible explanation of the serious and fatal attack in which the pancreatic findings at first seemed quite insufficient to account for all the clinical phenomena. If not adequate, it is the only one that can be offered.

The areas of fat necrosis showed a peripheral zone in which lymphoid cells were prominent.

Summary: The patient was sick for about three weeks with symptoms referable to the abdomen in general. There was scarcely any fever. There was repeated vomiting, and the stools were probably fatty. There was no jaundice. The autopsy revealed disseminated fat necrosis (including pericardial foci), and surrounding liquefaction necrosis, an abscess involving the lesser peritoneal cavity, and histologic changes in the pancreas. These changes consisted of a small number of areas of inflammatory reaction, probably representing healing hemorrhagic foci, and slight interstitial change of the chronic type. There was absolutely no evidence of calculus or other obstruction of the pancreatic or biliary ducts, and the one stone found in the gallbladder was without facets.

There are points in these cases that may be made the subject of explanatory or interrogative comment.

The presence of sugar in Case I, a fairly typical case of acute hemorrhagic pancreatitis, is uncommon. In Körte's collection of 41 cases of hemorrhagic pancreatitis, glycosuria was present in but two. Sugar was present in three out of 40 cases of gangrenous pancreatitis collected by the same authority. The explanation of its presence, it is supposed, lies in a destruction of a sufficient number of the islands of Langerhans to cause marked disturbance of the carbohydrate metabolism. The great thirst noted in the same case probably depended on the diabetes.

The presence of the microscopic carcinoma in Case I is another noteworthy feature. Naturally, it was at once thought of as the cause of the hemorrhagic condition, but examination of many more sections discountenances this. The carcinoma is exceedingly small, is seen in but several sections, does not seem to be in near or obstructive relation to the pancreatic ducts, is not in the neighborhood of the diseased areas, and is itself surrounded by fairly normal tissue. It must be taken, then, merely as a coincidence.

In Case II, there is seemingly a marked disproportion between the existing pancreatic lesions and the extensive fat necrosis. The chronic interstitial lesions of the pancreas are quite inadequate, and one must fall back on the areas which apparently represent healing foci previously the seat of small hemorrhages. Probably the infection of certain of these areas near the surface of the pancreas culminated in the extension of the process to the lesser peritoneal cavity with the resultant abscess. It has been stated that in mild cases of pancreatitis recovery may occur spontaneously, and this might have been such an instance were it not for the involvement of the lesser peritoneal cavity. At any rate, the paucity of pancreatic lesions impresses one greatly when taking into account the peritoneal abscess, the extensive fat necrosis, and the fatal effect.

The subpericardial fat necrosis is quite rare. The lesions in Case II were few but unmistakable. The subpleural fat was uninvolved. Chiari, Balser and Bryant have all reported cases of pericardial involvement by the process, but so far as is known, these with the present case are the only ones in medical literature. Chiari's case showed also foci in the subpleural and subcutaneous fat. The little areas of liquefaction necrosis surrounding fully half of the necrotic fat foci indicate a secondary infection. I have not seen such an association of lesions, *i. e.*, the fat and liquefaction necrosis, mentioned in any other descriptions.

Common to both cases was the large amount of intra-abdominal fat. This seemed peculiar in view of the fact that neither patient was generally stout. The omental and mesenteric fat was in each case in amounts such as would be proportionately found in very fat subjects. The subcutaneous abdominal fat and the retroperitoneal fat was also abundant. Our attention was so strongly drawn to this feature that note was made of it in looking up other case reports, and we find like conditions have been encountered by other observers. We are not aware that this has any significance and further observations are needed to show whether or not it is constant. If constant, it may bear etiologic or other relations to the affection.

In neither of the cases reported was a stone found in the common duct, or the duct of Wirsung or the diverticulum of Vater. In Case I there was nothing in the clinical history to suggest gallstone attacks and at autopsy there were no calculi in the gallbladder. It is realized, however, that, though the bile sac and ducts down to the duodenal papilla were free, the chain of evidence is incomplete without a search for dislodged stone all the way through the gut. This search, we regret to say, was not made. In Case II a thorough examination was made of the entire intestinal tract with negative results. The ducts were free of calculi and the gallbladder contained one large stone without facets. We were especially interested in the presence or absence of stone in the diverticulum of Vater on account of Opie's wellknown theory of the dependence of the acute forms of pancreatitis on the blocking of this part by a calculus of just the right size to convert the common bile duct and the duct of Wirsung into a closed channel, thus allowing bile to enter the pancreas. A great many of the cases of acute pancreatitis are undoubtedly brought about in this way, nor does the fact that such a process was not demonstrable in the present two cases prove that a small stone was not previously present. And in this line two facts are to be noted in Case I. One is the bile-stained condition of both the common duct and the duct of Wirsung, where they lie in apposition before uniting, and the second is the microscopic observation in the pancreatic sections, of coarse, golden-brown pigment matter around oval openings, presumably pancreatic ducts. This pigment failed to give the iron reaction, as in blood pigment, and might, we thought, have been bile. If this were true, it argues some previous condition which allowed the entrance of bile into the ducts of the pancreas. That it was due to a calculus, could not be demonstrated, but the entrance of bile into the pancreas, by whatever means, has repeatedly produced hemorrhagic pancreatitis experimentally.

There is one feature of Opie's theory that seems to need explanation. It is undisputed that a large majority of the cases of acute pancreatitis occur in males, and it is likewise unquestioned that a large majority of the cases of cholelithiasis occur in females. Now, if biliary calculi are the cause of acute pancreatitis, why do not the great number of cases occur in women instead of men? Causes resident in the size of the gallstones or the anatomy of the ducts might explain the matter, but peculiarities of sex in this line have not been demonstrated. We would very much like to know the reason of this apparent contradiction.

Thanks are due to Dr. F. O. Gross for the clinical history of Case I, and permission to report the case.

CONGENITAL PARTIAL LUXATION OF THE KNEE: GENU RECURVATUM.

BY

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A condition which has been only recently properly understood is that of anterior displacement of the tibia. None of the older orthopedic writers gave this deformity a place in their textbooks. Young's older edition does not refer to it, but the author recorded two cases in the *University Medical Magazine*, in 1899. Bradford, Lovett and Whitman give descriptions and photographs of the condition.

The pathology of the condition has been variously described; it was not until Delanglade, Wolff, and Kirmisson made exact studies of cases that we were able to adopt a uniform way of describing it. Naturally, the treatment varies with the understanding of the condition, whether it be a true dislocation, slight displacement of the articulating parts or bending at the epiphysis of the femur.

Although Henry Ling Taylor's account of the disease places it among the congenital luxations, his treatment and results obtained thereby would go to prove Kirmisson's view that it is not a true luxation, but a malformation in the same sense as clubfoot.

The lower epiphysis of the femur was shown in Delanglade's autopsy of a case to be bent on the diaphysis, forming an obtuse angle (150°) forward, the concave articular surface of the tibia resting against the anterior surface of the condyles of the femur. The patient shows creases anteriorly at the knee and bulging smooth skin in the popliteal space. The biceps and semitendinosus are so located that they act as extensors instead of flexors. There are varying opinions as to the amount of lateral motion at the knee-joint. As a rule, it is described as increased.

Wolff pictures the difference between a case of anterior dislocation and displacement. In the true dislocation there is a large protuberance anteriorly. The leg is straight and the popliteal space is faintly defined; whereas, in cases of genu recurvatum there is a bulging in the popliteal space where the condyles of the femur project, and anteriorly, there are creases due to the hyperextension of the tibia displaced on the femur.

With different degrees of deformity of the articulating extremity of the femur, we get differing positions of the tibia, whether in valgus or varus, and also displacement of muscles. Delanglade describes the biceps and semitendinosus as assisting in the anterior displacement by their deformed position.

The patella is absent or undeveloped as a rule, appearing only after successful treatment has brought the quadriceps extensor into normal action. When it is present it is located high up opposite the lower edge of the diaphysis of the femur.

As to the cause of the trouble, it does not seem to depend on a transient condition, such as the position in delivery of the child—for there has been no unwavering rule as to the position of the child in the cases reported up to the present time.

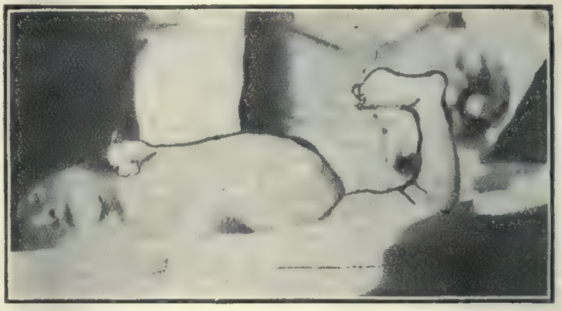
It would seem to depend on a position of hyperextension of the limb retained in utero long enough to allow of an abnormal fixed condition of the hard parts. Various accompanying deformities have been described, such as bilateral or unilateral dislocation of the hip, varying degrees of talipes—varus, valgus equinus, and combined in different ways according to the position of the child in utero. Some believe there is a nervous origin of the condition. In one of Young's patients there was evidence of cerebral injury, and one of Delanglade's had spina bifida.

The condition is very commonly bilateral. Of 98 cases reported by Drehmann, 54 were single and 44 double. In 98 cases of congenital dislocation in Langenbeck's clinic, 90 were of the hip-joint and one of the knee. In other clinics there has been a greater proportion of displaced knee-joints.

Since Taylor and Young described their cases, there have been many recorded. Drehmann records 98 cases in 1899. Since then there have been a few added, notably those of Delanglade and Kirmisson.

McKenzie and Galloway's[1] case of unusual congenital multiple deformities has among other conditions a displaced knee-joint, genu recurvatum.

The treatment consists in placing the limb in a normal position in plaster-of-paris or other fixation method, and massage. The earlier the patient comes for treatment the quicker does one get a good result. My patient, three days old, shows the limb retaining a normal position three weeks after beginning treatment. Kirmisson reports a case taken in hand at 3 months; patient well at 2 years.



Henry Ling Taylor's patient, 7 months old, was perfectly well in three years. McKenzie and Galloway's patient, a young man aged 20, required excision of the knee. The analogy with clubfoot is seen here again in the treatment as well as in the pathology. Modelling treatment and good results therefrom being better the younger the patient; operative procedures being necessary only in the older patients, in whom the epiphysis has united and bones well ossified.

My patient is a newborn infant in the obstetric service of Dr. J. M. H. Rowland, of the Maryland General Hospital.

Dr. Hauffer kindly furnished me the following notes of the mother and child:

Mother R. G., primipara, position R. O. A. No deformities. Delivery uneventful, on July 15, 1904. I saw the child three days after birth, and found the right leg extended at the knee to 100°; the popliteal space was prominent, the condyles of the femur being unusually evident. It was abducted to 160°.

No patella was palpated, but in the position where it should be were two creases due to the hyperextension of the leg. When the leg was pulled down, it sprang back with great elasticity.

The feet were in moderate equino varus position. The left leg was moderately extended on the thigh, forming an obtuse angle, 160°; the patella was scarcely palpable at the lower end of the diaphysis of the femur. This is shown in the röntgen ray photograph. The röntgen ray pictures are of little use in studying the case, because the epiphyses do not yet (at 1 week) throw a shadow. All we note is an abduction of the right leg and the presence of a minute patella on the left limb.

The right epiphysis is faintly shadowed, and appears bent at an angle to the diaphysis—the convexity showing inward.

Treatment consisted in fixing the limb on a posterior splint in a slightly flexed position and gradually improving the position on a lateral splint bandaging with crinoline. It was surprising to note what slight tendency there was to hyperextend at the end of two weeks.

On August 12, the mother took off the bandages herself and 10 days later presented the child for examination. There was nothing abnormal noted at the knee. The legs were lying easily flexed on the mother's lap—the child kicked about normally. The patellas were in place freely movable and measured about 1.5 cm. The feet were in good position tending slightly to dorsal flexion. Photographs taken before treatment are shown.

The case is meant to add more proof to the idea that the pathology is that of a displaced tibia due to a bending forward of the epiphysis on the diaphysis of the femur. It is also meant to indicate that if taken early and properly modelled and firmly fixed the chances for a cure are much greater and much time is saved.

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RÖNTGEN RAY IN THE TREATMENT OF SARCOMA.[1]

BY

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The results obtained by the use of the röntgen ray in the treatment of sarcoma may be summarized in the following table, containing 18 cases, of which I have available notes:

Case No.	Location of tumor.	Number of treatments.	Remarks.
I.	Giant-celled sarcoma of jaw.	5	Postoperative; result unknown.
II.	Sarcoma of the groin.	36	Metastases developed in liver and viscera; death
III.	Sarcoma of the thigh.	10	Very large; inoperable; no improvement; death.
IV.	Round-celled sarcoma of shoulder.	12	Inoperable; rapid growth under treatment; death.
V.	Sarcoma of chest wall and lungs.	17	Recurrent; no improvement; death.
VI.	Sarcoma of the jaw.	9	Recurrent; no improvement.
VII.	Osteosarcoma of side of head.	34	Recurrent; no improvement; death.
VIII.	Osteosarcoma of the thigh.	11	No improvement; death.
IX.	Sarcoma of the spleen.	30	Inoperable; no improvement; death.
X.	Round-celled sarcoma of the neck.	41	Recurrent; inoperable; no improvement.
XI.	Round-celled sarcoma of thigh and abdomen.	8	Improved under Coley's toxins and röntgen ray.
XII.	Sarcoma of the breast.	9	Recurrent; inoperable; no improvement.
XIII.	Round-celled sarcoma of suprasternal region.	28	Recurrent; operated; wound not closed; recurred again while under treatment.
XIV.	Round-celled sarcoma of the eye.	24	Apparently some improvement.
XV.	Spindle-celled sarcoma of the groin.	7	Secondary; recurrent; postoperative; no improvement.
XVI.	Osteosarcoma of the metatarsal bone.	15	Recurrent; improved; patient living after 2½ years; no recurrence
XVII.	Round-celled sarcoma of the chest wall.	36	Recurrent; postoperative; improved; death later.
XVIII.	Round-celled sarcoma of the scapular region.	35	Inoperable; metastases developed in spite of severe burn; death.

Technic.—The technic employed was essentially the same in all cases, as the lesions in practically all cases were deepseated, and in many the tumors to be treated were very large. A medium hard tube was employed and the source of energy was an induction coil of 12 in. to 22 in. spark, using a primary current of one to two amperes at 110 volts interrupted by the turbine interrupter and with spark gaps in the secondary circuit in series with the tube. The tube was placed at a distance of two to six inches from the surface, treated, and if necessary the surrounding structures were protected by the use of lead diaphragms, having openings large enough to admit of exposing the desired area. The duration of each exposure was from 5 to 20 minutes and exposures were made every day or every second or third day, according to the reaction excited in the area treated. In one case (No. XVIII) a very severe burn resulted, but in none of the others were the burns of any consequence and in many nothing more than an erythema developed.

Case No. XVII was especially instructive and deserves a more extended report.

The patient was an unmarried woman of 70, whose family history and previous health up to the beginning of the trouble which furnishes the basis of this report contain nothing of interest in this connection. In February, three years before her admission to the hospital, she first noticed a flat immovable tumor on the right side of the chest which grew rapidly but was not painful. In June, 1900, the patient submitted to an operation for the removal of the tumor. By October, 1900, there was a recurrence at the site of the operation and in November of the same year it was removed again. No recurrence was noted for 22 months, but at the end of that time (in September, 1902) another small nodule appeared which grew rapidly, and in the following April a third operation for its removal was done. In less than a month the tumor recurred and two months later she was admitted to the hospital.

Examination upon admission showed much emaciation, but the chest and abdomen were negative upon physical examination, except for the presence of a tumor the size of a cocoanut located in the right midaxillary line over the eighth rib. The tumor was firm, semielastic, immovable, tender on pressure, painful spontaneously, and firmly attached to the chest wall. The skin over the tumor was tense, purplish, and showed over the central portion of the tumor a small defect, where the tumor mass was beginning to break down.

On the day after admission to the Presbyterian Hospital the patient was operated upon by Dr. M. L. Harris, who made an elliptic incision well away from the borders of the tumor and dissected out the entire mass, resecting about three inches of the eighth and ninth ribs, which, with the pleura, were found involved in the tumor. Portions of the tumor which could not be excised were cureted away. No attempt was made to close the wound except by packing, which also served to control the hemorrhage. Sections made from the tumor removed showed it to be a round-celled sarcoma very rich in cells. Twenty-four hours after the operation, the patient having sufficiently recovered from shock, a portion of the packing was removed and the area exposed to the röntgen ray for 20 minutes, placing the tube within four inches of the surface of the defect and using a medium tube with sufficient current passing to cause the tube to show plainly the yellowish color characteristic of active röntgen ray tubes.

This treatment was continued daily for 36 days, protecting the chest outside the area of the defect by thick sheet lead. Within a short time a nodule developed in the bottom of the defect, which grew rapidly at first, but later under continued treatment became necrotic and was cureted off. Sections of the tissue removed showed a structureless necrotic mass, in which no cells were visible. No further recurrence took place at the site of operation and healthy granulations formed. Later the area was covered by skin grafts and complete healing took place. The patient's general condition improved for a time, but later she began to fail again, and about four and half months after the operation died, with symptoms suggesting pulmonary involvement. No autopsy was allowed, but in all probability death was due to metastases in the lungs and other viscera, which doubtless were present at the time of the last operation.

This case, while the results were unsatisfactory, was very suggestive, because of the *local* effect of the röntgen rays on the tissue of the recurrent tumor, and suggests the possibility of destroying entirely the tumor tissue by this method of "open treatment" and also the possibility of a cure in patients so treated before the formation of metastases in deeper or more distant structures.

In my hands the röntgen ray has been a disappointment in the treatment of sarcoma. In no case has there been the slightest evidence of benefit from the treatment of large primary or secondary tumors when covered by skin or other protecting tissues. The only hope of benefit from the employment of the röntgen ray in these cases and the treatment which would seem to offer the patient the greatest probability of cure is the thorough surgical removal of the entire tumor, or as much of it as possible, and the application of heroic doses of the röntgen ray to the open field, carrying the treatment to the extent of producing necrosis of the healthy tissue immediately about the site of operation. In 4 of the 18 cases the treatment was not continued sufficiently long to determine the final result, because of the fact that the patients left the hospital believing that they were not improving under the treatment.

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[1] Read before the American Röntgen Ray Society, at the annual meeting at St. Louis, September 9-13, 1904.

It is noteworthy that all of the cases, except Case XVI had been pronounced *primarily inoperable* by the surgeons or had *inoperable recurrences*, and were therefore cases of the most hopeless character for which surgery had nothing more to offer. The hopeless character of the cases may to some extent explain the very unfavorable results obtained by the röntgen ray treatment. In no case can it be said that any time was lost by delaying surgical procedures for the purpose of submitting the patient to the röntgen ray.

The present state of our knowledge as to the best course to pursue in the treatment of many cases of sarcoma is very unsatisfactory. On the one hand there can be no doubt that many tumors comparatively benign, quickly assume a more malignant character or form metastases more rapidly after attempts at surgical removal. On the other hand, the results of the röntgen ray treatment have been so indefinite that it remains to be demonstrated that the röntgen ray has any certain and reliable influence either in causing the disappearance of large, deeply seated sarcomas or in the prevention of metastases.

From the result obtained in the foregoing cases, proper treatment for sarcomas would seem to be thorough surgical removal of the mass followed by prolonged and vigorous radiation of the area.

Discussion.—In the treatment of carcinomas with the röntgen ray, my experience corresponds with that of Drs. Johnson and Leonard, in that the best results have been obtained in epitheliomas or in other superficial carcinomas. I have treated one patient with epithelioma of the side of the nose and cheek that had been operated upon six times with prompt recurrence each time. Under the röntgen ray the defect healed with scarcely any visible scar, and the patient has remained well for over two years.

I have, however, seen a few cases of epithelioma of the face that, although they seemed favorable cases for the röntgen ray treatment, did not yield even under prolonged and vigorous treatment. One very extensive case, involving one entire side of the face with loss of one eye, had been diagnosed lupus in the surgical clinic, and referred for röntgen ray treatment. After several weeks' treatment there had been no improvement, and pieces taken from the border of the defect and examined histologically showed epithelioma. The treatment was then continued daily at first, and later every other day, for over five months without perceptible improvement. In another case, an epithelioma the size of a half dollar on the cheek of a man over 70, diagnosed histologically, failed to yield to prolonged vigorous treatment, and had to be operated upon.

I mention these cases to call attention to the fact that now and then one is called upon to treat a case that in every way appears favorable, and yet under the treatment fails to improve even when the same methods are employed that result in cure in other cases.

In carcinomas of the breast I have seen small recurrences along the line of incision, or small glandular involvements, disappear under the use of the röntgen ray. I have not seen any case in which a large primary carcinoma of the breast disappeared under the use of the röntgen ray. I have, however, also seen recurrences start up under the röntgen ray treatment, and grow rapidly and extend to the regional lymph-glands even under radiation severe enough to cause severe superficial reaction.

In carcinomas of the deep viscera I have as yet seen no favorable results from the use of the röntgen ray.

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4. Operative Treatment of the Faucial Tonsils, with a View to the Prevention of Cervical Adenitis. ROBERT C. MYLES.
5. Hemorrhage of the Larynx. JOHN EDWIN RHODES.
6. Poisoning by Wood Alcohol: Cases of Death and Blindness from Columbian Spirits and Other Methylated Preparations. FRANK BULLER and CASEY A. WOOD.
7. Deviations of the Nasal Septum: A Review of 100 Operations for Correction. JOSEPH S. GIBB.
8. Tuberculous Laryngitis: Prognosis and Treatment. THOMAS J. GALLAHER.
9. Intubation, Including a Report of Some Unusual Cases. BURT RUSSELL SHURLY.
10. A Chief Predisposing Cause of Appendicitis: A Preliminary Note with a Few Laboratory Experiments. GEORGE RUBIN.

1.—See *American Medicine*, Vol. VII, No. 24, p. 924.

2.—See *American Medicine*, Vol. VIII, No. 3, p. 95.

3.—See *American Medicine*, Vol. VIII, No. 6, p. 227.

4.—See *American Medicine*, Vol. VII, No. 24, p. 927.

5.—See *American Medicine*, Vol. VII, No. 26, p. 1010.

6.—See *American Medicine*, Vol. VIII, No. 6, p. 228.

7, 8, 9.—See *American Medicine*, Vol. VII, No. 26, p. 1011.

10.—A Chief Predisposing Cause of Appendicitis.—G. Rubin would expect that if appendicitis is due to infection it should be commoner in early childhood, if to fecal concretion commoner in old age, if to constipation that it should occur oftener in females than males. He believes it due to accumulation of gases below the ileocecal valve, and their voluntary retention, the ensuing distention of the cecum and dilation of the cecoappendicular orifice, the entrance into the appendix of larger masses than can be readily expelled, the interference with the vascular circulation and resulting erosion of the mucosa with subsequent infection. Young children, monkeys, semicivilized peoples, and imbeciles, who are not likely to retain gases voluntarily are not subject to this disease; neither are older persons who, as a rule, live a retired life, and so are able to evacuate the bowel contents when the desire occurs. Three-fourths of the cases of appendicitis are between the ages of 10 and 30, and these decades are spent in educational institutions or in places of business and amusement, and natural demands often have to be deferred for various lengths of time. The writer undertook certain experiments with resected bowel from the cadaver, introducing beans and peas, and shot, which, on the production of artificial peristalsis, did not enter the appendix unless the bowel was first inflated. [H.M.]

Boston Medical and Surgical Journal.

October 27, 1904. [Vol. CLI, No. 17.]

1. Hematuria Due to Bilharzia Hematobia, with the Report of a Case. RICHARD FROTHINGHAM O'NEIL.
2. Some Observations on the Occurrence of Broadbent's Sign. ALICE WELD TALLANT.
3. The Mamma, Its Physiologic Purposes. THOMAS H. MANLEY.

1.—Hematuria, Due to the Bilharzia Hematobia.—R. F. O'Neil gives a short description of the etiology, pathology and literature of the condition. The intermediate host of the embryo of the parasite is still unknown. The disease is found all over Africa, about half of native Egyptians suffering from it. It is said that Europeans escape to a large degree, because they are careful about drinking water. Many cases in the Transvaal seem to be infected by bathing in rivers and ponds. Infection may possibly occur through the urethra or the skin. The genitourinary tract is the one which suffers in the majority of cases. The adult worm is found most often in the portal system. The lesions are due to the deposit of ovums in the small veins which rupture, allowing escape into the surrounding tissue with inflammatory changes. When one of these infarcts ruptures into the urinary passages or rectum, a hemorrhage occurs, and ovums are found in the urine and feces. In the bladder ecchymosed patches can be seen, covered with mucus, containing ovums. Later the lesions take the form of vegetations, and become encrusted with salts. Abscesses and sinuses are common in advanced cases. The ovums have also been found in the liver and in the lungs, causing cirrhosis and hemoptysis. They are said to cause certain skin lesions and are found in gallstones. Eosinophilia is the rule in the disease. The hematuria is made worse by exercise. There may be no symptoms, or death may occur from anemia and exhaustion. Treatment is confined to maintaining the general health. Only five cases beside the author's have been reported in this country, three being imported. [H.M.]

2.—Broadbent's Sign.—A. W. Tallant finds as the result of the examination of 130 cases that retractions in the left back are much more common than is generally supposed although it is probable that they would be noted more frequently if always looked for during the routine physical examination. Systolic retraction of a marked degree, similar to and often identical with that described by Broadbent is found in many cases of cardiac hypertrophy in which there is no other reason to suspect pericardial adhesions. Systolic retraction more often involving the interspaces only may be seen in the left back in thin individuals, especially if there is marked emaciation. The reason for many of these retractions seems to be as follows: Since the pericardium is, even under normal conditions, adherent to the central tendon of the diaphragm it is conceivable that with each systole there is a slight pull on the diaphragm. Ordinarily this is not marked enough to be transmitted to the points of attachment to the chest wall, but if the heart is hypertrophied or acting very vigorously the pull may be visible, while in a thin individual it would be more easily perceived. [H.M.]

Medical Record.

October 29, 1904. [Vol. 66, No. 18.]

1. Surgical Reflections on the Diagnosis of Cancer of the Stomach. ARPAD G. GERSTER.
2. Conditions Simulating and Mistaken for Acute Appendicitis. HENRY ROTH.
3. Some Random Considerations on Tuberculosis. AUGUSTUS A. ESHNER.
4. Sterile Water Anesthesia in the Operative Treatment of Anorectal Disease, with a Summary of 320 Cases. SAMUEL G. GANT.
5. The Role of the Prostate in Affections of the Urinary Tract. ABR. L. WOLBARST.
6. Music as a Therapeutic Agent. FRANCIS S. KENNEDY.

1.—Surgical Reflections on the Diagnosis of Cancer of the Stomach.—A. G. Gerster appeals to general practitioners to take earlier action in cases in which the suspicion of gastric carcinoma seems justified. While it is true that the technic of the excision of gastric cancer has been developed to such a degree that the mortality in the hands of some operators, such as Mayo, has been reduced to about 18%, in the direction of early diagnosis much less progress has been made. We are furthermore confronted by the dilemma that if we wait until the diagnosis is reasonably certain, especially if we delay till a palpable tumor exists, it is too late to expect cure from operation. A reliable diagnosis of cancer of the stomach in the incipient stage, in which it is susceptible to successful operative treatment, is with our present knowledge a sheer impossibility, and therefore in the case in question we must make up our minds to submit the patient to the risk of an operation before the diagnosis is firmly established. The author concludes that when in a clearly progressive case of an intractable disorder of the stomach the local and general symptoms, conscientiously collected and weighed, strongly justify the suspicion of cancer, diagnostic laparotomy should be considered not only admissible, but obligatory.

2.—Conditions Simulating and Mistaken for Acute Appendicitis.—H. Roth gives in detail the histories of nine cases in which inflammation of the appendicular region was simulated by various other conditions, and discusses the points of differential diagnosis involved in each instance. The list includes cholecystitis, intermittent hydronephrosis, intussusception, two cases of inflammatory disease of the uterine adnexa, ovarian cyst with twisted pedicle causing general peritonitis, a prevesical and a properitoneal abscess, and pneumonia.

3.—Random Observations on Tuberculosis.—A. A. Eshner presents a paper intended to emphasize the fact that tuberculosis is transmissible, that it is preventable and that it is curable. Strictly speaking, tuberculosis is not an inherited disease, and what is transmitted to the offspring is some vice of tissue, some aberration of function by reason of which a predisposition to tuberculosis is set up. Much is to be done in the safeguarding of children by proper attention to the cattle used as milk producers, and in restricting promiscuous expectoration and other means of spreading the disease. Typhoid fever and tuberculosis are sometimes difficult to differentiate. The prime indication in the treatment of a case of tuberculosis is the improvement of the general nutrition by whatever means possible. This will be met by an abundant supply of fresh air, good, assimilable, nutritious food, and a proper amount of exercise and rest. Two other requirements are essential in the management, namely, isolation and disinfection.

4.—Sterile Water Anesthesia in Operations upon the Rectum and Anus.—S. G. Gant describes the good results he has had in substituting plain sterile water for cocain and other solutions that are in vogue for the production of local anesthesia. The author has been able by its means to operate upon most rectal cases without a general anesthetic or sending them to a hospital, circumstances much appreciated, especially by the better class of patients. Anesthesia apparently is produced merely by the pressure of the fluid on the nerve terminals in the tissues, and sufficient water should be introduced thoroughly to distend the tissues, causing them to become anemic and assume a glassy, whitish appearance, when anesthesia immediately follows. This distention does not require a large amount of water, from 10 mm. to half a dram only being necessary for small hemorrhoidal tumors, and from a half dram to four drams in more extensive operations. In introducing the water it is not necessary to use more force than is usually employed in making the ordinary hypodermic injection. In conclusion, the writer states that, while anesthesia by the injection of sterile water is not effective and cannot be applied in all major operations, he has employed it, to the exclusion of general and local medicinal anesthetics, in nearly all of his operations upon the rectum (for hemorrhoids, fistula, fissures, etc.), and with gratifying results.

5.—Role of the Prostate in Affections of the Urinary Tract.—Abr. L. Wolbarst discusses the anatomic and functional peculiarities of the prostate which give it a double role, for, although a sexual organ in health, in disease it is essentially a urinary organ. The author's conclusions are: Urinary symptoms are most often directly due to prostatic disease. Any pathologic lesion of the prostate which increases its size favors interference with the urinary stream to a greater or lesser degree. Inflammation of the prostate is always accompanied by urinary symptoms. The genital symptoms are least marked. In reference to gonorrhea, the prostatic urethra is the most important portion of the urinary tract; it is the favorite seat of chronic urethritis; it is the way by which the inflammation travels from the urinary to the genital tract. The prostate is solely responsible for the important urinary conditions which result as a consequence of its senile hypertrophy. Prostatic concretions may lodge in the bladder and act as the nucleus of larger vesical calculi. Chronic contracture of the bladder neck, neuralgia of the prostatic urethra, prostatic tuberculosis, malignant prostatic disease, prostatic cysts and trauma of the organ, are all made evident by their effect on the urinary function. Lastly, these numerous urinary affections justify the consideration of the prostate as a urinary organ, second only to the kidneys in importance.

6.—Music as a Therapeutic Agent.—F. S. Kennedy says that much assistance is in many instances to be derived from the intelligent use of music, either vocal or instrumental, as a therapeutic adjunct. Melancholia, insomnia, hysteria, family affliction, business reverses, delirium, pain, fatigue, mental or physical, will all be helped by the beneficial influence of music, rightly used. As a postoperative measure it would have an undoubted influence for good in taking the patient's mind from his bodily distress. So, also, could "painless" dentistry be relieved of some of its pain and distress by the quieting influence of music, which would, as has been amply demonstrated, produce a pleasanter mental influence during the administration of nitrous oxid or other anesthetic. A German writer has recently stated (February, 1904) that in a number of test cases in which music was provided during the administration of the anesthetic, there was an absence of distress and resistance on the part of the patient; also an absence or reduction of the postoperative nausea under the same circumstances.

New York Medical Journal.

October 22, 1904. [Vol. LXXX, No. 17.]

1. The Röntgen Rays in the Treatment of Fractures and Adjustment of the Fragments under the Eye, by Use of the Fluoroscope. HARRY L. GILCHRIST.
2. Inaccuracy in Clinical Thermometers. CASWELL A. MAYO.
3. Quintuplets. ALBERT BERNHEIM.
4. Syphilis Continuously Treated by Intramuscular Injections of Mercury Salicylate. D. A. SINCLAIR.
5. Vulvovaginitis in Little Girls: A Clinical Study of 190 Cases. (Continued.) SARA WELT-KAKELS.
6. Two Cases of Paralysis of the External Recti Muscles of the Eyes, Tabetic in Origin; Improved by Operation. FRANK N. LEWIS.
7. A Contribution to the Surgery of Nephritis: Report of Case. C. W. WILLE.

1.—Röntgen Rays and Fractures.—H. L. Gilchrist advocates the use of the röntgen rays in the treatment of fractures, and the adjustment of the fragments under the eye by use of the fluoroscope. Several cases are reported, and cuts illustrating the method are shown. The essential points in its favor are the ability to see every movement of the fractured extremities during their adjustment, thus avoiding the necessity of giving an anesthetic for diagnostic purposes; saving the patient many painful manipulations, and the tissues from bruising and laceration by unnecessary handling. [C.A.O.]

2.—Clinical Thermometers.—C. A. Mayo has made an examination of the thermometers found in the apothecaries' shops, and an investigation of the means open to pharmacists for ascertaining the quality of the instruments that they offer for sale. He collected a number of thermometers in different cities, and submitted them to the United States Bureau of Standards for examination. Of these 29% were not sufficiently accurate to meet the requirements of that bureau. Mayo gives in detail the methods of examination of thermometers by the United States Bureau of Standards, and how to secure government certificates. [C.A.O.]

3.—Quintuplets.—Albert Bernheim reports the following case occurring in the practice of the late Dr. S. J. Mathews, of Mayfield, Ky. On April 29, 1896, he was called to attend Mrs. L., and he delivered her of five living boys within an hour. The individual children followed one another at intervals of 10 or 12 minutes. The weights of the children (in order of the birth) were 4, 4¼, 4¼, 4¼, and 5 pounds. Birth occurred in the eighth month of pregnancy. The children were apparently healthy and well developed. Dr. Mathews could not give any reason why the children died, unless it was the fact that after their baptism on May 3, they were, while being taken into the yard to be photographed, exposed to the cold air. The bodies were embalmed and are kept in a glass case. The after-birth consisted of five placentas, grown together and each had a separate umbilical cord. The mother is rather a small woman; she is 5 feet 1 inch in height, and her usual weight is 112 pounds. In the final three months of this last pregnancy she was almost helpless, and after the delivery she recovered very slowly. [C.A.O.]

4.—Intramuscular Injections of Mercury Salicylate in Syphilis.—D. A. Sinclair believes that this method of treatment possesses many advantages over the other methods. He says they are more scientific and accurate. The gastrointestinal tract and the skin are relieved of the irritation often involved in these avenues of medication. They are quick and sure in action, the symptoms disappearing with wonderful rapidity. They are applicable in all three stages of the disease, noncompromising, easy in administration, cheap to the patient and doctor. They enable one to control the patient in a most complete manner; they do not produce abscesses; and have to be administered but once a week, due to their insoluble properties and slow absorption, which enables one to use a larger amount at a given dose than could be used of the soluble salts of mercury. One and a half grains is given each time in liquid benzoinal. The author has injected six grains without any but the best results. [C.A.O.]

6.—Paralysis of External Recti.—F. N. Lewis records the histories of two cases of paralysis of both external recti muscles, of tabetic origin. Both of these cases received treatment by other means before operations were done, and while a cure of the paralysis was not accomplished, the benefits derived would seem to have warranted the operations. In both cases the paralysis was undoubtedly due to tabes, and in the first the tabes may have been of syphilitic origin, as well as in the second case, where the history was more certain. In both cases it was paralysis of both externi, although in the first, 13 years elapsed after one externus was affected before the other showed the same condition. In both these cases the personal appearance of the patients has been greatly improved; both have been cured of diplopia and both have binocular single vision, at least centrally, and this condition has remained, in one case 13 years and in the other eight years. [C.A.O.]

7.—Surgery of Nephritis.—C. W. Wille reports the case of a boy of 18, who had subacute nephritis of one month's standing. He ascribed his illness to an attack of influenza. For over two months he was placed on careful dietetic and medicinal treatment, with no improvement. The right kidney was then stripped and its capsule removed. Semiweekly analyses of the urine, made over a period of three weeks following this operation, showed a perceptible diminution of the quantity of albumin excreted, the mean taken from the aggregate number of examinations reaching but 4 gm. per diem; a decrease of 4.42 gm. per day. Following the operation on the left kidney, the table shows a considerable decrease in the daily output of albumin, which fell all the way from 2.15 gm. to 0.5 gm. per diem, at the time of his discharge from the hospital. [C.A.O.]

Medical News.

October 29, 1904. [Vol. 85, No. 18.]

1. The Treatment of Scarlet Fever with the Moser Antistreptococcus Serum. HENRY L. K. SHAW.
2. A Case of Typhoid Fever with Repeated Chills. JOHN HOWLAND.
3. Osteoplastic Gastrotomy for Impermeable Cicatricial Stricture of the Esophagus. WILLY MEYER.
4. The Etiology of Gastric Hemorrhage. F. GREGORY CONNELL.
5. A Series of Nearly 600 Spasms in an Epileptic without Disturbance of Consciousness in the Intervals. L. NEWMARK.
6. The Agnes Memorial Sanatorium. CARROLL E. EDSON and W. H. BERGTOLD.

1.—Treatment of Scarlet Fever with the Moser Antistreptococcus Serum.—H. L. K. Shaw states that all severe cases at the Annakinderspital in Vienna have received the Moser serum with results not less remarkable than those seen after the use of diphtheria antitoxin. Moser obtained pure cultures from the heart blood in 63 out of 99 fatal cases. These agglutinate with immune serum. In order to prevent biologic changes, he injects the horses with cultures direct from the child. It takes 7 to 9 months to produce a suitable serum. He uses it in severe cases having symptoms of general intoxication and in lethal cases in which there is apparently no chance of recovery. He injects 200 cc. subcutaneously in the abdomen. In a few hours the fever falls to normal without any sweating or signs of collapse and all the toxemic symptoms disappear. Sequels and complications have been less frequent and less severe since its use and mortality has been reduced from 14.5% to 8%. The only unpleasant feature is the serum exanthem, which, while not dangerous, is uncomfortable. The results obtained from prophylactic injections are encouraging. This serum is prepared only at the Vienna Serum Institute and is not on the market. [H.M.]

2.—Typhoid Fever with Repeated Chills.—J. Howland reports a case in detail in which there were 14 chills, all followed by a marked rise of temperature. The signs of complications were looked for in vain. The one abnormality recognized was a femoral thrombosis, but the chills began 22 days before its appearance, and there was none on the day when it was first seen. [H.M.]

3.—Osteoplastic Gastrotomy for Stricture of the Esophagus.—Willy Meyer reports that a youth of 14 swallowed caustic lye in 1896. Forty days later gastrotomy was performed, and the stricture divided by Abbe's bow-string method. He remained in the hospital a year, and by repeated esophageal dilation was able to swallow his food. Complete stenosis, however, developed in spite of dilations, and a gastrostomy by the Witzel method was done. Through the fistula thus formed the patient was nourished for seven years. In the autumn of 1903 the patient first came under the author's care. A filiform bougie could not be passed through the esophagus. With the electric cystoscope, unsuccessful attempts were made to locate, through the gastric fistula, the cardiac orifice. Various attempts are recited in which the author attempted to pass an instrument through the esophagus, or to locate the cardiac orifice within the stomach. Finally the left border of the ribs was raised by osteoplastic operation, after the method described by Marwedel[1]. At the normal site of the cardiac orifice there was a stellate scar, but no orifice. Owing to the critical condition of the patient, operation had to be abandoned, but Meyer is of opinion that he may yet be able to open into the lower end of the esophagus by this route. He believes in future in operation for gastrectomy, the osteoplastic route may be utilized to effect anastomosis between the gut and the esophagus. [A.B.C.]

4.—Etiology of Gastric Hemorrhages.—F. Gregory Connell says ulceration is the most common cause of hemorrhage from the stomach, but there are many other possible and probable conditions which may act as etiologic factors. The different causes may be very conveniently designated as: (1) Stomachic, (2) extrastomachic, (3) unknown. The conditions classed under stomachic include all those in which the primary cause of the hemorrhage is found in the stomach; hemorrhage due to extrastomachic causes will be included, those in which the chief and primary cause is found in some of the adjacent structures; the gastric disturbance being but a secondary matter. Under the heading unknown will be classed the hemorrhages which cannot be accounted for pathologically. Following this the author enters into a lengthy discussion of the etiology of gastric hemorrhage from whatever source. Erosions and ulcerations are responsible for most of the stomachic hemorrhages; the extrastomachic are caused for most part by some interference with the portal circulation—be it a diseased heart, liver, or other pathologic conditions; such as he classifies "unknown causes" he says can still be consistently classified as idiopathic. [A.B.C.]

5.—Nearly 600 Spasms without Disturbance of Consciousness in the Intervals.—L. Newmark admits that so long as the attacks were unilateral it was not surprising that they did not affect the mental condition; but the absence of any affection of consciousness or of the intellectual or emotional state after the body had been racked by hundreds of bilateral convulsions impressed the observers as something extraordinary, leading to doubt as to the epileptic nature of the seizures. This case is a warning as to the danger which may arise from too rapid a diminution of the sedative control exercised over the epileptic brain by bromid. [H.M.]

6.—The Agnes Memorial Sanatorium.—C. E. Edson and W. H. Bergtold describe this institution which has been erected near Denver by L. C. Phipps. It is to be conducted as a closed sanatorium for the open air treatment of persons of small means suffering from incipient pulmonary tuberculosis whose return to wage-earning is urgent and whose condition offers prospect of arrest or amelioration of disease within a short period. The institution is planned to give for six months or so the best opportunity for outdoor living, physical quiet, abundant nourishment, and medical oversight at a small cost, and to be educational as well as therapeutic in its methods. The pavilions are constructed and oriented so that the least possible obstruction is put in the way of sunlight. Save in the most rigorous weather for a few nights in winter patients may sleep outdoors all the year round. There are facilities for experimental as well as clinical work. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Distribution of Certain Diseases in England.—J. M. Martin[1] has made a study of the factors entering into the distribution of cancer, tuberculosis and pneumonia on the western slopes of the Cotteswold Hills in England, and gives his findings in an elaborate series of tables and charts. His general conclusions are that cancer is more prevalent on impervious soils than on porous, but does not appear to be influenced directly by elevation. The general tendency of other malignant diseases is the same. Tuberculosis is more prevalent on impervious soils and at low (below 150 feet) and comparatively high (350 to 500 feet) elevations, than on porous structures and at moderate elevations (150 to 350 feet). Higher elevations appear to favor the development of pulmonary tuberculosis. Other tuberculous diseases do not appear to be so directly influenced by elevation. Pneumonia, both lobar and broncho, seems to be affected in a direction opposite to tuberculosis by both subsoil and elevation. From a general consideration of the subject it would seem there are definite factors of site, as well as occupational and other influences, determining the incidence of disease, and the results tabulated indicate that two of them are elevation and geologic substructure. The results are not conclusive, but indicate the value of further inquiries along the same line by numerous individuals. [A.G.E.]

Complications to the Causes of Fatal Jaundice.—S. Riva-Rocci[2] reports a case of fatal icterus produced by a tumor in the common duct so small, that it escaped notice until a microscopic examination was made; until this was done the cause of the illness had remained unexplained. The patient, a man of 68, suffered from faulty digestion for some months. Some time after the beginning of this he met with a slight accident, a cart passed over the right side of his pelvis and abdomen, but this did not cause any ill-effect, until after five days, when he became jaundiced. This gradually deepened, the urine became bile-stained, the feces colorless and the tongue coated. Within three months he had lost weight, his mind was clouded, but he was perfectly conscious, his liver and gallbladder enlarged; there was no pain or fever. An operation did not reveal the cause of the condition nor did drainage of the gallbladder relieve him. He died on the seventh day after operation. The autopsy showed enlargement and thickening of the hepatic and common ducts, and the cystic duct closed by a peculiar valvelike arrangement accounting for the absence of recent bile in the gallbladder. The papilla at the mouth of the ampulla of Vater was prominent, but the ampulla neither hardened nor thickened. The ampulla and the common duct seemed closed off from each other, but after hardening a very small passage could be discovered; the lumen was closed off by the tissues of a cylindric adenoma; it replaced the normal lining of the ampulla infiltrating the mucous coat. The growth was of very slight extent at the bottom of the common duct, where the only abnormal thing found was the connective tissue rich in cells. This case may assist in finding the cause of other grave cases of icterus, in which ordinary examination finds only a papillitis. [E.L.]

The Complications of Typhoid Fever.—T. S. Omelchenko[3] investigated 200 fatal cases of typhoid fever, and his anatomic and bacteriologic studies resulted in the following conclusions: 1. Typhoid fever disposes in a marked degree to secondary infections with the cocci of suppuration. 2. Such pus infections during typhoid have a tendency to become generalized. 3. Typhoid fever appears to destroy the specific elective property of certain organs toward pus infection. As a result the system is rendered susceptible in all its parts and the spread of infection is facilitated. 4. The system in typhoid is rendered most susceptible to streptomycosis in a less marked manner to staphylomycosis. *Staphylococcus pyogenes aureus* is more to be feared in this condition than *S. albus*. 5. The site of infection has no significance, since the cocci, once having entered the body spread rapidly and the infection becomes general. 6. In typhoid fever every pus infection, no matter how mild at first, is an enormous danger. Hence the importance of timely and energetic treatment. [L.J.]

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[1] Centralblatt f. Chir., 1903, No. 35, p. 938.

[1] Public Health, October, 1904.

[2] Gazzetta Medica Italiana, 1904, lv, 161, No. 17.

[3] Russki Vratch, August 7, 1904.

Acute Isolated Interstitial Myocarditis.—L. Sellentin[1] reports two cases of acute diffuse interstitial myocarditis without primary endocarditis or pericarditis, and with no evidences of infection in any other organs. The microscopic changes in both cases consisted of a cellular proliferation and infiltration between the muscular fibers of the heart. The cells consisted of young connective-tissue cells and lymphocytes, with a moderate number of mast cells and few leukocytes. The parenchymatous changes were slight, consisting of occasional granular degeneration, with swelling and granulation of the muscular nuclei. No microorganisms could be discovered in the tissues, and the cause of the apparent infection was difficult to discover. In the first case it was probably a carbuncle, while an endometritis might have accounted for the second. This form of interstitial myocarditis is to be distinguished pathologically from that occurring in the course of certain infectious diseases by the preponderance of connective-tissue cells in the cellular infiltration: these cells play a small part in the myocarditis of scarlet fever, diphtheria, and typhoid fever. [B.K.]

Dysentery.—De Blasi[2] continues the discussion of Leiner. It seems that the bacillary group involved in dysentery differs distinctly from *B. coli communis* and the microorganisms of enteric fever and of colon disease. There are three forms distinguishable: (1) That of celli; (2) that of Shiga-Kruse; and (3) that of Flexner (1899, Manila). Flexner's bacillus has a lower agglutinative power than the other two. All are pathogenic for rabbits, guineapigs, and cats. Certain immunizing serums, of Celli-Valente, of Shiga, and of Kruse, are both preventive and curative in respect to human dysentery. [T.H.E.]

Relation of Pulmonary Cilia to Infection.—W. N. Fitch[3] discusses the relation of the ciliated epithelium of the respiratory passages to the entrance and lodgment of bacteria in the lung. Obstruction to the proper action of the cilia may be due to three things: 1. Mechanical collapse of the tubules. 2. Thickening of the tubular walls from overfilling of the lymph spaces with fluids. 3. The presence in the tubes of an inflammatory exudate, or the presence of a thick, dense, viscid bronchial mucus. Fitch has made an extensive use of medical gymnastics in his practice, and has observed (1) that persons who are habitually liable to minor bronchial infections—that is, those who take cold easily, frequently are those whose chests are undeveloped; (2) the development of the chest by gymnastic methods largely removes this liability to infection and colds. The way in which gymnastics bring about this result is by securing proper expansion of the chest and thus allowing the cilia to act normally. Fitch believes that drainage of tuberculous foci by proper respiratory methods is the secret of the spontaneous cure of pulmonary tuberculosis, which is now known often to occur. [A.G.E.]

Syphilitic Reinfection of a Diabetic.—Molle[4] relates the case of a man of 54, who at the age of 32 had a typical preputial chancre, followed by cutaneous eruptions, sore throat, etc. He was treated for two years and discharged cured by Simonet. He married, but beyond two miscarriages at four months, his wife had no other pregnancies. At the age of 40 he developed diabetes; antisyphilitic treatment did not influence it, but a strict diet did and he was comparatively well until at 48, when he again presented himself with an ulcer of the preputial fold, followed by mucous patches in the throat which persisted for a long time. About the time of the reinfection the sugar disappeared from the urine and did not return until after the disappearance of the secondary symptoms. The diabetes was certainly not syphilitic as the mercurial treatment had no effect on it; the first attack of syphilis must have been totally cured and it must have attenuated the second attack as its secondary symptoms were very mild. [E.L.]

The Diagnosis of Noma in Childhood.—The diagnosis of this disease in its early stage is not always an easy matter. A. A. Kissel,[1] discussing the subject, remarks that in some cases, noma develops for several days without any external manifestations. The gangrenous odor may also be absent for a long time. The destructive process occasionally attacks the facial bones, and perforation of the cheek takes place only toward the last. The chief symptoms of noma are: Early edematous swelling of the cheek with the formation of a hard central infiltrate, having the consistency of cartilage. The author has never seen a case of ulcerous stomatitis pass into noma. In the former disease, moreover, the microscope shows a characteristic picture, namely, Vincent's bacilli and spirilli. The physicians should pay more attention to the mouth in conditions which are known to predispose to noma. [L.J.]

The Hydriodic Acid Test for Diacetic Acid.—E. Riegler[2] calls attention to this test for diacetic acid in diabetic urine. It consists of placing 15 cc. urine in a test-tube with 2 cc. of a 10% solution of hydriodic acid and 3 cc. chloroform. The tube is shaken and allowed to settle; if diacetic acid is present, the chloroform remains colorless, while normal urine colors it violet. [B.K.]

Pseudophthisic Hysteria.—Under this heading, Nicola Pende[3] reports a death due to hysteric hemoptysis, or the socalled false tuberculosis of the hysteric. He recounts certain studies of Hüss, who, with others, describes emotional crises by the name of *raptus hemorrhagici*, occurring in paroxysms and simulating the discharges of blood from the air passages of tuberculous patients. The blood is a vinous red, and does not contain mucus or sputum. The absence of specific bacilli, or of elastic fibers, and negative results from inoculation ought to make the differential. [T.H.E.]

Severe Anemia with Hyperglobulia following Chronic Carbonic Acid Poisoning.—G. Reinhold[4] reports the cases of two stokers, who, working in a gas works where a great deal of coal gas permeated the air, developed symptoms of lassitude, weakness, headache, abdominal colic, anorexia, etc. They became very anemic, but blood-examination showed a very large number of erythrocytes, from 7,500,000 to 11,200,000; in spite of this large amount of red corpuscles the hemoglobin only amounted to about 75%, a condition nearly always present in chronic poisoning with carbonic acid, according to v. Jaksch. One of the patients had alimentary glycosuria, which is also a common symptom of this affection. [E.L.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Lupus, Carcinoma, and Röntgen Rays.—N. Walker[5] reports four cases of lupus under observation in which carcinoma has developed. Probably over 200 cases are on record, but four cases at once is an unusual occurrence. Extensive operations are often followed by rapid recurrence, favored by the lowered vitality of the lupus tissue. Scar cancer is relatively benignant. Sections from certain cases of lupus show under the microscope long processes of epithelioma ramifying in the cellular tissue, and resembling epithelioma. In the process of scarring these may be cut off from their surface connections and become to all intents and purposes Cohnheim's "rests," capable at any time of malignant development. Authors protest too much that treatment has nothing to do with the development of cancer. It seems to the writer that scraping may very well cause detachment of fragments of epithelium and their burial in the rapidly formed scar tissue. That röntgen rays may produce cancer is not so widely advertised as that they can sometimes cure it. Everyone is familiar with the rough skin, warty growths, and ragged nails of radiographers, who should observe greater caution. These cancers begin with hyperkeratosis. Little embedded black points develop, whose removal is actually painful. Later a little warty epithelioma develops, and if not removed at once the glands are rapidly involved. The cancer of lupus is not accompanied by hyperkeratosis, and metastasis is exceptional, death being due to extension locally. Only one of the cases the writer reports can be attributed to the rays. He believes it would be unwise to discontinue their use, notwithstanding this real danger, especially after a severe reaction or a burn. [H.M.]

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[1] Zeit. für klin. Med., Bd. liv, p. 298.
[2] Il Policlinico, Rome, No. 59, 1904.
[3] Chicago Medical Recorder, October 15, 1904.
[4] Lyon Médical, 1904, cii, 1078, No. 22.

[1] Medizinskoe Obosrenie, lxii, No. 17.
[2] Zeit. für klin. Med., Bd. liv, p. 350.
[3] Il Policlinico, Rome, No. 59, 1904.
[4] Münch. med. Woch., 1904, No. 17, 739.
[5] Scottish Medical and Surgical Journal, July, 1904.

Three Cases of Spina Bifida Cured by Operation.—Lebrun[1] reported three cases of this disease upon which he successfully operated. Of the two methods for the cure of spina bifida, namely the injections into the sac and the excision of the sac, he prefers the latter as being the only method of cure. The objection to the injections is that beside being uncertain and dangerous, the operator is working in the dark, and moreover the indications consisting of not only obliteration of the sac, but removal of the tumor and the closing of the vertebral window are not accomplished. In his three cases he operated as follows: He first separated the periosteum of the vertebral laminas which formed the sides of the fissure and also of the transverse process. He then made a longitudinal incision on each side of the fissure, and also of the transverse processes. He then made a longitudinal incision on each side, dividing the aponeurosis and the muscles. He then makes on each side a large, thick periosteomusculoaponeurotic flap, which are brought over the vertebral window and sutured with catgut. [J.H.W.R.]

Myositis Ossificans Traumatica.—Haga and Fujimura,[2] in reporting five cases, call attention to the fact that in each the injury was followed by pain, swelling, redness and in some, hardening of the muscles injured. In all but one case the ossified structures were firmly adherent to the underlying bone, in the excepted one the newly-formed bone was found buried in the midst of the body of a muscle. They divide the process by which this condition develops into three stages: 1. Stage of inflammation; with the inception of the trauma the muscles swell and become shortened, the intramuscular tissue becomes infiltrated with round cells, the muscle fibers disappear and lose their power of adaptability. 2. Stage of embryonic tissue formation; the muscle fibers continue to degenerate and disappear, the sarcolemma takes part in the proliferation and the formation of the embryonic connective tissue. 3. Stage of cartilage formation and ossification, the cells comprising the embryonic tissue become larger and change to chondroblasts which lay down a hyaline substance and this then undergoes calcification. The chondroblasts then undergo atrophy and change into bone cells. When the bone is once formed its further development depends upon periosteal ossification. From their findings they conclude that traumatic ossifying myositis is of myogenous origin in all cases and that the periosteum has nothing to do with its development. [J.F.]

Seminal Vesiculotomy.—Eugene Fuller[3] finds that stripping the seminal vesicles is only palliative in certain cases, for which he recommends the operation of seminal vesiculotomy which he has previously described. He has performed the operation in 33 cases without a death. In speaking of the operation he answers five questions regarding its results. The operation simply applies well-established principles of surgery to the seminal vesicles, organs to which hitherto these principles have not been applied. It does not cripple the sexual functions and the danger, as stated in the 33 cases, is essentially nil. The operation is not recommended for surgeons not skilled in manipulation of the parts involved and the ability to differentiate the various grades of disease. There is only one class of cases for which the operation is not advisable, and that is when the vesicles are tuberculous. Detailed notes of a case in illustration of the points brought out are given. [A.G.E.]

Pneumococcic Abscess of the Spleen.—G. Muscatello[4] reports the case of a woman of 32, who was taken ill suddenly with symptoms of severe infection. She had high fever, vomiting, headache, pain in axillary region, enlarged palpable spleen, distended abdomen, no diarrhea. She developed bronchopneumonia of upper and middle lobes of right lung, and became jaundiced. Widal and diazo reaction were positive; typhoid bacilli were cultivated from spleen by puncture. The sputum contained the diplococcus of Fränkel. A diagnosis of typhoid fever and pneumonia was made. The latter was disappearing and the patient improving, when on the fourteenth day she complained of very severe pain over the spleen, which was more enlarged than ever; the area of dulness extended to the median line anteriorly, and to the umbilicus below; distinct fluctuation developed during the next few days. A swelling appeared in the middle of the right thigh. An exploratory puncture confirmed the diagnosis of abscess. A huge abscess was opened and cleaned out; a necrotic piece of spleen was found in the abscess cavity; the thigh abscess was also opened and cleaned out. The patient made an uneventful recovery. From the pus of both abscesses, Fränkel's diplococcus was isolated; colonies were cultivated on agar, gelatin, and peptonized broth. The author speaks of this as the first splenic abscess due to the pneumococcus, and remarks on the presence of the typhoid bacilli at the outset, and its absence in the cultures. [E.L.]

Cecal Colic.—According to A. A. Christomanos,[1] colic of the cecum is to be regarded as a characteristic, independent symptom-complex. It is usually caused by the ingestion of some definite article of food, which may vary for different patients, added to which is a natural predisposition to such attacks. The attack begins with slight, intermittent pains in the abdomen, which become gradually more severe and frequent, and are localized in the cecal region. The face is pale and drawn, the abdomen is drawn in and not especially tender. One or more bowel movements of normal consistency occur. After the pains have continued uninterruptedly for several hours, vomiting sets in; the vomitus consists at first of the stomach contents, and later of bile-tinged mucus. At this stage a long, vertical cord, of the thickness of one finger, can be felt in the region of the cecum. After continuing for 8 to 12 hours, the pains suddenly become less severe and finally cease, and the patient falls into a sleep, from which he awakens fully recovered. The condition is evidently due to a spasm of the cecum, which amounts to a tetanic contraction at the height of the attack. Cecal colic is to be distinguished from appendicitis by the absence of fever, of rigidity, and of the great tenderness accompanying inflammations in that region. The proper therapy is a hypodermic injection of morphin. [B.K.]

Fracture of the Trochanter Minor.—C. Julliard[2] reports a case of a man 82 years old who, as ne was getting out of bed, fell to one side. He could not raise himself and had to be lifted into bed. When Julliard saw him, 14 days after the accident, there was great pain in the right hip, and this part was considerably swollen. There was extensive ecchymosis, which extended to the inguinal canal of the corresponding side, and as low as the middle of the thigh. The limb was rotated to the outer side, the external portion of the foot lay upon the bed, but there was no alteration in the length of the right leg. The patient was unable to raise the foot or to perform internal rotation. Fracture of the neck of the femur was the diagnosis. At autopsy, it was found that the iliopsoas had pulled off a part of the trochanter minor. This lesion can readily be differentiated from a simple ecchymosis by the ability to move the limb in the latter; the fact that there is no shortening in this lesion, differentiates it from dislocation of the head of the femur. From other lesion about the upper end of the femur, fracture of the trochanter minor is not so easily separated, but in most of these injuries there is an alteration in the length of the radius of the greater trochanter during rotation; in fracture of the trochanter minor there is no such alteration. He, of course, says the only safe means of differentiation is the röntgen ray. Such cases are treated by placing the leg in a slightly flexed and in a slightly external rotated position. [J.F.]

Rare Luxation of Femur.—Niederle and Maydl[3] have collected 19 cases of rare occurrence. They point out the existence of two varieties, one in which the head of the femur descends directly below the cotyloid depression (the rarer form), there is lengthening and there is some flexion of thigh;

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[1] Journal Méd. de Bruxelles, September, 1904.
[2] Arch. für klin. Chirg., 1903, Bd. lxxii, Heft 1.
[3] The Postgraduate, October, 1904.
[4] Gazzetta Medica Italiana, 1904, lv, 141.

[1] Zeit. für klin. Med., Bd. liv, p. 344.
[2] Arch. f. klin. Chirg., 1903, Bd. lxxii, Heft 3.
[3] Il Policlinico, Rome, No. 59, 1904.

the other form is similar to the first, but the head of the femur is advanced without touching the foramen ovale, and there is no lengthening. These luxations are not to be confused with the ischiopubic variety, and are more easily reduced by direct traction in the line of the limb. [T.H.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Treatment of Postpartum Hemorrhage.—D. B. Hart[1] considers three points: 1. Special changes occurring in the uterus during the third stage. 2. Clinical facts as to the normal third stage and the guidance of labor. 3. The treatment of hemorrhage before and after the expulsion of the placenta and membranes. The point emphasized principally is the necessity of extreme care and readiness for any emergency during the normal third stage. The materials to be had in readiness are named, as well as the indications for the use of each. The various methods of stopping hemorrhage are considered at length, and the main points summed up as follows: During labor one must avoid the extremes of undue delay and undue haste; forceps and turning, when necessary, should be employed whenever possible with dilated parts; the third stage should not be hurried, as meddlesomeness exhausts the uterine muscles. One should let the uterus in a normal case separate the placenta and membranes, but the expulsion may be aided by suprapubic pressure. In hemorrhage, settle the diagnosis with reference to its occurrence in the passive or active portions of the genital tract; for the former, employ pressure or stitches; for the latter, all that secures uterine retraction, but in event of this failing, pressure by tampon has to be considered. John Phillips,[1] regarding the same subject, also emphasizes the great importance of being prepared for hemorrhage during the third stage. The management of caudal hemorrhage is considered very briefly under the headings of true or visible, concealed, traumatic, and secondary hemorrhage. Henry Jellett,[1] in an article on atonic postpartum hemorrhage, formulates five principles of treatment: 1. When hemorrhage occurs after the birth of the infant, uterine contraction should be stimulated, in order that the organ may empty itself. 2. If the uterus fails to do so, and if hemorrhage continues, it must be emptied artificially. 3. If hemorrhage still continues, further measures to stimulate uterine contraction may be adopted, provided that a dangerous amount of blood has not been already lost. 4. If these measures fail, the final cessation of the hemorrhage must be insured by plugging the uterovaginal canal. 5. During these procedures an dsubsequently, the condition of the patient must be watched, and the necessary measures adopted to ward off threatened cardiac failure. [A.G.E.]

Rupture of a Tubal Pregnancy on the Nineteenth Day after Conception and Ten Days after the Uterus had been Cureted.—W. Duncan[2] reports the case of a woman of 27, whose uterus he cureted twice because of metrorrhagia, each time finding a very much hypertrophied endometrium. Between the curetments she had a miscarriage, but menstruated monthly after that. On the ninth day after the second curetment she suddenly collapsed, became pulseless and semiconscious. A rupture of one of the abdominal organs with hemorrhage was diagnosed. Laparotomy showed a ruptured tubal gestation involving the left tube; the patient recovered. The pregnancy was found to be 19 days old, the patient being able to give positive information concerning the time fruitful coitus had occurred. The author speaks of this as the second earliest rupture of a tubal pregnancy on record. Microscopic examination showed the gestation to be within the muscular coat. Duncan says the minute embryo burrows through the epithelial lining of the tube and develops in the muscle coat, the opening into the tube itself closing up again. A histologic description is given. [E.L.]

Strange Result of Iodoform Dressing.—H. Macnaughton-Jones[1] reports the case of a woman of 30, upon whom he performed ventrosuspension. The wound was dressed with moist sterilized iodoform gauze (10%). On the third day she complained of smarting near the wound, the skin was found swollen and red; the swelling gradually increased in extent, even though the iodoform was removed; a number of large vesicles filled with straw-colored fluid formed in the neighborhood of the wound. New vesicles continued to appear not only near the wound, but also on arms, hands, and legs. A very itchy papular eruption sprung up also. There was but little fever, the pulse remained normal, and at no time did constitutional symptoms appear. The wound healed by primary union. Upon inquiry it was found that the patient had passed through a similar experience when a leg ulcer was dressed with iodoform; she had always exhibited a tendency to eczema. [W.K.]

Placental Opotherapy.—C. Ortali[2] discusses the possibility of extract of placenta being made use of as a galactagog. It has been employed for many years for that purpose by the peasants of Abruzzi; they make a decoction of placenta and fowl, giving the soup to the mother to induce a greater flow of milk. The idea that the placenta acts merely in a physical way and by osmosis, is at present insufficient; it probably exerts a special activity of its own, and possesses an internal secretion. In ruminants the placenta secretes a liquid very similar to milk. The fetal theory of eclampsia is based on the hypothesis that the placenta gives rise to special toxins. Recognizing the close relation between the uterus and breast, it is quite possible that the placenta may be made to play a part in stimulating the breast to greater activity. [E.L.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

EDITORIAL COMMENT

The Use of Nitroglycerin in Cases of Fibroid Changes in the Heart and Arteries.—From the wording of the abstract of the editor's paper on "Drugs Useful in Cardiac Affections," published on p. 699 of No. 16 of Vol. viii of *American Medicine*, the mistaken impression might be gained that he commonly advises small doses of nitroglycerin to be given every 10 or 20 minutes in cases of chronic cardiac disease. On the contrary he ordinarily gives small doses at long intervals. The exact language is here repeated: "Especially in cases of early fibroid change in heart and vessels is this drug of service, and in much smaller doses than is the custom. Thus I frequently prescribe $\frac{1}{400}$ gr. *two or three times a day*, and even in cases in which it is necessary to get the *full effect of the drug*, have seen better results from $\frac{1}{500}$ gr. every 10 or 20 minutes than from $\frac{1}{100}$ gr. every hour." It is quite evident that the reference is to two different conditions; in one the idea is to get and hold the patient for a brief time under the full physiologic influence of nitroglycerin; in the other to keep the patient continuously under its gentlest influence—and practice varies accordingly. In further elucidation we may repeat a portion of the remarks made in closing the discussion on the paper referred to: "In the therapeutic use of nitroglycerin one must be guided by the response of the individual patient. Some are rebellious even to large doses, others are excessively sensitive to minute fractions of the ordinary dose. Thus I commonly give to patients with chronic cardiac or vascular affections $\frac{1}{800}$ gr. or $\frac{1}{400}$ gr. at a dose—the dose being repeated every hour in some cases, and in other cases once in 24 or 48 hours. The effect upon the force and rhythm of the heart, the fulness and tension of the pulse, must guide us; and this varies much not only in different individuals, but *in the same individual under different conditions*." It may seem incredible that so little as $\frac{1}{400}$ gr. of nitroglycerin, given once in 48 hours, could have any therapeutic influence; and yet we have again and again verified the fact by exact and sufficiently continuous observation kept up over several weeks and supplemented by the observations of experienced nurses, in the intervals between the physician's visits. Its value when given in this way is mainly as a preventive of periods of disturbed rhythm and intermittence, which may exhibit a tendency to recur after regular or irregular intervals. Usually it is necessary to give the drug every second or third hour at first, gradually lengthening the intervals; but it will soon be found that a single dose daily will suffice, while the omission of the daily dose will be followed by recurrence of the symptoms; and then it will be found that every other day or even every third day will be sufficiently often for the dose. In other words gradual improvement in the patient's functions permits gradual withdrawal of the assistance given by the drug to the regulatory mechanism of circulation. It is not the direct effect of the drug that continues, but its good effect on the natural processes becomes more and more lasting, until finally they no longer need the artificial assistance. When, however, disease has progressed too far for such prompt recovery of normal equilibrium, the continuous use of the drug remains necessary over a longer period, and in many instances may even be necessary for the remainder of life. This is especially true in cases of fibroid changes in the vessels—even when such changes are slight and the physician is able to hold them in check by hygienic measures and appropriate medication.

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[1] The Practitioner, October, 1904.
[2] British Gynecological Journal, 1904, xx, 1.

[1] British Gynecological Journal, 1904, xx, 11.
[2] Gazzetta degli Osidali, 1904, xxv, 590, No. 55.

REVIEW OF LITERATURE

The Study and Treatment of Tuberculosis.—Maragliano[1] after summarizing conclusions[2] which emphasize the possibility of controlling tuberculous affections along lines of serum therapy, publishes now a series of papers: 1. Acute tuberculous infection, and the defensive action of serums, by E. Marzagalli. 2. Two tuberculous apes, by Marzagalli and Figari. 3. Upon the absorption of defensive materials by way of the alimentary canal by Figari. 4. The transmission of tuberculous agglutinin and antitoxin into milk, and their subsequent action in the *prima viæ* as there absorbed, by Figari. 5. Action of animal muscle tissue, normal or immunized, upon *B. tuberculosis*, by R. Balladore-Pallieri. 6. Vaccination against tuberculosis, by Maragliano. 7. Passage into milk of immunizing elements, by Maragliano. In these papers, representing the latest ideas and most careful laboratory methods of the Genoese school, we see segments of a consistent plan to attack the subject from all sides. The theory that the immunity of special serums is due to a direct action upon microorganisms is sustained and elaborated. Granting that intraperitoneal injection of *B. tuberculosis* induces a specific reaction and death from toxemia, the parallel introduction of antitoxic serum effectually antagonizes it. Experiments were carried on by means of an anthropomorphic ape, naturally infected with the disease. The docility of the animal and its similarity to man gave exceptional value to the results as those likely to have occurred in a human being. Recovery was complete; the ape regained strenth, appetite and enjoyment. In playing among horses and cows, one of the former accidentally injured the ape, causing death. At necropsy the following was noted: The liver of the ape contained two sclerotic masses, the spleen several smaller ones, evidently the remains of burnt-out tuberculous infection. Mesenteric vestiges of the same infection were discovered; and lesions due to the acute injuries which were the cause of death. Through the lungs were freely scattered sclerosed nodules, hard on cutting, and of a compact connective tissue, infiltrated with salts of calcium. The heart showed slight hypertrophy of the left ventricle. The value of administration, by the alimentary canal, of the Genoese serum is considered established. In experiments on animals there is not only direct action upon the morbid processes, but a subsidiary effect, due to secondary antitoxins formed in and by the tissues of the diseased individual, and which effectually antagonizes secondary or metastatic infections. This has been corroborated in the work with human subjects. The French and German writers, among them Widal, Sicard, and Ehrlich, seem to believe that only the newborn satisfactorily assimilate antitoxic products from the milk of immunized animals. But Genoese reports go further. The milk of cows, goats, etc., that have been successfully immunized undoubtedly carries the agglutinin and antitoxin, from experiments of a direct, or "active" process. Guineapigs, passively immunized, also have the power to give milk that is an effectual antituberculous agent. Moreover, kids born of immunized mothers, are partially immune, and increase their immunity with a parallel direct relation to feeding upon the immunized mother-milk, the augmentation being the result of a secondary increment of agglutinin and antitoxin on the part of the tissues of the young. Detailed experiments are very interesting, because in a later series it is proved that even adults are able to assimilate agglutinin and antitoxin and to augment secondary tissue reaction on being fed with milk of immunized animals. Since the time when Maragliano, in 1895, offset the failure of Koch, in constructing a curative lymph, the problem has remained one of demonstrating a method of cellular reaction; that antitoxic principles may be absorbed through the *prima viæ* to secure the entrance to the field of disease is of recent knowledge, but a new question, that of the importance of proteid feeding has come to the front. It can be shown that the muscle tissue of animals artificially immunized has a distinct and active bactericidal effect. Maragliano, in a recent lecture, refers to his conference at Philadelphia, and to his work at Madrid. Leaving aside the purely academic discussion, it may be asserted that vaccination against tuberculosis is a present fact. He is happy to affirm that the successful experiments in immunized lactation of animals can be, and are duplicated with human beings. Healthy infants, of healthy parents, as a rule, have serums which are negative in action, but if born of tuberculous parents, yet healthy in themselves, may exhibit an agglutinative power of 1 to 3. After some months' feeding with immunized milk, healthy children of tuberculous parents, will show an increased agglutinative power equal to 1 to 10. [T.H.E.].

Treatment of Affections of the Hands and Feet.—In a chronic condition of hyperidrosis, which is often complicated by a tendency to inflammation, causing much pain, and possibly confining the patient to bed, Dr. I. Dyer,[1] of New Orleans, advises the following: Use white castile soap and restrict excessive drink. Give a small dose of strychnin internally for a long period, about six weeks. For the hands, the use of a 3% to 5% alcoholic solution of salicylic acid frequently during the day; for the feet, a like remedy in powdered form, namely, salicylic acid, 2 gm. (½ dr.); tannin, 4 gm. (1 dr.); powdered arrowroot and rice starch, of each 15 gm. (½ oz.); dust in the stockings every day. When the feet are inflamed and not blistered, simple bathing for 20 to 30 minutes in hot water, with 4 oz. of laundry starch to the gallon, should be of service before the use of powder. In the more chronic condition, lead-water may be used on cloths applied at bedtime, and if the blisters suppurate, nothing relieves better than a 5% to 10% solution of ichthyol. The commoner conditions of the nails of the hands and feet are: Ingrown nails, runarounds, hangnails, hornnail, and felon. The hangnail often causes paronychia, and as often the felon. It should be held in place and collodion painted over it. When infection occurs, touch the spot with carbolic acid and mop afterward with alcohol, or touch it with silver nitrate. If the infection goes further, nothing is so good as a 1 to 1,000 bichlorid dressing, kept constantly wet, which often aborts felons, and is much better than the soap and sugar and other compounds of household practice. The ingrown nail can be treated by scraping a notch and clipping to keep the flesh away from the nail. In severe cases it may require the removal of a portion of the nail and redundant skin. Warts will almost always disappear under daily painting with salicylic acid in collodion (5%) solution, excepting in the acuminate type. Other remedies which he uses are formaldehyd solution, corrosive sublimate, and sulfur. Corns and bunions are sacrifices to civilization, and the original conditions are relieved by wearing properly adjusted shoes and protecting the part with a simple cotton and collodion dressing. A useful and convenient remedy is tincture of iodin. Bathing in starch water is also advisable, and should be practised twice a day. Salicylic acid plaster (10%) is useful for flat corns not especially painful. Most of the local applications are suitable, but the foregoing seem to be the ones here especially recommended.

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[1] Annali dell' Instituto Maragliano, Genoa, September 1904, Vol. 1, No. 2.

[2] Loc. cit. Vol. 1, No. 1.

[1] New Orleans Medical and Surgical Journal.

Alcohol Poultices in Frost-bites.—O. Lentz[1] has obtained good results in frost-bites with Salzwedel's alcohol dressings. One patient was free of symptoms after applying the poultices five nights. The first two nights the pains and other symptoms are increased, but by the third night the symptoms begin to disappear and the patients are freed of their affliction after from three to eight applications. None of the patients noted a reappearance of the frost-bites in the places treated with the alcohol. Lentz recommends 70% alcohol for the dressings. He covers the places which require treatment with gauze (eight layers) soaked in alcohol, covering the whole with a piece of perforated material impervious to water. Over all a light bandage is applied. [E.L.]

OPHTHALMOLOGY

WALTER L. PYLE

EDITORIAL COMMENT

Ocular Hemorrhages in the Newborn.—Retinal hemorrhages in newborn children occur much more frequently than is supposed. Several continental observers have found them in over a fourth of the cases examined. Bjerrum, Königstein, Schleich, Montalcini, Naumhoff, Hippel, and others have contributed statistical papers on this subject. Strange to say, choroidal hemorrhages are seldom found, and it is rare to find hemorrhages in the ciliary region, iris or anterior chamber. Usually the hemorrhages occur in the nerve-fiber layer of the retina, but there may be extravasations in the neighboring spaces of this structure and the optic nerve. They vary in shape and size, according to their anatomic location. Occasionally microscopic examination has shown no evidence of actual rupture of a retinal vessel, and by some observers it has been concluded that these hemorrhages may sometimes occur by diapedesis. If such is the case, it is likely that there would be a more rapid disappearance than when actual rupture occurs. Coburn[2] has investigated this subject thoroughly, with a particular endeavor to ascertain whether these natal hemorrhages may not account for certain cases of amblyopia without ophthalmoscopic changes. While not bringing any strong confirmative evidence to support this thesis, he has elicited many interesting points in this connection. Notwithstanding the natural supposition that for many reasons the children of primiparas are most likely to suffer from intraocular hemorrhages, no proof of this is shown in the collective investigation. In a majority of Coburn's cases the hemorrhages were near the equatorial region, while former observers found them most often at the posterior pole. Long and complicated labors naturally predispose to the occurrence of intraocular hemorrhage, but Coburn does not unduly blame the use of forceps in such cases. Extravasations are most likely in congenitally weak children, and in those with a family history of hemophilia. It is stated that the condition is most likely to be seen in negro children. Coburn believes that dilation of the nerve sheath with cerebrospinal fluid and consequent compression of the optic nerve and central vessels, is not unlikely an important element in etiology. In some of the patients examined, even when there was no hemorrhage, he was struck by the marked congestion of the ocular fundus.

The Effects of Eyestrain.—It is now generally acknowledged that local ocular distress, including the chronic inflammatory conditions of the conjunctiva and eyelids demand the prompt application of correcting lenses, but the constitutional effects of eyestrain are often neglected. Ocular reflexes may be very remote, and only discovered after careful study and elimination. As a causative factor in the production of reflex disturbance, ciliary strain in uncorrected or improperly corrected ametropia is most important. In persons of neuropathic tendency, using their eyes excessively under unhygienic conditions, the smallest appreciable amount of astigmatism is capable of producing profound and obscure reflex symptoms, very often without appreciable ocular evidences. In fact, in those cases of ametropia in which vision remains good and local symptoms are absent, reflex disturbances are most often found. To properly appreciate the manifold effects of ciliary strain one need only realize how vital the function of vision is to every act and thought. The visual centers are in the closest connection with the other cerebral centers, and the slightest disturbance to the visual mechanism, if continuous, may produce sympathetic irritation in the entire motor, sensory, and psychic systems. Ciliary strain is the most frequent cause of chronic headache, including the socalled "migraine." Anorexia, dyspepsia, constipation, heartburn, nausea, repeated attacks of vomiting, etc., represent some of the gastric reflexes. The socalled "neurasthenia" insomnia, nightmare, nocturnal enuresis, chorea, and even epilepsy may owe their existence and perpetuation to some form of eyestrain. Persistent tilting of the head in postural correction of oblique astigmatism may cause torticollis and compensatory spinal curvature with its train of puzzling symptoms. The amount of local or constitutional reflex disturbance, is, of course, in direct proportion to the debility, neurotic tendency, or scholastic and clerical habits of the patient, but in modern civilization few persons are free from a susceptibility to reflex nervous disturbance. Yet upon the fact that certain fortunate ones may enjoy good health, despite marked ametropia, and are never materially inconvenienced with their faulty eyes, and do not require the aid of lenses until the presbyopic age, is based the inference that the prescribing of lenses is greatly overdone in the present day. This is indeed small ground for condemning the thousands of sufferers from eyestrain to a life of misery and incompetency.

The relation of the eyes to the general health should have wider expression. It is common to consider the visual apparatus as a separate organization, overlooking its important connection with the whole human economy. If there is a deficient blood state or nervous debility or perversion, if the secretions are abnormal; in fact, if there are any serious functional or organic changes in the body, the eyes may participate in the evil consequences. Again, ocular labor at close range is not a passive act; it requires continuous and vigorous muscular and nervous effort, and only those in normal health are able to perform continuous ocular work without more or less discomfort. Those measures and modes of life which are conducive to general health and vigor will be beneficial in maintaining ocular health and vitality. Not only must the laws of ocular hygiene be carried out, but there must also be proper observance of the general care of the body and mind.

The proper diagnosis and correction of errors of refraction require not only thorough technical education and skill and comprehensive knowledge of general medical science, but also a strong personality and a living faith in the great importance of ametropia

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[1] Therapie der Gegenwart, March, 1904.
[2] Archives of Ophthalmology, xxxiii, 3.

—particularly of astigmatism, even in small amounts—in the causation of chronic ill-health. Without such faith no man, no matter how great his auxiliary attainments, is competent to diagnose or direct treatment in this class of cases. Unfortunately the European physicians who have until recently dominated medical thought, have not as yet fully awakened to the importance of careful refraction—an art that owes so much to the patient scientific revelations of their predecessors. Lack of faith and distrust breeds carelessness and indifference. Small amounts of astigmatism are ignored, and slight deviations from the ordinary axes are overlooked. Careful subjective methods are discarded for crude and rapid objective tests. The ophthalmometer is made a fetish, mydriatics are dispensed with, and frequent reexaminations to detect changes in the refraction of the eye are deemed unnecessary. The natural sequence is the prescription of improper lenses and failure to relieve the asthenopia. Then follows the cry that too much is made of eyestrain, and that the advocates of careful refraction are "hobby-riders." Again, no little discredit has been thrown upon the correction of eyestrain in the treatment of disease by the senseless and fanatic advocacy of tenotomy or advancement in cases of properly diagnosticated asthenopic reflexes. There is little doubt that derangements in the balance of the extraocular muscles are almost always the result of ciliary strain, and in such cases it is careful refraction rather than ridiculously refined surgery that is indicated.

The Refracting Optician.—Next to carelessness from indifference or disbelief in the profound effects of refractive errors, the greatest cause of failure to give relief is the nonemployment of cyclopegics in testing the eyes of persons under middle age. It is not possible to properly diagnose ametropia with a ciliary muscle functional, and it is often necessary to employ a cyclopegic in testing persons in advanced life. In competent hands this procedure is free from danger, but if used by opticians and other nonmedical "refractionists" disastrous results may follow, hence the importance of all refractive work being in the hands of medical graduates especially trained for ophthalmic work. Fortunately the law forbids the use of cyclopegics by persons without a medical license. The popular faith in the advertisements of nonmedical persons, often ignorant of even the technical knowledge of the optician, has done much to hinder the full promulgation of the importance of the influence of eyestrain on the general health as well as on the ocular apparatus. In every case, the refraction of the eye should be in the hands of a skilled ophthalmologist who is capable of comprehending the influences of the general systemic conditions on the eyes and of defective eyes on constitutional disturbances. The nonmedical refractionist is unacquainted with the minute anatomy and physiology of the eye and its physical and psychic relations with the whole organism. He is not skilled in the broad science of medicine of which ophthalmology is only a small part. The true optician has no pretension other than the skilful grinding and adjustment of lenses. He devotes his life in constant endeavor to improve the manufacture and fitting of eye-glasses and spectacles. Too great stress cannot be laid on the importance of high-class mechanical aid in ophthalmic practice. The results of careful refraction may result in failure if the fitting of the lenses is left to a careless and incompetent optician. It is a safe rule to patronize only those opticians who confine themselves strictly to the grinding and fitting of lenses.

REVIEW OF LITERATURE

Epibulbar Melanotic Sarcoma.—J. Gray Klegg and I. Walker Hall[1] state that epibulbar tumors situated at the limbus are rare. Holmes found 3 cases during an examination of 20,000 eyes; Noyes observed 3 melanotic sarcomas among 70,000 eye patients; Adamüch mentions the occurrence of small pigmented growths in 3 out of 16,000 eye cases; Verhoff and Loring report 2 such tumors, which were met with during the routine examination of 44,719 eye patients; while among the 520,523 outpatients which have attended the Manchester Royal Eye Hospital during the last 33 years, 3 cases of pure melanotic sarcoma of the limbus have been recorded, though general "orbital melanosis" has been more frequently noted. A case is reported. The patient was a woman of 54, who complained that 18 months previously she had "inflammation" in the eye; 9 months later she noticed a small black tumor, which gradually increased in size, growing toward the middle of the eye; the conjunctival vessels were injected, and from the upper border of the growth dilated vessels emerged. A diagnosis of melanotic sarcoma was made and enucleation of the eye performed; 14 months later the patient was in good health and there was no evidence of recurrence. Microscopic examination of the tumor presented the usual characteristics of a melanotic sarcoma. The chief discussion in regard to epibulbar sarcoma has been as to the extent of its malignancy. For the most part it has been held that these growths extend but slowly and superficially and rarely recur after removal, and, as a rule, do not produce metastases if removed early. Two previously unreported cases are also detailed in the paper. [A.B.C.]

A New Local Anesthetic, Stovain.—Stovain is the name given by Lapersonne[1] to amylein chlorhydrate A and B; its aqueous solutions are much less toxic than solutions of cocain of the same strength. For intraconjunctival instillation he uses a solution of one part of stovain to 25 parts of normal salt solution. During the first two minutes the patient complains of the symptoms of a foreign body in the eye (burning, photophobia and lacrimation); by that time conjunctival anesthesia and corneal hypesthesia are complete, to last four minutes, when sensibility returns. The author has made 26 of these instillations, and in 20 subconjunctival or subcutaneous injections of a 1% solution in normal salt solution. In 18 operations for senile cataract, and 4 iridectomies or sclerotomies the patients did not complain of any pain, either at the moment of corneal section or extraction of the lens; iridectomy alone was painful; all the patients received the instillations. Injections were also made for strabismus operations, chalazions, tarsorrhaphy, etc., and in such cases the operations may commence one minute after the instillation. In the strabismus operations only the traction necessary to produce the overaction of the muscle and the sewing of the muscular fibers provokes slight pain. In chalazia no pain is noted at the time when the tumor is removed from the tarsus. The results are therefore very encouraging. He intends to combine two parts of stovain with one of cocain, and has no doubt that he will produce a complete anesthesia without diminishing the tone or the vascularity of the conjunctiva. [E.L.]

Palsy of the Extraocular Muscles in Exophthalmic Goiter.—W. C. Posey[2] says that in addition to the usual ocular signs which constitute part of the cardinal signs of Graves' disease, actual palsy of one or more of the extrinsic ocular muscles is sometimes met with. Notes of a case in which there was paralysis of the external, superior, and inferior rectus and inferior oblique muscles of the left eye are given. The patient was a woman of 43, who had suffered for two months from failing eyesight. Such paralysis is said by Posey to occur not very rarely and is not to be considered as accidental but rather as a part of the morbid process of Graves' disease. What the nature and location of the lesion is cannot now positively be said though it appears to be of central origin. The reference of these palsies to the nerve nuclei is an observation of great interest in its bearing on the pathology of Graves' disease, being an additional proof of the central origin of that affection. [A.G.E.]

The Removal of the Lacrimal Sac.—Henry Coppez[3] advises the removal of the lacrimal sac in certain conditions. He believes that the operation is indicated in dilation of the lacrimal sac; in those cases in which there is a fistula; in contraction of the nasal canal; and in chronic blenorrhea. If an ulcer of the cornea is present, due to dacryocystitis, removal of the sac is advisable. He believes that cure frequently follows in cases which have resisted all other treatments. In some cases the tears disappear completely after the removal of the sac. In other cases the tears disappear little by little, notwithstanding the fact that the glands do not atrophy after this operation in man, as certain authors have believed that they do in animals. If the tears continue, however, the upper lacrimal gland should be removed, which is an operation of small importance. The author states that the operation has been done 300 times and that the results have been favorable. [J.H.W.R.]

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[1] The Lancet, September 10, 1904.

[1] La Presse Médicale, 1904, April 13.
[2] American Journal of the Medical Sciences, July, 1904.
[3] Jour. médical de Brux., May 12, 1904, p. 227.

Treatment of Amblyopia by Hypodermic Injections of Strychnin.—D. B. St. John Roosa[1] says that of late there has been less activity among the profession in prescribing strychnin for disease of the optic nerve. Stimulated by Derby's writing, Roosa has not lost an opportunity to fairly try the remedy in proper cases. He reports a series of nine cases, two of which were absolutely cured. One must read the detailed account of these cases to properly appreciate the article. The best results are obtained by hypodermic injections in the temporal region, but they have often to be given in the arm, and occasionally the drug must be given internally. The treatment is effectual only in purely neuritic cases, those of cerebral or spinal origin being considered hopeless. The disappointing results of many observers are probably due to the fact that at first every case of atrophy of the optic papilla was thus treated. Toxic amblyopia from alcohol and tobacco are the forms most often benefited. [A.G.E.]

Treatment of Myopia.—In a long and very interesting article, as it reviews the opinions of the best men in ophthalmology, H. Sattler[2] gives it as his opinion that all grades of myopia are best treated by completely correcting concave lenses; they usually check the progress of the disease. If full correction does not cause the disappearance of an existing insufficiency of convergence, cautious resection of one of the lateral recti muscles may be tried. In very high grades of myopia in children and young adults extraction of the lens will produce a decided improvement. [E.L.]

Infective Cyclitis.—H. Percy Dunn[3] discusses this subject at length, and emphasizes his belief in the possibility of infective cyclitis becoming an almost unknown disease, or of remaining in so modified a form as to cause but little anxiety either to surgeon or patient. Our acceptance of the infective theory, while it still lacks bacteriologic confirmation, places us in the position of knowing how successfully to avert and combat the disease which in former days consigned so many patients to absolute blindness. The organism may never be isolated, but the evidence in favor of its infallibility leads us to the inference of its presence, and enables us to treat accordingly. The conjunctival sac may be described as a dumping ground of the host of microorganisms which are met with in the human body, receiving those from the external air, as well as those from the nose and lacrimal sac, and occasionally from the neighboring bones and inflamed sinuses. It thus becomes a favorable nidus for the cultivation of a complexity of microorganisms, and the wonder is not that a disease of the nature of infective cyclitis should occur, but that any intraocular wound or operation should escape septic contamination. The best course of procedure is to rely upon the mechanical removal of microorganisms, rather than to attempt sterilization of the conjunctival sac. [A.B.C.]

Abnormal Mobility of the Iris in Diseases of the Nervous System.—D. K. Shute[4] takes exception to the statement of Swanzy that the condition of the pupils is of slight significance or value in the diagnosis either of the kind or position of any intracranial lesion. He believes the most misleading inferences may be drawn from this avowal. Shute has a very different conception of the value of abnormal pupillary reactions and his paper is the result of an extensive review of literature in support of that belief. It is essential to understand thoroughly the anatomic basis for normal pupillary activity and also to know the variations of the pupil that are independent of diseases of the brain and cord. Spastic or irritative myosis is symptomatic of early stages of inflammatory diseases of the brain and meninges and is present in the early stages of epileptic and hysteric attacks and of intracranial tumors involving the third nerve. Anomalies of the pupil are very frequent in the prodromal stages of mental disease and are therefore of great clinical value. The most common condition of the pupil in paralytic dementia is marked contraction. Shute names a host of lesions in which changes in pupillary conditions are found and discusses their significance, his article not lending itself well to abstracting. It is a very able argument in favor of his contention. [A.G.E.]

Treatment of Ocular Complications of Variola with Instillations of Methylene-blue.—Combemale and Delearde[1] have employed methylene-blue instillations in 32 cases of ocular complications of smallpox. Of these, 23 were conjunctivitis and nine keratitis. In 30 of them the treatment was crowned with full success, and the other two had very grave lesions. One of the patients had adherent leukoma, which had produced blindness several years before; the other died as the result of the generalized pyemia. In all the other cases of suppurating ophthalmia after smallpox the action of the methylene-blue was found to be a very favorable one. If employed sufficiently early, the process was aborted, and after the disease had formed completely, the agent was more efficient than any of the others. It was also an excellent prophylactic. The solution they employed was of a strength of 1 to 300. [E.L.]

Electrolysis in Diseases of the Lacrimal Ducts.—A. W. Lotin[2] employs electrolysis in the treatment of lacrimal disorders and claims good results. This method achieves a much more rapid cure of stricture of the duct than dilation with sounds and irrigations. The sittings are less frequent, once a week being usually sufficient, and this offers an advantage to many patients. The dilation by means of electrolysis is moreover permanent and less liable to relapse. Indeed, certain extreme cases are beyond sound treatment, and it is for them that electrolysis offers an excellent chance of cure. The use of the negative pole in the strength of 4 ma. to 5 ma., lasting five minutes, is absolutely safe. Speaking of indications, the author recommends electrolysis especially in strictures of high degree, simple and complicated with catarrhal or blenorrhagic dacryocystitis. The method is also well worthy of trial in fistula of the lacrimal sac. [L.J.]

Refraction and the Use of Mydriatics.—L. J. Goux[3] speaks particularly of the use and the value of mydriatics. Readjustment by nonmydriatic examination is frequently impossible in cases where for years the abnormal relation between accommodation and convergence has been involuntarily controlled; a transient mydriatic may give no better result. The more common use of the stronger mydriatics in cases of exaggerated asthenopia would increase the mutual satisfaction of patient and physician. Goux concludes that whatever be our method of refraction, mydriasis should be employed in all cases when the patients are under 40. In many cases, nonmydriatic or transient mydriatic methods serve only to temporize. Two cases are cited to illustrate the points for which the writer contends. [A.G.E.]

Chronic Ciliary Blepharitis.—Galezowski and Wecker[4] use the following ointment locally:

Red precipitate	0.1 gm.	(1½ gr.)
Crystals of lead acetate	0.05 gm.	(¾ gr.)
Oil of hazel	5 gtts.	
Benzoinated lard	5 gm.	(75 gr.)

Vidal[4] recommends the following ointment:

Zinc oxid Lead subacetate	āā 0.05 gm.	(¾ gr.)
Oil of sweet almonds	0.5 gm.	(7½ gr.)
Vaselin	5 gm.	(75 gr.)

[E.L.]

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[1] The Postgraduate, July, 1904.
[2] Deut. med. Woch., 1904, xxx, Nos. 17 and 18, pp. 621 and 661.
[3] The Lancet, August 13, 1904.
[4] Washington Medical Annals, July, 1904.

[1] La Semaine Médicale, 1904, No. 25.
[2] Russki Vratch, May 29, 1904.
[3] The Physician and Surgeon, April, 1904.
[4] Bulletin général de Thérapeutique, 1904, cxlvii, 751.

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Unionism in medicine, judging from its present condition in other "business and trades," seems an exceptionally inopportune proposal. Undeterred, however, by this, an attempt appears to have been recently made in Chicago, at least, to sound professional sentiment on the subject. The newspapers report a dismal failure. Official spokesmen from lay unionism had been invited, but even that ghost had been so effectively laid that short encouragement was gained from that source. One lay speaker, however, did come, but he strongly advised against organizing on union lines. It would be, he said, a step backward, because "unionism has fallen so far short of the standard." The unions, Mr. Glenn said, had to struggle with incompetent and unscrupulous leaders, and especially with the dead weight of drones. For education, unionism had done absolutely nothing. Worst than all was the spirit of unrest and disloyalty encouraged by the unions. As to the eight-hour-a-day labor, that is absurd for physicians, and Mr. Glenn added that he did not believe any physician will ever succeed, who, when he is building up his practice, declines to make any night calls or make a call unless he is sure of his money. The physicians present were evidently of the mind of their lay adviser, and not a voice was raised in favor of medical unionism. One speaker proposed a union label for the "brotherhood of fakirs," which should work in harmony with the druggists and undertakers. He criticised union men for patronizing "broken down $5 a month charlatans." One may hope that this will prove an ending of the silly attempts to establish unionism in medical practice. Nothing could be more unprofessional. Medicine is not a "business" or "trade."

The Financial Cost of Tuberculosis.—According to the Report of the Tuberculosis Commission of Maryland, the average individual and family loss by the death of a wage-earning man in Maryland is $741.64. The calculation is made from the examination of 177 such patients who died in a year. The potential loss to the community by depriving it of the man's labor for the average length of the subsequent life is found to be $8,512.52. The expense of the deaths of women and others not earning wages can be calculated with less precision. In all there were 2,509 deaths from tuberculosis in the State from October 1, 1902, to October 1, 1903. Of these 908 were of wage-earning males, and the total loss by their deaths was, therefore, over $7,500,000. These, of course, are the direct losses; the indirect ones are numerous, and calculable only very indefinitely. The statistician, Frederick L. Hoffman, says that tuberculosis causes annually more than 150,000 deaths in the United States at the average age of 35. At this age the normal after-lifetime is about 32 years, so that the real loss of life covered, measured in time, is represented by 4,800,000 years per annum. If we assume that the net value of a year of human life after age 35 is at least $50, the real loss to the nation resulting from the disease (a large proportion of which is known to be needless), may be estimated at $240,000,000 per annum. "These astounding and almost incomprehensible figures are far from being an exaggeration, but let us assume that only half of this mortality is preventable, and we have a net possible saving to the nation of $120,000,000 per annum. This estimate does not take into account the social, moral and sentimental value of at least 100,000 lives, which, under different conditions, might reasonably hope to continue for many years."

Dr. Billings on the Vital Statistics of the Twelfth Census.—Dr. John Shaw Billings, to whom we owe the valuable reports on vital statistics of the Tenth and Eleventh Census, is the author of Bulletin 15 of the Census Bureau, entitled "A Discussion of the Vital Statistics of the Twelfth Census." The Federal Government has not hitherto published any history of mortality during successive years, and students making statistical investigation of causes of death have found the initial trouble of securing data extremely difficult or insuperable. The sources of information are State and city reports, differing as to methods of numerical statement, as to classification of causes, as to distribution of ages, silent on important points, subject to lapses, vagaries and disorder of every degree. In this pamphlet, for the very first time, American students are offered a considerable mass of mortality experience assembled in such a way as to admit of easy comparison with reference to time, places, and causes. The tables are not very extensive; they include only the principal causes of death, and consider urban mortality exclusively, but they cover 11 successive years' experience in 64 cities. More gratifying than the actual possession of so much new information is the prospect that the future supply will be of equal value and greater variety. It will never be possible for the Census Bureau to make the reports on vital statistics answer all, or even a large majority, of the reasonable inquiries which the data might be made to answer, but with experience and careful discrimination the Census Reports should become vastly more serviceable. The establishment of a permanent Census Bureau in the new Department of Commerce and Labor will be speedily and abundantly justified by the publication of such useful statistics as are found in this Bulletin.

Pennsylvania's Delinquency.—"There is," says Dr. Billings, "no subject of importance connected with national growth and development upon which the general public is so ignorant and indifferent as that of the vital statistics of the people." While this is true, it must be remembered that summaries of mortality are regularly published in the daily press all over the country, and this indicates a trace, at least, of popular interest in vital statistics. If better information were supplied it is probable that the general public would soon pass the stage of indifference. But the summaries always relate to urban populations and to brief periods of time; offering the people hardly a glimpse of the interesting vista which municipal statistics, intelligently handled, might offer. Even the great machinery of the Census Bureau cannot yet give us a view of recent mortality in any area larger than the New England States. Dr. Billings calls attention to the fact that in 1900 but eight States had "registration of deaths sufficiently complete to make deathrates worth calculating." Since 1900, however, the practice of mortality registration has considerably extended. If 1905 were a census year, mortality returns complete enough to satisfy the census requirements would be furnished by all but two of the States lying north of the Potomac and Ohio rivers, and east of the Mississippi. The two defaulters would be Delaware and Pennsylvania. Delaware was once admitted as a "registration" State, but Pennsylvania has never pretended, nor, until recently, aspired to be counted among the registration States. The movement to repair this shameful delinquency is, however, gathering force, and ought to receive effective impetus from the fact that the interval of five years before the next Census of the United States is barely long enough to give a good registration law the required efficiency of 90%. A map of the "registration area" made today would show Pennsylvania in its very midst, embraced but excluded—a sorry exhibit.

Indoor Humidity.—A noteworthy contribution to domestic hygiene has been made by Dr. Henry Mitchell Smith (64 Montague street, Brooklyn, N. Y.), in a paper read before the Brooklyn Medical Society. It is that the hygrometer is as much needed as the thermometer, more needed, one should say, in deciding as to the atmospheric conditions of the house. The neglect of the element of the watery vapor is the greatest cause of overheating and underheating of our homes. A low humidity is the great cause of discomfort, the source of much ill-health, catarrhs, colds, and other diseases of the skin, mucous membranes, etc. Tests conclusively proved that a percentage of moisture above 50, with a temperature of about 65°, yields the best comfort and conditions of health. With a temperature of 72° or 74° and a relative humidity of 30%, as compared with a room at 65° to 68° and a relative humidity of about 60%, the latter seemed the warmer and more comfortable. This fact should be taken into consideration with the engineer's statement that we are wasting fuel from the unnecessarily high temperature we maintain. The waste is probably greater than is generally supposed. "About 25% of the cost of heating is expended in raising the temperature from 60° to 70°, so if we can keep comfortable at a temperature of 65° we shall have saved at least 12½% of the total cost of heating." Dryness of the air is doubtless a cause, indirect perhaps, but nevertheless actual and constant, of the lowering of the "sensible temperature" of the body, and this low relative humidity is of especial importance in children's nurseries and sleeping rooms, in all sleeping and living rooms, indeed, in hospitals, theaters, churches, etc. A reliable hygrometer should, therefore, be an adjunct of every household, and its suggestions constantly followed out. It seems to us possible that the great increase of pneumonia and bronchial diseases may be connected with the factor pointed out by Dr. Smith.

Public Press Exploitation of Institutional Affairs.—One of the unfortunate products of our modern journalism is the hysteria of sensationalism without which many newspapers seem unable to exist. Highly colored accounts of private and public affairs seem to be ever in order, and this blight upon our American social fabric thrives and its devotees appear to prosper. It is recognized as a serious disease by students of sociology, and its baneful effects are clearly recognized by our profession. The day is assuredly at hand when physicians should combat this vicious condition with the same vigor as is displayed in attacking a malady of the human flesh. Nowhere is the yellow press effusion harmless, but there are times and places where a measure of mischief larger than usual is wrought. Such is the case when the newspapers choose for their target one of the public charitable institutions, and more particularly one of the State medical institutions. With an ever ready ear for the complaints of disgruntled politicians, of discredited former officials, of discharged attaches, the sensational newspaper proceeds to fill its pages with the distorted pictures penned by persons whose only motive is, by fair means or foul, to discredit those in authority. No matter how clean the personal or official record of the victim, immunity is not granted when the head of an institution is selected as the object of a political attack by the disaffected element. Gray hairs and a lifetime of unselfish, energetic, honorable devotion to the cause of public philanthropy, are not respected by this unholy piracy. Some personal peculiarity, some innocent official error, some trivial circumstance, is seized upon, distorted, and magnified until the newspapers reek with the product. To one having the heavy responsibilities of executive control of one of these institutions, the consequences of such cowardly attacks are most trying. The tranquility and concentration essential to the best efforts along medical and administrative lines are impossible. Unrest seizes the subordinates of the institution, and is in turn reflected upon the patients. And not least among the innocents who suffer through this reprehensible practice are the relatives and friends of the inmates, who come to believe that the charges which they have resigned to the State are suffering. The motives for these disastrous assaults are only too often purely political. The newspapers which publish the discolored accounts recognize this fact, wink at it, and continue to open their columns. The better element of our American public is strongly arrayed against this harmful meddling in its charitable institutions. Our profession repudiates it. The time is auspicious for an organized effort to stamp out the vices of newspaper sensationalism and of political interference in our State medical and charitable institutions. A systematic crusade by our organized profession with this end in view is as plainly indicated as those now in progress against scourges of the body, for this is a malignant disease of the body politic which calls for measures of cure and prevention.

The Political Emancipation of Public Charities in New York.—Physicians have of late found much to interest them in the politics of New York. In the last municipal campaign the record of the New York City Health Department under Republican rule was one of the strong arguments for the continuance of that party in power. While it did not prevail at the polls, the power of this record so impressed the successful party that New York now enjoys the unique experience of decent sanitary government under Tammany. In the State campaign two years ago the Odell policy with regard to the State charitable institutions had alienated so many thoughtful people that the Democrats found it worth while to make in their platform definite and satisfactory statements on the subject. The Republicans won, but discovered in their slim majority the alarming weakness of the Odell record on public charities. Odell himself was impressed, but his second administration failed to satisfy his critics. The present Republican candidate for Governor, Mr. Higgins, nominated upon a platform strongly commendatory of Odell's administration and silent about the State institutions, has discovered that the management of State institutions is an issue in this campaign. The Democratic platform, the explicit utterances of his opponent, Judge Herrick, and the pointed inquiry of Professor Fetters, Chairman of the Committee on Politics of the State Conference of Charities and Corrections, have caused Mr. Higgins to speak out. Mr. Higgins can hardly have relished Mr. Fetters' interrogatories, for Mr. Higgins was Chairman of the Senate Committee on Finance, and put the odious Odell legislation through. Professor Fetter asked, "Do you, or do you not, approve of the policy of the present administration toward the benevolent institutions? Are you, or are you not, running on the Odell record in this matter? . . . This question of the honest nonpartisan administration of the State benevolent institutions is, happily, to a large and steadily increasing number of voters, the paramount issue in the State campaign. In view of the facts you cannot be surprised that such citizens should expect from you on this issue the most unequivocal and emphatic assurances. . . . In view of your support of the Odell legislation at every stage of its progress and upon every vote, it is not enough to disavow his policy in general terms. It is for you to confess either that you then lacked the independence to oppose what your judgment disapproved, or that you were then mistaken and will, if given an opportunity, seek in every way possible to repair your error." To this examination Mr. Higgins has submitted with a politician's grace. *Charities* printed on October 22, an interview with Mr. Higgins and another with Judge Herrick. Later, in an editorial on the subject, *Charities* expresses the opinion that the assurances from each candidate are sufficiently explicit, and so satisfactory that the results of election need not in either event disturb the friends of the charitable and reformatory institutions.

Purification of Typhoid-infected Water.—Director Edward Martin's enthusiastic and unconditional advocacy of copper as a germicide in purifying drinking water contaminated with typhoid bacilli has attracted widespread attention to the work of Drs. Moore and Kellerman, of the U. S. Department of Agriculture—much more, probably, than these investigators had looked for. As is well known, the original object of their researches was to discover a chemical that would destroy certain forms of algæ that render drinking water kept in reservoirs offensive to taste and smell. Copper was found to have this power in solutions so dilute that—at least, so Drs. Moore and Kellerman maintain—it is harmless to the consumer of the water. The strongest solution found necessary is that of one part copper to a million parts water. In a recent address before the Philosophical Society, Dr. Moore stated that copper fulfils the three requisites to be considered by municipalities in undertaking to purify their water-supply from algæ, and even from bacterial growth; namely, efficiency, harmlessness, and cheapness—a reservoir holding 80,000,000 gallons having been successfully treated at a cost not greater than $50. There is sufficient evidence that regarding algal growth the method is efficient. It has been successfully applied in several New England towns—in Elmira and Cambridge, N. Y., and in Butte, Montana. Regarding its value in destroying typhoid fever germs, however, opinions are conflicting. Dr. Martin claims, as the result of some experiments made at the laboratory of the Bureau of Health of Philadelphia, that typhoid bacilli are destroyed in drinking water kept in copper vessels for four hours, the destruction being accomplished by the colloidal solution of copper formed by the action of the water on the walls of the vessel. Quite different results, however, have been obtained by Professor John H. Long, of the Northwestern University of Illinois, who has investigated the subject at the request of the Illinois State Board of Health. According to him, while the deathrate of typhoid bacilli is high in sterilized water placed in contact with copper, the germs can persist in suspicious water for two or three days, and even longer. Professor Long, moreover, claims that the disappearance of the typhoid bacilli from water in a copper vessel cannot be attributed entirely to the germicidal action of copper. Typhoid bacilli disappear from ordinary water in from one to ten days, and from Chicago tap water in about five days. Hence, the disappearance of the bacilli four hours after their addition to the water may be due not only to the action of the copper, but also to the natural destruction of these bacilli in water. Dr. Pennington, of the Philadelphia Health Bureau, is experimenting at present with colloidal solutions of copper obtained by passing water over electrically charged copper plates. But even if copper in the extremely dilute solutions advocated is capable of destroying typhoid bacilli, it still remains to be settled whether it is entirely harmless to human beings. A priori, any chemical capable of destroying resistant bacteria must be looked upon as harmful to animal cells, and as the question stands at present, it would be unwise for a city to treat its whole water-supply with copper. Dr. Abbott, in the discussion upon Dr. Moore's paper at the American Philosophical Society meeting, suggested that one of the six reservoirs of Philadelphia be set apart for experiments with copper, and this suggestion appears quite reasonable. The opportunities for investigating the subject are probably better in Philadelphia than anywhere else, owing to the number of separate reservoirs, and to the prevalence of typhoid fever.

George Kilbon Nash, late Governor of the State of Ohio, died suddenly of heart disease in Columbus, Ohio, on October 27, 1904. His death had long been anticipated; he was not a physician; at his life's end he had fewer friends than when he was elected Governor of Ohio in 1900; and yet, decidedly, his career deserves mention in medical literature. One noteworthy accomplishment of his two terms of office was his persistent tying of the hands of those politicians who would have made partisan and factional spoil of the higher and the lower positions in the charitable institutions of the State, in the maintenance of which is annually expended the greater portion of the State's revenues, and this was no light task. Very many of his political supporters had to be refused their insistent demands for "jobs," and their "friendship" thereupon turned into something closely akin to enmity. Yet he never yielded, and so (at the last) he was cordially disliked by the partisan "workers." It is true, that he also kept "hands off" of one State institution, where there was excellent reason to believe that the officers indirectly drew from the State considerably more than their salaries. For this toleration he had a most excellent reason—in the absence of legally convincing evidence (which is all but impossible to secure in such cases) he did not care to face an aroused medical profession at the charge of "political" interference with a medical administration. For one other good deed Governor Nash of Ohio deserves a place among the benefactors of medicine. When he assumed office the affairs of the Ohio Hospital for Epileptics were not, speaking mildly, in a state pleasing to the medical profession. He knew the hospital's affairs intimately, for he had previously served for a time as a trustee. After some fruitless efforts at reform he made a clean sweep, appointed an entire new board of trustees composed of young men, and to them he entrusted the task of giving to the hospital an administration in every way clean. Thus it came about that Dr. Ohlmacher was made superintendent, since which time the hospital has been improved, beautified, and broadened in every aspect of its growth. For the first time Ohio had an institution where regular scientific work was provided for and carried on, and a splendid example has been set of purity, fidelity, and efficiency of administration. Not once did the governor interfere with the plans of the board or superintendent and he always could be counted on for assistance. George K. Nash never willingly or knowingly did a harmful act, and among his positive deeds we have recorded two that should give his name permanent place among those who deserve the kindly remembrance of medical men.

EDITORIAL ECHOES

The Postponement of Medical Union in New York State.—We noted last July the attempt of certain members of the Onondaga County Medical Association to defeat the plan of union of the two State medical organizations by raising the plea of illegality in Justice Fitzgerald's court in this borough. This plea was unfortunately sustained, and the hopes of a lasting peace in the medical ranks in New York State must therefore be abandoned for the present. The point raised was that, inasmuch as the by-laws of the State Association contained no provision for the manner of giving notice of meetings, it was necessary to fall back upon the common-law rule. According to this, when a meeting of any organization is to be held for the passage of resolutions affecting privileges or property rights acquired by membership in such organization, the notice of the meeting must be served upon each member personally (not through the mail). Of course, no such notice of the special meeting of March 21, at which the plan of union of the two State societies was endorsed, was given, hence the court has ruled that that meeting was held illegally, and that the resolutions then adopted were of no force, and the action taken was binding upon none of the members. We understand that notice of a proposed revision of the by-laws, providing for a simple manner of calling meetings, will be introduced at the coming session of the State Association in this city; but such notice must stand over one year before being acted upon, and if we read the signs aright, there will be considerable opposition to any revision of the by-laws of the Association in October, 1905. Those who opposed union believe they have not postponed it only, but have made it impossible for all time. We trust they will be disappointed.—[*Medical Record.*]

Vaccination in Manila.—According to Public Health and Marine-Hospital reports, the Board of Health is still engaged in vaccinating the inhabitants of the city of Manila. A striking fact in support of the value of vaccination has been brought forward in this work. The systematic vaccination of the city by districts was commenced in June last. The plan was to vaccinate first those sections of the city in which smallpox had been more or less present since time immemorial. The vaccination in several of these districts has now been completed. One of the worst of them was finished over a month ago, and it is indeed very satisfactory to observe that in this latter district no cases of smallpox have occurred since the vaccination has been finished. One case was reported, but on investigation it was learned that the case had occurred in the person of a child which had not been vaccinated, and which, in all probability, was brought into the district after the vaccinators had completed their work.

AMERICAN NEWS AND NOTES

GENERAL.

Archives of the Röntgen Ray.—The publishers have decided to make of this publication an international journal. Dr. H. G. Piffard, of New York, will for the Rebman Company look after the American interests of the Archives.

Comparison of Racial Median Ages between Blacks and Whites.—The median age of negroes is 19.4 years; that is, half the negroes in the United States are below that age. The median age is four years below that of the whites (23.4 years), a difference closely connected with the high birthrate and high deathrate of the negroes.

Japanese Physicians Visit the United States.—A Japanese Imperial medical commission has been making a tour of the health departments of the principle cities of this country and Europe. The commission consists of Dr. Takamine, professor of chemistry in the Imperial University at Tokio; Professor Tanva of the department of pharmacy in the same university, and Dr. Sato, chief surgeon at the university.

Tuberculosis in Prisons.—The Norwegian Parliament promises to interest itself in the tuberculosis in prison question. Elaborate statistics have been gathered, showing that 56% of all deaths in prisons are from tuberculosis. This is three times as much as the mortality from tuberculosis among free people. As it is now, thousands of prisoners are infected with tuberculosis simply because the State refuses to protect them.

The Law on Adulterated Liquors.—Dr. Wiley's statement that 85% of the alleged whisky sold in this country today is only a cheap imitation excites much comment, as well it may, considering the number of persons who consume it. Many calls are made for more stringent laws to prevent adulteration and imitation. Possibly such laws are needed, but we fail to see why no attempt is made to enforce the laws as they now exist. Certainly those laws must be good for something, and it would be well to try them before making any more.—[*New Bedford Standard.*]

Encouraging Births.—Editorially, the *New York Times* says in part: A number of estimable women have incorporated in Massachusetts an insurance company designed to encourage motherhood by paying to policy holders a premium on the birth of children. The assured pays $3 initiation, $1 annual dues, and $3 a month assessments. After 10 assessment payments, aggregating with the initiation fee $34, the assured is eligible to receive on the birth of a living child a cash payment of $200; after the nineteenth payment, $300; after the twenty-eighth, $400; and at any time after the thirty-seventh, $500. Just how the arithmetic of the financial plan works out we do not know.

Miscellaneous.—General: Colonel Valery Havard, stationed at Governor's Island, N. Y., and **Captain Charles Lynch**, now on duty with the general staff in Washington, have been selected as the representatives of the medical department of the United States Army for service with the hostile forces operating in Manchuria. Colonel Havard will be detailed to accompany the Russian forces and Captain Lynch the Japanese forces.—**Philadelphia: Dr. S. Weir Mitchell** has returned to the city and resumed practice.—**Canada: Dr. Halpenny** severed his connection on November 1 with the Winnipeg General Hospital, and **Dr. A. M. Campbell**, recently appointed by the board, takes over the position of medical superintendent, with its duties and responsibilities.

The Remedy for Railway Fatalities.—The *Philadelphia Ledger*, commenting on this subject editorially, says in part: During the last fiscal year the American railways were operated at a cost to passengers and employes of 3,787 killed and 51,343 injured in train accidents alone. Here is a loss of life and injury to human beings far in excess of that during our little war with Spain, and exceeding even that of some of the great battles of history, and this sacrifice is due solely to indifference, carelessness, and parsimony. In Great Britain in 1903 the number killed in train accidents was 36 and the injured 919. This was an increase of 19 in the number of passengers killed, and it should be recalled that in 1902 only 6 passengers were killed, and in 1901 none at all. In 1903 there were only 235 collisions and derailments, as against the 11,300 in America. The comparative immunity which the British roads enjoy is due to the universal adoption of the block system, and the record in America shows conclusively that until this system in one or another of its several forms is made compulsory in this country the railways will continue to take their annual toll of blood.

NEW YORK.

City's Lowest Deathrate.—Thomas F. Darlington, Commissioner of the Health Department, announced at a board meeting recently that the deathrate for the week ending Saturday, November 5, was the lowest ever recorded in the history of Greater New York. It was 14.46. The number of deaths was 678, and the basis of estimated population, 3,570,012.

Physicians' Blacklist.—According to the New York correspondent of the Philadelphia *Public Ledger*, physicians in one of the populous wards of Brooklyn are preparing blacklists of patients who are unable to pay their doctors' bills, or at least, do not pay them. A physicians' protective association has been formed, and the lists, when completed, will be circulated among the members of the association, with the intention of warning all against those from whom they are unlikely to receive payment for their services. It is claimed that the best physicians are losing 25% of their bills, though they are protected by long experience in knowing who not to trust, while the younger physicians are often losing more than half till they acquire the same knowledge of their districts and their people.

To Fight the "Cruellists."—The New York Society for the Prevention of Cruelty to Children has issued an appeal for funds, in which there is reference to the "cruellist." It is in part: With the rapid growth of our great city, the number of cases with which the society must deal is constantly increasing, and its income must keep pace with the enlarging expenditures if it is to retain the power and influence which have made it the terror of the unworthy parent, the cruellist, and the would-be debaucher. Since its organization the society has received and investigated 173,833 complaints, involving the lives, health, or moral welfare of more than 515,548 children; obtained 67,755 convictions, and rescued 113,850 children from vice, from suffering, and from destitution. In 1903 it received 10,145 complaints, prosecuted 7,640 cases, obtained 6,083 convictions, and rescued 7,249 children—an average of 604 a month.

PHILADELPHIA, PENNSYLVANIA, ETC.

Two Hundred Barred on Account of Trachoma.—According to the *Public Ledger* the American liner Friesland reached port October 31 from Liverpool with 110 cabin and 725 steerage passengers. This number is 200 less than was booked to sail on the vessel. The decrease was due to the vigilance of the ship's doctor in preventing trachoma suspects from reaching this country. A majority of those rejected had been passed by the shore doctor at Liverpool, only to be rejected when they boarded the steamship.

Would Prevent the Delivery of Bad Milk.—According to the officials of the Public Health Department most of the milk served to consumers in Philadelphia seldom reaches them before it is from 24 to 36 hours old. Milk trains are run in the early morning hours by all the railroads entering the city, but the product they carry from the dairy farms to the large wholesale distributers in the city does not reach the latter in time for distribution that day, and it, therefore, remains in storage during the day and the following night, and is dispensed to consumers upon the morning following the one upon which it was shipped. Dr. Martin has expressed the hope that in the near future he would be able to arrange with the railroad companies for the running of night trains for the delivery of milk in time for distribution the morning of its arrival.

The Aid Association of the Philadelphia County Medical Society in the annual report for the year ending June 30, 1904, says during the past year the officers and directors of The Aid Association have noted with pleasure an increase of interest in and a widening of the scope of usefulness of the society. This upward movement can only be continued by the earnest cooperation of every member of The Philadelphia County Medical Society. Not only have the meetings of the directors been fully attended, but also, as may be seen from the statement of the treasurer, advantageous changes have been authorized in the investments of the Association. There has been an increase in the number of those helped during the year and the Association feels it should have the warm support of every physician and doubts not but that many of their patients would be pleased to contribute if the matter was presented to their attention.

SOUTHERN STATES.

Boll Weevil Spreads in Texas.—The Government Weather Bureau for Texas has issued a map showing that the boll weevil has spread considerably in North Texas during the month of October. The statement is made that careful investigation of the reports of the weevil in Arkansas, and Indian Territory, and Oklahoma fails to disclose the presence of the pest.

Memorial to Dr. Osler.—According to news from Baltimore, if the plans of a number of Baltimore physicians, acting in conjunction with prominent physicians throughout the United States, are carried through, Baltimore will have one of the best, if not the finest, medical library in the world. The proposed library is intended for a memorial to Dr. William Osler, and will be called the Osler Memorial Library.

May Have Infectious Hospital.—It is reported that Mayor Timanus and the Board of Public Safety have gone on record as favoring a hospital for infectious diseases for the city of Baltimore. The question grew out of a discussion of the unhealthy conditions surrounding the various dumping grounds. Health Commissioner Bosley has advocated this action on the part of the city for some time, and it appears at last to be bearing fruit.

WESTERN STATES

Vaccination in Chicago.—According to Chicago's Bulletin of the Health Department, upward of 270,000 vaccinations have been performed in the city since October 1—forty-odd thousand by officers of the department and the remainder by private physicians.

Criminals and the Cigaret.—Sheriff L. B. Barker, of Cleveland county, Okla., for the last year has been keeping a complete record of his prisoners, in which he recorded all their likes, dislikes, and personal habits. During that time he has had in his jail over 300 prisoners, and he says that 70% of the prisoners are addicted to the cigaret habit.

Ohio Hospital for Epileptics.—The following resolutions were introduced by Dr. C. G. Parker, and adopted at the regular meeting of the Gallia County Medical Society, held in Gallipolis, Ohio, November 1, 1904:

> Inasmuch as the management of the Ohio Hospital for Epileptics has been subjected to newspaper persecution, misrepresenting the conditions in that institution and reflecting upon the ability of the superintendent, therefore, be it
>
> *Resolved*, That the Gallia County Medical Society protests against the damaging and unfair methods employed by those who are endeavoring to discredit the present management of the hospital; and that it expresses its confidence in the honesty, integrity, personal uprightness, professional and executive ability of Dr. A. P. Ohlmacher, the superintendent of the Ohio Hospital for Epileptics And be it
>
> *Resolved*, That the Gallia County Medical Society signifies its disapproval of all forms of political intriguery tending to embarrass the authorities of the Ohio Hospital for Epileptics in the honorable discharge of the duties looking to the best medical and administrative interests of the wards of the State. And be it further
>
> *Resolved*, That a copy of these resolutions be transmitted to Governor Myron T. Herrick, and to the Board of Trustees of the Ohio Hospital for Epileptics.
>
> R. W. Holmes, Secretary.

FOREIGN NEWS AND NOTES

GENERAL.

Multiple Births in Prussia.—The "Official Statistics" published by the Prussian Health Bureau in Berlin, mention the following interesting figures concerning multiple births in Prussia during the 25 years from 1875 to 1900. There occurred 771,006 cases of twins, 8,509 of triplets, 123 of quadruplets and 3 of quintuplets. They have not yet reached the half-dozen mark.

The Persian Imperial Sanitary Board.—According to Public Health and Marine Hospital reports: By order of the Shah, a sanitary board of the Persian Empire was formed, under date of August, 1904, with the view of carrying out the measures prescribed by the sanitary conference of Paris (1903). The board is composed of the minister of police, representatives of the foreign, home, customs, postal, and public instruction offices; of the chief of the municipality of Teheran; of the European physicians of the Imperial courts; of the medical attaches of the Russian, British, French, and German legations and the Turkish embassy (there are no medical attaches to the United States, Italian, Austrian, Belgian, and Dutch legations); and of such Persian physcians as the board may see fit to nominate. The presidency has been trusted to Doctor Schneider, surgeon-colonel of the French army, who is in mission to the Persian court and particular physician to the Shah. The council is to hold ordinary meetings once a month and special meetings whenever necessary. The first meeting has already been held, and a committee on hygiene has been appointed with the duty of inspecting and reporting on the cemeteries and slaughter-houses of Teheran.

Fee Dispute in Carlsbad.—Carlsbad newspapers recently commented upon the fact that a local physician was supposed to have charged 30,000 kronen ($6,000) for medical services rendered to an American millionaire, and the *Carlsbader Tageblatt* is now in position to state the following authentic particulars of the case: About nine weeks ago an American millionaire arrived at Carlsbad in a very low condition. The local physician declined the responsibility for the necessary operation and called in a specialist from Berlin. The Berlin professor demanded and received 20,000 kronen ($4,000) for the operation, and his Berlin assistant received $1,000. On the eve of his departure the patient asked the local physician for his bill, in which $2,000 was charged for attendance during nine weeks, involving about 80 visits. To this amount the American objected, tendering $500, which the doctor asserts never to have received. The physician instantly procured an order from the court to levy upon the American's chattels, which was served upon the departing guest at the last moment in front of the hotel, where a considerable commotion ensued. The exciting scene was terminated by the hotel proprietor suggesting the deposition of the amount in dispute with the courts, pending legal proceedings, which advice was acted upon. The American engaged a lawyer to represent his interests and departed, and the case will now shortly come before the Carlsbad courts to decide as to what fee the local practitioner is entitled.

OBITUARIES.

Alfred H. Powell, aged 73, suddenly, from heart disease, at Baltimore, November 4. Dr. Powell was a member of the University Club, and at one time was connected with the College of Physicians and Surgeons. He was the son of the late William Alexandria Powell, of Leesburg, Va., where he was born. He graduated in medicine from the University of Virginia and began to practise in Leesburg. At the breaking out of the Civil war he entered the Confederate army as a surgeon. At the close of the conflict he was chief surgeon of Mahone's brigade. In 1886 Dr. Powell came to Baltimore, where he had since practised.

William Wotkyns Seymour, aged 51, from heart disease, at his home in Troy, New York, October 18; a graduate of the Harvard Medical School, Boston, 1878; a member of the American Medical Association, of the British Medical Association, of the American Association of Obstetrics and Gynecology and various State and local medical societies. He was professor of gynecology and midwifery in the University of Vermont for some years and was trustee and chief surgeon of the Samaritan Hospital, Troy, N. Y. He was a wellknown surgeon and a pioneer in the surgical treatment of gallbladder diseases.

Walter W. White, Sr., after a brief illness of bronchitis, at his home in Baltimore, November 3. Dr. White was born in Oxford, England, 61 years ago, and came to this country with his parents in 1851. After receiving his early training in the public schools of Baltimore he entered the Maryland University, and graduated in medicine in 1870. He was a Mason and was a member of various medical associations.

Daniel A. Thompson, from malarial fever and abscess of the liver, at his home in Indianapolis, October 22; a graduate of the Medical College of Indiana, Indianapolis, 1883; a member of the American Medical Association; a professor of diseases of the eye in the Medical College of Indiana.

Campbell Sheridan, aged 85, at his home in Sheridan Station, Pennsylvania, October 18; a graduate of the Jefferson Medical College, Philadelphia, 1849. He was the oldest member of the Cambria County Medical Society and formerly lived at Johnstown, Pennsylvania.

Jesse B. Blocher, Jr., aged 24, from heart disease. While he was of Blocher, Indiana, he was found dead in Smith's Ford, a fourteen-mile creek, October 23; a graduate of the University of Louisville, Kentucky, 1902.

Henry Lott McIlhenny, aged 47, of Kingman, Kansas, was instantly killed in a train wreck on the Missouri Pacific railway, en route to St. Louis, October 10; a graduate of the Missouri Medical College, St. Louis, 1884.

Alice P. Howes, formerly of Detroit, in the Eastern Michigan Asylum, October 11, after a long illness; a graduate of the University of Michigan, department of medicine, Ann Arbor, 1882.

William Pannill, at his home in Corsicana, Texas, October 21; a graduate of Texas Medical College and Hospital, Galveston, 1878 and formerly physician to the Texas State Orphan Home.

W. Bruce Callins, aged 40, from paresis, at his home near Oakville, Tennessee, October 9; a graduate of Vanderbilt University, medical department, Nashville, 1883.

Frederick C. Hennessy, aged 31, from heart disease, at his home in Madison, Indiana, October 17; a graduate of Bellevue Hospital Medical College, New York, 1897.

George A. Bentley, aged 64, at his home in Washington, October 21; a graduate of the Georgetown University, medical department, Washington, D. C.

J. Randolph Latimore, at his home in McAdensville, North Carolina, October 18; a graduate of the University of Maryland School of Medicine, 1881.

George C. Schemm, aged 41, of Saginaw, Michigan, at the Johns Hopkins Hospital, Baltimore, October 20, from anemia, after an illness of two years.

Stephen H. Brittain, aged 72, at his home in Soogootee, Indiana, October 21; a graduate of the Cincinnati College of Medicine and Surgery, 1859.

Noah L. Eastman, aged 46, from Bright's disease, at his home in Albany, New York, October 21; a graduate of Albany (N. Y.) Medical College, 1886.

Louis J. Corey, aged 54, at his home in Van Buren, Indiana, October 25; a graduate of the Medical College of Ohio, Cincinnati, 1875.

James S. Cabanne, aged 71, from apoplexy, in the City Hospital, St. Louis, October 19; a graduate of Jefferson Medical College, 1876.

Henry C. Dixon, of Tunnelton, Indiana, at Fort Ritner, Indiana; a graduate of Louisville Medical College, Kentucky, 1872.

Eleanor Louise Rundio, aged 26, at her home in New York City, October 24, from typhoid fever.

E. C. Farrer, aged 74, at his home in Kingston, Mississippi, November 3.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended November 4, 1904:

SMALLPOX—UNITED STATES.

			Cases	Deaths
California:	San Francisco	Oct. 15-22	1	
Illinois:	Chicago	Oct. 22-29	14	
Michigan:	At 50 places	Oct. 15-22	Present	
	Grand Rapids	Oct. 22-29	1	
Minnesota:	Hennepin Co.	Oct. 17-24	11	
	Ramsey Co.	Oct. 17-24	5	
	Stearns Co.	Oct. 17-24	47	
Missouri:	St. Louis	Oct. 22-29	8	2
Pennsylvania:	Philadelphia	Oct. 22-29	1	
Tennessee:	Memphis	Oct. 22-29	1	
Wisconsin:	Milwaukee	Oct. 22-29	9	

SMALLPOX—FOREIGN.

Africa:	Cape Town	Sept. 17-24	4	
Austria-Hungary:	Prague	Oct. 8-15	7	
Belgium:	Brussels	Oct. 8-15		1
Brazil:	Bahia	Oct. 1-8	21	2
China:	Hongkong	Sept. 10-17	1	1
			Imported	
France:	Paris	Oct. 8-15	10	
Great Britain:	Glasgow	Oct. 14-21	1	
	Leeds	Oct. 8-22	4	
	Manchester	Oct. 8-15	1	
	Newcastle-on-Tyne	Oct. 8-15	5	
	Nottingham	Oct. 8-15	2	
India:	Bombay	Sept 28-Oct. 4	4	
Italy:	Palermo	Oct. 8-15	11	2
Russia:	Moscow	Oct. 1-8	3	2
	Odessa	Oct. 8-15	1	
	St. Petersburg	Sept. 25-Oct. 8	11	1
Spain:	Barcelona	Oct. 10-20		2
Turkey:	Alexandretta	Oct. 10	Epidemic	
	Beirut	Oct. 8-15	Present	
	Constantinople	Oct. 2-17		39

YELLOW FEVER.

Cuba:	Punta de Sal, Santiago	Oct. 24	1	
Ecuador:	Guayaquil	Sept. 30-Oct. 5		1
Mexico:	Coatzacoalcos	Oct. 15-22	2	2
	Merida	Oct. 16-22	1	
	Tehuantepec	Oct. 16-22	1	
	Texistepec	Oct. 16-22	53	5

CHOLERA.

India:	Bombay	Sept. 27-Oct. 4		7
	Madras	Sept. 24-30		1
Persia:	Enseli	Oct. 17	Epidemic	
	Resht	Oct. 17		
			120 to 140 deaths daily	
	Senemditah	Oct. 17	Epidemic	
Russia:	Trans-Caspian Dist.	Sept. 17-29	44	23
Turkey:	Bagdad and vicin.	Sept. 12-26	1513	1017

PLAGUE.

Brazil:	Bahia	Oct. 1-8		1
China:	Hongkong	Sept. 10-17	4	4
Egypt:	Alexandria	Sept. 10-30	12	8
	Port Said	Sept. 17-23	1	
Great Britain:	South Shields	Sept. 19	1	
	On S. S. Bishopsgate from Rosario, via Hamburg			
India:	Bombay	Sept. 27-Oct. 4		80
	Karachi	Sept. 25-Oct. 2	14	8
Mauritius:		July 8-Aug. 4	8	6
Peru:	Eten	Oct. 8	Present	
	Lima	Sept. 1-Oct. 1	13	
	Pacasmayo	Oct. 8	Present	

Changes in the Medical Corps of the U. S. Army for the week ended November 5, 1904:

McMillan, C. W., contract surgeon, upon the arrival at Fort Hamilton, N. Y., of First Lieutenant William Roberts, assistant surgeon, will return to Fort Myer and he is granted twenty days' leave.

Ford, Captain **Joseph** H., assistant surgeon, is granted leave for two months, from about November 15.

McMillan, **Clemens** W., contract surgeon, is relieved from duty at Fort Myer and upon the expiration of leave will proceed to Fort Terry and report for duty, relieving First Lieutenant Chandler P. Robbins, assistant surgeon, who will proceed to Fort Ethan Allen and report for duty.

Wing, **Franklin** F., contract dental surgeon, Fort Riley, will proceed to Fort Des Moines for temporary duty to finish uncompleted work begun by Contract Dental Surgeon Tignor.

Polhemus, Major **Adrian** S., surgeon, will report in person to president of Army Retiring Board at Fort Leavenworth for examination.

Whinnery, **Jean** C., contract dental surgeon, will upon expiration of leave proceed to Vancouver Barracks, Washington, and report for duty in department.

Tefft, First Lieutenant **William** H., assistant surgeon, Fort Snelling, will proceed to Fort Lincoln to accompany as medical officer the Third Battalion, Twenty-first Infantry, to the Presidio of San Francisco. Upon completion of this duty he will report to commanding general, department of California, to ascertain if his services are required to accompany the Twenty-eighth Infantry to this department; if not, he will return to Fort Snelling.

Wadhams, First Lieutenant S. H., assistant surgeon, Army transport Logan, is granted leave for one month from October 22.

The following changes in the stations and duties of officers are ordered: Captain Henry R. Stiles, assistant surgeon, having relinquished unexpired portion of leave, will report at Washington Barracks for duty, to relieve Major Henry P. Birmingham, surgeon, who will proceed to San Antonio, Tex., and report for duty as chief surgeon of department of Texas. First Lieutenant Percy L. Jones, assistant surgeon, will proceed from Fort Monroe, Va., to New York City, and report November 8 as surgeon on the transport Sumner.

Tuttle, **George** B., contract surgeon, having reported at these headquarters, is relieved from further duty with troops to enable him to avail himself of the leave granted.

Keller, First Lieutenant **William** L., assistant surgeon, having reported at these headquarters, will report to commanding officer, Army General Hospital, Presidio of San Francisco, for duty, relieving First Lieutenant Charles C. Billingslea, assistant surgeon, who will comply with the orders of War Department.

Lamkin, **Edward** E., contract surgeon, having reported at these headquarters, is relieved from further duty with troops, to enable him to avail himself of leave.

Brown, **Polk** D., contract surgeon is relieved from further temporary duty at the Army General Hospital, Presidio of San Francisco, and will report at Fort McDowell, Cal., for temporary duty at that post until the first prox., when he will stand relieved and proceed to the Philippine Islands.

Pipes, First Lieutenants **Henry** F., and **Bingham**, **Ernest** G., assistant surgeons, having reported at Presidio of Monterey with detachments of the Ninth Cavalry, are relieved from further duty with those troops and will proceed to the Philippine Islands.

Johnson, **Charles** W., contract surgeon, is relieved from temporary duty at the depot of recruits and casuals, Angel Island, November 1, and will proceed to the Philippine Islands.

Warriner, **Benjamin** B., contract surgeon, is relieved from temporary duty at Army General Hospital, Presidio of San Francisco, and will proceed to the Philippine Islands.

Changes in the Medical Corps of the U. S. Navy for the week ended November 5, 1904.

Lando, M. R., doctor, appointed as assistant surgeon from October [illegible]—October 29.

Hart, G. G., acting assistant surgeon, ordered to the Marine Barracks, Dry Tortugas, Fla.—November 1.

Sutton, R. L., assistant surgeon, detached from the Naval Hospital, New York, and ordered to the Massachusetts, November 28—November 1.

Winn, C. K., and **de Valin**, **Hugh**, doctors, appointed acting assistant surgeons from October 28—November 1.

Geiger, A. J., assistant surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered home—November 1.

Changes in the Public Health and Marine-Hospital Service for the week ended November 2, 1904:

Peckham, C. T., surgeon, granted extension of leave of absence for ten days from November 8—October 31, 1904.

Smith, A. C., passed assistant surgeon, to proceed to New York, N. Y., and report to chairman of board of examiners for examination to determine his fitness for promotion to the grade of surgeon—October 25, 1904.

Cumming, H. S., passed assistant surgeon, relieved from duty as member of board for examination of Assistant Surgeon J. W. Amesse to determine his fitness for promotion to the grade of passed assistant surgeon—October 29, 1904.

Clark, **Taliaferro**, passed assistant surgeon, to proceed to Baltimore, Md., for temporary duty in connection with inspection of aliens, relieving Assistant Surgeon A. D. Foster—October 28, 1904.

Lumsden, L. L., passed assistant surgeon, relieved from duty at Vera Cruz, Mexico, and directed to proceed to the Immigration Depot, New York, and report to Surgeon G. W. Stoner for duty—October 31, 1904.

Richardson, T. F., passed assistant surgeon, relieved from duty at Laredo, Texas, and directed to proceed to Savannah, Ga., and assume command of the service, relieving Surgeon S. D. Brooks—October 25, 1904.

Richardson, T. F., passed assistant surgeon, granted leave of absence for fifteen days—October 31, 1904.

McClintic, T. B,, passed assistant surgeon, to report to Director, Hygienic Laboratory, for duty—October 27, 1904. Granted leave of absence for seven days from October 31, 1904, under paragraph 191 of the regulations.

Goldberger, **Jos.**, passed assistant surgeon, relieved from duty at Tampico, Mexico, and directed to proceed to Washington, D. C., and report at Bureau preliminary to assignment to duty in the Hygienic Laboratory for course of instructions—October 31, 1904.

Trotter, F. E., passed assistant surgeon, detailed as member of board for examination of Assistant Surgeon J. W. Amesse to determine his fitness for promotion to the grade of passed assistant surgeon—October 29, 1904.

Gwyn, M. K., assistant surgeon, relieved from duty at Jolo, P. I., and directed to proceed to the United States and report arrival at San Francisco, Cal.—October 26, 1904.

Foster, A. D., relieved from duty at Baltimore, Md., and directed to proceed to Naples, Italy, and report to Passed Assistant Surgeon J. M. Eager for duty in the office of the United States Consul—October 10, 1904.

Robertson, H. McG., assistant surgeon, to proceed to Baltimore, Md., and assume temporary charge of service during absence of Assistant Surgeon C. W. Wille—October 25, 1904.

Woods, C. H., pharmacist, granted leave of absence for fifteen days from October 27—October 28, 1904.

Board Convened.

Board convened to meet at the Marine Hospital, Chelsea, Mass., November 2, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon W. C. Rucker, recorder.

SOCIETY REPORTS

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, Held in Cincinnati, Ohio, October 11, 12, and 13, 1904.

[Specially reported for *American Medicine*.]

[*Continued from page 793.*]

Insanity in Relation to Obstetrics and Gynecology.—HENRY F. LEWIS (Chicago) stated that various types of insanity might affect the pregnant or puerperal woman, or the woman suffering from pelvic disorder. There was no true puerperal insanity, however, as such. Normal pregnancy and even normal menstruation were not devoid of certain eccentricities of temper, tastes, appetites, or even morals. Some degree of mental instability must preexist if the eccentricities were to be exaggerated into insanity. The element of heredity was a potent factor, and could be traced in about three-fourths of the cases. Authorities differed as to the estimated frequency of obstetric insanity. McLeod's figures gave a proportion of one case to 2,000 labors. Clovston found 10% of insane women at the Edinburgh Asylum was classified as having puerperal psychoses. Lane, from observations in the Boston Insane Hospital for the past ten years, concluded that insanity associated with childbirth occurred only half as often as insanity among all women of child-bearing age. At best, one could only grant to child bearing an exciting causal relation in the production of an outbreak of insanity. The predisposing instability of mind, often largely hereditary, awaited some awakening impulse in an acute physical or psychic disturbance. Such disturbance might be furnished by disorders of the genital organs in the performance of their normal functions. The relation of disease to the female genital organs to mental disease had long been recognized, but the intimacy of sex relation had been the subject of wide differences of opinion. A very large number of insane women were affected with pelvic disease. Evidence from autopsies and gynecologic examinations of insane women by a large number of authorities showed the presence of noticeable pelvic disease in about 25%. A considerable number of gynecologists had operated upon insane women at asylums for their genital lesions, and had secured a gratifying percentage of cures and instances of improvement. Hobbs, of London, Ontario, observed over a thousand insane women, and found pelvic disease of sufficient moment to justify operation on account of the pelvic disease itself in 25% of these women. All his examinations were made under the influence of an anesthetic, and suggestion was thereby eliminated. Ovarian lesions seemed to influence the mental state the most, uterine next, and vaginal the least. Neoplasms were the least prone to cause mental disorder, of all the pathologic conditions. Judging not alone from the work of Hobbs, it appeared that there was a much larger proportion of pelvic disease among insane women than among sane; that the pelvic disease had at least an exciting causal relation to the mental disease; that successful treatment, operative or otherwise, of the pelvic lesions would promise good results in the treatment of the mental disease. It was pretty generally agreed that some pathologic basis must exist to justify operation.

Newer Conceptions of the Management of Bright's Disease.—ALFRED C. CROFTAN (Chicago, Ill.) considered this disease as a cardiovascular disorder of manifold origin, involving primarily the heart and arteries, secondarily, those organs chiefly supplied by end arteries, namely, the brain, the retina, and the kidneys. The degeneration of the kidneys was, therefore, a very common and important, but not a determining feature of the disease. Bright's disease in early stages not infrequently occurred without renal involvement. Primary nephritis with the retention of excrementitious bodies might occasionally be a cause of the cardiovascular changes. This sequence of events, however, was relatively rare. The management of Bright's disease should be directed toward the prevention or removal of factors operative to affect the heart and arteries. The treatment of the nephritis was incidental, but important. The rest cure of the kidneys, diet (dangers of exclusive milk feeding), hygiene, and medicinal treatment were discussed on the basis of the above conceptions.

The Early Recognition of Important Eye Lesions by the Practitioner.—GEORGE F. SUKER (Akron, Ohio) pointed out the early diagnostic eye lesions in diabetes, chronic nephritis, and locomotor ataxia. Reference was made to the diagnostic conjunctival spot in cases of measles. He spoke of the frequency in mistaking glaucoma for trifacial neuralgia; also the frequency with which simple chronic glaucoma was confounded with cataract. He emphasized the need of recognizing the eye conditions as a factor in chorea, functional epilepsy, neurasthenia, and hysteria. The relation between gastrointestinal derangements and certain eye lesions was pointed out, and the need of a thorough ophthalmic examination in the neurotic, chlorotic, and patients of this character emphasized.

The Value of the Röntgen Ray to the General Practitioner.—JAMES E. COLEMAN (Canton, Ill.) stated that as the practice of medicine was still largely in the hands of the general practitioner, it made it necessary for him to improve to the greatest extent his resources for diagnosing and combating disease. Röntgen ray apparatus has become a necessary adjunct. In order that it might be satisfactory, it must be first class. Every general practitioner should have one textbook on röntgen ray therapy. The mastery of the details and technic was not difficult when studied, but success depended upon a knowledge of anatomy and proper interpretation of the screen and skiagraph. Cases were cited.

Macular Atrophy of the Skin.—EDWARD H. SHIELDS (Cincinnati, Ohio) said that this rare disease was first described by Jadassohn, in 1892. No other case reported. The author presented the following history of a case: Eighteen months ago red macular lesions were found on the legs and thighs, with no subjective symptoms. Some weeks later the patches lost redness, became softer, depressed, and the skin over the diseased area became shriveled; atrophy continued for several weeks, when the atrophic spot became soft and pale. Owing to the marked irritability of the skin, the atrophic lesions did not appear very pale immediately after the removal of the clothing, but after half an hour of absolute rest they became quite pale, resembling those of morphin. He stated that treatment was of little value, yet in due course of time the process was arrested.

Why so many Errors in the Diagnosis of Graves' Disease?—J. H. STEALY (Freeport, Ill.) emphasized the importance of a correct nomenclature and its bearing on errors of diagnosis. He pointed out the illogical nature of the term exophthalmic goiter as applied to the symptom-complex of Graves' disease, and showed what a remarkably large number of cases of Graves' disease could be found if sought for. He discussed the percentage of symptoms, the diagnostic importance of each, and also the symptomatology.

Echinacea.—C. S. CHAMBERLIN (Cincinnati, Ohio) made a plea for the recognition of echinacea as a valuable therapeutic agent. He gave a brief history and description of the drug, and referred to the suspicion with which the regular profession regarded remedies introduced by irregular practitioners, and their reluctance to investigate their merits. He cited brief reports of cases illustrating the therapeutic value of the drug as an alterative and antiseptic, and its range of application.

The following papers were also read: **Pseudomembranous Croup.**—R. E. CARLTON (Latonia, Ky.). **Bacteriology and Immunity: What it is; What it Teaches; What it does not Teach.**—R. E. HAUGHTON (Richmond, Ind.). **Two Etiologic Factors in Pelvic Diseases in Women; Their Prevalence and Prevention.**—J. H. FIRESTONE (Freeport, Ill.). **Prognosis.**—JOHN M. BATTEN (Downingtown, Penna.).

Officers.—The following officers were elected for the ensuing year: President, Bransford Lewis, St. Louis, Mo.; first vice-president, Frank P. Norbury, Jacksonville, Ill.; second vice-president, J. Henry Carstens, Detroit, Mich.; secretary, Henry Enos Tuley, Louisville, Ky., reelected; assistant secretary, John F. Barnhill, Indianapolis, Ind.; treasurer, S. C. Stanton, Chicago, Ill. Indianapolis, Ind., was selected as the place for holding the next annual meeting; the time, second Tuesday, Wednesday, and Thursday in October, 1905.

The choice and use of medical literature was the subject of the **president's address**, delivered by HUGH T. PATRICK (Chicago). He said the daily walk of doctors differed greatly. We had the family factotum, the conversational doctor, the lodge doctor, the church doctor, the society doctor, and the doctor deep in politics. They were good friends and good citizens, but really fine physicians? Not one of them. And not one of them knew or cared about good medical literature. The wise, skilful physician he would like to be, read a great deal. He selected his literature well, and used it wisely. The selection of books was a task as delicate, a duty as significant as was the choice of drugs. Every book was a prescription for one's mental self. Progress meant expansion. No textbook doctor was an A No. 1 man. He must have the treatise, the system, the cyclopedia, and the monograph. Of all books, the monograph was the best, and the worst. It must be properly selected, and read with discrimination. In medicine there was no such thing as an authority. Every paragraph was to be adjudicated. Concerning medical journals, the speaker said: "Since to advise is more human than to confess, to find fault is more spontaneous than to praise, to say don't easier than to say do, I venture first to advance a few of the don'ts in my mind. Don't admit to your presence a journal that is not perfectly straight and clean. Don't indulge in yellow journals, for such there are of deeper or fainter dye. Don't take a journal which is run as an advertising medium. Don't tolerate the journal that accepts abortive papers by underdone doctors. Don't waste time on journals abounding in short cuts. Don't pay much attention to columns of formulas, notes on treatment, therapeutic hints, brief paragraphs on recent discoveries, and items on new drugs." In conclusion, four hints were given as to the manner of reading: 1. Systematically, to get up one subject well; to investigate it thoroughly in every way. Then take up another. 2 To read up fully on cases in hand. No case can be considered alone. It is always in relation to variant cases. 3. Reading to write, providing, of course, that the writer compels himself to produce really good material. Pursuance of these three plans produces a most desirable habit—the keeping of case records. This in turn stimulates reading, and enhances its value. Accurate comparison of experience ripens knowledge into wisdom. 4. To acquire the mental habit, or attitude, or aptitude of reading for reproduction. There is a vast difference between the acquisition of knowledge as a mere accomplishment, and as a means of accomplishment It is well for us doctors to regard our store of knowledge not simply as an interesting museum of nature's wonders, marvelous to contemplate, but rather as an armamentarium, an orderly array of goodly weapons ready for instant use.

Surgical tuberculosis in the abdominal cavity, with especial reference to tuberculous peritonitis, was the title of the **address on surgery**, delivered by WILLIAM J. MAYO (Rochester, Minn.). In St. Mary's Hospital during the 10 years from October 1, 1894, to October 1, 1904, 6,408 abdominal operations were performed; of these, 183, or a little less than 3%, were for tuberculous lesions. Localized in intestine, 21 times; in appendix, 29; in fallopian tube, 44; and tuberculous peritonitis, 89. Of the latter, not over 50% remained well, although 95% were discharged improved or cured, giving a high percentage of relapses within two years. About four females were operated upon to one male. In seven relapsing cases in females, reinfection was found to arise from tuberculosis of mucous membrane of the tube. In all, 26 cases of tuberculous peritonitis in females were subjected to radical operation for the removal of tuberculosis of fallopian tubes. In a few females an infecting focus was found in the appendix or cecum. In a minority the source could not be traced. In men a considerable number arose from tuberculous lesion of the appendix or cecum. Tuberculous peritonitis, like aseptic peritonitis, was due to a local focus. A considerable number of cases of tuberculous peritonitis were cured by nature. Simple laparotomy aided recovery by permitting of more thorough encapsulation of tuberculous products and by increasing the antituberculous serums in the abdominal cavity. Removal of the localized focus of infection in the tube, appendix, etc., would greatly increase the percentage of cures and prevent reinfections. If the local focus could be removed and was primary, a general cure might be expected. If secondary to a primary disease in the lung or other part of the body, ultimate recovery depended on curability of the chief lesion.

A plea for wider knowledge concerning diseases which affect the joints, was the title of the **address in medicine**, by C. TRAVIS DRENNAN (Hot Springs, Ark.) who urged the necessity of greater care in every instance in which a joint was involved, no matter how insignificant such condition might appear. The usual cases of acute articular rheumatism, gout and tuberculous disease could easily be recognized under ordinary conditions, but not so much could be said when one came to the early manifestations of arthritis deformans, so-called subacute articular rheumatism, and certain forms of gonorrheal arthritis. Under existing knowledge it was well-nigh impossible in certain cases to differentiate these diseases during their earlier manifestation. When the etiology of gout was written, in his opinion it would be shown to manifest itself primarily somewhere along the digestive tract. If we could get perfect digestion, we were in a position to get perfect assimilation, and with perfect assimilation, most assuredly we were in direct line to get perfect elimination. That there was a nervous element supervening in arthritis deformans, was a view concerning which he had a well-grounded belief.

Hospital Construction in American Cities and Towns.—A. J. OCHSNER (Chicago) pointed out the fact that an enormous number of new hospitals had been established, and were still being established in every part of this country; that so far the new hospitals had almost all been built by architects who based their plans on the principles which governed hospital construction 30 years ago, at which time the theories of contagion and infection were wrong. Nothing was known about differences in purity of air at different levels. The elevator had not been perfected. It was not possible to make high buildings fireproof at a reasonable cost. These changes in our knowledge being of the greatest importance should change entirely the plans of hospital construction. The importance of proper location was discussed at length. The building should be so placed as to admit sunlight to all the rooms and wards. It should be accessible to the patients and their friends and to the medical staff. This could usually be accomplished without interfering with the other important conditions. The paper then gave a number of plans for hospitals intended for various purposes, the latter being those exhibited at the Louisiana Purchase Exposition by the author, associated with Mr. M. J. Sturn, architect. Stress was laid upon the fact that millions of dollars would be spent in the construction of hospitals in the immediate future, and that it was important that the subject be thoroughly studied in the meantime.

Radical Cure of Hernia.—HAL C. WYMAN (Detroit, Mich.) said the problem of hernia had been so fully worked out in the inguinal and umbilical regions that there was nothing to do now but to find the hernial opening, and stitch it up so that the bowel would stay where it belonged in the cavity of the abdomen. In any case of intestinal hernia, it was a fair presumption that the intraabdominal space was not large enough to contain the intestines, and the abdominal walls were insufficient to embrace the abdominal contents. It was reasonable, then, to assume that surgical intervention for the cure of intestinal hernia should include measures to reduce the volume of the abdominal contents, and to increase the size and strength of the abdominal walls. Masses of omentum and part of intestines must sometimes be removed to make room; and flaps must sometimes be dragged in to supplement the insufficiency of the muscles and fascias. Suturing must be complete, absolute, and without the tension that damaged and destroyed any of the tissues. Scrotal skin and fascia might be sutured into the large hernial openings with gratifying results by making an entirely new place for impingement of the intestines that would otherwise protrude. Many patients with inguinal hernia might be permitted to get up when they felt able, with great advantage in educating the abdominal muscles to perform their offices, so that hernias did not occur.

The Typic Anatomic Operation for the Radical Cure of Oblique Inguinal Hernia.—ALEXANDER HUGH FERGUSON (Chicago) contributed a paper on this subject, which was accompanied by numerous and beautiful illustrations. Ferguson described his method of operating on these patients, a full description of which may be found in the current medical literature. So far as he could determine, approximately 2,200 patients had been operated on by his method, without the recurrence of hernia.

Discussion.—WILLIAM J. MAYO said that of 600 or more operations done in accordance with the Ferguson method, only three relapses had occurred, and he was uncertain as to whether these were really due to the Ferguson or Bassini operation. H. O. WALKER considered the Ferguson method rational, and the results good. He had operated by this method over a hundred times, and had had no recurrence of hernia. He spoke of two cases in which he did a perineal prostatectomy in addition to the operation for the radical cure of hernia at one sitting, with satisfactory results in both instances. VAN BUREN KNOTT had been employing the Ferguson operation for some time, with the happiest results. He had no recurrences. EMIL RIES favored getting patients out of bed as early as possible after abdominal or hernial operations. He did not hesitate to let his patients get out of bed on the first or second day after operation, and had had no evil results therefrom. He had used the method of Kocher in a number of cases of inguinal hernia, the main point being inversion of the sac, and had had no recurrences following this method. JOSEPH RILUS EASTMAN doubted the wisdom of allowing the patients to get out of bed two or three days after an abdominal or radical operation for hernia, on account of the great strain from pressure on the aponeurosis of the external oblique. He preferred to keep his patients in bed from two to three weeks than take chances. JOHN YOUNG BROWN preferred the Ferguson operation in cases of inguinal hernia, and while the results of it were not better than those obtained by the Bassini, he believed the Ferguson method was much simpler, inflicted less trauma, and therefore should be adopted. While he had had no recurrences, he thought in a small percentage of cases recurrence would take place. THOMAS H. MANLEY said the Ferguson operation had come to stay, because it was attended with little or no danger to life. He had never seen a patient die from an operation for nonstrangulated hernia. Notwithstanding the various methods that had been described, he was rather inclined to advise the method advocated by Lucas Championniere. The results following this method were satisfactory. In the last year he had seen the intestine slough after a Bassini operation, and strangulated hernia occurred after it. A. J. OCHSNER said the Ferguson operation contained the successful elements of herniotomy. The operation should be done without traumatizing the tissues severely. He emphasized the importance of not injuring these tissues by suturing too tightly.

Foreign Bodies in the Esophagus.—CARL E. BLACK (Jacksonville, Ill.) reported two obscure cases of foreign bodies in the esophagus, in which a positive diagnosis was made by the use of the röntgen ray. He made extended remarks regarding the value of the röntgen ray in locating foreign bodies and assisting in their removal.

Spleenless Men: Report of Two Successful Cases of Splenectomy.—J. HENRY CARSTENS (Detroit, Mich.) stated that splenectomy was indicated in selected cases of enlarged spleen, but not in all instances. The first patient had pain and distress for a year or two in the region of the spleen, with gradual enlargement. There was sudden rapid growth within three months, filling nearly the whole abdominal cavity. Emaciation was marked. Blood-examination showed destruction and irregular shape of red blood-corpuscles. A probable diagnosis of malignant growth was made. Operation disclosed it to be a sarcoma. Operation was followed by complete recovery, and today the blood is normal. In the second case, the onset was gradual, and there was an enlargement for six months. Splenic anemia was diagnosed. The leukocytes only numbered 1,200. There was extreme debility. Operation was performed, followed by complete recovery. The blood was now normal and the patient had gained 96 pounds in weight since leaving the hospital 15 months ago.

Operative Work in the Ureter through the Author's Catheterizing and Operative Cystoscopes.—BRANSFORD LEWIS (St. Louis) considered the subject in its three relations: As a practical and reliable procedure, as a diagnostic measure, and as a therapeutic measure. After alluding to his operative cystoscope, and the instrumental equipment connected with it—ureter forceps, scissors, dilators, irrigating attachments, etc., the author considered diagnosis and therapy. The first case mentioned was that of a male, in whom the diagnosis established was that of inactive left kidney, while the right one was not only carrying on all the kidney functionation present, but contained numerous calculi of various sizes. Ureteral manipulations through the operative cystoscope removed a dozen or more small calculi, which he exhibited, but could not secure the escape of the largest, which was removed by lumbar incision. The patient recovered, notwithstanding the fact that the only kidney functionating was opened and cleaned out. The second case related was one in which small calculi had been removed by similar means in two sittings, a year apart, the stones being exhibited. The third case was one in which there had been severe and exhausting symptoms of ureter calculus of 16 years' duration. There were numerous consultations, and oft-repeated attacks, occasionally requiring the prolonged administration of chloroform. This patient was finally and definitely relieved, and had no recurrence of the pain for nearly a year. A case of definite and severe stricture at the lower end of the ureter had been completely relieved by dilating methods, carried out through the operative cystoscope, in successive sittings, and without complaint on the part of the patient, who was a very nervous woman. Some of the difficulties and disappointments liable to be met with in this work were alluded to, and suggestions given for avoiding them.

Perineal Prostatectomy.—JOSEPH RILUS EASTMAN (Indianapolis) said that if all prostatectomies were made as soon as the symptom of residual urine made its appearance, the mortality would be practically nil. As soon as practitioners and surgeons generally realized that prostatic hypertrophy was easily curable by early operation, prostatectomy would receive the recognition which it deserved. Too often the reason for the application of the Bottini method, perineal cauterization, or other palliative procedure was that a case had been permitted to drag along with the catheter until advanced age, general sclerosis or kidney complications forbidding prostatectomy. The conservative operation of Hugh Young should be the one of choice, if applicable. It consisted, as was now generally known, in making a sagittal incision closely parellel to the median raphe, through each lateral lobe, and shelling out one lateral lobe at a time, preserving the median bridge containing the ducts. After the removal of the lateral lobes, the third lobe was depressed into a lateral defect and likewise shelled out. After enucleation, Young united the separated margins of the levatores ani to the end, that the gauze packing might not press upon the rectum and favor fistula formation. Clinically, the perineal operation had been proved to be the safest. In a large majority of cases prostatectomy might be completed through a perineal incision. If, however, the perineum having been opened, it was discovered that the perineal distance was so great or the median intravesical growth so large as to make the suprapubic operation necessary, such a suprapubic opening might, except in exceptional cases, be made at the same sitting. The perineal was the least bloody route, since it admitted of a complete exposure of the prostate, thereby making it easier to shell out the prostate in the essential line of cleavage. After perineal prostatectomy the bladder *bas fond* was provided with low, level drainage instead of the up-hill or siphon drainage of the suprapubic operation. It would certainly be conceded that the danger of wounding the ejaculatory duct in any conservative operation would be lessened if the perineal operation be chosen. Eastman mentioned two cases in which perineal prostatectomy after Young's method in no wise disturbed or decreased the activity of the sexual function.

Pathologic Changes Resulting from Prostatic Enlargement.—CHARLES E. BARNETT (Fort Wayne, Ind.) said there still was plenty of room in the field of research for the etiologic factors in prostatic enlargement. Perverted orchidism and inflammation seemed to be the most logical causes. The former produced hyperplasia on account of a lack of orchoprostatic equilibrium. Inflammation started true adenomyoma, either or both, by stimulating the embryologic matrix on account of the infected acini, and there was a pathologic evolution tumor metamorphosis from a fibromyoadenoma to an adenomyofibroma. The pelvic fascia was responsible for all future pathology after enlargement began, on account of its inability to accommodate itself to the displacements that occurred. Anatomic study of this fascia was especially hard for the student on account of the multiplication of synonyms found in textbooks. The distorted neck of the bladder started pathology, which, in its progression, finally reached the kidneys, and if it was not stopped by operative procedure upon the prostate it would destroy them. The cases reported exemplified the vast amount of destruction done the whole genitourinary tract from the prostatic urethra backward, and showed the fallacy of operating on patients at that stage of pathology. A plea was made for the general practitioner to discover prostatic cases early, so that the surgeon could operate on them without danger.

Discussion.—G. FRANK LYDSTON thought the profession at large had accepted perineal prostatectomy as the operation of election, although there were certain cases that should not be dealt with by this route. It was the most direct route, where it was practicable to adopt it. In many instances it was imperative to treat patients palliatively until one was positive that the tumor was not only increasing in size, but was causing urinary obstruction. He pointed out the dangerous phases of prostatectomy. When the operation was done in a careful manner there was no injury to the ejaculatory ducts. There were numerous cases where sexual function had not been impaired.

[*To be continued.*]

MEDICAL SOCIETY OF THE STATE OF VERMONT.

Ninety-First Annual Meeting, Held at Rutland, Vermont, October 13 and 14, 1904.

[Specially reported for *American Medicine.*]

[*Concluded from page 793.*]

A reception for the wives of the members was held at the hotel parlors between the hours of 3 and 5 o'clock.

The evening session was opened with P. E. McSweeney, vice-president of the society, in the chair. The annual address of the president, W. N. BRYANT (Ludlow) entitled **Epidemic Influenza as an Etiologic Factor in Certain Diseases.** This paper was discussed by C. S. CAVERLY (Rutland), J. B. WHEELER (Burlington), S. E. MAYNARD (Burlington), J. H. BLODGETT (Saxtons River).

HENRY D. HOLTON (Brattleboro), at this time announced that at the last meeting of the American Medical Association, it was voted by the House of Delegates that they make an effort to have the American Medical Association incorporated by Congress. It has been found possible to do that and to that end each member of this society should place his name on the petition which was passed around the hall.

The Friday morning session opened with a report from the House of Delegates, read by Lyman Allen, of Burlington.

The following officers were elected for the coming year: President, P. E. McSweeney, Burlington, Vt.; vice-president, M. L. Chandler, Barre, Vt.; secretary, G. H. Gorham, Bellows Falls, Vt.; treasurer, B. H. Stone, Burlington, Vt.; auditor, J. H. Blodgett, Saxtons River, Vt.

Executive Committee: President and secretary, D. C. Hawley, Burlington, Vt.; Publication Committee: G. H. Gorham, Bellows Falls; G. R. Anderson, Brattleboro; E. R. Campbell, Bellows Falls. Necrology: M. H. Eddy, Middlebury; C. S. Scoffield, Richford; C. W. Howard, Shoreham. Legislation: S. E. Darling, Hardwick; H. D. Holton, Brattleboro; E. R. Campbell, Bellows Falls. License Censors: Henry Janes, Waterbury; S. W. Hammond, Rutland; J. S. Hill, Bellows Falls. Anniversary Chairman, C. W. Peck, Brandon, Vt.

Upon invitation of John B. Wheeler, of Burlington, the society will hold its annual meeting of 1905 at Burlington, Vermont.

Delegates to the different associations and societies were elected as follows: American Medical Association: H. D. Holton, Brattleboro. Massachusetts Medical Society: J. H. Blodgett, Saxtons River; F. R. Stoddard, Shelburne, Vt. Dartmouth Medical Society: L. W. Burbank, Cabot; O. C. Baker, Brandon. University of Vermont: M. F. McGuire, Montpelier; C. W. Bartlett, No. Bennington. Maine Medical Society: E. M. Nichols, Barton; F. S. Gray, Troy. Rhode Island Society: A. I. Miller, Brattleboro; W. W. Townsend, Rutland; New Hampshire Society: A. C. Bailey, Randolph; F. C. Liddle, Dorset. Connecticut Medical Society: F. T. Kidder, Woodstock; J. W. Estabrook, Brandon. New York Medical Society: E. D. Ellis, Poultney; C. S. Hodgkins, Castleton. White River Junction Association: F. L. Osgood, Saxtons River; A. L. Miner, Bellows Falls, Vt.

The initial paper was read by G. F. B. Willard, of Vergennes, entitled **serums and animal extracts in our therapy,** of which there was no discussion. Following this paper, **what can preventive medicine do to safeguard the middle-ear against acute and chronic infection?** was presented by Francis P. Emerson, of Boston, and this subject was discussed by M. C. Twitchell, of Burlington. The next paper presented was entitled **scarlatina vs. rubella,** and was prepared and read by E. G. Roberts, of Fair Haven. This paper was followed by an interesting and instructive paper by J. M. Hackett, of Champlain, N. Y., who took for his subject **the specific treatment of typhoid fever.** This paper was discussed by C. W. Peck, of Brandon, Vt.; E. G. Roberts, of Fair Haven, Vt.; and F. H. Everett, of Castleton, Vt.

A motion was put by the secretary that a rising vote of thanks be given to the committee of arrangements, locally, consisting of S. W. Hammond, W. S. Townsend, and J. H. Hamilton, and the reception committee of women, for the very courteous and hospitable manner in which they have treated and entertained the members of the society in convention assembled. This was seconded by several physicians and such vote was given.

Lyman Allen, of Burlington, made a motion that John C. Munro, of Boston, a guest of the convention, be elected an honorary member of the Vermont State Medical Society. G. H. Gorham, of Bellows Falls, made a similar motion as regarding Francis P. Emerson, also of Boston and a guest. Both motions were seconded and unanimously carried.

The convention took a final adjournment at 11 o'clock, and the meeting was brought to a close.

To Study the History of Medicine.—*The British Medical Journal* states that the legacy of £25,000 left by the late Professor Puschmann, of Vienna, to the University of Leipzig, is to be applied to the study of the history of medicine. It is proposed to found a historic museum of medicine, and a special seminary for training persons in medicohistoric research and in historiography.

ORIGINAL ARTICLES

TRANSUDATES AND EXUDATES, WITH REPORT ON 75 FLUIDS.

BY
JOSEPH L. MILLER, M.D.,
of Chicago.

A study of this subject was undertaken because I have felt the need of more complete knowledge of this matter than can be obtained from the textbooks on general medicine or diagnosis. The belief is quite general that by simple means the character of the fluid, and therefore the probable nature of the pathologic process, can be readily determined. The importance attached to the determination of the exact character of the fluid, both for diagnostic and prognostic purposes, is such that our knowledge of the subject should be as complete as the reliable data at hand warrant. The usual routine examination has been to determine the specific gravity, the amount of albumin present by one of various methods in use, the presence of nucleoalbumin and an examination of the formed elements present. This latter has received a marked impetus during the past few years, due chiefly to the work of Widal and the French school. The term cytodiagnosis has been applied to the examination of the cellular elements in these cases, and so numerous are the workers in this new field that there is already a very extensive literature. From an etiologic standpoint, exudates and transudates in the body cavities may be classified in the following manner:

Transudates in the abdomen: (1) General hydremia, the result of nephritis, amyloid degeneration or cachexia; (2) portal stasis due to cirrhosis; (3) general or local venous stasis.

Transudates in the pleural cavity: (1) General hydremia; (2) general or local venous stasis.

Exudates in abdomen: (1) Carcinomatous peritonitis; (2) tuberculous peritonitis; (3) simple peritonitis.

Exudates in pleural cavity: (1) Tuberculous pleuritis; (2) simple pleuritis; (3) carcinomatous pleuritis.

There are frequently two or more of these factors combined, as portal stasis due to cirrhosis is frequently associated with inflammation of the peritoneum, and local venous stasis due to pressure of the fluid on the inferior vena cava. The fluid present in carcinomatous or tuberculous peritonitis is chiefly the result of irritation of the peritoneum, but is usually associated with a transudate, due either to pressure of tumor masses or of the fluid upon the vena cava or its branches. In nephritis the serous surfaces are prone to become affected, thus combining a hydremic fluid with an inflammatory one.

GENERAL CHARACTERISTICS OF EXUDATES AND TRANSUDATES.

Color.—The color often gives us some information as to the character of the fluid, beyond that of the characteristic chylous fluids. The fluid, as the result of a pure hydremia, is usually watery in appearance, containing very little if any sediment. Any variation from this is suggestive of a combined process in which, however, the hydremic element may predominate. However, in hydremia due to cachexia there is often a slight opalescence probably due to a modification of the albumin and not due to the presence of fat, as has been suggested. This opalescence may be found in any fluid in which there is an associated cachexia, and usually indicates small percentages of albumin.

Portal stasis, due to cirrhosis, gives rise to a lemon-yellow fluid in case there is an absence of icterus. Associated with cachexia it is opalescent. The more albumin present the deeper yellow is the color, and may approach that found in pure inflammatory conditions.

General venous stasis usually gives rise to a darker colored fluid than portal stasis, due to the presence of bile and blood pigment. Here an opalescence appears, if a marked cachexia develops.

In carcinoma and tuberculosis the fluid may be hemorrhagic. Usually, however, deep yellow, resembling the inflammatory fluid, but differing in a slight cloudiness, due to the large number of formed elements present. This is especially true in carcinoma. On account of the rapid development of a cachexia in these two conditions, the fluid may become opalescent early.

For diagnostic purposes, the color of the fluid is of less significance than the foregoing description might signify, as frequently two or more etiologic factors are at work with consequent modification of the characteristic appearance.

Size of Erythrocytes.—Talma suggested that inasmuch as the osmotic pressure in the exudates is greater than in the transudates, the red cells would be swollen in the former and shrunken in the latter. Analysis shows, however, that the amount of salts and extractives is the same in an exudate as in a transudate, when these two processes coexist in the same individual, and examination of large numbers of cases shows a remarkable constancy in the amount of salts present. Reuss, in an analysis of 244 fluids, found the average amount of salts present .83%. In 85% of the cases the salts were between .75% and .9%, over 1% or under .65% in only 29 cases, and these differences are due to the composition of the blood in the individual case, rather than to the specific character of the fluid. Clinical experience has furthermore shown that Talma's view is not supported by fact.

The Reaction of the Fluid.—The reaction of the fluid has been suggested as a means of differentiating exudates from transudates. With phenolphthalein, both fluids are acid, varying, however, slightly in degree. Exudates, as a rule, have an acidity above 10, with a decinormal soda solution; transudates, under 10. The difference is, however, too slight and inconstant to be relied upon. Litmus usually reacts acid to exudates, acid, neutral or even alkaline, to transudates, this apparent discrepancy being due to the disodium phosphate, which reacts neutral to litmus and acid to phenolphthalein.

Presence of Nucleoalbumin.—The presence of nucleoalbumin, or, as Umber maintains, a mucin body, has been considered evidence of the exudative character of the fluid. The test should be made by adding an excess of acetic acid in the cold, a white cloud indicating the presence of the body. This body is precipitated by HCl and HNO_3, but redissolved by slight excess. It is reported that strong concentration of acetic acid will dissolve it. Umber considers a distinct cloudiness by excess of acetic acid is only found in exudates. His statement, however, was made after an examination of an insufficient number of cases. In my series only a small number were tested for nucleoalbumin, those specimens which have been examined since Umber's article apeared, yet several exudates failed to show any nucleoalbumin.

Specific Gravity and Amount of Albumin.—The specific gravity of the fluid has always been considered of the greatest importance in determining its nature and the specific gravity alone is often sufficient to determine whether we are dealing with an exudate or transudate. For determining the specific gravity, a reliable urometer is entirely satisfactory as other methods are time-consuming and for this reason impracticable. The proper correction for temperature can be easily determined. It is always advisable for accurate results to allow the fluid to stand several hours before testing, as in the act of withdrawing there is considerable air mixed with it and this should be allowed to escape.

Causes of Variation in Specific Gravity and Amount of Albumin.—An increase in the amount of albumin causes a corresponding increase in the specific gravity, as Reuss, Hoffman, and others have shown that the amount of salts and extractives varies very slightly in fluids of this class. It is matter of considerable interest that there are a number of factors that are capable of modifying the specific gravity and amount of albumin in exudates and transudates. The same process in two individuals may produce fluids of widely different character, especially in regard to specific gravity and albumin. Similar processes in different body cavities of the same individual may show considerable difference in this respect and even successive tappings of the same cavity may show marked variation. These variations are not all satisfactorily explained, but as the result of observation and experimentation the following points have been fairly well agreed upon:

1. The amount of albumin in a body cavity is dependent upon the permeability of the capillaries in the serous surface, and this permeability may vary slightly in different cavities of the same individual, the amount of albumin being greatest in the pleural fluids, next in order the pericardial, peritoneal, and subcutaneous fluid. Many of the French writers place the peritoneal fluid first, then the pleural, but it is probably impossible to establish a law which will hold good in all cases. Runeberg, in two cases of amyloid degeneration, found in one .11% albumin in the pleural, .12% in the peritoneal, and .52% in pericardial fluid. In the second case, .16% pleural, .14% peritoneal. General anasarca of cardiac origin, 1.36% pleural, 2.14% pericardial, 1.98% peritoneal. Second case of the same nature, the pleural fluid contained .9%, the peritoneal .8%. In one case of carcinoma of the peritoneum and pleura, fluid from the former contained 5.42%, the latter 5.32%. Bernheim, in a case of tuberculosis of the pleura and peritoneum, found a specific gravity of 1,017, albumin 2.19% in the pleural fluid; 1,021, and 3.2% in the peritoneal fluid. The specific gravity and albumin average somewhat higher in right-sided pleurisies than in the left. Bernheim reports 23 cases of right-sided, 13 of left-sided pleurisies. The average specific gravity in the latter was 1,014.8, albumin 3.35%; in the former, specific gravity 1,019.4, albumin 4.346%; 90% of the right-sided pleurisies had a specific gravity of 1,020 or greater, and only 10% of the left-sided had a specific gravity of 1,020. Brunting reports eight cases of left-sided pleurisies, with an average specific gravity of 1,017.3, and the same number of right-sided, with average specific gravity of 1,018.3.

2. The greater the irritation of the affected serous surface, the higher the percentage of albumin present in the fluid. Runeberg, in five cases of pleurisy with effusion, determined the amount of albumin present in blisters produced by cantharides, and found it was always higher than in the pleural effusion, the average for the former being 6.2%, the latter 5.43%. With the highest degree of irritation he was unable to obtain the amount of albumin present in the blood, the difference being always greater than 1%.

3. The amount of albumin present is dependent in a measure upon the amount of albumin in the individual's blood. As a result of anemia, the albumin in the blood may reach 4%, or even 3%, instead of the normal 7.5% to 8.5%. The presence of hydremia explains the lower specific gravity and albumin content in fluids due to portal stasis as compared to those due to general venous stasis, as in patients with cirrhosis a secondary anemia is usually present and may reach a high degree. Patients who are frequently tapped develop an anemia, as a result of loss of albumin, so that successive tappings usually show a reduction in the amount of albumin.

4. The tension under which the fluid accumulates: Albuminous fluids, when passed through animal membranes, show an increase of albumin in the filtrate as the filtration pressure diminishes. As the hydrostatic pressure in a body cavity increases, the filtration pressure is relatively reduced, and the transudate will contain a larger amount of albumin. When a body cavity has been greatly distended by fluid and the individual is tapped and fluid withdrawn, then tappings made at frequent intervals will show early a fluid of much lower specific gravity and albumin with progressive increase in the amount until the original percentage may be reached, although the developing hydremia, partly the result of the tapping, chiefly the result of the disease, will cause a progressive lowering of the albumin that will transude under a certain pressure. Runeberg found the hydrostatic pressure in a case of ascites before tapping 30 cc. to 40 cc., after tapping 11 cc. to 14 cc. It has been recognized that when a fluid has remained in a cavity for a long time, the albumin is greater than in fluids of the same nature of shorter duration. This is explained chiefly by increased tension. In case the fluid in a cavity is gradually absorbed the albumin usually increases, which might speak against the truth of the foregoing statement were not other factors at work, such as the lessening of the hydremia, due to the improved condition of the patient, and to a more rapid absorption of water and salts than of albumin.

5. It has always been considered that the blood-pressure was an important factor in determining the percentage of albumin in a fluid. From the filtration experiments referred to, we would conclude that increased blood-pressure would be associated with lessened transudation of albumin. The only work upon this subject that I have been able to find is that of Mya and Viglezio, who report increased transudation of albumin with rise in blood-pressure.

6. Icterus. Runeberg believes that the development of an icterus may cause a marked fall in the amount of albumin, and reports a case supporting this view. This fall may be due to a change in the permeability of the vessel wall or to the increased anemia a result of the icterus.

Methods of Estimating Albumin.—The determination of the amount of albumin in a fluid is of the greatest importance for the purpose of diagnosis. This is especially true since in much of the work upon exudates and transudates the amount of albumin has been accurately estimated and is the basis from which we draw our clinical conclusions, hence a simple and accurate method for determining the amount is very essential. The following methods are in use:

The method of Kjeldahl determines the total nitrogen; that present in the form of urea, uric acid, and extractives is so small that it can be left out of consideration, except in fluids associated with uremia when there may be sufficient urea to modify materially the results, especially in hydremic fluids in which the percentage of albumin is small. This method and that of weighing the dried albumin are both accurate, but too complicated and time consuming for the average clinician. Simpler methods, although less accurate, are often more reliable in the hands of the inexperienced.

Brandberg's method is based upon the rapidity with which a cloudiness appears at the point of contact of an albuminous fluid with nitric acid, this rapidity depending upon the amount of albumin. It has been determined that a cloudiness appears in two and a half to three minutes in case the fluid contains .033% albumin. The fluid to be examined is diluted to such a degree that the cloudiness occurs in three minutes, and knowing the degree of dilution, the amount of albumin can be readily determined. The test is only fairly accurate when applied to urine, less so when applied to fluids containing much nucleoalbumin, as this will give rise to a cloud resembling the albumin.

Two methods in which the bulk of precipitated albumin is determined are in common use—Esbach's albuminometer and Purdy's centrifugal method. I have carefully investigated these methods, especially that of Purdy, as we have here, if accurate, a simple and rapid method of determining the albumin. The amount of albumin in a specimen of ascitic fluid was estimated both by weight and total nitrogen. Various dilutions of this fluid were placed in the graduated centrifuge tube and the acetic acid and potassium ferrocyanid added and thoroughly mixed, then allowed to centrifuge until the height of the precipitate was constant. This required ten to fifteen minutes, depending upon the speed of the machine, and can only be determined by observing the precipitate at intervals of a few minutes until its height remains fixed. Occasionally the supernatant fluid does not clear up, but this can be remedied by the addition of a little more acid or potassium ferrocyanidum solution or both. By employing various dilutions of a solution containing a known amount of albumin, the height to which the precipitate reaches, and from this the amount of dried albumin it represents can be easily determined. Tests with the same solution of albumin show lack of constancy in the result. As an illustration, an ascitic fluid containing 1% of albumin would give a precipitate to the five mark—that is 50% albumin. The same fluid in a second test would give a precipitate to the three and a half mark, or 35% of albumin. Prolonged sedimentation failed to give uniform results, and after repeated trials I am convinced that determination of the albumin in serous fluids by this method is valueless. This is confirmed by referring to the table in which the bulk albumin in each case was determined; we notice marked lack of uniformity between the specific gravity and amount of albumin, although a close relation actually exists between the two. A possible explanation of the unreliability of this method is the varying amounts of water that the coagulated albumin holds in its meshes. Less exhaustive tests were made with the Esbach albuminometer with equally unsatisfactory results.

Reuss' Method.—We have already spoken of the slight variation in the amount of salts present in the various fluids. The extractives show greater variation but as they are always present in very small amounts, this variation is relatively slight. For this reason variations in the specific gravity of transudates and exudates are due chiefly to the varying amount of albumin present. Runeberg estimated the total solids and the amount of albumin in 92 cases and found that on account of the constancy of the total solids, by subtracting 1.18 in the case of exudates and 1.08 in transudates from the percentage of total solids, that the remainder represented very accurately the percentage of albumin, except in cases of uremia or glycosuria. Reuss after carefully determining by weight the amount of albumin in 24 cases, devised the following formula for estimating the albumin from the specific gravity: $a = \frac{3}{8}(s—1{,}000) — 2.8$, a = amount of the albumin, s = specific gravity. By applying this formula, the error was less than .3% in 17 cases, .3% in six cases, and .5% in one case. Runeberg modified the formula slightly using a distinct formula for transudates and exudates. Exudates or fluids with specific gravity above 1,014, $a = \frac{3}{8}(s — 1{,}000) — 2.88$. Transudates, $a = \frac{3}{8}(s — 1{,}000) — 2.73$. Runeberg by employing this modification found a maximum variation of .3% from the weighed albumin. Citron with Runeberg's formula examined 49 cases, weighing the albumin, in 18 cases finding a variation of less than .1%, 10 cases between .1% and .25%, 11 cases between .25% and .5%, two cases .5% to .6%; 5 cases .6% to .7%; three cases .7% to .79%; one case 1.09%. Ott shows, however, that there may be wide variation between the specific gravity and amount of albumin. In three fluids with a specific gravity of 1,009 he found .36%, .73% and 2.6% of albumin respectively. Two fluids with specific gravity of 1,015, one contained 5.43%, the other 2.5% albumin. Different tappings in the same individual with the same specific gravity showed variations greater than 1% in the amount of albumin. However, from the constancy of the salts and extractives agreed upon by all, and the results of Citron, Reuss, Runeberg and Bernheim with Reuss' formula, this method must be regarded as very valuable in estimating albumin in serous fluids and is the most accurate simple method, far excelling Esbach's or Purdy's.

I have collected 136 cases from the literature in which the specific gravity has been accurately taken and the albumin determined by weighing or estimating the total nitrogen. In these cases the albumin has been determined by both Reuss' and Runeberg's formulas, and it has been found that the former gives slightly more accurate results; the average variation by Reuss' method being .334%, by Runeberg's .344%.

Diagnostic Value of Specific Gravity and Albumin.—In determining the character of a fluid it has been customary to place our chief dependence upon the specific gravity and amount of albumin. Fluids with a specific gravity of 1,018 or higher, with at least 4% of albumin, are considered of inflammatory origin—including carcinoma; a specific gravity of between 1,010 and 1,015, with albumin 1% to 3%, is characteristic of fluids from venous stasis. A specific gravity of less than 1,010 and albumin under 1% as characterizing hydremic fluids. Neuenkirchen, who has made an exhaustive study of this subject, concludes that the specific gravity of fluids from various causes shows a gradual increase in the following order: 1. Pleural and peritoneal transudates from nephritis. 2. Ascites from cirrhosis. 3. Pleural and peritoneal fluid from general venous stasis. 4. Ascitic fluid from carcinoma of liver. 5. Ascitic and pleural fluid due to carcinoma of the peritoneum and pleura. 6. Peritoneal and pleuritic fluid due to tuberculosis. Clinical experience has demonstrated that dependence upon the specific gravity or albumin often leads to error in diagnosis and for this reason many believe the specific gravity and amount of albumin present is of little value in determining the nature of the process. This, I believe, is an error. We have paid too little attention to the variety of conditions which may modify the character of fluid. Often combined with an inflammatory fluid is a transudate due to venous stasis from the pressure of the fluid or from hydremia due to the associated cachexia. Serous membranes lining cavities in which there is a transudate are especially liable to inflammatory processes. The marked tendency to inflammatory involvement of the serous surfaces in nephritis often leads to a combination of hydremic transudate and exudate. A hydremic ascites during a stage of improvement may contain more than 1% of albumin, due to resorption, when, as before mentioned, the salts and water are absorbed more rapidly than the albumin. Ascitic fluid from portal stasis, when associated with marked cachexia, may have the characteristics of a hydremic fluid, or when under high tension or during the stage of improvement, associated with resorption, the amount of albumin may equal that of an exudate. Fluids from venous stasis may be modified in the same way. Tuberculosis or carcinoma of the peritoneum, when associated with marked cachexia, may give rise to a fluid resembling a transudate. Amyloid degeneration is often responsible for the low specific gravity, especially in tuberculous processes.

The wide variation in specific gravity of fluids, due to the same process, is illustrated in the following table. When the percentage of albumin is reported, it has been determined by weighing or total nitrogen.

The case of cirrhosis reported by Ott, with 6.8% of albumin, came to autopsy soon after the puncture, and careful examination failed to reveal any signs of inflammation.

Review of this table reveals wide variation in specific gravity and amount of albumin in fluids of the same origin. Fluids due to portal stasis show especially marked variations as a result of the cachexia or an associate inflammation, particularly an unrecognized tuberculous peritonitis. However, very high specific gravity may be found in cirrhosis without any demonstrable inflammation at autopsy, as in Ott's case with specific gravity of 1,023, and in a case of mine with 1,017.

Runeberg, in his conclusions, has given the interpretation of the various percentages of albumin, which is of more theoretic interest than practical value: .3% albumin, due to pure hydremia; .3% to .5% hydremia with resorption, portal stasis or general venous stasis with marked hydremia; 1% to 1.5% portal stasis or general stasis, with moderate hydremia; 1.5% to 2.5% general venous stasis, portal stasis with high tension, resorption or inflammation; 2.5% to 3% rare in transudates, exudates with marked hydremia; 3% to 4.5% carcinoma or inflammation with moderate cachexia; 4.5% to 6% inflammation, with good general condition of patient, carcinoma in rare cases, occasionally old transudates under high tension.

	Specific gravity.			Albumin.		
	Max.	Min.	Aver.	Max.	Min.	Av.
Chronic nephritis.						
Neuenkirchen, 36 cases	1010	1005	1006.9			
Bernheim	1010	1005	1007.9			578
Runeberg				.41	.03	.2
Citron	1010	1008	1009			
Miller, pleura 4	1009	1008	1008.2			
Miller, abdomen 2	10.0	1009	1009 5			
General venous stasis						
Neuenkirchen, pleura, 21 cases	1016	1007	1012.2			
Neuenkirchen, abdomen	1014	1006	1010			
Runeberg, abdomen				2 3	.84	1.67
Citron	1016	1009	1013.2			
Cirrhosis of liver.						
Neuenkirchen, 36 cases	1014	1006	1008 4			
Runeberg, 79 cases				2.68	.37	.97
Bernheim	1016	1006	1010.2	3.45	.56	1.42
Citron	1016	1008	1011.6			
Ott	1022	1006		6.88	.56	
Miller, 20 cases	1017	1010	1012.1			
Tuberculous peritonitis.						
Bernheim	1023	1009	1017 5	5 5	1.6	3.37
Citron	1023	1016	1020			
Miller, 10 cases	1030	1015	1019			
Pleuritis.						
Neuenkirchen, 29 cases	1022	1014	1018			
Runeberg, 27 cases				6.04	4 78	5 32
Ott	1026	1009		8.9	2.4	
Miller, 27 cases	1025	1014	1019			
Carcinoma of peritoneum.						
Neuenkirchen, 34 cases	1022	1014	1017.7			
Bernheim	1022	1014	1020	5 42	2.7	4.45
Runeberg				5.42	2.7	3 51
Ott	1022	1009		5.6	1.88	
Miller, 3 cases	1027	1015	1020.3			

The recognition of the presence of and the determination of the degree of the associated condition are usually very difficult, if not impossible, and the study of the specific gravity should lead us to greater reserve in drawing conclusions as to the nature of the process.

METHODS OF DETERMINING THE TUBERCULOUS CHARACTER OF SEROUS FLUIDS.

Of especial interest to the profession is some reliable and rapid method for determining the tuberculous character of exudates. Search for bacilli in the sedimented fluid is usually without results, due to relatively few microorganisms. In such fluids the microorganisms tend to gravitate to the most dependent portion of the cavity, and so comparatively few are withdrawn. In examining fluids for tubercle bacilli, spontaneous coagulation should be avoided, as a large percentage of the germs may be caught in the coagulum. The fluid should be allowed to stand in a cool place for 24 hours, then that in the lower portion of the vessel should be withdrawn and sedimented.

Jousset recently described a method which he highly recommends for the detection of tubercle bacilli in the blood or serous fluids. The fluid is allowed to coagulate spontaneously, the fibrin clots collecting the various formed elements present, including the bacteria; this is then artificially digested and centrifuged, the sediment examined in the usual manner for tubercle bacilli. By this means Jousset found tubercle bacilli in 27 pleuritic fluids and in 8 of 12 ascitic fluids, three of the positive cases having been diagnosed as cirrhosis. In two cases of suspected typhoid the examination of the blood by this method showed the presence of tubercle bacilli, and the cases later proved to be acute miliary tuberculosis. The blood in ten cases of chronic lung tuberculosis was examined, in two with positive results, and positive results were obtained in 50% of the cases of acute tuberculosis. Kormoczi has investigated this method, employing larger amounts of the coagula than did Jousset. In blood-examination they employed the coagula from the heart of tuberculous cadavers. Eight cases of probable tuberculous pleurisies gave only three positive results and two ascitic fluids—one tuberculous, the other from portal stasis—were both negative. The blood from four cases of general tuberculosis gave positive findings only once. The method in any case is only applicable to serous fluids that coagulate spontaneously.

Cultural tests, either in suitable artificial media or by placing some of the fluid directly into the incubator, require considerable delay and are, furthermore, very unreliable.

Marmorek has reported a method for the rapid determination of the tuberculous nature of the fluid. Experimentally he found that by injecting 1 cc. of a slightly opalescent suspension of tubercle bacilli into the peritoneal cavity of a guineapig, and following this in not less than 15 minutes with an injection of tuberculin, that there would be an almost immediate rise of temperature reaching 40° C. or higher within five hours. He later experimented with serous fluids of tuberculous origin with positive results. He then recommended that in case the fluid contained only a very few bacilli, that better results were obtained by trephining and injecting directly into the brain, the temperature rising not less than 2° C., while in control animals the maximum rise was 1.4° C. It would hardly seem probable that, as considerable amounts of fluid injected often fail to give rise to a tuberculosis, that this same fluid should give rise to a tuberculin reaction. The variation in temperature characterizing the reaction between the normal and infected animal is so slight as to fall within the limits of error. Netter and Larrier have employed this method, but advise waiting five or six days after injecting the suspected fluid before using the tuberculin.

Animal inoculation with 10 cc. or 20 cc. of the sedimented fluid has been employed. A delay of three to five weeks is necessary before the results can be determined. Ravaut, Netter, Chauffard, and Gombault, by this method obtained positive results in less than half the cases of primary tuberculous pleurisies. Widal and Ravaut have recommended injecting 10 cc. to 20 cc. daily until a total of 50 cc. has been employed. Even when several animals are inoculated with large amounts of the suspected fluid, some may develop tuberculosis, others not. This varying susceptibility necessitates the use of several animals in each test.

The agglutination test of Arloing and Courmont gave promise of value in these cases. The difficulty, however, of obtaining homogeneous cultures, and the tendency for the reaction to occur in nontuberculous fluids, have led to the practical abandonment of the test.

The tuberculin test, when positive, indicates a tuberculous focus in some part of the body, not, however, necessarily that the exudate is of that nature. It is not applicable in patients with more than 1° F. of fever, and is not entirely free from danger even when properly employed.

PROGNOSTIC VALUE.

Considerable importance has been attached to the prognostic value of the specific gravity of the fluid, when the nature of the process has been determined and also the changes in the specific gravity in successive punctures. Carcinoma of the serous surfaces is characterized by a gradual decrease in the specific gravity, due to the cachexia as the case progresses, and Runeberg, from his observations in four cases, found that when the albumin reaches a certain percentage, death occurs. His cases terminated fatally when the percentage of albumin reached 2.7, 2.71 and 2.89, respectively. These figures probably indicate a rather remarkable coincidence, as many factors beside the cachexia lead to a fatal termination. In inflammatory processes a fall in the specific gravity may be considered a bad prognostic sign indicating a developing hydremia. The same is true in transudates; a rise in the specific gravity indicates a beginning resorption or lessening of the hydremia, provided the tension is unchanged, or the development of a complicating inflammatory process excluded. The specific gravity of the fluid from a single puncture has no prognostic significance.

CYTODIAGNOSIS.

Until the past three years the study of the cellular elements in fluids was confined chiefly to cases of suspected malignancy, in which it was hoped that cells might be found characteristic of the growth. Fluids from other sources received comparatively little attention, until interest in the subject was incited by Widal and his colleagues.

The successful microscopic examination of those cellular elements requires some care and considerable experience, as the morphologic changes taking place in the formed elements in fluids of long standing may be marked and very confusing. The examination should consist of a study of moist and fixed specimens. The study of the moist specimens should never be omitted, as the form and especially the arrangement of the epithelial cells is much better maintained than in those that have been fixed. For the examination of the moist specimen it is only necessary to place a drop of the sedimented fluid upon a slide with cover-glass and examine with suitable magnification. Desirable fixed specimens are best prepared by first removing the albumin, as it interferes with both fixing and staining. This can be accomplished by pouring off the supernatant fluid in a sedimented specimen, refilling the tube with a normal salt solution and resedimenting. The method of fixing will depend upon the stain employed, heat, as a rule, being less satisfactory than fixing solutions. A number of stains has been recommended, and after experimenting with these I adopted the routine method of making at least two preparations from each fluid, staining one with hematoxylin and eosin after fixing with heat, the other with Jenner's or Wright's stain. The hematoxylin brings out the nuclear structures very distinctly; the Jenner brings out the granules and also the nucleus, the latter staining a pale sky blue in the lymphocytes, in epithelial cells a darker blue. This difference of color is of considerable value in the differentiation.

By these two methods there is no special difficulty in determining the character of the various cells in any fluid. Special attention should be called to the impossibility of differentiating lymphocytes from polynuclear cells in unstained specimens, as the latter are often shrunken and the granules closely packed. If immediate examination of the fluid cannot be made, a few drops of formalin may be added. If this is not done, the cellular elements are rapidly disintegrated. Wolff reports that in fluids kept for a considerable period of time, the granules disappear. The cells present in transudate or exudate include those found in the blood of the individual and those from the epithelium lining the cavity; in case of tumor, cells peculiar to it may be found. The epithelial cells in such fluid are subject to various changes in size and in the form of the nucleus. The nucleus may become swollen so that the cell resembles a large lymphocyte, and those cells referred to by many as large lymphocytes or large mononuclears are chiefly of this type. On the other hand, the nucleus may become notched, lobulated or actually divided into several distinct rounded bodies, thus resembling a polymorphonuclear leukocyte. The nuclei and granules in the polymorphonuclear leukocyte may be so clumped as to give the appearance of a lymphocyte, especially in unstained specimens. Whether the granules actually disappear after the fluid has remained in the cavity for a long time, as suggested by Wolff, is still undetermined and I have considered that the absence of granules is evidence that the cell is not a polymorphonuclear leukocyte. Finally, the nucleus of the lymphocyte often becomes lobulate and in hematoxylin specimens might lead to error.

The diagnostic value of cytodiagnosis is based upon the supposed predominance of lymphocytes in fluids due to tuberculosis of the serous surfaces, and in the cerebrospinal fluid of patients suffering from syphilitic or metasyphilitic diseases of the central nervous system, as syphilitic meningitis, or tabes and general paresis. Acute inflammation of the serous surface, as that arising from streptococci, staphylococci, *Diplococcus pneumoniæ*, and bacteria of this class, give rise to fluids containing chiefly polymorphonuclear leukocytes. Exudates contain very few epithelial cells, and, when present, appear singly—not in sheets. Transudates are characterized by presence chiefly of epithelial cells, in the form of sheets, the leukocytes in limited numbers and varying in the form of the predominating cell. The predominance of lymphocytes in tuberculous pleurisy only holds good in cases where the pleurisy is primary; when there is primary involvement of lung with secondary pleurisy the polymorphonuclear cells may be present in large numbers. Tulland, Wolff and others have demonstrated that for two or three days, following tuberculous infection of the pleura, there is a polymorphonuclear leukocytosis, while later there develops a lymphocytosis.

Various theories have been advanced to explain these findings. The selective chemotactic action of the tuberculous toxins for the lymphocyte is considered by many as chief factor, but this fails to explain the polymorphonuclear leukocytosis early in the disease. Some of the French writers look upon the lymphocytosis as a result of degenerative changes in the tubercle bacilli, with setting free of the round cells. This hardly appears plausible, as we have reason to believe that the lymphocytes present are directly derived from the blood. The view has been advanced that the lymphocytosis is the result of long-standing fluid in a cavity, the polymorphonuclear cells being less resistant, hence gradually disappearing. Experimental work, with the aleuronat pleuritis, indicates that there is rapid increase from day to day in the number of lymphocytes. Patella believes the cell is not a lymphocyte, but merely the remnants of epithelial cells. In this view he stands alone. Experimental work has shown that tubercle bacilli injected into the guineapig causes lymphocytosis, in the dog chiefly a desquamation of epithelial cells, with about equal numbers of lymphocytes and polymorphonuclear cells. Intensity of the inflammation has been offered as an explanation—the more intense, the greater the number of polynuclear cells. The diphtheric toxin, however, injected into the pleural cavities of rabbits excites chiefly a lymphocytosis, although the process is very acute. The absence of epithelial cells in exudates is explained by the deposit of a layer of fibrin over the inflamed surface, with consequent glueing down of the cells. In transudates there is marked desquamation of epithelium, due to pressure of the fluid with consequent degenerative changes.

Cytodiagnosis has been especially employed in pleuritic exudates in the hope that this might be a means of determining its tuberculous nature. The tuberculous pleurisies may be classified as primary and secondary, the latter arising as a complication of a process in the lung. Sufficient cases have now been reported to show that at least 50% of the cells present in primary pleurisies are lymphocytes. Endothelial cells are reported either absent or present in only limited numbers and rarely in sheets. In the secondary pleurisies also the lymphocytes may predominate, not infrequently, however, the neutrophiles are more abundant, depending on the presence of lung cavity with secondary pus infection.

There is considerable difference of opinion regarding the findings in acute nontuberculous pleurisy. Widal reported in these cases a predominance of neutrophiles. Castaigne and Rathery examined six cases of pleural effusion, complicating acute articular rheumatism. Cultures were negative and animal inoculation did not show tuberculosis. In three of these cases no neutrophile cells were found and only a few lymphocytes and endothelial cells; in the other three cases chiefly endothelial cells with a very few lymphocytes and neutrophiles. Several have reported that in old simple pleuritis the findings are identical with that of tuberculous pleurisy, namely, the predominance of lymphocytes. The presence very early in tuberculous pleurites of the polymorphonuclear cells has already been mentioned. In the vast majority of acute pleurisies of nontuberculous origin during the entire course of the trouble the polymorphonuclear cells predominate. Barjon and Cade report an interesting case of tuberculous pleuritis and pericarditis, the former containing 97% of polymorphonuclear cells, the latter 6%, without finding any plausible explanation as secondary infection or difference of duration. They also report three cases of pleurisy due to infarct, in all of which there was a very large number of cellular elements. The polymorphonuclear cells predominated in one, a slight excess of lymphocytes in the other two, epithelial cells in moderate numbers in all. In pericarditis the findings are the same as in pleuritis.

Comparatively little work has been done upon cytodiagnosis in peritoneal fluids. Dopter and Tanton, Ketley and Torday report tuberculous peritonitis with predominance of the lymphocytes and a moderate number of polynuclear and epithelial cells. Ketley and Torday report one case in which endothelial cells, one in which polynuclear cells predominated. Tarchetti in the early stages found predominance of polynuclear cells later of lymphocytes. Ketley and Torday, in ascites due to cirrhosis, report chiefly lymphocytes and endothelial cells. Dopter and Tanton, on the other hand, report predominance of polymorphonuclear cells and consider this a characteristic of cirrhosis.

Considerable work has been done upon the cellular elements in the cerebrospinal fluid. The normal cerebrospinal fluid is practically free from formed elements. Whether a given specimen contains more than the normal number of cells can most readily be determined by experience. Actual estimation as recommended by Laignel and Lavastine, is open to error and is unnecessary. As a result of this determination more than .5 cells per cmm. can be looked upon as pathologic. In epidemic cerebrospinal meningitis authorities are agreed that in the height of the disease there is a polymorphonuclear leukocytosis. This may later be replaced by a lymphocytosis the polymorphonuclear again predominating if an acute exacerbation occurs. In other cases, as one reported by Babinski, the polynuclear cells were in excess during the entire course of the disease, *i. e.*. three months. In tuberculous meningitis the lymphocytes are in excess; not, however, in all cases, as Leukowicz reports the polynuclear cells in excess in 2% of the cases and in this he is supported by Méry, Guinon and others. Bernard reports a case of tuberculous meningitis in which the first puncture gave 82% lymphocytes and a later puncture 79% of polymorphonuclear cells. At autopsy a mixed infection was found. Méry, Léry and others report cases of tuberculous meningitis in which the fluid was free from cells. Bruneau and Hawthorne report a case of mixed infection with pneumococci in which the polymorphonuclear cells predominated. Grenet and Dopter have suggested the value of cytodiagnosis in cases of typhoid with meningeal irritation, and also in cases of alcoholic delirium in which it may be difficult to decide whether an actual meningitis is present.

A few cases of syphilitic meningitis have been associated with predominance of lymphocytes resembling thus a tuberculosis. The Raymond school maintains that in syphilitic, as well as in metasyphilitic disease, of the central nervous system there is a marked lymphocytosis. This lymphocytosis has been reported in headache of syphilitic origin and in hemiplegia on a syphilitic basis. In tabes dorsalis authorities are quite agreed that there is a lymphocytosis and some even consider this as being of diagnostic value equal to the loss of the pupillary reflex, reporting it in cases before other marked signs of tabes were present. Babinski, in 10 patients with only an Argyll-Robertson, found a lymphocytosis in all.

Many consider that a lymphocytosis is always present in general paresis and is of great diagnostic value. Meyer has studied the cellular elements in 13 cases: In 11 there were numerous lymphocytes; in the other two only a few. Lymphocytes were either absent or present in very limited numbers in several cases of alcoholic delirium, senile dementia, idiocy, epilepsy, paranoia and functional psychoses. He concludes that in most cases of organic brain disorder with meningeal irritation, there is a moderate increase in lymphocytes; but in a much higher degree in syphilitic or metasyphilitic processes. Joffray, Abattier and Marie deny that in general paresis there is constant increase in the lymphocytes. More study must be given to the subject before we arrive at its true diagnostic value. Of interest is the report recently of two cases by Chauffard and one by Dopter of mumps in which the cerebrospinal fluid contained a very large number of lymphocytes. As a rather infrequent and as yet unexplained phenomena is the eosinophilia of exudates without corresponding changes in the blood. The recent work of Opie upon eosinophiles in bacterial infection is of interest in this connection. After injection of various microorganisms into the peritoneal cavity of guineapigs he reports a reduction of the eosinophiles in the peritoneal fluid due to their adherence in clumps to the surface of the omentum. At the end of an hour they reappear in the fluid and rapidly increase, reaching the maximum in several hours. During this time the peripheral blood contains few eosinophiles, the blood of the omentum and mesenteric vessels many. After the end of 24 hours there is a gradual increase of the eosinophiles in the peripheral circulation until at the end of four or five days, they are more abundant than before the inoculation. After six or seven days they return to normal. Kanthack and Hardy have described an eosinophile leukocytosis at the seat of inoculation. Eosinophilia of pleural exudates has been reported by several, often reaching 50%. Ravaut reports four cases, one complicating lues, one during typhoid, one tuberculous and one of undetermined origin. Barjon and Cade report three cases, all tuberculous. Eosinophilia in one case of carcinoma of the pleura has been reported. My two cases both were in acute pleurisies complicating nephritis. The eosinophile cells are not to be confused with pseudoeosinophiles which are often present in fluids, being really neutrophile cells which as the result of degeneration of the granule become amphophilic, staining equally well with acid and neutral dyes. One case of basophilia in pleural exudates has been reported by Wolff.

PERSONAL OBSERVATIONS.

The material for study was obtained chiefly from Cook County Hospital. The routine examinations consisted in determining the specific gravity with a tested uronometer, testing for nucleoalbumin, determining the bulk albumin by Purdy's method and a study of the cellular elements. The results are given in the following table. No reference is made in the table to the nucleoalbumin, as the test was only made in the more recent cases.

Fluids from 93 different patients were examined. A number of these are omitted in the table, as the diagnosis was uncertain and only those in which the nature of the trouble was fairly well established have been utilized. In each case the bulk albumin was determined by the Purdy method. Fluids containing large amounts of albumin were diluted several times with water so that the bulk albumin was always under 30—as it was determined that when this precaution was observed the results were more uniform. The abundance of the leukocytes was noted in each case, as it is not merely the percentage of each form that is of significance, but also the total number present. A test for sugar was made in each case.

As a rule, the exudates contain large amounts of nucleoalbumin, the transudates little if any. This, however, is not sufficiently constant to be of special diagnostic value, as in a total of about 20 fluids examined with this in view, four fluids from tuberculous pleurites have shown either a complete absence or at most a mere trace of nucleoalbumin. One fluid from cirrhosis, in which neither chemically nor from the specific gravity or amount of albumin present was there any evidence of an inflammatory process, showed a decided amount of nucleoalbumin. From the few cases in which this test was made I believe that nucleoalbumin is often absent in inflammatory fluids and occasionally present in transudates. In the two cases of tuberculous peritonitis with fluid of relatively low specific gravity, viz., 1,015, both patients had a previous alcoholic history and clinical evidence of atrophic cirrhosis. In both the fluid was encapsulated; one had pulmonary tuberculosis. It

		Specific gravity.	Color.	Bulk Albumin. Purdy.	Percent Albumin. Reuss.	Leukocytes.	Percent Lymphocytes.	Percent Neutrophiles.	Percent Eosinophiles.	Epithelium.
1	Tuberculous peritonitis	1020	Pearly.	50	4.62	Very few.	100	....	....	None.
2	" "	1017	"	55	3.49	Abundant.	26	71	3	"
3	" "	1018	"	40	3.87	Few.	90	10	....	Many sheets.
4	" "	1025	"	100	6.6	"	100	....	....	Few sheets.
5	" "	1030	"	100	8.3	"	100	....	....	Few single.
6	" "	10 5	Yellow.	65	2.74	Many.	98	2	....	"
7	" "	1027	Pearly.	50	7.3	"	71	26	....	None.
8	" "	1015	"	40	2.8	Few.	100	....	....	"
9	" "	1017	Yellow.	80	3.49	Very few.	100	....	....	Many sheets.
9a	Four weeks previous.	1010	"	40	1.02	"	100	....	....	"
10	Tuberculous peritonitis	1020	"	50	4.62	"	80	20	....	None.
11	" "	1020	Pearly.	100	4.62	Many.	100	....	....	Many single.
12	Cirrhosis of liver	1015	Yellow.	55	2.8	"	98	2	....	None.
13	" "	10 2	"	40	1.77	"	68	25	....	Few single.
14	" "	1010	"	20	1.02	None.	0	0	....	"
15	" "	1012	"	25	1.77	Few.	60	40	....	Many sheets.
16	" "	1017	"	30	3.49	"	80	20	....	None.
17	" "	1012	"	50	1 77	"	90	10	....	"
18	" "	10 0	"	30	1.02	Many.	87	13	....	"
19	" "	1010	"	30	1.02	None.	0	0	....	"
20	" "	1013	"	30	2.14	Few.	100	....	....	"
21	" "	1010	"	25	1.02	Very few.	90	10	....	"
22	" "	1010	Pearly.	15	1.02	Few.	90	10	....	Many sheets.
23	" "	1014	Yellow.	20	2.52	"	95	5	....	Many single.
24	" "	1012	"	30	1.77	"	100	....	....	Few single.
25	" "	1014	"	35	2.52	Many.	75	25	....	Many sheets.
26	" "	1013	"	40	2.14	Very few.	96	4	....	Few sheets.
27	" "	1009	"	28	.65	"	95	5	....	"
28	Ascites general serositis	1016	"	50	3.12	"	95	5	....	None.
29	Carcinoma peritonei	1019	Pearly.	45	4 62	"	100	....	....	Many sheets.
30	" "	1015	"	30	2 74	"	100	....	....	"
31	" "	1027	Chylous.	80	7.3	Many.	25	75	....	"
32	Acute peritonitis.	1015	Yellow.	75	2.74	"	10	90	....	None.
33	Ascites gen. venous stasis.	1014	"	30	2.52	Very few.	98	2	....	Many sheets.
34	" "	1009	Pearly.	30	.65	"	100	....	....	"
35	" "	1010	Brownish.	26	1.02	"	98	2	....	Many single.
36	" "	1014	Yellow.	30	2.52	"	95	5	....	Few sheets.
37	Tuberculous pleuritis	1015	"	55	2.74	Very many.	100	....	....	None
38	" "	1022	"	80	5.5	"	98	2	....	Few single.
39	" "	1017	Pearly.	75	3.49	Few.	90	10	....	None.
40	" "	1025	Yellow.	100	6.6	Very few.	100	....	....	"
41	" "	1014	"	20	2.52	"	80	20	....	Few single.
42	" "	1020	Pearly.	60	4.62	"	97	3	....	Few sheets.
43	" "	1020	Yellow.	50	4.62	Very many.	97	3	....	None.
44	" "	1025	"	75	6.6	Very few.	100	....	....	"
45	" "	1018	"	50	3.87	"	100	....	....	"
46	" "	1022	"	70	5 5	Very many.	95	5	....	"
47	" "	1024	"	80	6.72	"	100	....	....	Few single.
48	" "	1017	Hemorrhagic.	56	3.49	"	40	60	....	None.
49	" "	1014	Yellow.	20	2 52	Few.	100	....	....	"
50	" "	1017	"	60	3.49	Very few.	95	5	....	Many sheets.
50a	Ten days later	1020	"	55	4.62	"	97	3	....	"
50b	Four days later	1020	"	60	4.62	"	98	2	....	Few sheets.
51	Tuberculous pleuritis	1020	Hemorrhagic.	70	4.62	"	95	5	....	None.
52	" "	1014	Yellow.	30	2.52	"	100	....	....	Few sheets.
53	" "	1020	"	85	4.62	"	97	3	....	Few single.
54	" "	1015	"	25	2.74	"	96	4	....	None.
55	" "	1018	"	26	3.87	"	100	....	....	"
56	Acute pleurisy	1018	"	90	3.87	"	18	70	12	"
57	" "	1020	"	100	4.62	"	70	30	....	"
58	" "	1022	"	44	5.5	Very many.	97	3	....	"
59	" "	1024	"	85	6.22	"	5	95	....	"
60	" "	1025	"	100	6 57	"	10	90	....	"
61	" "	1021	"	60	5	"	10	40	50	"
62	" "	1015	"	40	2.74	"	2	98	....	"
63	Hydrothorax cardiac	1011	"	80	1.40	Very few.	90	10	....	Many sheets.
64	" "	1014	"	50	2.52	"	100	....	....	None.
65	Hydrothorax nephritic	1008	"	20	.27	"	100	....	....	Many sheets.
67	" "	1008	"	20	.27	"	92	8	....	Few single.
68	" "	1009	Watery.	10	.65	"	80	20	....	Many sheets.
69	Acute pericarditis	1020	Hemorrhagic.	100	4.62	Many.	8	90	....	None.
70	Tuberculous meningitis	....	Clear.	......	....	Few.	100	....	....	"
71	Cerebrospinal syphilis	....	"	......	....	None.	....	....	....	"
72	Epidemic cerebrospinal. (Spinal fluid.)	....	Cloudy.	......	....	Many.	10	90	....	"
73	Cerebral hemorrhage	....	Hemorrhagic.	......	....	"	2	98	....	"
74	" "	....	"	......	....	Very few.	100	....	....	"
75	" "	....	"	......	....	"	100	....	....	"

is not improbable that these were cases of cirrhosis, with secondary tuberculous infection, the low specific gravity being accounted for partly by the combination of transudate and exudate partly by the anemia of the patients due to the cirrhosis. The patient (9) whose peritoneal fluid early had a specific gravity of 1,010, four weeks later 1,017, had an old adhesive pleuritis and pericarditis with tubercle bacilli in the sputum.

In the cases of cirrhosis with relatively high specific gravity, viz., 1,017, the patient gave a history of ascites of about six months' standing, and was extremely anemic. A Talma operation was performed and there was no evidence of an inflammatory process, but in a patient with such a high degree of anemia, it is very difficult to explain the specific gravity without the presence of some associated inflammatory condition.

In two cases of tuberculous pleuritis there was a low specific gravity, viz., 1,014. One of these patients had tubercle bacilli in the sputum; the other had a friction rub preceding the collection of fluid, and as neither had any evidence of cardiac affection or mediastinal growth, the fluid was probably an exudate. Neither was especially anemic. The average specific gravity of the acute pleurisies was higher than the tuberculous form, probably explained by the greater intensity of the inflammation and the milder degree of anemia. One case of acute pleurisy had a specific gravity of 1,015; the patient had a complicating nephritis and myocarditis with considerable general edema, the low specific gravity being explained by the anemia as a result of the nephritis, and possibly by some transudation of cardiac and nephritic origin. Sugar was tested for in each case, and found only once, in an ascites due to cirrhosis, the urine being sugar free.

True chylous ascites was observed twice, once in carcinoma of the peritoneum, once in fluid of cardiac origin; in this latter case considerable free fat globules could be seen, with very few epithelial cells, and these not especially fatty. Autopsy later showed a clear fluid. Here the chyle appeared in the fluid as result of pressure of the transudate. Myelin bodies were found in one case of circumscribed pleurisy. These are often found in sputum, being a secretory product of the respiratory mucous membrane. Sahli reported it present in fluid from an intrathoracic tumor. When present in a pleural fluid they indicate a communication with a bronchus.

Interesting is a study of the bulk albumin, as there is apparently little relation between it and the specific gravity. That such a relation actually exists has been established, exceptions being infrequent. This emphasizes the view expressed above, that the Purdy method for determining the albumin in serous fluids is of little value.

In the study of the cellular elements, I have employed the methods previously mentioned. In exudates, the sediment has been freed from albumin in the manner already described; in transudates this is not necessary. When immediate sedimentation could not be made, a few drops of formalin was added, and the cells in fluid so prepared are well preserved for several days. With the Wright or Jenner stain, the granules have usually been brought out very distinctly.

Tuberculous Peritonitis.—Fluid from 11 patients was examined. Epithelial cells were absent in five, two contained a few isolated cells, one a few in sheets, three numerous sheets of cells. No mitoses were observed. Many cells showed multiple nuclei; leukocytes very few in number in three; few in four; abundant in four. Eight cases, 90% or more of the leukocytes were lymphocytes. Three gave 20% or more of neutrophiles.

Ascites Due to Portal Stasis.—Sixteen cases were examined. Epithelial cells were absent in 7, 3 a few isolated cells, 1 many isolated cells, 2 a few in sheets, 3 many cells in sheets. Leukocytes were not found in 2, 10 cases very few in number, 4 cases numerous. The lymphocytes always predominated; only four times were the neutrophiles 20% or greater; four cases between 10% and 15%; four cases no neutrophile cells were found.

Carcinoma of the Peritoneum.—Three cases were examined. Epithelial cells were present in all. In two cases much more abundant than in any other fluids examined. Cells showing marked mitotic changes were not found. The nuclei were often lobulated and many times entirely separated, giving the appearance of giant cells. Fatty changes in the cells were very marked, and many of the cells were very much swollen. The arrangement of the cells about a central cavity, a picture described by others in carcinoma, was often marked. Cells that could be looked upon as characteristic were not found. Lymphocytes only were found in two, the neutrophiles predominating in the other case.

Ascites from General Venous Stasis.—Three cases were examined. Many isolated epithelial cells were found in one, numerous sheets in the other two. Fatty changes very slight. Leukocytes very few in number and chiefly lymphocytes.

Tuberculous Pleuritis.—In making our clinical diagnosis the family history, presence of tuberculous foci in other parts of the body and nature of the onset were especially considered. The tuberculin test was employed in a few cases. It is not improbable that some errors in diagnosis were made, as it is recognized that the diagnosis of the tuberculous nature of a pleurisy is usually difficult and often impossible. Nineteen cases were examined. In many of these, fluids from successive tappings were studied. Epithelial cells were absent in 12, a few isolated cells in 3, cells in sheets in 4. More or less numerous leukocytes were present in each. In 13, few in number, 6 numerous. The neutrophiles predominated in a single case, and were absent in eight; 95% or more of the cells present were lymphocytes in 16 cases.

Acute Pleurisy.—Seven cases of acute simple pleuritis were examined. Two of these were postpneumonic, one typhoid, one postoperative, one of acute onset of unknown origin in which the tuberculin reaction was negative, and two complicating nephritis. Epithelial cells were absent in all. One of the postpneumonic cases had 70%, the other 30% of neutrophiles. One had 12% of eosinophiles. The typhoid case early gave 95% of neutrophiles, one week later 3% and 97% of lymphocytes. The neutrophiles were the chief cell present in the postoperative case. The patient who failed to give the tuberculin reaction had 97% of lymphocytes. One case complicating nephritis had chiefly neutrophiles, the other 40% neutrophiles, 10% lymphocytes and 50% of eosinophiles. In this last case the patient had also a pericarditis, the fluid containing 90% of neutrophiles, 8% of lymphocytes and 2% of eosinophiles. This is the first case reported in which an eosinophilia in one body cavity was associated with a predominance of neutrophile leukocytes in another cavity.

Hydremic Pleural Fluids.—Five cases were examined: Two cardiac, three of renal origin. Epithelial cells were absent in one—many sheets in three. The leukocytes were very few in number in all; 90% of the cells present were lymphocytes.

Cerebrospinal Fluid.—A microscopic examination was made in three cases of cerebral hemorrhage. Two contained very few cells and all lymphocytes. In the other case, cells were very abundant and 98% neutrophile. These were atypic cells, the body and nucleus much swollen, many of the cells measuring 50 microns. The granules were very scattered, but stained in a typical manner. In many of the cells there were 15 to 20 spheric or oval refractile bodies, which failed to color in hematoxylin or Jenner's stain. The character of these bodies was not determined. Although no autopsy was obtained, clinically the case appeared a typical cerebral hemorrhage. One case of cerebrospinal syphilis was examined and found free from cells. One case of tuberculous meningitis showed a moderate increase in the number of cells, all of which were lymphocytes. The cerebrospinal fluid from a patient who later developed erysipelas contained a moderate number of leukocytes, 88% of which were neutrophiles.

A review of these results is instructive: Whether the process is primarily inflammatory or not, epithelial cells may be present. The absence of epithelial sheets has been considered characteristic of exudates, but the foregoing results do not support it. There is a slight tendency to greater abundance of neutrophiles in ascites due to portal stasis than in tuberculous processes, but not sufficiently marked or constant to be of diagnostic value. The cellular elements present in ascites due to hydremia do not necessarily differ from those in tuberculous peritonitis or cirrhosis, except that they are usually less abundant. The predominance of neutrophiles in ascitic fluids may mean tuberculosis, acute peritonitis or cirrhosis. It may be that the predominance of neutrophile cells always indicates the presence of inflammation primary or secondary, but there is nothing in the specific gravity or amount of albumin to indicate that this is the case. No characteristic cells were found in cases of carcinoma of the peritoneum, but the epithelial cells were much more abundant and showed more fatty degeneration than in any other fluids examined, except a case of pseudoleukemia with involvement of the mediastinum, in which the finding resembled closely that of the carcinoma.

A review of pleural fluids shows the frequent presence of sheets of epithelial cells in exudates. This, I think, can readily be explained by the inflammatory process involving only a portion of the serous surface, the presence of the fluid on the uninflamed surface causing marked desquamation. It may be true that it is only in tuberculous pleurisies secondary to lung involvement that the neutrophiles are found in abundance, but this is of little practical value, as it is usually impossible to detect a tuberculous focus in a lung compressed by fluid. It is apparent that the lymphocytes predominate in tuberculous pleurisies, but the same may be true in a hydrothorax, and when we may find epithelial sheets in both the picture is identical. To be sure, as a rule, the cellular elements are more abundant in tuberculous pleurisies than in transudates, but not, however, of a sufficient degree to be of diagnostic value. In the acute nontuberculous pleurisies the neutrophiles are usually abundant, and, as a rule, the predominating cell; however, fluids of this type when they have remained in the cavity for a long time present a lymphocytosis. One case of this type is found in my series. The presence of a large percentage of neutrophiles may mean either an acute simple pleurisy or a tuberculous pleurisy secondary to a lung focus. From a study of my cases, the presence both relatively and absolutely of a large number of lymphocytes is only found in primary tuberculous pleuritis, but the absence of abundant lymphocytes does not mean that the process may not be a tuberculous one. Regarding the cerebrospinal fluids, too few cases have been studied to draw any conclusions. Significant, however, is the absence of increase in lymphocytes in the single case of cerebrospinal syphilis examined.

CONCLUSIONS.

1. The color of the fluid, its reaction and size of the erythrocytes are of little diagnostic value.
2. Nucleoalbumin is usually much more abundant in exudates than transudates, however, many exudates fail to show more than a faint trace.
3. On account of the constancy of the salts present, the specific gravity and amount of albumin bear an intimate relation.
4. Fluids from different body cavities of the same individual, or fluids of the same origin in different individuals, or successive tappings of the same cavity, may show marked variation in the amount of albumin, probably explained by the permeability of the capillaries, the degree of irritation of the serous surface, the condition of the patient's blood, the tension of the fluid, the amount of absorption taking place, and possibly the blood-pressure.
5. Methods of estimating the bulk albumin, as Esbach's or Purdy's are not applicable to serous fluids.
6. Reuss' formula is the most accurate, simple method for determining the amount of albumin in serous fluids.
7. The diagnostic value of the specific gravity, or amount of albumin, is greatly lessened by the frequent presence, simultaneously, of several processes. A hydremia, as a result of anemia or transudation from pressure, may lower the specific gravity of an inflammatory fluid. Secondary inflammation, high tension of the fluid, or resorption taking place, may increase the specific gravity of a transudate.
8. At present there is no absolutely reliable method for determining the tuberculous character of a serous fluid.
9. The specific gravity of a fluid, when taken for successive tappings, may be of prognostic value.
10. Epithelial cells in sheets are not infrequently present in fluids of inflammatory origin.
11. The predominance of lymphocytes may be associated with a long-standing, simple pleuritis, a hydrothorax or a tuberculous pleuritis.
12. The presence of relatively large numbers of neutrophiles in pleuritic fluids may be associated with an acute, simple, or a secondary tuberculous pleurisy.
13. The presence of numerous cells, chiefly neutrophiles, suggests an acute, simple pleuritis.
14. The presence of numerous lymphocytes, with few, if any, neutrophiles, indicates that the process is probably a tuberculous one.
15. In ascitic fluids, there is little that is characteristic. Neutrophiles are usually more abundant in fluids, due to portal stasis from cirrhosis than in tuberculous peritonitis.
16. An eosinophilia in one body cavity may occur along with a neutrophilia in another.
17. A study of the cellular elements in fluids, from the pleural or abdominal cavities, is of comparatively little diagnostic value, either in differentiating transudates from exudates, or in determining the character of the latter.

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HYPERCHLORHYDRIA, WITH OBSERVATIONS ON DIET AND GASTRIC ANALYSIS.

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The personal element is an all-important factor in stomach work, both with the physician who diagnoses and prescribes and with the patient who is examined and treated. By this is meant that the physician in his handling of stomach cases is unwittingly influenced by his own gastric and intestinal idiosyncrasies. Fortunate is the patient whose advice comes from a man with a normal alimentary tract. It is but human nature for the doctor to consider his own stomach and intestines as models of their kind. If they rebel against milk, and are insulted by eggs, and are tied up in knots by apple pie, it is only natural to think that if a patient has decent and respectable viscera, his ought to do the same thing. We all find ourselves persistently advising against good, sensible, nutritious foods, for no other reason than that they disagree with us. As a matter of fact, a personal dietetic idiosyncrasy warps one's judgment. I know of many excellent physicians who warn all of their patients against eating eggs, simply because for themselves they are rank poison; others who think that milk is an invention of the devil, simply because their own milk-curdling ferment happens to be deficient and they suffer with socalled biliousness if they indulge. Another doctor raises his voice and hand, Munyon-like, against the time-honored luxury of apple pie. He, perhaps, is an overworked medico, with nerves and hyperchlorhydria, in whom the mild acid of the apple adds fuel to the flame of an acrid juice. This same personal factor exhibits itself in advice given about the number of meals which should be eaten in the course of 24 hours. One physician advises two heavy meals, another five or six light ones, frequently basing judgment on experience with his own peculiar, defective stomach. To illustrate the importance of the personal element in the patient, one has but to call to mind certain cases with supposedly weak or dyspeptic stomachs, who were advised to live on the blandest and most easily digested foods, but who, in a rash moment, braved the anger of the irate doctor, and satisfied a craving for corned-beef and cabbage—or Welsh rabbit and beer, with the happiest results and a new lease on life. "What is one man's meat is another man's poison." Analysis of the stomach contents with accurate determination of total acidity, combined acid, free HCl, pepsin and lab ferment, will not decide positively that certain diets will agree with such and such a case.

In other words, the stomach and intestines are vital tubes, not test-tubes, and are controlled to a remarkable extent by the personal idiosyncrasies of the patient.

In all stomach work the physician should strive to free himself from his personal prejudices and should never fail to learn the peculiarities of the digestive apparatus of his patients; and take advantage of their ripe experience in testing articles of diet. It has been my observation that many persons possess such exquisitely sensitive nervous systems that their gastric mucosas are irritated by normal stomach juices, with the result that symptomatically and from the standpoint of treatment we are dealing with a case of hyperchlorhydria; while chemically we are dealing with a normal stomach and pathologically with a case of neurasthenia possessing a hypersensitive mucous membrane.

Again, in functional stomach diseases, which are by far the most common, conditions change from meal to meal, or day to day. Consequently, deductions from *one* analysis may be absolutely wrong. One often has the experience of going over the history of a case very carefully and guessing at the acid contents of the stomach juice and on following this up with an analysis finds much to his surprise (judging from this single examination), that instead of a hyperchlorhydria he is dealing with a hypochlorhydria. Not satisfied, he tries another and different test-meal, or perhaps the same kind of meal again, and in the second or third analysis finds his guess of a hyperchlorhydria confirmed. It is because of such experiences that many good men declare that gastric analysis as commonly practised is uncertain and deceptive; and that they can get better results by taking a good history and guessing at the diagnosis; or by trying the therapeutic tests with acids and alkalies.

There is much truth in these contentions, especially where stomach work is not carried out with sufficient detail and accuracy. It is a pleasant mental diversion and one which I always practise, to take a careful history of the patient and then guess on the probability of a hyperchlorhydria or hypochlorhydria. In the vast majority of cases one can guess correctly. But what of the small percentage in which one is absolutely wrong? On a number of occasions I have secured an excellent history of hyperchlorhydria, but on accurate analysis have found that hydrochloric acid was practically absent, and that the symptoms were caused by a great excess of organic acids.

Notwithstanding the many weak points in modern stomach work, he who argues against gastric analysis, forgets that the chemic question of, hyper or hypochlorhydria may be a very small one, in comparison with the importance of the size of the stomach, its position and its motor power. He also forgets that the chemic and microscopic findings often throw light upon the presence of cancer or ulcer when these cannot be determined by physical diagnostic methods. An important point recently emphasized by Fischer,[1] and one which I have believed in and followed for a number of years—is that the average gastric analysis may be of rather small value, and may in fact mislead one. This average analysis consists of one test-meal of bread and tea, or crackers and water, or a shredded wheat biscuit and water. Such a test-meal, though useful as one of a *series* of meals, and excellent for the determination of free HCl, cannot possibly give us the correct idea of the manner in which the stomach would behave when the customary more trying demands of ordinary meals are placed upon it. We have learned through Pawlaw's epoch-making investigations upon "The Work of The Digestive Glands," that the secretion of a normal gastric juice is dependent upon a number of factors, outside of the simple presence of food in the stomach. Of these factors an important one not taken into consideration in the commonly used test-meal is the effect of appetite, the stimulation of the senses of sight, smell and taste, in producing a socalled psychic gastric juice. To illustrate the importance of the psychic element in the secretion of gastric juice, I will mention one of Pawlaw's experiments. By feeding a dog 200 grams of food he secured 135 cc. of gastric juice. By directly introducing the same quantity of food into the stomach through a fistula, he secured 50 cc. of gastric juice (sympathetic stimulation). By fictitious feeding of the food he secured 75 cc. of gastric juice (vagus stimulation). Troller found that the introduction of food into the stomach through a tube, in the human subject produced much less acid secretion than if the same were first masticated. On the other hand, the mastication of tasteless substances caused very little acid secretion. The only conclusion to be drawn from these experiments is that the average meal of bread and water does not furnish a fair test of the stomach's secreting capacity; it *simply* determines the amount of acid which this particular *food* will stimulate. Inasmuch as the stomach secretion may vary from day to day, one should test several meals; and because *each* food has its own special acid curve, one should give a variety of meals. A fair series of test-meals consists of the following: In the morning give an Ewald-Boas breakfast of bread and water; for the second test allow the patient to eat his average lunch and for the third meal give him a Riegel test-dinner, which consists of a dish of meat broth, a beef steak weighing five to seven ounces, one and a half ounces of mashed potato and roll. Withdraw in four hours. If the stomach is empty give another Riegel meal next day and withdraw in three hours.

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[1] American Journal of the Medical Sciences, July.

With such a series of meals the stomach should be sufficiently taxed to determine the presence or absence of a hyperchlorhydria. The great influence which the mind wields over the stomach and intestines is a matter of daily observation among physicians. A former student of mine suffered with a very distressing diarrhea during her senior year, as the result of her dread of the daily quiz. This continued until, at my suggestion, her various instructors assured her that she would not be quizzed, and it immediately ceased. Numerous surgeons have had similar experiences, the worry preceding the operation causing a looseness of the bowels. The analogous effect upon the stomach is to produce in many instances an acute or chronic hyperchlorhydria. Business worry, grief, sorrow, long illness, mental shock of any kind, prolonged physical and mental tax, as in nursing a very sick case, may result in a temporary or persistent hyperchlorhydria. The patient suffering from neurasthenia, hypochondriasis, nervous prostration, and the more profound melancholia is very likely to develop a hyperchlorhydria, which may be a slight or very serious matter. The gastric symptoms may become so pronounced that the patient imagines that all the trouble is located in the stomach, and that the failure of nutrition and the nervous exhaustion are entirely dependent upon the gastric conditions. It is true that a certain percentage of these cases shows a hypochlorhydria. It was my experience in a large series of cases of enteroptosis (patients who are notoriously neurasthenic) to find that a majority of them had a diminished acidity. They were drawn largely from hospital practice, however, and from agricultural districts. My belief is, that the same number of enteroptotics in private practice would have shown a hyperchlorhydria. It is difficult to draw accurate conclusions as to the frequency of this condition. To my mind it depends largely upon the class of patients the physician is dealing with. If one's statistics are drawn chiefly from hospitals sought by the poorer laboring classes he will find among his stomach cases an excess of hypochlorhydria; if, on the other hand, they are drawn from literary or social sets, they will almost surely show a great preponderance of hyperchlorhydria. My own records in private practice show a marked preponderance of the latter. I was dealing largely for a period of six years with university students and professors. Riegel, Bouveret, Jaworski, Mathieu, Remond and others hold that hyperchlorhydria is a very frequent functional disturbance. Other authors claim that this symptom is a rare one. Conclusions should be drawn only from cases in which the stomach contents have been analyzed. Symptomatology cannot be depended on for accurate diagnosis. Von Noorden frequently found hyperchlorhydria in cases of melancholia. Some excellent research along this line was done by Dr. Ralston Williams, of the University of Michigan, working on material furnished by Dr. William M. Edwards, superintendent of the Kalamazoo, Michigan, Asylum for the Insane. This work was carried out with extreme care and accuracy. Dr. Williams has kindly furnished me with the results of his investigations. They are as follows:

The cases studied were those exhibiting the symptoms of depression or the symptom-complex, which is commonly designated as melancholia. The patients selected were subjected to a thorough physical and clinical examination, and those showing signs or lesions of other disease, which might invalidate the gastric findings, were excluded. Special attention was given to the stomach to eliminate, so far as possible, such complications as hypersecretion, gastroptosis, dilation, carcinoma and ulcer. The stomach in each instance was distended and topographically mapped out by palpation and auscultatory percussion. The Ewald and Riegel test-meals and the ordinary hospital dinner were the experimental meals given. The Toepfer method of analysis was employed. In all, ten cases were studied.

SUMMARY OF RESULTS.

Case I.—Examined nine times.

Free HCl values varied from 35 to 70 (Ewald scale), and the total acidity values from 48 to 100. The peptic digestion values by the original Mett method varied from 5 mm. to 16 mm. (24 hours) and the quantity of the test-meal expressed from 25 cc. to 70 cc.

Case II.—Nine examinations made.

Free HCl values varied from	20 to 77
Total acidity varied from	40 to 102
Peptic values varied from	1 to 11 mm.
Amount of meal expressed varied from	5 to 180 cc.

Case III.—Eight examinations made.

Free HCl values varied from	8 to 71
Total acidity varied from	25 to 92
Peptic values varied from	1 to 12 mm.
Amount expressed varied from	5 to 155 cc.

Case IV.—Eight examinations made.

Free HCl values varied from	0 to 90
Total acidity varied from	10 to 108
Peptic values varied from	2 to 16 mm.
Amount of test-meal expressed varied from	30 to 156 cc.

Case V.—Nine examinations made.

Free HCl values varied from	34 to 68
Total acidity varied from	55 to 98
Peptic values varied from	3 to 14 mm.
Amount of test-meal expressed varied from	60 to 350 cc.

Case VI.—Five examinations made.

Free HCl values varied from	0 to 0
Total acidity varied from	2 to 15
Peptic values varied from	0 to 2 mm.
Amount of meal expressed varied from	10 to 82 cc.

Case VII.—Five examinations made.

Free HCl values varied from	0 to 0
Total acidity varied from	0 to 15
Peptic values varied from	0 to 0
Amount of meal expressed varied from	0 to 8 cc.

Case VIII.—Four examinations made.

Free HCl values varied from	36 to 63
Total acidity varied from	50 to 87
Peptic values varied from	9 to 14 mm.
Amount of meal expressed varied from	24 to 110 cc.

Case IX.—

Free HCl values varied from	30 to 50
Total acidity varied from	67 to 73
Peptic values varied from	7.8 to 15.5 mm.
Amount of meal expressed varied from	58 to 170 cc.

Case X.—Three examinations made.

Free HCl values varied from	38 to 48
Total acidity varied from	55 to 68
Peptic values varied from	11 to 12 mm.
Amount of meal expressed varied from	12 to 170 cc.

From the foregoing it will be seen that (1) the range of secretion of free HCl in most of these cases is very great, varying from 10° to 90° pointing to hyperchlorhydria; (2) the total acidity has likewise a wide range of variation; (3) the peptic values are also extremely variable and in several of the cases are indicative of a marked hyperpepsia; (4) many of the cases show a disturbance of motor power. In Case X this is about all the analysis shows; however, this patient suffered from marked sensory disturbances as did some of the others. In some instances these disturbances were the basis of the delusions experienced.

Diagnosis.—As previously stated these cases may often be diagnosed correctly from a careful consideration of history and symptomatology, especially by those who have frequently followed up the histories of cases with analyses of test-meals. The degree of suffering may bear no relation at all to the degree of hyperacidity, as we find patients with an acidity scarcely above normal complaining most bitterly of the pain, burning and tenderness in the pit of the stomach; also of heart burn and the belching of gas and fluid so acid that it burns the lining of their gullets and sets their teeth on edge. Other patients with most startling degrees of acidity will scarcely complain of a symptom, at most of the merest sensation of uneasiness in the epigastrium. The explanation of these striking inconsistencies lies in the nervous makeup of the patient. The more neurasthenic and hysteric the patient, the more acutely sensitive is the mucous membrane to irritation, and the smaller the power of inhibition and resistance. Cases of hyperchlorhydria usually complain of burning pain or uneasiness in the epigastrium from a half hour to several hours after meals. They tell you that they are relieved after eating for perhaps one hour or two hours or more, depending on the size and kind of meal. Baking soda or magnesia will also relieve them for a time. It is true that alkalies may temporarily allay the symptoms of the hyperacidity of organic acids, but to no such extent as in the case of hyperchlorhydria. On the contrary the symptoms of organic acid hyperacidity are more likely to be permanently relieved by the use of dilute hydrochloric acid.

Food is likely to increase the distress of hyperacidity due to organic acids. Certain foods like milk, meat and eggs usually give great temporary relief in hyperchlorhydria, because of their great hydrochloric acid combining powers.

The relief from symptoms is due to the fact that the food combines with the free hydrochloric acid, producing a combined HCl. Consequently there is very little or no distress until all of the affinities of the food are satisfied and free HCl makes its appearance in excess. In certain cases an intense gastralgia may result, associated with profound nervous symptoms, not relieved by vomiting or alkalies. Large doses of morphin may be required. Pure cases of hyperchlorhydria are usually free from symptoms when the stomach is empty. Physical examination throws very little light on these cases, from the standpoint of differential diagnosis. The stomach may be normal in size and position, and there may be no points of tenderness. There is usually a diffuse tenderness over the epigastrium. True, the stomach may be dilated and dislocated, but such a condition is very common in hypo or anachlorhydria. The crucial diagnostic measure is the analysis of several varieties of test-meals.

Diet.—The diet of hyperchlorhydria has formed the subject for numerous articles. The diametrically opposite views expressed by different authorities prove that no arbitrary rules can be laid down. One authority advises a vegetarian diet; another a meat-free diet, which includes milk and eggs in addition to vegetables; another advises a proteid diet, and a fourth a mixed diet modified to suit the individual case. With all of these excellent results are claimed. The only method of satisfying one's self of the virtues of these different diets—is to try them on a large number of cases. I have done this, and have learned that one can depend on none of them. With certain cases the meat-free diet works marvelous results, but with the very next case one is just as likely to meet with failure. In many cases the proteid diet gives the most satisfaction and greatest relief from symptoms, while in others it is an absolute failure. Probably the most suitable diet for a majority of cases is a properly modified mixed diet. We learn from experience that there is no specific dietetic treatment for hyperchlorhydria. To obtain success in handling these cases one must treat the patient and his dietetic idiosyncrasies, not the hyperchlorhydria—*per se.*

Notwithstanding the great dietetic latitude which these cases demand, certain arbitrary rules must be laid down. We must realize that the patient suffering with this disease has an irritable, morbidly sensitive gastric mucous membrane, which secretes larger or smaller quantities of hydrochloric acid, under comparatively slight provocation.

Consequently the patient must avoid very hot and very cold foods; he must chew his food thoroughly to avoid the mechanical irritation of coarse, hard particles. He must avoid those foods which cannot be chewed into small bits, such as gristly, fibrous meats and very coarse vegetables and fruits with seeds and stones. The patient must also avoid spices, sauces, salads, acids and sour articles of diet. The supporters of the meat-free and vegetarian diets claim that they stimulate a smaller secretion of HCl than a proteid diet and that though the symptoms may be temporarily increased because of their smaller acid combining power, if persisted in will cause a permanent diminution in the secretion of HCl. In opposition to these contentions we have the results of Mayer's experiments. Testing a vegetarian and proteid diet on the same cases of hyperchlorhydria over a long period of time he found that a vegetarian diet finally produced a permanent increase in the secretion of HCl. This was due, he thought, to the mechanical irritation of the necessarily increased bulk of a vegetable diet. It is a matter of common observation that cases of hyperchlorhydria frequently complain of marked gas formation in the stomach. This is especially severe when the diet contains a large proportion of starchy foods. The reason for this is that in these cases starch digestion is poor. Hydrochloric acid is secreted early and in excessive quantities and quickly stops the action of the diastasic ferment of the saliva. Recent experiences convinced me that a vegetarian diet was suitable only in a limited number of cases.

To illustrate: A patient with hyperchlorhydria and gastroptosis did not progress under my care as I wished, so she was placed in the hands of an acknowledged expert in vegetarian diet and physical therapeutics. She grew rapidly worse notwithstanding the additional use of electricity and hydrotherapy. She returned to me and was placed on a modified mixed diet, tonics and alkalies and with a change of scene in the shape of an eastern trip, improved remarkably. Many cases in which the neurasthenic element is prominent are extremely rebellious to treatment. Diet and medicine may have absolutely no effect and good results are secured only by a complete change of scene and occupation. As an illustration I will cite the following case:

Patient was a young man of 22, hypochondriacal on the subject of his stomach. He was a confirmed dyspeptic of three years' standing. He thought of nothing but his extreme suffering. His self-commiseration was pitiable. He had a fairly marked gastroptosis complicating a high grade hyperchlorhydria.

An Ewald-Boas test-breakfast, removed in one hour, showed a total acidity of 80, and free HCl of 50. A Riegel test-meal, removed in four hours, showed a total acidity of 130, and free HCl of 50. His Thanksgiving dinner, removed in 4½ hours, showed a total acidity of 90, and free HCl of 30. The motor power was somewhat diminished. He was dieted, given tonics and alkalies, and his stomach was washed with Carlsbad solution. There was no improvement, and his mental condition became distressing. I urged a sea voyage. Instead, he gave up his position, took a trip to Canada, worked as an ordinary laborer on a ranch, and in a short time he was able to eat anything and everything. His stomach regained its motor power, his dyspeptic symptoms disappeared entirely, and he quickly decided that life was again worth living. A great many of these cases, after apparent recovery, still show hyperchlorhydria on analysis. They have regained their nervous force and mental balance for the time being. As a result of any special strain they may again easily develop a pathologic increase in HCl. With them a certain amount of hyperchlorhydria is physiologic. If this condition is complicated by gastroptosis, dilation of the stomach, neurasthenia, etc., the treatment naturally differs from that of uncomplicated cases.

Hyperchlorhydria must be differentiated from hyperesthesia, hyperacidity due to organic acids, hypersecretion or Reichman's disease, and from gastric ulcer. The treatment of hyperchlorhydria may be easy or may tax one's skill to the utmost. The simple, acute, uncomplicated cases are quickly relieved of their symptoms. The chronic cases complicated with neurasthenia—disturbing environments—or with dilation, etc., may prove one's undoing. One's armamentarium consists of change of surroundings, fresh-air treatment—such as is given in tuberculosis, Weir Mitchell treatment, massage, electricity, hydrotherapy. Osteopathy and Christian science may be useful as mental placebos. Nerve tonics, such as enormous doses of tincture of nux vomica, increasing gradually from 10 drops to 70 or 80 drops, t. i. d., after meals. Bismuth and cerium oxalate before meals. Alkalies, such as sodium bicarbonate, calcined magnesia or milk of magnesia at the correct time, and in proper dosage after meals. Correction of constipation, with perhaps Carlsbad salts. Lavage is unnecessary in the majority of cases; in a few it is useful. For a diet one can take his choice of a meat-free—a proteid—or best of all, a properly mixed diet in which proteids predominate and attention is given to the personal idiosyncrasies of the patient.

At best it will be a matter of experiment. After trial one can eliminate or add certain articles. Coffee, acids, spices, irritants, both chemic and physical, must be eliminated from the start. A large amount of fluid is allowed with the meals, as this will dilute the hyperacid juices. Chemically—hyperchlorhydria is usually limited by certain arbitrary figures. These, however, differ with the variety of the test-meal. For instance, in a normal case the total acidity of a Riegel test-dinner is always much higher than that of an Ewald-Boas breakfast. The acidity also varies with the time of the removal of the meal. For the Riegel test-dinner the total acidity varies between 60 and 80 at four hours, the free HCl from 10 to 20, the combined HCl from 50 to 60. For the Ewald-Boas test-breakfast—the total acidity is about 55 at one hour, the free HCl about 10 and the combined HCl about 45 (Van Valzah-Nisbet). Other authorities allow a little greater latitude for the normal figures. Cases showing an acidity above these figures are called hyperchlorhydria. Therapeutically, it is a relative term, as many cases with hyperchlorhydria figures require no treatment, while other cases with normal juices, but hyperchlorhydria symptoms, require a well-directed therapy.

CASES ILLUSTRATING COMPARATIVELY LOW ACIDITY WITH SEVERE SYMPTOMS.

CASE I.—Miss H. A., early twenties, servant girl, Swede, complains of pain in epigastrium, left hypochondrium and bowels, about a half hour after eating. At times it lasts all afternoon. The stomach feels better after eating. No vomiting, nausea or hematemesis. Appetite good. Stomach troubled her as a child and since coming to America it has been worse; not careful of diet, eats great deal of sweets and they distress her more than anything else. Patient is well nourished. Chest examination negative; no enteroptosis. Hyperchlorhydria was suspected in this case. An Ewald-Boas test-meal of bread and water was given and removed in an hour; 200 cc. of bile-stained fluid was obtained; no retention of previous meal. The analysis showed free HCl of 28 and a total acidity of 44. The patient was placed on a mixed diet, suitable for a case of hyperchlorhydria, was given increasing doses of nux vomica and milk of magnesia. Relief from symptoms followed. I am uncertain whether they continued.

CASE II.—Miss A. C., 24 years of age, servant girl, for the past three years has suffered with a severe burning sensation at the end of the ensiform, worse from three to five in the afternoon; also has constantly regurgitated, very bitter, sour material. During the past year has been vomiting two to three times daily after meals; if not food, then a sour liquid. She gets very hungry, but is afraid to eat, as everything hurts her. She has suffered with sick-headaches nearly all her life; these have been extremely severe during the past few years, lasting all day. Patient is extremely nervous. Whenever she gets worried she feels it in her stomach. She declares that diet makes no difference in her sensations. Monthly periods very painful. Has lost in weight from 165 to 140. Patient is well nourished, of the neurotic type, but not enteroptotic. I suspected hyperchlorhydria. A test-meal of half a dozen Uneeda biscuits and a glass and a half of water was removed in 55 minutes; 250 cc. of contents was obtained; this did not smell sour. The analysis showed a total acidity of 55 and free HCl of 14. A diagnosis of nervous dyspepsia, with hyperesthesia of the gastric mucosa was made and the patient was given bismuth and cerium oxalate before meals and sodium bicarbonate and calcined magnesia after meals. A mixed diet, suitable for the average case of hyperchlorhydria, was ordered. The patient improved immediately; vomiting, headaches, and symptoms generally disappeared. A series of test-meals should have been given, as it is possible that analysis of other meals would have demonstrated a hyperchlorhydria.

ILLUSTRATIVE CASES.

The following histories illustrate cases of extreme hyperchlorhydria with very slight symptoms:

CASE I.—Mr. G. K., age early twenties, tailor. Complains only of a burning sensation in the region of the stomach three to four hours after each meal. This is increased by drinking beer or whisky. Constipation. Patient is slender and wiry, but in good nutrition. Physical examination is negative, except that the stomach is somewhat prolapsed. His ordinary dinner was removed in three hours. Total acidity 140, free HCl 50. Four months later his ordinary dinner was removed in four and a half hours. Total acidity 180, free HCl 80.

CASE II.—Young man, about 30, senior law student, complained of constipation and indigestion for the past three years. During the last year he suffered with severe headaches at the latter end of the week, sour stomach, belching and occasional vomiting; loss of weight of 20 pounds. For a year he washed his stomach with benefit; found food remains 24 hours after eating; ate two meals a day for a while. Distress is more marked when stomach is empty than when full, suggesting hypersecretion. He feels weak in the epigastrium. The greater curvature of the stomach is an inch below the navel. The stomach holds about two quarts. The edge of the liver is felt an inch below the margin of the ribs. The following analyses were made:

March 29.—Test-breakfast of five Uneeda biscuits and two-thirds glass of water; time one hour, amount 250 cc. Total acidity 72, free HCl 53.

March 31.—Ordinary dinner; time four hours; large quantity. Total acidity 150, free HCl 90.

April 27.—Five Uneeda biscuits, glass of water; time, one hour; amount 10 cc. Total acidity 80, free HCl 90.

June 1.—Test-breakfast, Uneeda biscuit and water. Total acidity 80, free HCl 60.

CASES ILLUSTRATING THE IMPORTANCE OF SEVERAL TEST-MEALS OF DIFFERENT KINDS.

CASE I.—Business man, 36 years old, well-nourished, but markedly neurasthenic. Has been a dyspeptic for 15 years; consulted many doctors, among them one of the most eminent stomach specialists in this country. He has tried all kinds of medicine, has used all sorts of diet, and has fasted for many days at a time. He has never been benefited, and has lost all confidence in physicians. His whole attention is centered on his stomach. There is belching of much sour gas, beginning a half hour after meals and continuing for two hours. He frequently regurgitates mouthfuls of food, which taste sour and fermented. No pain ordinarily; slight nausea. His chief complaint is that he feels languid and dopy after meals; cries easily; thinks he has lost his grip; has felt like committing suicide many times. He broods over his suffering continually, and magnifies his symptoms manyfold. He is overly sensitive; anticipates trouble; is easily worried and irritated. He fasts a while, and it helps him. He tries it again, and it harms him. Later he will eat everything on the diet list for periods of two weeks and will feel fine, then he will feel badly again and diet himself. Melons and berries give him great distress. Milk acts like a poison with him. Test-meal; ordinary lunch; time, 1¾ hours. Free HCl, 0; total acidity, 30; excess of lactic acid. Pepsin Mett tube with stomach juice showed no digestion; tube with juice and 2 drops of dilute HCl showed 4 mm. Ewald-Boas breakfast of bread and water; time, 1 hour; amount, 50 cc.; no retention. Free HCl, 30; total acidity, 50. Pepsin tube with juice, 11 mm.; tube with juice and 2 drops of dilute HCl, 10 mm. Microscope showed numerous budding yeast cells. Riegel test-meal; time, 3 hours; 50 cc. Free HCl, 20; total acidity, 80. It will be seen that all three meals showed a marked variation in free HCl and total acidity and pepsin values. I have frequently observed in cases of hyperchlorhydria in making the pepsin test with the Mett tubes that the tube to which the dilute HCl is added almost always shows less digestion than the tube which holds the juice alone.

CASE II.—M. J. L., early twenties. Enteroptosis, hypertrophied rectal valves, constipation, nervous dyspepsia, marked neurasthenic symptoms. Experimental meals. Lunch of lamb chops and graham wafers; time, 3 hours; amount, 250 cc. Free HCl, 44; total acidity, 76. Ewald-Boas breakfast; time, 1 hour; amount, 200 cc. Free HCl, 18; total acidity, 38. Microscope shows a few budding yeast cells.

Leprosy in Spain.—There is an alarming outbreak of leprosy in the province of Castellon, Spain. Cases are rapidly increasing, particularly in Borriol, Burriano, Villa Real, and Alcala. The authorities are being urged to take strong measures to stop the spread of the disease.

THE RELATIONS OF OPHTHALMOLOGY TO OTHER DEPARTMENTS OF SCIENCE.

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That ophthalmology has been given a place in this Congress of Arts and Science may be significant of its wonderful development in the last half century. But it is still more significant of the new conception of what constitutes a science. There was a conception of sciences that we might compare with the representation of States in a primary geography. Each had a distinct color—pink for Missouri, yellow for Illinois, green for Kansas, with strong black lines separating them. If the color of one passed the black line and smeared the other it was a grave blemish on the map. Receiving first geographic impressions from such a map, it becomes hard for the child to conceive that these arbitrary political divisions correspond to nothing in external nature. Lines equally distinct, equally arbitrary, equally unnatural, marked off from each other the different conventional divisions of science. To a generation trained in the older conception of separated sciences, astronomy, chemistry, botany, physiology, the failure to recognize the traditional boundaries may seem a loose disregard of valuable landmarks.

But in thought, as in geography, across all conventional lines the streams run, the winds blow, the landscape extends toward the infinite, alluring horizon. Each individual student, from the little hill or the mountain he has climbed, looks out upon a panorama of facts the exact counterpart of which no one else can view. Yet he beholds the same region that others see from somewhat different standpoints; and the breadth of his perception is determined not by busy running to and fro, rather by the height to which he has climbed in his own proper domain for a viewpoint.

The new conception of science recognizes its universal continuity; and, laying aside traditional boundaries, assigns to every definite, important human interest, dominion over the territory which lies nearest it. Such is the conception which recognizes a science of ophthalmology.

Ophthalmology centers in the function of vision; a gateway—perhaps the most important gateway—between the objective and the subjective. From this center of its domain highways and bypaths go out in all directions, each leading to other domains of science, nearer or more remote. They run for a time fairly in the domain of ophthalmology, they end fairly at the center of some other science; but where they cross the border lying between, no man shall say. The time devoted to this address is to be used in pointing out a few of the salient features noticeable from this particular center of knowledge; in tracing the direction toward which the paths that center here extend, and in indicating a few things of especial value that we are able to offer from our cultivation of the field of ophthalmology, or hope to import from other fields of activity.

The central fact of ophthalmology is the conversion of the light impulse into the nerve impulse, and this not in a single general act, but by a myriad of sharply differentiated actions. We receive through the eye not merely a uniform impression of general external luminosity. Through this gateway comes a message from each separate particle of the universe. The number of such messages perceptible is limited only by a most remarkable capacity for differentiating impressions. A thirty-thousandth of a square millimeter of retina is capable of isolating and preserving the identity of a particular sensation, and of appreciating a radically different sensation ten times in each second.

This ability of the retina to differentiate impressions is of value only when connected with a correspondingly minute accuracy in the assorting of the rays falling upon it; and this minute accuracy in the assortment of these rays depends on the perfection of the dioptric apparatus of the eye. Its capacity for successive impressions depends on the rapidity of renewal of physical and chemic conditions—upon the perfection of its nutrition. To supply and maintain, by most delicate adjustments and compensations, these two things, the dioptric assortment of rays and the nutritive conditions of vision, are the essential purposes of the eyeball and its appendages.

On the one side ophthalmology extends to include the whole science of optics. Optical instruments are but artificial extensions of the organ of vision, conditioned by its limitations, of value as they serve it. On the other side, few processes of human physiology are without important bearing on ocular nutrition; and more distant processes, biologic, chemic, and physical, throw light upon the problems of ocular nutrition. On the one hand we have the mathematic and physical phenomena of light; on the other the physiologic balance of health and the imbalance of disease.

Ophthalmology was developed from both sides. The physicist and the optician with lenses and more elaborate instruments endeavored to correct the imperfections and extend the usefulness of the dioptric apparatus. The physician traced and combated in the eye morbid processes similar to those that he dealt with in other organs of the body. There is still a reactionary tendency to split the field of ophthalmology along the old lines. From the side of the optician the desire for maximum immediate material results with a minimum of science; and from the side of the physician the unwillingness to overstep the traditional boundaries of a medical education, and train the ophthalmologist in mathematic and physical optics, still favor one-sided and partial studies and views of ophthalmology. The real unity of science, and the importance of the sense of vision in the life of our modern civilization will, in the end, compel a view of the whole field from the true standpoint. But the opposing influences of a hasty commercialism, and a blind, if not fossilized conservatism, must be met by the assertion, and reassertion, clear and emphatic of the unity of ophthalmology.

Physics and Mathematics.—The two halves of the ophthalmic domain have been alluded to. Let us go into the relations of each of them a little more in detail before turning to special lines of thought that lead out toward the other domains of science. On the physical side of ophthalmology the general laws of refraction and the properties of lenses have been worked out nearly to the practical limit of minuteness. The exact changes in the dioptric mediums and surfaces of the eye, which occur with age, and in the act of accommodation, are still uncertain. This point at which physics and physiology come together is one of especial interest. More minute studies of both the physical conditions present in the crystalline lens, and physiologic processes which change them, may yield suggestions of wide applicability both in general physiology and in general physics.

That part of the physical side of ophthalmology concerned with the movements of the eyeball, which secure and maintain binocular vision, has of late years attracted much attention. A voluminous literature regarding it has arisen, the bulk of which, to speak frankly, is worth very little. This literature exhibits with painful emphasis the general lack of a broad training among physicians, which leaves them unable to grasp and use to advantage essential physical and mathematic conceptions. The same defective training is also seen in the crudeness and inefficiency of physical methods that have been widely resorted to for the correction of imperfect physiologic adjustments. The unknown being always great, the surgeon, painfully aware of the limitations of

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his knowledge of physiology, seems to have placed a blind faith in mechanical readjustments, of the limitations of which he was still more ignorant.

Fortunately, the importance of physiologic development for the perfecting of the function of binocular vision has been recently emphasized. Binocular vision is, comparatively, a late acquirement in the evolution of the race. The capacity for it is still rather liable to imperfect transmission from generation to generation. The instinctive reactions and efforts of the child in this direction often need to be guided, assisted and supplemented. A better appreciation of this evolutionary process and its recapitulation in the individual becomes the antidote for blind dependence on crude mechanical remedies.

Physiology.—Turning to the physiologic side of ophthalmology, it may be noted with regard to the growth and nutrition of the eyeball that these are strikingly determined by inherited tendency, and are markedly perturbed only by accidental influences of the severest type. The great mass of eyes approach marvelously near to a normal standard, independently of use or of influences affecting general nutrition. This is illustrated in the retinal development of eyes the seat of congenital cataract; in the full growth of the eyeball among influences that stunt the general body growth, in the maintenance of function in spite of extensive wounds, and in the strong resistance to the extension of suppurative processes.

In view of the slight perturbation caused in the nutrition of the ocular tissues by moderate influences, it seems easy to understand why physiologic experiment upon the eye has thrown little light upon the normal processes of general nutrition. The influences of sugar and naphthalin in causing opacity of the crystalline lens remain after many years phenomena almost completely isolated and not well explained. The opportunity for the experimental study of pharmacology and of processes of nutrition which seemed to be opened by the discovery of the ophthalmoscope has so far proved rather disappointing.

Pathology.—The disturbance of the orderly course of nature within the eyeball is, however, only a question of the adequacy of the disturbing force; and causes capable of producing pathologic results may here be studied through the characteristic series of their effects. The transparency of the ocular mediums enable us to watch undisturbed the usual course of pathologic processes within the eye. This has been of highest value in giving exactness and definiteness to some of our ideas regarding pathology. In the way of contributions to exact knowledge of the processes of exudation and resolution that attend inflammation, and of advanced knowledge of vascular and nerve lesions, much must be credited to ophthalmology. Yet the opportunity it affords for the study of pathology, experimentally or clinically, has thus far been utilized by few, and along comparatively narrow lines.

General Medicine.—Ophthalmology has the closest relations with all other departments of medical and surgical science. The general tissues which make up the body at large also enter into the eye and its immediate surroundings. They are here liable to the same morbid changes, and in some measure require the same applications of therapeutic forces. The infections, acute or chronic, have their characteristic ocular manifestations. The degenerations may here be traced, many of them with more minuteness and from an earlier stage than is possible in any other organ. It would be easy to spend time in outlining these relations of ophthalmology which have been the subject of treatises on the eye in relation to general diseases. But it was the "Father of Medicine" who pointed out, "art is long and time is fleeting." Omitting any such general survey of matters which have already claimed considerable attention, let us trace as equally instructive examples, a few of the newer or less commonly noted relations of ophthalmology.

Bacteriology.—Great interest attaches to observations that have been made in the region common to bacteriology and ophthalmology. The pathogenic action of microorganisms can nowhere else in the human body be so readily, directly and continuously studied. Already the known bacterial flora of the eye, both normal and pathologic, is a large one; and the characteristics and relationships of some of the organisms found there have been quite widely observed and commented upon. Valuable studies of the actions of bacterial toxins upon the living tissues of the eye have been made by Morax, of Paris, and Randolph, of Baltimore. But their observations are so far from being conclusive that they call for additional investigations to reconcile them.

The identity or nonidentity of certain related forms, as the diphtheria and the xerosis bacilli, are of equal interest and importance to students of both sciences. The observation that the same clinical types of inflammation may be associated with the presence or unusual abundance of totally different forms of bacteria, as the pyogenic staphylococcus, pneumococcus, diplobacillus and xerosis bacillus, has been made by many different workers in this field. It raises the questions, what is the essential relation of these organisms to the inflammatory process, and is that relation necessary or merely accidental?

In the eye we have admirable examples of inflammation due to nonbacterial causes, like the retinitis following the excessive use of the eyes, or exposure to excessive light; the choroiditis attending myopia; and the inflammations of the conjunctiva and lids due to eyestrain. Have such pathologic processes any necessary relation to bacteria whatever? What other processes resembling reactions to microorganisms may be reactions to unknown causes quite unrelated to bacterial invasion? It may be suggested that certain forms of ocular disease, such as "Parinaud's conjunctivitis" and "vernal conjunctivitis" ought to be carefully studied for a possible connection with microorganisms other than bacteria.

Neurology.—The relations of neurology with ophthalmology are so extensive and so intimate that the boundary between them would vary enormously with the taste or training of the individual who undertook to delineate it. "Die Neurologie des Auges," of Wilbrand and Saenger, has already reached some 1,500 pages and promises to extend indefinitely. Of the 12 pairs of cranial nerves, 6 are distributed partly or entirely to the eye and its appendages. Peculiarly intimate relations and analogies existing between the retina and the brain give to observations made upon the former a unique scientific interest and value. Then, too, the dependence placed upon the visual function in nearly all occupations and amusements gives it a predominant influence upon the general condition of the nervous system.

Fatigue, neurasthenia, excessive irritability, sluggish and defective development of the higher centers are likely to be very closely connected with abuse or defect of the visual function. The term eyestrain may be loose, indefinite and faulty, but behind it stands an entity of enormous scientific and sociologic importance. Those who have most strongly emphasized its importance may sometimes have betrayed narrowness of view, and a disposition to reason from mere plausible hypotheses; but the known facts with regard to the influence of abnormal use of the eyes upon the functions of the general nervous system justify more general attention than has yet been paid to them.

Psychology.—In the motor and sensory phenomena attending eye-use and eyestrain, we have an open path to intimate experimental knowledge of the general nature and relations of nerve actions and states, both normal and pathologic; and may make the closest approach to objective knowledge of the phenomena of consciousness. One need have but a limited knowledge of ophthalmology and neurology to travel this path and bring back results of great value, as did Joseph Le Conte. Other similar investigations would yield additional matter of high interest for its relations to psychology. Close observations of form, as modified by lenses and prisms; and of color as modified by contrast, and preparatory treatment of the retina, are open to all normal-sighted persons. The careful study of these elementary perceptions must furnish an essential stone for the future edifice of mental science.

The ordinary subjective tests of refraction, which occupy so large a part of the time of every practising ophthalmologist, furnish data which, carefully selected and arranged, would be of much importance in psychology. The response to the simple test of improving or impairing vision by a change of lens, shows characteristics constant for the individual, but which vary widely in different persons. The routine which anyone adopts in the subjective testing of ametropia furnishes the fairly constant conditions of experiment calculated to best bring out class types and individual peculiarities of reaction. Surely some ophthalmologist interested in this matter will place some of this material at the command of students of mental science.

Laws of Heredity and Congenital Variation.—Attention should be called to the fact that ophthalmology offers an important and promising field for studies of the laws of heredity. I have already referred to the tendency exhibited by the tissues of the eye to adhere strictly to type, in their development and in their resistance to accidental influences. Already enough has been observed to warrant the supposition that, in the eye, departures from the normal type are themselves apt to be typical. Take the well-known facts regarding congenital defects of color perception. The similarity of the disability in enormous numbers of cases, and the tendency to descend to grandsons, through the daughters only, are strongly typical. Such typical instances would seem to promise most for an elementary knowledge of the laws of heredity—those laws which have the widest and deepest importance for the sociology of the future. It must be mentioned, however, that this law of descent through the female to the male does not apply universally. We have in ophthalmology enough groups of exceptions to quite limit and define its scope.

The range of ophthalmic observations already available in this direction is a wide one. The congenital anomalies of the eye and the individual peculiarities it may present, as to color of iris, pigmentation of the eyeground, distribution of vessels, and especially anomalies of refraction, as well as the ocular diseases, have been well worked out, and they are capable of comparatively exact notation and record. Statistical studies regarding them, extending over family or race groups, can be relied on as giving facts of definite value. There are already accumulated many observations of great interest in this connection. The reversion to an ancestral type of pigmentation, in retinitis pigmentosa, the striking condition of amaurotic family idiocy, the predisposition of the Hebrew race to glaucoma, and of the negro to phlyctenular disease, and the comparative freedom of the latter from trachoma, lacrimal obstruction and strabismus, are instances of a long list of ophthalmic facts that will help to reveal laws of congenital variation and heredity.

Education.—From the field of ophthalmology we can bring suggestions of radical importance as to methods of primary education. The educative treatment of squint is truly an educational process; and of the simplest and most definite kind. How development of power and skill goes on under it, may well claim the attention of the philosophic teacher.

In congenital word blindness, to which attention has been directed of late years by Hinshelwood and Nettleship, we have a suggestion of the obstacles that may lie in the way of the ordinary training of children. A bright, exceptionally successful teacher told me she had devoted three months to the attempt to teach an apparently bright and active boy, of over six years, the names of the first three letters of the alphabet, and had failed in that time to fix either of them in his memory. I have encountered two of these cases of inability to name the letters seen, although the alphabet could be repeated forward or backward by rote. In both of these cases, as in most of the other reported cases, this disability subsequently disappeared. Evidently there is a time to teach the alphabet, and a time not to teach it. In these cases the times varied widely from the normal standard. How many other mental capacities are there, the development of which may be exceptionally early or long delayed? How often is the usual order of development reversed? The complexity of the relatively simple act of vision, its inability to render a certain service because of the retarded or imperfect development of a subsidiary power, should be enormously suggestive to the student of pedagogy.

The ophthalmic history of our schools enforces a lesson that needs to be remembered in every application of educational science. By the training given to and through an organ, and intended to perfect its powers, it is possible to render it functionally worthless. The connection of myopia with the educational process, of a certain kind, is as well established as the connection of choroidal atrophy, retinal detachment and cataract with myopia. Then, too, the curriculum and conditions of study which leave the eyes of one scholar unharmed ruin the eyes of others. Will not the analogy between eye and brain carry over the ophthalmic observation, as another important suggestion to those who study the theory of education, and work out the educational schemes to which young persons are subjected?

Preventive Medicine and Public Health.—It requires no stretch of imagination to apply the observed facts regarding the deterioration of the eyes during school life to the service of preventive medicine and public health. The separate statistical studies of school children's eyes are now numbered by hundreds or thousands. Some are of much higher value than others. But taken together, they afford a broad and substantial basis for the conclusions: That as schools are now conducted throughout the civilized world, school life taxes the eye to near its full capacity for active work. That unfavorable influences, like insufficient light, uncorrected ametropia, or impaired general health, render the strain of school life disastrous, and cause the eye to be permanently damaged. That merely the normal requirements of the body during a stage of rapid development, may cause break down under ordinary school work, with comparatively favorable conditions. And that when working to near full capacity, individual needs and peculiarities must be taken carefully into account. The enormous aggregate of disability and suffering, brought about by disregard of these conditions of maximum effective work, make these studies of the eye under school life very important to those who labor in the field of preventive medicine.

These studies of the eyes of school children also have for those who study abnormal psychology the suggestive value of very definite and accurate observations in a related field. It is chiefly because of the analogies of eyestrain and brainstrain that we cannot admit extravagant claims for the influence of the former, in causing all the ills that the nervous system can manifest. If correction of errors of refraction will not prevent all sorts of neuroses and psychoses, the study of eyestrain and its prevention will throw as much light upon the nature and prevention of brain fag and nerve strain, as any line of study open to the worker for the prevention of such conditions, be he neurologist, teacher, or social reformer.

In another and quite different direction the straight course of the ophthalmologist, working at his daily routine, carries him into the domain of public health. The group of contagious inflammations of the conjunctiva, especially the still indefinite condition called trachoma, are of enormous importance for their bearing upon public health. Social customs, the regulation of immigration, and the economic and educational problems raised by blindness, are all intimately interwoven with the recognition and treatment of these diseases.

Training of the Worker.—Finally, an essential relation of each department of science to other departments, is the educational relation. This vast accumulation of observed fact and analogy, of connected cause and effect, this mighty web of interweaving generalization, which our Congress of Arts and Science attempts imperfectly to reflect—this huge phenomena of modern science, is of value chiefly as it becomes possible to transmit it from generation to generation. It is the application of knowledge to the needs of men, and the answering of the questions which perplex them, that quickens it and vivifies it—that renders it prolific and immortal. Ophthalmology the science is vitally interested in the training of those who apply ophthalmology the art. The greatest service will be rendered to it and through it to mankind by that institution of learning that will establish a broad, well-planned department of ophthalmology for the thorough training, both optic and physiologic, of those who are to apply its accumulated facts and generalizations. The progress of ophthalmology is today seriously impeded by the lack of rounded education in all directions from its essential center.

Clearly it belongs among the medical sciences. It can continue to grow and prove fruitful only through its connection with their common educational root. But it differs from all other departments of medical science. And that difference, involving a good working knowledge of mathematics and skill in minute observations and delicate manipulations, requires that the specialization in the training for it shall be great, and shall begin early. Difficulties in the way of the required specialization will suggest themselves to any one who has struggled with the problems of medical training. But many of them will disappear as the educational scheme is made to take its proper relation to the peculiar individual needs of each student. As we learn to furnish each growing mind conditions for its best development the difficulties of teaching a specialty will grow less. When we have given up that barbaric ideal of forcing a living consciousness into a set mold we shall get away from the notion that an ophthalmologist can be best grown in the region of general surgery, and when ready to bear fruit in that field can be safely transplanted to the outlying clearing of ophthalmic science, where he seems to be needed.

The process of obtaining educative material must be broadly selective. There must be selection on the part of the teacher and selection on the part of the student. We must learn the lesson that the achievements of the race outrun the possibilities of the individual. Even in the free atmosphere of thought, if we take some, more must be left unbreathed. Not that what is taken is of any better quality, simply that it is nearer and can be utilized by less waste exertion. So for each student certain things lie near at hand, within the easy reach of his interest. They may be no better in the abstract, and yet they are better for him. To drag him away from them, to seek more distant mental pabulum, is to waste a part of his life. In this matter of education, economy of vital force demands that we respect the possibilities and limitations of the individual.

Upon a thousand fields of discovery, eager workers push back the ever-widening margin of the unknown. In a thousand laboratories crude fact, treated in the crucible of experiment, is yielding its gold of wisdom. Analysis opens all doors and probes all secrets. Meanwhile fancied boundaries and limits disappear, systems of philosophy fall to pieces, lie in historic fragments for a little time, and then are forgotten. But there are not lacking higher synthetic movements. On the one side becomes more and more clear, order, eternal and infinite. While on the other rises ever more dominant the developed thinker and worker—his union of knowing with doing, the human expression of a divine synthesis.

CHRONIC PROSTATITIS.

BY

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The great prevalence of chronic prostatitis and its sad train of symptoms when improperly treated, render an apology unnecessary for reviewing the literature on the subject and for urging a more rational and careful treatment. The scarcity of scientific literature on this condition is in marked contrast to the frequency with which it is encountered. According to Casper, chronic prostatitis occurs in 80% of the cases of chronic gonorrhea. In the "Report of the Committee on Prophylaxis of Venereal Diseases," read by Dr. Henry D. Holton, at the recent meeting of the American Medical Association, at Atlantic City, it is asserted that "gonorrheal involvement of the prostate, which happens in 90% of gonorrheas (presumably chronic), impairs the leavening property of its secretion on the semen, while the gonorrheal infection of the seminal vesicles makes this receptacle an ill-fit storage place for semen, produced even by healthy testicles," thereby playing a very important role in sterility. A lengthy discussion of the danger and the unfortunate results brought on by neglecting such cases is entirely unnecessary, but I would say a few words for the young man whose life may be ruined by the horrors accompanying the deplorable condition known as "sexual neurasthenia," and for the health and happiness of the innocent woman who is to become his wife, perhaps upon the physician's decision, which, if carelessly made, may result in the most serious consequences. Therefore, I would emphasize the importance, in all doubtful cases, of making it a routine practice to make a microscopic examination of the secretion expressed from the prostate and seminal vesicles, or better still of that collected in a condom used in sexual intercourse. If there is a doubt, a second examination should be made, as the outcome is too important to involve any uncertainty.

Until recent years the literature on chronic prostatitis would have been as well unwritten, except for the good dietary and hygienic advice given. The pathologic condition was not understood and under the head of spermatorrhea, azoospermatorrhea, prostatorrhea, etc., were massed a volume of symptoms and theories containing very few facts about the pathology which would lead to a curative treatment or a satisfactory understanding of the misinterpreted symptoms. Many authorities maintained that chronic prostatitis was a "neurosis," others, "that it was a functional disorder of the testicle." It was also asserted to be hereditary, "manifesting itself through several generations," and that nocturnal incontinence of urine was a predisposing cause. Now there is no clearer fact in medicine than that it is a distinct pathologic entity which should be clearly understood before attempting treatment. The limited scope of this paper will not allow a very complete discussion, but I can recommend most highly the work of Robert W. Taylor on this subject, as well as the microscopic examinations of the secretions which are very complete, and which have been followed with very gratifying results in practice.

The effect of chronic prostatitis upon sterility is an important question. Many observations upon this class of patients have shown that the spermatozoa are very small and dwarfed, scanty in numbers, and very feeble and languid in their movements. When, however, the integrity of the prostate is restored and a healthy condition established, the zoosperms gradually change until they assume normal proportions and become vigorously active.[1]

Anatomy.—Only a few important points are necessary for a clear understanding of the symptoms. The prostate is situated "behind and slightly below the symphysis pubis, lying between the posterior layer of the triangular ligament and the neck of the bladder, which is surrounded by its base. The under or posterior surface often presents a central furrow, dividing the organ into two distinct lobes. This surface is in intimate relation with the rectum, from which it is separated by a fibromuscular layer of fascia. The anterior surface faces toward the pubes, from which it is separated by the plexus of Santorini and the two puboprostatic ligaments. The lateral surfaces are in relation with the levator ani muscles, to which they are attached by a fibromuscular fascia; the vesicoprostatic plexus of veins is found in this region. The base of the prostate embraces the neck of the bladder, forming a part of the sphincter muscle. The apex placed slightly below the lower border of the symphysis is continuous with the external vesical sphincter.[2] The prostatic nerve plexus supplying the vesical neck and the gland itself, becomes the cavernous plexus and is continued to the end of the penis, terminating at the proximal side of the fossa navicularis."[3]

This accounts for many of the symptoms to be discussed later, and also some of the pathology, for the prostatic follicles in passing down into the substance of the gland remain separate and distinct from each other, and the inflammation being limited to a few of the follicles, explains why the nodules are present in certain forms of prostatitis and that all the gland is not involved.

Etiology.—There is no doubt that gonorrhea when neglected plays a very important role in the causation of chronic prostatitis, and that masturbation, which was once credited with nine-tenths of the cases, no longer occupies the first place among the causative factors. The majority of cases are the result of gonorrheal infection plus congestion of the pelvic organs, and both must be considered together in assigning a cause for chronic prostatitis as well as selecting remedies for its treatment. Of course, other infection may set up an inflammation, but usually there will be found a history of congestion more or less prolonged. "Congestion may be due to traumatism, as from instrumentation, or jarring of the perineum, excessive venery, constipation, masturbation, prolonged ungratified sexual desire, hemorrhoids, irritating applications, strongly acid or alkaline urine, urethral calculi, varicose conditions of the prostatic plexus, overdistention of the bladder, atheromatous vessels, chilling, overfatigue, and a variety of other causes."[2] All these tend to furnish a fertile soil for the germs to flourish when deposited, from whatever source.

Catarrhal inflammation sometimes occurs from congestion alone, and there is a discharge of clear, glairy mucus, or mucus and phosphates, which, when expressed, has a milky appearance, but no pus is present. Chronic prostatitis is very frequently the result of an acute or subacute attack. There is a condition of irritability found in gouty subjects very similar to subacute prostatitis. The cause in cases of this kind should be carefully borne in mind in the diagnosis and treatment.

Pathology.—As the infection extends from continuity of tissues down into the prostatic follicles, "the essential lesions are first, a round-cell infiltration and hyperemia around the gland tubules, and second, a simple catarrh of their lining membrane."[1] Inflammation may be limited to a few tubules on one or both sides, for owing to their anatomic arrangement in passing into the substance of the gland, the follicles of the prostate remain separate, and there is little tendency for the inflammation to extend through the tissue from one to another. This gives the nodular appearance of the gland often encountered. All the follicles, however, may be affected with a hyperemia and general uniform enlargement of the gland which gives a boggy, edematous feeling through the rectum; again, only half may be enlarged, and from some not well-understood reason, it is usually the left half of the organ; or, there may be no enlargement at all. The nodular feeling is due to an inflammatory exudate or to retained secretion in the follicles. There may be "a round-cell infiltration of the verumontanum around the ducts producing stenosis,"[1] and causing aspermatism.

"Diminution in size and distortion in shape are generally found after abscess of the prostate."[1] The formation of a scar in the cavity may destroy one or both of the ejaculatory ducts. Inflammation of the verumontanum may exist without involvement of deeper prostatic tissue. It will be swollen with infiltration of small round cells and edema, and may form an abscess and rupture—in fact, some authors claim a majority of the socalled prostatic abscesses are really only of the verumontanum. "It is a small but constant portion of the remains of the Müllerian duct,"[4] and as it is a rudimentary organ and not actively functioning, it naturally has a lessened resisting power. "Imperfect erection, premature ejaculation and loss of normal sensation accompanying seminal emission, are the results apparently due to inflammation of the nerve-endings in the mucous membrane,"[5] and to be more explicit, of the utricle and the prostatic urethra.

In beginning enlargement of the prostate there is a condition similar to catarrhal prostatitis, and with an increase in the connective tissue, this is benefited for some time by the same treatment that relieves ordinary chronic prostatitis.

The discharge is of much importance when carefully examined with the microscope. "The expression and examination of the secretion from the utricle, prostatic follicles, and seminal vesicles is necessary before declaring a patient cured, although intercourse with ejaculation into a condom is the most satisfactory way of securing a specimen in doubtful cases,"[5] for in many instances there may be a lingering infection in parts not "washed by the urinary stream," which will be very misleading if urine alone is examined for pathologic evidence. "Persistent infection of the prostate and seminal vesicles probably explains many cases of nonbacterial urethritis,"[5] kept up by gonorrheal toxins, as it is a known fact that these toxins can keep up a urethritis.

Among the significant bodies found in the expressed discharge are gonococci or any pyogenic organisms, pus, mucus, and granular phosphates, which give the milky appearance, desquamated epithelial cells more or less degenerated, amyloid bodies, calcium phosphate, and cylindric casts of tube-glands of the prostate. The presence of concretions of granular phosphates and mucus cause pain and irritation by their presence, and their removal is one of the benefits obtained by prostatic massage. For further information see Robert W. Taylor "Sexual Disorders."

"When the discharge comes from the seminal vesicles it is of a yellowish-brown or exceptionally of a dark brown tint."[1] "Many prostatics have a chronic discharge from the meatus due to suppuration in prostatic follicles and seminal vesicles, which is promptly stopped by prostatic massage."[5] Urine may show shreds from a chronic urethritis or may come in a small stream or dribbling afterward, showing presence of stricture, both of which are facts of importance in establishing the treatment. The presence of flaky-looking shreds in the third glass of urine is very characteristic of chronic prostatitis. They are plugs of mucus expressed from the ducts of the prostate with the final muscular contractions at the end of urination. Urine is abundant, low specific gravity, feebly acid or alkaline, cloudy, opaque or milky, depending on the amount of granular phosphates or pus present.

Symptoms.—These are most variable in all their features, and often bear little relation to the existing pathologic conditions. The young, sensitive, neurotic patients, who during boyhood, perhaps masturbated to excess, are usually greatly worried about themselves, while the same symptoms in older, more sturdy patients occasion very little alarm until far advanced and sexual vigor begins to decline. In the past history of the patient will usually be found a history of gonorrhea, which perhaps was apparently cured without any complication, but more likely there will be symptoms of deep-seated gonorrhea, and several recurrences or several independent attacks, with or without a history of acute prostatitis. Masturbation may have been found in the history of the patient as the cause of some one of the symptoms mentioned under etiology. There are all grades of symptoms, some so mild that they give but little annoyance and may not point toward the prostate at all. Among the mild symptoms may be mentioned an uneasy feeling in the lower pelvic region, and perhaps the appearance at the meatus of a drop of clear mucus, this may be first noticed while straining at stool. The amount may increase without causing much concern until the patient notices some change in his sexual vigor, emissions being premature, even before intromission sometimes; nocturnal pollutions may become frequent, and occasionally may contain a drop of blood. Urine is passed frequently and in larger quantities than normal, with pain at the end of the act and sometimes before; during the whole act if the verumontanum is very much inflamed. Constipation is nearly always present, and tends to keep up the congestion in the adjacent viscera. From these symptoms in a mild case are all grades up to those in which all the symptoms mentioned are greatly exaggerated and there is marked "sexual neurasthenia," impotence being more or less complete. The patient is advised by his physician that if he will cease worrying about his condition he will soon recover. This advice, however, is much more easily given than taken, for man's instinctive desire to procreate is second only to that of self-preservation, so it requires a very powerful mental impression to keep his mind from a condition that he thinks is bringing about impotence, which naturally to these patients is most humiliating, and "the extreme despondency is better relieved by evident improvement than by good advice, as is usually recommended."

The pain is often insignificant in itself, but is constantly calling the patient's mind to his supposed grave condition, and in this way is very harmful, while on the other hand the pain may be more severe and cause marked tenesmus at the end of urination or during defecation, rarely a dull, continuous pain, although a heaviness in the pelvic region is very frequently encountered. The nerve supply of the organs of the pelvis, hypogastric region, hips and thighs, accounts for the reflex pains so often noticed, and if only half of the prostate is involved the reflex pains may be limited to that side of the body. Anemia and indigestion supervene more or less early, depending upon the patient's temperament. His despondency, and the management of the patient may require much tact and an insight into human nature, for his confidence is almost indispensable to a successful treatment and he should be told at the outset that the condition being a chronic one yields slowly to treatment, which may have to be kept up for several months or a year. The patient may be additionally worried from the fact that he is often "sexually weak, but at the same time abnormally sexually excited."[1] The inflammation is rarely limited for any length of time to the prostate alone, but to "paraphrase a gynecologic expression and say the prostate and appendages,"[6] gives a better idea of the condition most frequently encountered in advanced cases, and with these complications come additional symptoms as might be expected from the viscera involved. Usually after prolonged inflammation, "the most striking effect produced is a condition of flabbiness of the outlet ducts of the ampullas and seminal vesicles and the development of more or less patulousness in the not very strong muscular fibers of the ejaculatory ducts,"[1] and there results a real seminal incontinence as shown by a microscopic examination. In older patients the symptoms of sexual neurasthenia are usually much less marked and the prostatic symptoms may not be present, and the ones that do exist may be misleading, so that in any of these doubtful cases the prostate should always be examined, for the information obtained and the patient's improvement, when the proper treatment has been instituted, will more than repay the trouble and indelicacy necessarily involved. A rectal examination may reveal a prostate enlarged uniformly, soft and boggy from edema and retained secretions, or normal in size but nodular, or one side only may be involved, or again one side may be large and smooth with the other normal, or marked irregularities may be present from abscesses; there may also be a "thickening of the anterior rectal wall,"[7] giving a brawny feeling. This examination should also include the seminal vesicles and ampullations, and secretion should be expressed for examination by the microscope.

Frequently there are numb sensations present about the scrotum, thighs, perineum, and hypogastric regions. "There are frequent intercurrent attacks of inflammation and the patients very commonly suffer from headache or muscular and joint pains similar to those due to toxemia from other causes."[2] Flesh, strength, and appetite are lost, as well as mental equilibrium.

Diagnosis.—This should rarely involve any difficulty and there are usually a number of symptoms pointing to the prostate as their source and an examination may afford a satisfactory solution of their cause, but a differential diagnosis must be made from tuberculous prostatitis by the history of the case, onset, and microscopic examination of the discharge, with special reference to the smegma bacilli and the similarity of their staining characteristics with the tubercle bacilli. It may be necessary to make an injection into the peritoneal cavity of a guineapig to make a positive diagnosis. Always inquire about syphilitic troubles before coming to a decision. Try to find the primary pathologic involvement so as to direct special treatment toward it.

Prognosis may be good or bad, depending on the stage, temperament, former treatment, damage already done, degree of impotence, anemia, and neurasthenia; also the willingness of the patient to cease his services at the "shrines of Venus and Bacchus;" the strictness with which he will carry out the hygienic and dietary rules. The condition of the urethra, seminal vesicles, and ampullations is an important factor in estimating the probability of a cure and the length of time required. If a stricture exists it must always receive most careful attention, as the prostatitis will rarely be cured first.

Treatment.—1. Careful attention should be given to hygiene, including the regulation of sexual intercourse, alcoholics, food, bathing, exercise, etc. 2. Treatment of complications, such as posterior urethritis, strictures, inflammations of seminal vesicles and ampullations, anemia, constipation; and attention should be given to the general health. 3. Treatment should be directed to the prostate itself.

Hygiene.—This must never be neglected. Moderate sexual intercourse is rather beneficial than otherwise, unless attended by too much excitement or excessively prolonged; however, but few of these patients are married, so indulgence should not be encouraged, for, aside from moral reasons, the danger of another infection, as well as the sexual excitement and congestion of these organs necessarily involved, more than counterbalance any possible good that may be obtained. Alcohol to excess comes next in importance, for occasional sprees and debauches militate against a satisfactory treatment, although beer or light wines during meals may have a very beneficial action in combating lack of appetite, indigestion, anemia, etc. The food should be simple and nutritious, but never highly seasoned or taken to excess. Of course, foods that tend to relieve the constipation are the best, but generally speaking, any wholesome diet may be taken. Small amounts of tea and of coffee may be regulated to the individual demands, as no general rule can be made that will apply to all patients. Smoking need not be absolutely interdicted, but, of course, should not be indulged in to excess. Bathing in cold water every morning should be encouraged and should include especially the genital organs. Exercise in the fresh air should be taken daily, but all marked physical exertions should be avoided; walking is best, but riding and driving are also good if the jarring does not cause pain. Constant sitting for hours on the soft plush seats of railway cars seems particularly injurious.

Treatment of complications should always be instituted immediately after a careful physical examination with special attention to the pelvic organs and the urine. Constipation, anemia, indigestion, loss of appetite, etc., demand prompt attention. Strictures are treated according to their location, caliber, resiliency, etc., and a cure is indispensable to a successful outcome from treatment directed to the prostate. A meatus below 18 F. or 20 F. must not be enlarged to more than 26 F. to 28 F., but if smaller than this the treatment will be greatly handicapped. A cystitis is best treated with Nicolaier's discovery, .32 gm. to .65 gm. (5 gr. to 10 gr.) urotropin three times daily, and irrigations with mild, hot solutions of mercuric chlorid, potassium permanganate, or silver nitrate, as demanded. If there is any inflammation of the seminal vesicles and ampullations their lower extremities may be gently massaged and the contents expressed during the treatment of the prostate by very deep pressure.

Last and most important is chronic urethritis, especially the posterior variety; passing as the urethra does through the substance of the prostate, and containing the verumontanum, it is almost invariably involved in these conditions. The treatment of chronic prostatitis and that of these structures is so closely related that they will be considered together. It may consist of instillations, irrigations, sounds, cold, or the sounds may be covered with solidified ointment, salves to deep urethra by ointment-carriers, prostatic dilation, etc. A clear understanding of the existing pathologic conditions and a realization of the usefulness as well as shortcomings of the remedies at your disposal will enable you to select the one most suitable to the indications, however it must be borne in mind that great care must be taken in using the strong instillations if there are suppurating follicles or abscess cavities, as the inflammation caused may seal up the duct, interfere with drainage, and thereby cause absorption of toxins with resultant damage to prostate and surrounding tissue. Massage is indicated when the prostate is large, soft, and boggy, or nodular and uneven, or asymmetric, or if it contains abscess cavities, and in occasional instances when none of these is present. It is counterindicated when the prostate is very tender with a hyperesthetic condition of the verumontanum and posterior urethra, in hard contracted fibrous prostates, and in tuberculous prostatitis or whenever marked irritation results from its use, this must also regulate the frequency, which may be from every three to seven days.

Instillations of silver nitrate, 5% to 10% solutions in water may be used in doses of .60 cc. to 1.25 cc. (10 m. to 20 m.) deposited in the prostatic urethra with one of the deep urethral syringes. These strong injections set up an acute inflammation, which not only passes away in a few days, but absorbs part of the chronic inflammatory exudate, and the patient is better than before. The injection must be made beyond the compressor urethræ muscle, or it will run back into the anterior urethra along the syringe. The bladder should also contain a small amount of urine to neutralize any that enters its cavity. Instillations should never be repeated until all the symptoms of the previous one have disappeared. Three to ten days are about the limit, if properly administered.

Irrigations with hot solutions of mercuric chlorid, silver nitrate, potassium permanganate, etc., in very weak dilutions, if there is an abscess cavity or suppurating follicles, is a very useful procedure if given after the expression of the contents, which should be washed away by the patient passing his urine, then irrigation given. Some of the solution flows into the cavities, and may be expressed and the solution passed from bladder which refills them. This treatment may be repeated once or twice at each sitting, as advisable. Heat is a very important factor. An ordinary Valentine irrigator and a short, soft catheter passed just beyond the compressor urethræ are all the apparatus necessary.

Sounds chilled in ice-water and left in the urethra from three to five minutes are often very beneficial on account of the pressure, and the cold which tones up the bloodvessels allays the irritability of the nerve-endings and hastens absorption of the exudate. In addition to this treatment I would recommend the following modification: Sterilize a sound one or two sizes smaller than the cold one passed (which should be as large as may be easily introduced) then dip the sound into the following preparation, after melting it over a water bath:

Silver nitrate . . .	.32 gm. to .65 gm.	(5 gr. to 10 gr.)
Cacao butter	30 gm.	(1 oz.)

M.

or Unna's Ointment:

Silver nitrate . . .	.32 gm. to .65 gm.	(5 gr. to 10 gr.)
White wax	.65 gm.	(10 gr.)
Peruvian balsam	1.90 cc.	(30 m.)
Cacao butter	30 gm.	(1 oz.)

M.

Now manipulate the sound, which has been dipped into one of the ointments, so as to get a smooth, uniform layer over it, the area depending upon the extent of urethral involvement, then place in the ice water and it solidifies, forming a coating of ointment over the sound which, if introduced while the urethra is still cold from the sound previously used, can be carried to the prostatic urethra and there allowed to melt off, making a uniform application to the distended membrane, and furnishing not only the benefit derived from the cold of two sounds but at the same time applying ointment of a desired strength to the stretched mucous membrane. When it is not desirable to use cold sounds, Unna's ointment with the white wax may be used, as it will solidify in cool air. These two treatments, unless there exists some counterindication, may be used every three or four days. Particularly good results are derived from this treatment and from massage of the prostate when there is a hyperesthetic condition of the posterior urethra, with frequent nocturnal emissions and premature ejaculations. This may also be tried when there is any deep involvement that does not yield to other treatment. It is far superior to the cupped sound. Another very useful method is the introduction of a salve, something like the following, into the deep urethra:

Silver nitrate	.32 gm. to .65 gm.	(5 gr. to 10 gr.)
Olive oil	15 drops	
Lanolin	30 gm.	(1 oz.)

This should be introduced with a Tommasoli ointment-carrier every other day, increasing the strength as necessary. Of course, all these patients may be benefited by other remedies than silver nitrate, but it will be as satisfactory as any, and it is far preferable to use one remedy until its effects are thoroughly understood than to change too frequently to remedies, the strength and action of which are not accurately known.

These ointment applications may be used with benefit to allay irritatiton between the instillations of strong solutions. Other useful remedies are the prostatic dilator and the psychrophore, through which cold water is allowed to flow. This last remedy is particularly beneficial when neurasthenia is marked. Treatment directed to the prostrate through the rectum, includes massage, hot and cold water, suppositories, etc.

Massage.—To Fuller is largely due the credit of establishing the value of prostatic massage. The patient assumes the stooping posture with hands resting on a chair to steady himself, or he lies on a table in the dorsal position similar to that used in making a vaginal examination. I prefer the latter position, as the muscles are more relaxed and counterpressure can be made with the hand above the symphysis pubis in examining or massaging seminal vesicles and ampullations. The finger is covered with a finger cot or condom (or, if preferred, a rubber glove may be used) and anointed with glycerin, vaselin or any suitable lubricant, then the finger is introduced, and the size, shape, nodulations, irregularities and sensibility of the prostate noted; also, whether it is soft and boggy or hard and sclerotic; whether the mucous membrane of the rectum is thick or brawny, and also the condition of the seminal vesicles and ampullations, all of which should be written down for future reference. The finger is now carried from side to side toward the center and from above downward for about five minutes. Special attention must be devoted to nodules, etc. The secretions in this way milked out may pass back into bladder or from the meatus; if into the bladder, the urine will show it upon comparison with a sample passed before massage. If the patient is unable to urinate for some time afterward, irrigate the bladder and wash out any infectious material that might have been massaged from the prostate. Hugh Young, of Baltimore, advises this in all cases of prostatic massage. There is no doubt but that massage increases the tone of the bloodvessels, stimulates the lymphatics, empties distended follicles and abscess cavities of secretions, and perhaps concretions that are irritating. Altogether, it tends to reduce any abnormality, increases nutrition, and aids in the absorption of inflammatory exudates.

Suppositories.—Medication may be applied directly to the mucous membrane over the prostate by suppositories, which at the same time relieve the constipation. This, as all of the treatment, must be regulated to suit the individual demands of the case. They may contain:

Potassium iodid . .	.32 gm. to 1.3 gm. (5 gr. to 20 gr.)
Extract of belladonna	16 mg. ($\frac{1}{4}$ gr.)
White wax	.32 gm. (5 gr.)
Cocoa butter, sufficient quantity.	

Mix, and make into one suppository, to be introduced into the rectum on retiring every night or every second night.

Hot and cold water applied to the prostate through a rectal cooler as designed by Artzberger or a rectal irrigator as Kemp's or Bordenhamer's is very useful. This instrument should be arranged so as to allow water to flow against the prostate, then flow immediately out without distending the rectum. This treatment is stimulating and hastens absorption of exudates and increases the tone of the bloodvessels and lymphatics, and may be given daily or every second day.

Tonics, as iron, quinin, strychnin, etc., may be given when needed. Ergot may also be beneficial when nocturnal emissions are excessive. When the hyperesthetic condition demands a sedative .6 mg. to 1 mg. ($\frac{1}{100}$ gr. to $\frac{1}{60}$ gr.) hyoscyamin hydrobromate may be given at bed time. Bromids may be given for insomnia if it is persistent. Yohimbin, in 6 mg. ($\frac{1}{10}$ gr.) doses, is highly recommended for sexual impotence, of the atonic variety.

General Considerations.—The discussion whether or not gonorrheal prostatitis is a cause of hypertrophy of the prostate in old men, as asserted by Ciechanowsky and his school of followers, has not been settled, and as Keyes[8] clearly shows in a recent article, the conditions demand more carefully watched cases and closer clinical observations for a longer time before a satisfactory solution can be obtained. With even a possibility, however, of such results following chronic prostatitis it should stimulate greater interest in curing as many as can be cured and following all cases carefully until past the age of prostatic hypertrophy. The medical treatment of the prostate has failed sadly to keep apace with the advances in the surgery of prostatic enlargement, which have been so brilliant, but it is to be hoped that the profession may realize its importance and hasten to adopt a rational treatment for chronic prostatitis.

Review.—1. Chronic prostatitis may be the cause of many serious consequences as sexual neurasthenia, sterility, impotence, and reinfections, it being a favorable nidus for lingering gonorrhea. 2. The symptoms until recent years have been placed under the headings, spermatorrhea, azoospermatorrhea, prostatorrhea, etc., and were claimed to be of neurotic origin. 3. The literature, except within the last few years, has been both inadequate and misleading because the pathology was unknown. 4. Before giving consent for a patient with an apparently cured gonorrhea to marry, the secretions of the prostate and appendages should be examined. 5. There is no disease in which more information can be obtained from a careful examination of the prostate and secretions. 6. A discharge after urination, defecation, or physical exertions; sexual disorders, no matter how mild; urine passed frequently with slight pain at the end of the act, should always lead to an examination of the prostate. 7. Treatment must be directed to complications as well as to the establishment of proper hygiene for the patient; the prostate should be treated by massage, and heat or cold variously applied. 8. The brilliant results of prostatic surgery should stimulate increased interest in the rational medical treatment of chronic prostatitis.

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THE RESULTS OF TREATMENT OF CARCINOMA BY THE RÖNTGEN RAY.

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The fact that carcinoma is one of the most dreaded diseases, that it causes so many deaths, that there is an increase in the number of deaths from it, makes any advance in its treatment of peculiar interest. That a great advance has been made in the treatment of carcinoma by the röntgen ray, is acknowledged by most persons who have applied the treatment in the proper manner in a series of cases. This certainly speaks well for a treatment that has only been used to any extent for about four years. At first it was thought possible to treat only superficial growths, but it was found that the ray had a selective action and affected malignant and other lowly organized tissues, such as warts, scar tissue, and the nails, much more readily than healthy and highly organized tissue, and that it would retard malignant growths, after passing through healthy tissue without destroying it more rapidly than it would be replaced.

One great advantage of the röntgen ray is that it can be applied to large areas and vital organs, if used with care. It can be applied to the eye, brain, bloodvessels, etc. I have removed growths which extended over the eye without destroying it. One disadvantage of the ray is the long period over which treatment must be extended. It ranges from three weeks to a year or more. When a patient's condition is such, and the growth so situated that all or apparently all can be removed surgically, the period of treatment may be greatly shortened, and the patient receive all the advantages of surgical interference and röntgen ray treatment.

I believe that all tumors operated on and found to be malignant, except small epitheliomas of the face, should have a course of röntgen ray treatment. If at the end of one month in small growths, and two or three months in large growths, there is no return, the patient may be discharged, but kept under observation, and should any nodules make their appearance, treatment should be continued for a month after their disappearance. In infected growths in which there is considerable odor and discharge they will be lessened and if hemorrhage is present it will often cease altogether, whether the growth is external or internal, such as those involving the uterus. The ray has a beneficial effect on the pain of malignant disease and I do not believe morphin should be given a patient during the röntgen ray treatment because it paralyzes the eliminating organs when it is very essential to keep them active.

Care should be exercised in the application of dressings or antiseptics to the parts that are being rayed, whether diseased or not. Drugs like iodoform, the mercury preparations, or any irritating preparations, should not be used as they are very liable to produce a dermatitis, or if any is present from the effect of the ray, increase its severity.

I use the coil nearly altogether to generate the current for the röntgen ray. In my office I use two 12-inch Fessenden machines connected together in series which gives me a 20-inch spark. I use a mechanical break of my own construction consisting of a copper disc with four fans which revolve and make contact with a copper brush. The break is made under albolin. This gives a clean, sharp break. It is operated by a motor with rheostat which gives three speeds of break, one 500 per minute, one 1,000 and one 2,000. I operate the machine off 110 vol. direct current through a graduated rheostat in series with coil. I keep an ampere and volt meter in circuit.

At St. Joseph Hospital I use a 20-inch Scheidel coil with the same attachment and break as described above. To protect myself and parts of patient not being treated by the ray from its effect I use a metallic box surrounding the tube, of which I gave a short description in a paper before this society two years ago. The top of the box is open and I have placed a mirror above it at such an angle that I can observe the tube and still not be in direct line of the ray. The box has four slides in the bottom by which I can obtain any sized opening from 1 inch square to 10 inches by 1 inch or 6 inches. The box is suspended from the ceiling with a counter weight by which it can be raised or lowered. It is grounded so if wires come within sparking distance of it and the patient should touch it, he would not receive a shock.

In treating patients, I begin with daily exposures if the case is serious, if not, every other day. I ordinarily place the anode of the tube eight inches from the part to be treated, and expose for six minutes if I am making daily exposures, and eight minutes if every other day. I keep a record of the time, number of interruptions, and amperage used, also parallel spark gap tube will back up; number of series, ball interrupters used in secondary circuit, etc.

In a given case, I try to use the same number of interruptions, amperage in primary, vacuum of tube and tube distance. I lessen the length of exposures so soon as I get a reaction or if I do not in ten days, I increase it until I do. In this way, I believe I can get much more uniform results than I could if I used various amounts of current in the primary and a different rate of interruptions. I believe the ray first stimulates healthy tissue and if it is applied beyond that point, it will break down. In treating a growth, I try to apply it strong enough to break down the malignant tissue, and stimulate the healthy structures.

I use a vacuum corresponding to the depth of growth I am treating. If penetration up to a half inch is required, I use a tube which will back up a parallel spark gap of a half inch; for penetration from a half to three inches, a spark gap of 1½ inches to 2½ inches and over this a spark gap of 2½ to 5 inches.

I use a self-regulating tube with a small amount of metal in the anode, as I believe the penetration of tubes with a small amount of metal in anode can be judged better by the parallel spark gap than those with a large amount of metal, because if too much current has once been passed through such a tube, and the blue stream shows between cathode and anode, it may back up a six or eight inch parallel spark gap and still penetrate only a short distance.

The treatment of carcinoma can be divided into that involving the breast, the uterus, the stomach, intestines, and other portions of the body. These can then be divided into those cases in which there has not been an operation, and those which are past operation. I believe that all cases which upon operation and microscopic examination are shown to be malignant should have the ray applied for from four to eight weeks immediately following the operation. Many surgeons tell me they believe in the efficiency of the ray, but delay advising the patient to have it applied until there is a perceptible recurrence. Although when we begin treatment immediately after operation, and there is no recurrence, we cannot say but what the result would have been the same, still it is for the best interest of the patient to follow this course, and I generally find them pleased to be well, and not to mind the inconvenience of taking treatment, even though it appeared to them at first to be unnecessary.

The cases which respond to the ray best are those of slow growth, whether the growth is primary or secondary to an operation. It is often a hard matter to determine just when to discontinue treatment. If the patients are where I can keep them under observation, I stop treatment much before I do in cases in which the patients live out of the city and cannot come back occasionally for examination. Nodules will often nearly disappear and then remain stationary for some time; when this is the case, I stop treatment and keep them under observation, if possible, as generally they consist of scar tissue which has replaced part of the malignant tissue. In two cases in which I had the remnants of some nodules removed and examined microscopically, I found them to consist only of scar tissue. My best results in carcinoma have been in recurrent growths, involving the breast, next are primary growths of the breast, then the uterus, stomach, and intestines. Of course, there is always a doubt as to the diagnosis in carcinoma of stomach and intestines unless they have been operated on. However, I have several patients alive today who have had no treatment for two years, in whom all the symptoms pointed to carcinoma. I have had three cases of carcinoma of the rectum under treatment, and all were failures so far as permanent relief was concerned. In 14 cases of cancer of the uterus, two patients have been apparently well for two years, one had been operated on with recurrence, the other had not. In eight of the other cases there was considerable relief of pain, lessened hemorrhage, and an improvement in the general condition for a time. The other four patients either discontinued treatment or there was no apparent improvement.

In 11 cases of primary carcinoma of the breast, diagnosed by clinical appearances, four patients are well at the end of two years or longer. In 15 patients treated immediately following operation, there has been no recurrence after two years in 10.

Of 38 patients in whom there was recurrence after operation, eight are well at the end of two years. In about half of the cases in which there was operation, a microscopic examination was made and in most of the others there was no doubt as to the diagnosis. I have not been able to follow up many of the patients treated, so I cannot tell their condition at present, but that life has been prolonged, and pain lessened, in many of the cases cannot be doubted.

REVIEW.

A general description of apparatus, current used, interrupter tube, etc., is given in this paper, so I will not repeat the summary. I protect the patient from the ray by the box described before. I always apply the ray to a larger area than seems to be involved, and if I obtain an erythema in healthy skin, and there is no break in the skin, I instruct the patient to put nothing on it and only wash it often enough for cleanliness, as I think water alone will irritate it. I believe the best treatment consists in letting it alone, and if there is itching I instruct the patient not to rub it. If there is a break in the skin or the skin comes off before new skin is formed, I apply zinc stearate with boracic acid and a plain gauze dressing over it. If there is much secretion, I try to apply sufficient of the foregoing to take it up, and change the dressing often enough to prevent the gauze from sticking, as when this occurs it is generally painful to remove it.

I report the following cases as typical of their classes:

Mrs. E. H., age 47, referred by Dr. Samuel Ayers, April 18, 1901. Epithelioma of cheek; family history good. Growth first noticed a year and a half previous. About four months before taking röntgen ray treatment she was sent to a specialist, who cauterized the growth, but it did not heal and became larger, when she was referred to me for röntgen ray treatment. She received 68 treatments with a low vacuum tube. At first treatments were given every day, later every other day, and then every third day. She was discharged August 3, when the growth was healed over, although parts were red and inflamed. This soon passed away, leaving no scar. There has been no return and it is three years since stopping treatment.

The treatment of epithelioma of the face, in which the trouble was local and the growth not more than one and a half inches in diameter, with the exception of those cases involving the lip, has been nearly uniformly successful and the cosmetic effects excellent. Cases which involve the lip seem to take a longer time to treat and to be more persistent than others. It is almost impossible to state the percent of cures in these cases, as so long a time elapses from the end of treatment until a cure can be pronounced, that we loose track of many.

Sarcoma.—The following case is reported to illustrate how persistence in treatment will sometimes reward us:

Mr. C. P. B.; sarcoma of the left testicle, which was examined microscopically. Referred by Dr. J. D. S. Griffith. Growth had started in testicle, and at the time of operation secondary growth had taken place, and by pressure had caused swelling of limb. Patient had lost some flesh, but his general condition was fair.

Dr. Griffith removed the testicle and all the secondary deposits he could, but did not deem it advisable to remove all, on account of their location.

March 11, 1902, three days after operation, I began applying the röntgen ray to the parts daily. Tube 8 in. from the skin, length of applications eight minutes. Tube medium vacuum. March 23, there was some reddening of skin, although the parts were covered with a light dressing. New secondary deposits had appeared, and those already present had enlarged.

Although the limb was not swollen as much as before operation, it was four inches larger than the right one. The exposure was decreased to six minutes until March 31, when it was increased to seven minutes, and continued close to this length of time during the remainder of the treatment. The weight of the patient was now 172 pounds. There was no perceptible return of the growth in the scrotum at any time, but the secondary growths increased in size until April 27, when they appeared to remain stationary until May 25, then I thought they were some smaller. At this time the patient weighed 178, and the limb began to decrease in size.

I continued treatment daily until October 21, when I applied the ray every other day.

The growth became smaller very slowly. Treatment was continued until June, 1903; a year and two months. I could find no growth after March, 1903. Patient gradually increased in weight, until he reached 217 pounds. The skin overlying the parts which were treated became very stiff and thick. Today the patient is apparently well.

I do not believe the ray will ever be as efficient in sarcoma as in carcinoma, because the secondary growths are so much more liable to involve distant and internal organs, but when the secondary deposits occur near the surface where they can be found by palpation when small, the ray helps in many cases.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

November 5, 1904. [Vol. XLIII, No. 19.]

1. Primary Chorioepithelioma Malignum Outside of the Placental Site, with Report of a Case. PALMER FINDLEY.
2. The Downes Electrothermic Clamps: Further Experience in Their Use in the Treatment of Cancer of the Uterus. CHARLES P. NOBLE.
3. The Invasion of Carcinoma Cervicis Uteri into the Surrounding Tissues and Its Bearing on the More Radical Operations for That Disease. (Concluded.) JOHN A. SAMPSON.
4. The Difficulties and Dangers of Accouchement Force: A Simple, Safe and Successful Method. HORACE G. WETHERILL.
5. Aneurysm of the Innominate Artery. ALBERT P. FRANCINE.
6. Necrosis of the Bones of the Face. STEWART L. MCCURDY.
7. Prostatic Obstruction to Urination: When to Operate and How to Operate. PARKER SYMS.
8. Hydrastis: Some of Its Therapeutic Uses. W. BLAIR STEWART.
9. How to Produce Milk for Infant Feeding. EDWARD F. BRUSH.
10. The Initial Contamination of Milk. RICHARD COLE NEWTON.
11. The Use of Nitroglycerin in the Treatment of Erysipelas. J. W. WHERRY.

1, 2, 3.—See *American Medicine*, Vol. VII, No. 24, p. 924.

4.—See *American Medicine*, Vol. VII, No. 25, p. 970.

5.—See *American Medicine*, Vol. VIII, No. 6, p. 226.

6.—Necrosis of the Bones of the Face.—S. L. McCurdy reports four cases of necrosis of the maxilla. A cardinal symptom of beginning destruction is swelling that pits on pressure. As soon as periostitis is diagnosed, there should be free incision to the bone, if iodin and hot and cold applications fail after three days to give relief. In syphilitic cases, radical operation should never be made, but specific medication instituted. [H.M.]

7.—See *American Medicine*, Vol. VIII, No. 4, p. 140.

8.—See *American Medicine*, Vol. VIII, No. 1, p. 11.

9, 10.—See *American Medicine*, Vol. VII, No. 25, p. 970.

11.—Nitroglycerin in Erysipelas.—J. W. Wherry reports four cases, in which he used nitroglycerin, $\frac{1}{100}$ gr., every three or four hours, and in which, as the result of this internal treatment, there was reduction of temperature, moist skin, good appetite, steady pulse, after the first day, absence of prostration, general feeling of comfort, and a fairly rapid disappearance of the inflammatory process. [H.M.]

Boston Medical and Surgical Journal.

November 3, 1904. [Vol. CLI, No. 18.]

1. Treatment of Lateral Curvature. EDWARD H. BRADFORD.
2. Fractures of the Radius in Starting Automobiles. F. B. LUND.
3. Three Cases of the Association Neurosis, with Remarks on Its Genesis. JOHN E. DONLEY.

1.—Treatment of Lateral Curvature.—E. H. Bradford recounts the work done by Lovett and Brackett at the Children's Hospital, Boston, and enters into general discussion of the treatment of lateral curvature. The principles of treatment for the noninflammatory spinal curves of children are similar to what is practised in the preparatory training of young acrobats, and to those practised by dentists in correcting deformities of the jaw. The spinal column, being curved and stiff in certain portions, needs to be made more flexible and straightened in those parts. If a distortion has developed, or is developing, it must be overcome by adequate pressure applied as constantly as is practicable, and the patient during the years of susceptibility should be shielded from such influences as will interfere with treatment or favor relapse. In most instances the general practitioner can treat lateral curvature without difficulty. Where the deformity is marked, and particularly if bony deformity exists, a plaster jacket for correction is used. In some instances its use must extend over a long period. At the Children's Hospital the patients are arranged in classes which come two or three times a week for gymnastic exercises under the direction of competent instructors. [A.B.C.]

2.—Fractures of the Radius in Starting Automobiles.—F. B. Lund says the gasolin automobile depends for its power upon the explosion of a mixture of air and gasolin by an electric spark, and the motor is started by turning a handle from left to right. This handle turns the fly wheel of the engine. As the handle is turned, the piston descends and sucks a charge of the explosive mixture into the cylinder; then, as the wheel continues to turn, the piston ascends and compresses the mixture in the cylinder until just after the crank shaft which connects the piston with the fly wheel has passed the center, an electric spark passes between two points in the explosive chamber, explodes the mixture, drives the piston and crank shaft downward, and the engine is started. As the engine turns, the handle is automatically disengaged by a ratchet. If, however, the spark explodes prematurely, the fly wheel carrying with it the starting handle is driven with the full power of the engine instantaneously and violently in the opposite direction, twisting the hand backward with such force as to tear off the lower end of the radius. If the handle be *lifted* rather than *pushed* past the compression the accident cannot occur. If the spark-lever be set in the position called retarded, so that it explodes only after the connecting rod has passed the center, the accident cannot occur. The fracture is never splintered nor impacted, reduction is generally easy and a stiff wrist rarely results though the fracture usually runs into the wrist-joint. [A.B.C.]

3.—The Association Neurosis.—J. E. Donley reports a case of localized pain and two cases of nausea, which improved rapidly when made to realize that their complaints were largely if not wholly mental. A habit neurosis is a functional perversion consisting in an acquired aptitude for a particular mode of action in which normal physiologic responses are combined in disagreeable associations. By organic changes we mean physical changes different in kind from those which subserve the organism in health. It is improbable that in the neuroses and psychoses the anatomic changes are different from those in health; the difference is in the pleasurable or painful coloring of the response to stimuli and in the type of the association. We avoid pain, disagreeable tastes, and smells, and cultivate stimuli having opposite characters, although both are normal reactions to stimulation. These neuroses are simply perverse habits persisting after the original cause has ceased, in which the nervous system has been educated to respond to normal and customary stimuli with disagreeable effects, which may be sensory or motor or both. [H.M.]

Medical Record.

November 5, 1904. [Vol. 66, No. 19.]

1. Cancer of the Larynx. SIR FELIX SEMON.
2. Thyroidectomy for Exophthalmic Goiter, Based upon Forty Operative Cases. CHARLES H. MAYO.
3. Two Cases of Chronic Nephritis Treated Surgically. JAMES A. NYDEGGER.
4. Paralysis of the Left Recurrent Laryngeal Nerve in a Case of Mitral Stenosis. JOHN G. SHELDON.
5. Two Cases of Locomotor Ataxia in Man and Wife. E. STAEHLIN.

1.—Cancer of the Larynx.—Sir Felix Semon, in a long paper not susceptible of detailed abstract, refutes the statements made by John Mackenzie affirming the inadvisability of attempting microscopic examination of suspected laryngeal growths before operation, the inadequacy of thyrotomy as a curative procedure, and the necessity for complete extirpation of the larynx with the adjoining lymphatic glands. The author's conclusions may be summarized as follows: 1. It is of the greatest importance that the diagnosis of laryngeal cancer be made at the earliest possible moment. It is most essential that the attention of the general practitioner should again and again be drawn to the fact that there are no more promising cases for radical operation than those in which the disease is at first manifested by nothing else than by obstinate hoarseness, occurring, without any apparent cause, in middle-aged and elderly persons. 2. Clinical diagnosis is by no means absolutely perfect, and occasional mistakes occur even in the practice of those most experienced. 3. In these circumstances clinical diagnosis ought, whenever possible, to be confirmed, before radical operation of any kind is undertaken, by the intralaryngeal removal and microscopic examination of a fragment or fragments of the newgrowth. This, however, should only be done if the patient previously consents to immediate radical operation being undertaken in the event of the microscope confirming the clinical diagnosis. The microscope, however, is by no means infallible in these cases. Should its evidence be negative or inconclusive, the intralaryngeal removal and microscopic examination of fragments should either be repeated, if necessary, several times, or, if the clinical symptoms do not warrant postponement, exploratory thyrotomy should be undertaken. 4. The intralaryngeal method is from its very nature unsuitable for the radical removal of malignant newgrowths of the larynx. 5. Subhyoid pharyngotomy, apart from being applicable in a very small number of cases only of malignant disease of the larynx, is still *sub judice* with regard to its advisability in such cases. 6. Thyrotomy, if undertaken in suitable cases, and at a sufficiently early period, and if performed on the modern lines which experience has shown to be successful, is a perfectly ideal operation in intrinsic cancer of the larynx. 7. Hemilaryngectomy comes into question only when it is found after opening the larynx that mere thyrotomy will not suffice. When performed it may be accompanied by removal of the tributary lymphatics, even if apparently not diseased. 8. Total laryngectomy should be exclusively reserved for extrinsic, and for those cases of intrinsic cancer, in which both sides of the organ are affected, and in which the disease has proceeded too far to be eradicated by milder measures. When performed it should be accompanied by the removal of the laryngeal lymphatics on both sides of the neck.

2.—Thyroidectomy for Exophthalmic Goiter, Based upon 40 Operative Cases.—Charles H. Mayo says that many patients with exophthalmic goiter belong properly to the internist, and recover under various plans of medical treatment, but some resist all efforts at relief. To the surgical procedures that have been employed the author adds the use of the röntgen ray, which he has tried in 10 cases. While it is too early to say that any of these patients are cured, they have certainly been markedly benefited: (1) In the general nervousness; (2) in tremor of the muscles; (3) in tachycardia; and last, in the exophthalmos. The benefit is sufficient soon to give this method a place in the treatment of Graves' disease, or at least to make it a preparatory treatment to a prospective surgical method at a later period. In the author's series of 40 operative cases of exophthalmic goiter, 6 deaths occurred, only 2 of these coming within the last 25 cases. The operations on the cervical sympathetic are not objected to, as it is certain that good results are thus obtained, but the author prefers extirpation as the routine operation. The Kocher collar incision is used, and a complete exposure of the gland made, cutting through everything which impedes access to it. One-half the gland, and possibly the isthmus is taken. Thyroidism of some degree is common, and its prophylaxis requires free drainage of the wound and infusion of salt solution. The cases have shown marked improvement of all who survived the operation. Of these, 50% made a very early recovery, especially of the severe symptoms—tachycardia, nervousness, and tremor; 25% did so after several months, and 25% were improved, yet suffer from irregular recurrence of some of the major symptoms. The author's rules concerning the cases of Graves' disease which come for operation, are to operate, if their condition is fair, but if the pulse is from 130 to 160, or if it suddenly fluctuates in tension and rapidity, if there is anemia, with swelling of the feet, the patients are placed upon belladonna for some days. The more severe types are also given röntgen ray exposures in addition, which is continued from two to six weeks.

3.—Two Cases of Chronic Nephritis Treated Surgically.—J. A. Nydegger gives the histories of two nephritics treated by having one kidney decapsulated. The first patient did well for about three weeks after the operation, and then gradually became worse and died three weeks later. The albumin did not diminish after the operation. The second patient was relieved of severe headaches, and the amount of albumin was decreased by the operation, so that he was discharged much improved. The author believes that two classes of patients must be recognized: (1) Those that are benefited, and finally cured, by decapsulation; (2) those that are not benefited. His two patients represent the two classes. With regard to the way in which decapsulation benefits, he says that the autopsy in Case I showed the kidney operated on to be covered with a rather dense, smooth, white scar tissue, which seemed to offer a poor means of transmitting an increased blood supply to the cortical substance. Perhaps we should look more to the theory that the decapsulation relieves internal cellular pressure and thereby allows the compressed cells to return to their normal relations and functions.

4.—Paralysis of the Left Recurrent Laryngeal Nerve in a Case of Mitral Stenosis.—J. G. Sheldon describes a case of a woman of 38, suffering from mitral stensosis with well-marked physical signs. The lesion was well compensated, but on over-exertion incompetency was produced, which readily responded to treatment. During such an attack the patient could only speak in a whisper, and it was found that the left vocal cord was in the cadaveric position and immovable. There was no sign of inflammation in the larynx. After a week of cardiac treatment, she had recovered control of both cords and could speak in a normal tone. The presence of the mitral stenosis, the intermittent paralysis of the left recurrent laryngeal nerve, synchronous with the cardiac incompetency, and the absence of signs or symptoms of aneurysm, tumor, or adhesions, led the author to make a diagnosis of temporary paralysis of the left recurrent laryngeal nerve, caused by the left auricle pressing the nerve against the aorta and pulmonary artery.

5.—Locomotor Ataxia in Man and Wife.—E. Staehlin reports two cases, interesting on account of the indirect way in which the diagnosis was made, and because they are both directly traceable to syphilis as the etiologic factor. A man presented himself with the typical urine of an advanced cystitis, which caused few subjective symptoms, however, and the urine soon improved under treatment. His wife asked for treatment at this time, claiming to have kidney trouble, but examination of both heart and urine were negative. It was discovered by accident that she frequently stumbled, even on smooth pavements, and this led to an examination of the reflexes. The patellar reflex was absent, the pupillary reaction to light was lost, and Romberg's symptom was present. Cross-examination of the husband revealed the fact that 10 years before he had infected his wife with syphilis, and it was found that he, too, presented the cardinal symptoms of tabes.

New York Medical Journal.

October 29, 1904. [Vol. LXXX, No. 18.]

1. Intracapsular Fracture at the Hip-joint with Complete Union of the Fragments. THOMAS H. MANLEY.
2. Accessory Thyroid on the Posterior Third of the Tongue. OLIVER C. SMITH.
3. The Disturbances of Menstruation and Their Significance. E. E. MONTGOMERY.
4. Vulvovaginitis in Little Girls: A Clinical Study of 190 Cases. (Concluded.) SARA WELT-KAKELS.
5. Inflammatory Diseases of the Joints and Their Treatment by Massage. GUSTAF NORSTROM.
6. Notes on Some Unusual Forms of Infectious Disease of the Central Nervous System. JAMES J. PUTNAM and GEORGE A. WATERMAN.
7. Parasitic Associations. F. H. SAWERS.

1.—Intracapsular Fracture at the Hip-joint.—T. H. Manley reports a case with complete union of the fragments, in a woman of 58. She was removed from the hospital by her friends on the third day after admission, and for two weeks she remained in bed at home with no medical attendance. After using crutches about a month, she depended on a cane. There was a distinct limp with each step; though she alleged that while the limb was somewhat weak, she felt neither pain nor soreness in it. At this time she applied for treatment for a mammary scirrhus, and the limb was carefully examined. Beside the conspicuous shortening—1⅝ inches—there was extreme inversion of the foot. The prominence of the trochanter major had disappeared from its normal site and appeared to have rolled inward under the large femoral vessels. There was good action at the hip-joint, but its rotatory range was restricted. The patient died 18 months later, and the specimen was secured postmortem. The most striking feature of the limb now was the extent of shortening, 1⅝ inches, 1⅛ inches more than was evident immediately after the fracture, and there was quite complete resorption of the cervix femoris. [C.A.O.]

2.—Accessory Thyroid.—O. C. Smith reviews the literature of the subject and reports a case occurring in a woman of 50, in which the accessory thyroid was on the posterior third of the tongue. The growth was first noticed seven years ago, and was removed two years later and again at the end of another two years. When seen by the writer the mass was about 5 cm. (2 in.) in length, and two-thirds as broad. It was removed through the mouth, under cocain anesthesia, by the ecraseur. [C.A.O.]

3.—See *American Medicine*, Vol. VIII, p. 624.

4.—Vulvovaginitis.—Sara Welt-Kakels has made a clinical study of 190 cases of vulvovaginitis in little girls, and gives the findings in detail, together with an extensive review of the subject. The total number of children treated was 11,578; the percentage, therefore, being about 1.6. The cases occurred only in isolated instances. The largest number occurred in children between two and five years of age; in children above the tenth year the disease was rarely observed. Of the 190 cases observed, the largest number were of the gonorrheal type, and only a small minority belonged to the catarrhal type. While urethritis was most frequently present in the recent cases of gonorrheal vulvovaginitis, the writer does not, from experience, consider it a symptom indispensable to the diagnosis. The gonorrheal vulvovaginitis was most frequently caused by an indirect and accidental mode of infection. The writer says that it does not seem justifiable from the knowledge of the course of the affection to declare the patient cured at the end of two or three or four months, even if gonococci cannot be found in the discharge, as relapses, after apparent recovery, are very frequent, the latent gonococcus being stimulated to renewed proliferation, especially after treatment has been discontinued. The writer does not know of any other ailment of early childhood, of such tenacity in its course, so refractory to treatment and fraught with such grave consequences for later life. [C.A.O.]

5.—Diseases of the joints and their treatment by massage is discussed by Gustaf Norstrom. He says that massage is indicated in spontaneous or traumatic acute arthritis when attended by serous effusion, or serous effusion tinged with blood; or where a fibrous exudate having already at the outset a tendency to form more or less firm adhesions about the articular surfaces and false ankylosis. It yields rapid and positive results after the first seance, already the pain and tumefaction are often diminished, and absorption is started, and in a few days a permanent cure is arrived at. Massage, as regards sprains, cures sooner than any other method; consequently there is less chance for persistent organic changes and less chance for relapse, when one uses the limb. Even in tardy manifestations it gives excellent results. Chronic arthritis with serous or serofibrinous effusion, is well adapted to massage. Massage is only useful in articular rheumatism, when the joint presents definite symptoms and these remain there; it is useless, as in muscular rheumatism, when the pains are vague and erratic. In gout he uses massage only when the attack has subsided and the arthritis, or tenosynovitis, or bursitis with effusion remains and shows only very little tendency to become absorbed. [C.A.O.]

Medical News.

November 5, 1904. [Vol. 85, No. 19.]

1. Subdivisions of the Concrete Concept Area of the Human Cerebrum. CHARLES K. MILLS.
2. Report of a Case of Splenomedullary Leukemia Treated for Nine Months by the Röntgen Ray. WILLIAM FITCH CHENEY.
3. A Complete Case of Syringomyelia. M. G. SCHLAPP and JAMES J. WALSH.
4. The Conveyance of Yellow Fever. HENRY R. CARTER.
5. Endotracheal Medication. J. J. RICHARDSON.

1.—Subdivision of the Concrete Concept Area of the Human Cerebrum.—Charles K. Mills confines himself chiefly to a consideration of several of the subareas of the great concrete concept region, namely, those for object seeing and intonation, with discussion of the cortical representation of color recognition. A large part is devoted to the demonstration of the existence of these subareas by the recital of clinicopathologic cases. In general terms, unusual elaboration and complexity of fissures and gyres, especially in the intermediate and higher psychic areas, are the expression of unusual or at least highly specialized mentality; but this is a rule not without exception, as is illustrated by Wilder's study of the brain of Chauncey Wright, with its simple fissures, broad gyres and bridged central fissures. In some higher type brains, it may be that a large cortical field is obtained by broad convolutions and deep fissures and sulci, rather than by the development of secondary fissures and gyres, and that in such brains the cortical layers are relatively richer in cellular elements than is the case in the more elaborated brain. The correct method of applying morphologic and anatomic studies of the human brain to cerebral localization is by a comparison of brains of the low, high, and average type with each other, and these with the brains of animals lower in the scale than man, and especially with those of the anthropoids. The author reviews the literature bearing on this interesting subject, offers a number of valuable suggestions and discusses a number of abstruse problems. [A.B.C.]

2.—Splenomedullary Leukemia Treated by the Röntgen Rays.—W. F. Cheney reports the case. A man of 27, native of California, in April, 1902, showed symptoms of splenomedullary leukemia. The patient was treated medically until October, 1903, during which time he slowly but steadily grew worse. The spleen was enormously enlarged, which, together with the blood showings and attendant symptoms, presented the clinical picture of splenomedullary leukemia. Beginning in October, 1903, at which time the patient apparently had but a few months at most to live, röntgen ray treatment was instituted. At that time a blood-examination showed the following conditions: Red corpuscles, 2,508,000; white corpuscles, 126,000; hemoglobin, 47%. The patient by the end of November reported that he felt perfectly well; he had lost his pallor, looked well, had gained 10 pounds in weight, and felt none of his old symptoms of weakness, dyspnea, and abdominal distress. From that date on to the present time his invariable report has been that he feels perfectly well and would not know anything was the matter with him except for his enlarged abdomen and his blood-counts. The objective signs have not kept pace in improvement with the subjective symptoms. The spleen is still almost as large as when röntgen ray treatment was begun. The red blood-corpuscles have risen to 4,000,000; white corpuscles range at about 70,000; hemoglobin about 70%. [A.B.C.]

3.—Syringomyelia.—Schlapp and Walsh report that a young woman of 21 presented herself with wellmarked symptoms of syringomyelia, affecting the left hand. She had been unusually well, except that 14 years ago she suffered from weakness and paralysis of the same arm. Strength gradually returned and after six months all trace of paralysis was gone. Four years ago she noticed trembling of the left hand, in spite of efforts to control it; there was increasing weakness of the hand, and it remained cold and numb. Three years ago there was noticed wasting on the ulnar side of the hypothenar eminence; this gradually extended to the thenar eminence and the interossei muscles; the fingers became overextended in the proximal phalanges, though with flexion of the distal phalanges, resulting in a "claw" hand. This condition persists. Etiology is discussed and it is believed that a hemorrhage in the cord 14 years ago was the original cause. They say: If a hemorrhage be supposed to have occurred in this case, there came as a result an overgrowth of connective tissue which contracted into a scar. The irritation set up by this led to the development of gliosis of the cord, affecting mainly that portion of the cervical cord lying around the spinal canal on the left side. This would afford a very satisfactory explanation of the condition which has now developed. [A.B.C.]

4.—Conveyance of Yellow Fever.—H. R. Carter reviews the facts which support the proposition that yellow fever is conveyed from the sick to the well by *Stegomyia fasciata*, contaminated by feeding on the sick man; and in nature it is only thus conveyed. All who have tried to convey it in this way have succeeded. It has been shown experimentally that the power of the patient to produce infection lasts only three days; the mosquito seems to retain the power indefinitely. This affects the question of isolation, and the shorter it is, the better will the work be done. The time required for the mosquito to become infective depends on temperature. The shortest time during experimentation has been 12 days. The agent is ultramicroscopic, passes through a Berkefeld filter and a Chamberland bougie B, but will not pass through bougie F. Other diseases conveyed by living hosts are conveyed naturally in no other way. By analogy we would expect the same to be true of yellow fever. Other arguments favoring this view are the existence of infectible and noninfectible places, the fact that the conditions under which this mosquito thrives best suit the propagation of yellow fever, the close correspondence of the incubation period after natural infection with that after experimental mosquito inoculation, the existence of a considerable interval between the infecting and the first secondary cases, the fact that measures based on this theory have given the anticipated results, and finally that no other natural method of conveyance has been proved. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN   A. O. J. KELLY

REVIEW OF LITERATURE

Rational Treatment of Gastric Disorders.—W. L. Brown[1] speaks of the nervous and chemic factors in gastric digestion as based on Pawlow's experiments, and also on the importance of gastric juice as a stimulant to the action of the pancreas. Some of his practical deductions are that the highest importance must be attached to the personal equation in dieting a patient. Too rigid a dietary, although compiled on an admirable chemic basis, may prove distasteful and upset the appetite, thereby preventing all the good that was expected. Brown pronounces unphysiologic Sir Andrew Clark's dictum, that dyspeptic patients should not take soup. At this stage of the meal, gastric juice has not been secreted, and therefore cannot be diluted. To a tired man the warm fluid, causing gastric vasodilation and containing a stimulant to the gastric juice, is an excellent beginning to a meal. The discrepancy between the results of analysis of meat extracts and the popular estimate of their value may be explained by saying we are not giving food, but only preparing the way for it; they act as stimulants of the gastric juice, and with them a patient may be able to tolerate a restricted and uninteresting dietary. In the same way, bitters are effective by arousing the appetite. Brown believes that the use of acids has been neglected. An intelligent comprehension of the nervous and chemic factors, and of the importance of hydrochloric acid in gastric digestion, will be of much assistance in the treatment of dyspepsia in all its forms. [A.G.E.]

Chronic Hyperplastic Cervical Internal Pachymeningitis.—O. Fischer[2] reports two cases of this condition in earlier stages than are usually observed. In one case there was no change at all in the nervous system itself, while in the last case there was a recent area of softening in the medulla and cervical cord. This was accompanied by vascular changes, occurring in the intima, which are now recognized as being characteristic of syphilis. There were no changes in the bloodvessels in the first case. Regarding the relation of the meningeal changes to the lesions in the medulla and cord in these cases, there are several theories. The author believes that these lesions are due to disease of the bloodvessels, and are to be regarded as a degenerative and not an inflammatory process. [B.K.]

Optic Neuritis Complicating Acute Infantile Disorders.—Antonelli[3] considers diphtheria, acute exanthems, and typhoid fever in this respect. Early serum treatment in the first reduces the danger. Certain nasopharyngeal infections are the source of transmission to and involvement of the cranial nerve. The prognosis is uncertain, and depends on the amount of atrophy or sclerosis which has occurred. Successful treatment is difficult. Injections of salts of pilocarpin are indicated if there is edema around the neurolemma. Serum therapy may be employed. Syphilitic, rheumatic or malarial infection may complicate and require appropriate treatment. [T.H.E.]

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[1] The Practitioner, October, 1904.

[2] Zeit. für Heilkunde, Bd., xxv, Heft 10; Abth. f. Path. Anat., Heft 4, p. 339.

[3] Il Policlinico (Rome), No. 59, 1904.

The Entrance of Pancreatic and Intestinal Juices into the Stomach.—According to orthodox teaching, gastric digestion is performed by the gastric juice alone. This, however, is far from being always true, and in certain conditions large quantities of pancreatic juice, as well as some bile and intestinal juice, may enter the stomach and take upon themselves the work of gastric digestion. W. N. Boldirew[1] discusses the conditions and meaning of this interesting phenomenon. He says that: (1) In the presence of fatty foods in the stomach, in excessive acidity of the gastric contents, and in prolonged starvation, there takes place a backward flow of the natural mixture of pancreatic and intestinal juices into the stomach; (2) this fact may be utilized for obtaining pancreatic juice or bile for diagnostic purposes; (3) in a fat diet the fats in the stomach are digested chiefly by the ferments of the pancreatic juice; (4) in examining gastric contents or vomitus we should remember that pancreatic juice may be present; (5) in the normal stomach, free hydrochloric acid may be absent after a test-meal, and pepsin digestion may be also negative, owing to the neutralizing action of alkaline pancreatic juice; (6) the fact that the stomach does not digest itself is not explained by any one of the current hypotheses, because they all ignore the frequent presence of pancreatic juice in the stomach; (7) in testing the motor power of the stomach by means of a test-meal, we must remember that the stomach contents may be increased by the backward current of pancreatic juice. Again, when using salol for this test, we must allow for the possible splitting up of the drug by the pancreatic juice in the stomach; (8) gastric digestion is by no means so simple as heretofore considered. [L.J.]

Cardiolysis and Its Indications.—L. Brauer,[2] of Heidelberg, recommends operation for mediastinopericarditis when there is evidence of systolic retraction of the chest. The operation aims to lessen the work of the heart by rendering it unnecessary for the heart to draw inward the bony thorax. Brauer thinks that for this purpose it is sufficient to resect the ribs, and, if necessary, the sternum; and does not advise the separation of the adhesions—partly because these are very likely to form again, and partly because a prolonged operation in these circumstances is to be avoided. In three cases in which the operation of resection was done the results were satisfactory, the cyanosis, dyspnea, ascites, and even the edema disappearing. [D.R.]

Primary Actinomycosis of the Lungs.—E. von Graff[3] reports a case in which the symptoms and physical signs during life were those of tuberculosis of the left apex. Neither tubercle bacilli nor any other specific organism could be found in the sputum. At autopsy an actinomycosis was found at the left apex, which had extended to the pleura and the vertebras. The pulmonary tissue had entirely disappeared from the affected part of the lung. No traces of a past or present fistulous opening could be found in the chest wall. The author concludes that infection must have occurred by aspiration of the actinomyces in the inspired air. He believes that primary actinomycosis of the apices may occur oftener than is supposed. [B.K.]

Relation of Hemagglutinins of Bacterial Origin to Hyaline Thrombi and Liver Necroses.—R. M. Pearce and C. K. Winne, Jr.,[4] detail the results of experiments upon dogs and rabbits with the products of *B. pyocyaneus*, *S. pyogenes aureus*, *B. typhosus*, *B. choleræ suis*, *B. dysenteriæ*, and *S. pyogenes*. Filtered fluids, after attempted disintegration of bacteria, were employed. Necroses of the liver occurred in ten animals, but two were excluded because of associated infection. The results show that filtered autolyzed products of a number of bacteria possess hemagglutinins of low activity, the formation of which may be stimulated by previously growing the organisms on media containing fresh red blood cells. The injection of these filtrates into dogs and rabbits is followed in some instances by the occurrence of liver necroses with associated fused red blood-corpuscle thrombi; like thrombi occur in other organs. These thrombi are similar in structure to those generally described as hyaline thrombi. The authors do not assert that all hyaline thrombi are composed of agglutinated red cells, but consider their results as evidence in favor of the view that these formations may, in some instances, be due to bacterial hemagglutinins. [A.G.E.]

Paroxysmal Tachycardia in Central Nervous Disease.—Schlesinger,[1] of Vienna, calls attention to this occurrence in connection with initial stages, or exacerbations, of tabes and other grave affections, as well as tachycardiac crises in epilepsy. [T.H.E.]

Gout in a Child of Seven Years.—This case is reported by R. O. Lunz.[2] Typical attacks of gout are very rare in children, and the majority of pediatric textbooks do not even mention the disease. The author's patient, a boy nearly seven years old, suffered from attacks of pain in hands and feet, and following these seizures typical gouty deposits could be seen on the fingers of both hands. The urine contained urates in excess. The treatment consisted in large doses of alkalies. It is worthy of note that the boy lived under wretched hygienic circumstances. His gout was therefore not the classic arthritis divitum. [L.J.]

Studies upon the Capsule of the Kidney.—H. Emerson[3] details two sets of experiments, the first to determine if the capsule of the kidney will allow or prevent the absorption into the blood of salts in solution. These showed that when the capsule is intact, absorption does not take place in sufficient amount to be appreciated by chemic tests of the urine, and only when powerful systemic poisons were used was there any evidence of them in the blood. The other experiments were made to study the later effects of decapsulation, eight dogs, six rabbits, and one sow being used. As the result of these and earlier experiments, Emerson feels justified in saying that after decapsulation of a kidney we may hope for temporary relief from pressure and, if under proper conditions, an increased vascular supply for a limited period. But we must face the certainty of the formation of a quickly forming, dense and contracting capsule; the probability of the establishment of a chronic interstitial nephritis in the majority of cases; and only the possibility of any permanent increase of the renal blood supply. The newly-formed capsule is sufficient to protect the kidney from absorption from without, but the possibility of attaining more than a temporary improvement of a diseased condition of a kidney by decapsulation appears slight. New bloodvessels are formed in the adhesions that occur but they are of temporary character, being occluded later by the contraction of the cicatricial tissue surrounding them. The ultimate result is a capsule not differing essentially from the original one, except in its tendency to persistent and uneven contraction. [A.G.E.]

The Signs and Symptoms of Measles in Relation to Diagnosis and Prognosis.—H. Balme[4] gives the results of observations on 227 cases of measles, and calls attention to the importance of this dangerous disease, which is responsible for an annual mortality of 10,000 to 12,000 infants. The incubation period, as determined by tracing the source of infection definitely in 84 cases, varies between 6 and 18 days, the average being 11.2 days. The prodromal symptoms, usually stated to be pyrexia, cough, and coryza, also include others on which considerable stress is placed. 1. Vomiting, occurred in 65% of the cases during the invasion period of the disease. 2. Diarrhea present in 28%. 3. Epistaxis was present in 10 instances. 4. Laryngitis was present in 8.5% of cases. 5. Koplik spots. On this last sign Balme lays particular stress. In his series of cases, 214 were examined particularly for this sign, which was present in 97.7%. Many make mistakes in the recognition of these spots. Those which should be distrusted are spots the size of a pinhead or larger; those which appear to be part of the mucous membrane itself and not raised above it; spots which tend to coalesce; and spots on a normal mucous membrane devoid of any trace of hyperemia. Their value as an aid

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[1] Russki Vratch, September 25 and October 2, 1904.
[2] Arch. f. klin. Chir., 1903, lxxi, p. 258.
[3] Zeit. für Heilkunde, Bd. xxv. Abth. f. Path., Heft 4, p. 352.
[4] American Journal of the Medical Sciences, October, 1904.

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[1] Il Policlinico (Rome), No. 59, 1904.
[2] Medizinskoe Obosrenie, lxii, No. 17.
[3] American Journal of the Medical Sciences, October, 1904.
[4] The Practitioner, October, 1904.

to early diagnosis is lost in the case of young infants, as they are seldom found until the rash is present. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER

A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Diffuse Ossifying Periostitis.—F. Schlagenhaufer[1] reports the case of a girl of 21, who suffered from a carcinoma of the posterior pharyngeal wall, infiltrating the glands of the neck, mediastinum, and retroperitoneal tissue. About a year after the onset of this condition, a febrile disturbance set in, with pains in the bones. The patient died, and autopsy revealed a widespread ossifying periostitis. No connection could be found between the carcinoma and the periosteal affection. Although the nature of the latter is obscure, the author believes that it might possibly have been produced by arsenical medication, which had been administered to the patient for a long time, on account of the glandular affection. It has already been recognized that arsenic may have an irritative effect upon osseous tissue, and as a matter of fact, the body in this case showed a brown pigmentation, which had the appearance of an arsenic melanosis. The author quotes a case of v. Jaksch, in which a similar periosteal affection occurred in the course of a leukemia, and suggests that the same explanation might apply here also. [B.K.]

Delayed Chloroform Poisoning.—H. J. Stiles and S. M'Donald[2] present a chronologic review of the literature of the subject and a record of their own observations. Idiosyncrasy plays an important part in many fatalities during administration. In cases of delayed poisoning, there is not sufficient evidence to support the view that it is due to destruction of the red cells. Experiments show that it is an intense protoplasmic poison. Fatty changes occur in liver, kidneys, and heart. It is difficult to decide whether the change in the liver is a degeneration or infiltration. The symptoms resemble those of other autointoxications, such as diabetic coma. Many observers have detected increase of acetone in the urine after chloroform anesthesia, and the blood may contain some of its poisonous precursors, enough to determine a condition analogous to diabetic coma. The relationship is also suggested by the diminution of fatty tissue in rabbits after subcutaneous injections of chloroform. Recent researches tend to show that acetone is derived from fat. The analogy between delayed chloroform poisoning and diabetic coma is merely a working hypothesis. If excessive acetonuria be shown to exist, we may thus recognize milder degrees of intoxication, and possibly also differentiate the condition from such postoperative complications as delayed shock, sepsis, etc. [H.M.]

Prognosis of Sarcoma of the Small Intestine.—Steinthal[3] reports the cases of two patients operated on by him for sarcoma of the intestine three and four years ago; both patients are still enjoying the best of health. One of the sarcomas was spindle-celled, the other a round-celled tumor; both were solitary, had produced stenoses, and had not broken down. The sooner a mass produces stenoses, the sooner will it be recognized and operated for, and the better are the patient's chances for recovery. Spindle-celled sarcoma is likely to do this very early, and its prognosis therefore is better even from this standpoint. [E.L.]

Alcohol Flame as a Means of Sterilization.—Gottignies[4] found the flame of alcohol, as employed by many surgeons, to be insufficient to destroy germs. He was unable to destroy in a two-minute exposure, cultures of staphylococcus, streptococcus, bacillus of Eberth and anthrax. They were, however, destroyed by an exposure of three and a half to four minutes. Instruments placed directly in the flame are sterilized in a half minute, but the effect upon the instruments is deleterious. [J.H.W.R.]

Elevation of the Scapula.—A. A. Worobjew[5] has made a scientific study of this deformity, and says in conclusion: 1. Elevation of the scapula as an independent disease may be acquired and congenital. 2. The congenital forms are accompanied by osseous or muscular changes in the scapula, while the acquired forms are caused by rachitic disease of the scapula. 3. There are cases of elevated scapula due to causes lying outside of the bone itself and its muscles. These cases should be strictly distinguished from the idiopathic form. Among the reports of acquired scapular elevation the author describes one case due to muscular dystrophy. [L.J.]

Slivered Fracture of the Lower End and Anterior Plane of the Tibia.—Franke,[1] in an article, speaks of such a case that occurred in a patient who, in order to prevent falling down stairs, leaped forward and struck four or five steps lower upon his right foot. The part affected was very painful, swollen, and motion was limited. A röntgen ray picture, side view, showed that a piece of the lower and anterior part of the tibia had been slivered off; a picture with anteroposterior view showed nothing. [J.F.]

Phenol in Carbuncles.—G. Marchetti,[2] discussing treatment of carbuncles, reports three cases, adding a large bibliography. He favors the injections of phenol (carbolic acid), claiming that cure is rapid, certain, and safe. Even a mistakenly large dose is not of serious effect. [T.H.E]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Treatment of Pathologic Face and Brow Presentations.—J. B. de Lee[3] gives as the result of a study of 21 personal cases of face presentation, the following directions for their management: 1. With normal pelvis and normal child, with the chin anterior, watchful expectancy. 2. Normal pelvis, normal child, chin posterior, at first expectancy; when the chin shows any tendency to rotate to the front, manual correction to occipital presentation; failing in this, podalic version. 3. Normal pelvis and child, face deep in pelvis with chin anterior and a strict indication for delivery, forceps are to be used. 4. Normal pelvis and child, face deep in pelvis with chin in posterior position, manual correction when version is contraindicated. If this fails, craniotomy or symphysiotomy are the alternatives. 5. In the mildly contracted flat pelvis with normal child, version should be elected. 6. Contracted pelvis of mild degree, normal child, manual correction followed by expectancy. 7. Face presentation complicated by placenta prævia, prolapse of the cord or extremities, rigidity of cervix, threatened rupture of the uterus, or a dead child, monstrosity, or highly contracted pelvis, offers no good field for manual correction, though it rarely may be done. [A.G.E.]

Tuberculosis of the Female Genitalia.—H. Macnaughton Jones[4] quotes statistics showing that genital tuberculosis occurs much more often in women than in men, and in 18.6% of the cases found, it is primary. Hyperplasia, chronic inflammation and the puerperal state increase predisposition. Coitus may be the source of infection, as also infected instruments or the surgeon's finger. Localization at the placental site, transmissibility to the fetus, etc., seem to point to the blood as the agent. Experiments show that preceding trauma is necessary to infection from without. The writer discusses the diagnosis of tuberculosis of the vulva, vagina, uterus and tubes in order, and the microscopic appearance of portions of tissue removed. As it is more frequent in the uterine cavity before puberty and after the menopause and multiparas are specially susceptible, menstruation seems to offer an obstacle. Even when both tubes are affected, the menses continue so long as the uterus is healthy. The treatment is excision of diseased areas whenever possible. In the ovary, healthy portions should be preserved. The number of patients which have been relieved, and in several cases cured by the operation of celiotomy, when there has been tuberculosis of the peritoneum alone, or of the internal genitalia, has proved clearly the beneficial effects which follow the opening of the peritoneal cavity in these cases, and which has been attributed to the formation of a curative serum following the hyperemia, the result of the operation. Some operators prefer the vaginal, and some the abdominal route in the extirpation of tuberculous genitalia. [H.M.]

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[1] Zeit. für Heilkunde, Bd. xxv, Abth. f. Path., Heft 4, p. 364.

[2] Scottish Medical and Surgical Journal, August, 1904.

[3] Münch. med. Woch., 1904, No 17, 751.

[4] Jour. Méd. de Brux., September, 1904, p. 514.

[5] Russki Vratch, August 28, 1904.

[1] Arch. f. klin., Chirg., 1903, Bd. lxxii, Heft 3.

[2] Il Policlinico (Rome) No. 59, 1904.

[3] Chicago Medical Recorder, October 15, 1904.

[4] Edinburgh Médical Journal, August, 1904.

Case of Dementia Præcox with Autopsy.—William Rush Dunton[1] cites a case of dementia præcox occurring in a woman of 37, in which the symptoms were at first depression, delusions of persecution, self-accusation, probably visual and aural hallucinations, mental confusion, motor restlessness, mixing of identities, weak attention, headache, insomnia and loss of appetite. Later the confusion and depression decreased and there were outbursts of excitement, disturbance of circulation, and gradual dementia ensued. Stereotypy, negativism, irrelevant answers and impulsiveness were also present. Her weight gradually increased until about the fifth year when a decrease from 190 to 93 pounds occurred in the next 20 months. The autopsy was made an hour after death. Bacteriologic examinations were negative. In the pia arachnoid there was slight proliferation of the endothelial cells upon the surface. The peripheral and sympathetic nerves were normal. The nerve cells showed the presence of an increased amount of pale yellow pigment, while central chromolysis was frequent. The cell was swollen, displaced and distorted, and an endonucleolus was occasionally present. Neurophagocytosis was occasionally observed. The nuclei of the glia were slightly increased about the cells. In the cerebellum the Purkinje cells were diminished in number and were distorted and atrophied. Comparing the findings in this case with those of a case previously reported in January, Dunton states that the process in the former case was less advanced. The tangential fibers were undoubtedly decreased in number, while he was unable to find any mitotic changes in the glia cells. The neuroglia nuclei were undoubtedly increased. He cites the case of Loubouchine, who found that the nerve cells were atrophied and the seat of fatty yellow degeneration, and that the perivascular spaces were enlarged, and proliferation of the neuroglia in the molecular layer about the bloodvessels was observed. The subcortical or tangential fibers were also degenerated. In Bridier's case there was fatty and pigmentary degeneration of the nerve cells, central chromolysis, division of the nucleus and cell atrophy. The neuroglia was proliferated and arterial sclerosis was present. Dunton concludes that dementia præcox is a degenerative psychosis of autotoxic origin and of slow course. [J.H.W.R.]

Genital Tuberculosis in Woman.—Jamin and Violet[2] report six cases of tuberculosis of the uterine adnexa. Regarding the etiology, they say that the question of ascending infection is still a mooted one. Secondary or descending tuberculosis may arise by way of the blood or by extension from a peritoneal tuberculosis. The seat of the lesion is most frequent in the tubes, lesions of the ovaries and uterus being comparatively uncommon. Histologicly, there may be distinguished a perisalpingitic form, an interstitial salpingitis and an endosalpingitis. These lesions are usually associated, the perisalpingitic being by far the most frequent. The lesions may be miliary, chronic diffuse, or chronic fibrous in character. In five of the six cases reported, the onset of the disease was marked by symptoms of tuberculous peritonitis, while the sixth case resembled postpuerperal infection. Some cases, reported by others, were marked by the occurrence of metrorrhagia. The temperature is not characteristic, neither are the pains, except that they are little affected by rest in bed. Rapid emaciation is an important symptom. Sterility is the rule. On examination, there is usually nothing characteristic. Some authors insist on the bead-like arrangement of the lesions as being pathognomonic, when demonstrable. Another important sign is infiltration of the broad ligaments. The only means of positive diagnosis is the examination of the uterine secretions and their inoculation into animals. The proper treatment is excision of the diseased parts. [B.K.]

TREATMENT

Solomon Solis Cohen
L. F. Appleman E. Lindauer

EDITORIAL COMMENT

Proprietary or Secret.—We have read with cordial appreciation the series of editorials in which that important pharmaceutical organ, the *Druggists' Circular and Chemical Gazette*, voices its opposition to the crying evil in present day pharmacy. That the physician is dependent for his results in drug therapy upon the honor and skill of the pharmacist is well recognized. It is therefore in the interest of science and of mankind for a sharp line to be drawn between the honorable and the dishonorable, the careful and the indifferent, the skilled and the blundering among pharmacists. It is likewise important that the pharmacist should be more than a mere salesman of manufactured articles. No one needs a liberal preliminary education and four years' laboratory training to hand out Blower's "Ready Made Pills" or Puffer's "Fluid Extracts-Tincture Infusions," or Humbug's "Representations of the Active Medicinal Principles," or Mendax's "Only Genuine American Synthetics of the Amido-Benzol-Nonsense Series," or Alphabetta's "Skilfully Compounded and Calculated Mixtures," etc. Neither does one need preliminary education, college training, laboratory work and hospital experience, covering in all some nine or ten years of hard study, to write orders for these things and call them prescriptions. The trade relations of the drug manufacturing business have grown like the Gog-a-mog in Hood's poem until they threaten to wreck the boat. It is true, that to the enterprise and large pecuniary resources of certain drug manufacturers, leading them to employ men of high scientific attainments to undertake researches in botany, pharmacology, chemistry, and biology, modern medicine is much indebted. But it is not ignoring this debt to insist that manufacturers should confine themselves to their functions as such, and not attempt to teach therapeutics or practice. Neither is it a reflection upon legitimate business enterprise or high professional ideals to point out that departures from the strict line of ethics and professional conduct give excuse to a horde of avaracious imitators, who unscrupulously prey upon the ignorance of physicians to the detriment, or even death, of the sick. Physicians do not study chemistry and pharmacy, being taken up with problems of pathology and diagnosis. Hence, they listen credulously to the sham chemist claiming some great medical discovery and to the fraudulent pharmacist, who dubs some old remedy by a new name, conceals its characteristics by mixture, and sells it at the rate of one dollar for a dime's worth. Hence, however, the sick suffer—and perhaps die. There can be no objection if a reputable manufacturer chooses to adopt some protective device to designate all his products. His reputation depends upon the fact that his goods are pure and as represented, and he cannot run the risk of imitation by incompetents or frauds. But the names of pharmaceuticals should be public property; and whether these be chemic terms, as formaldehyd, or arbitrary terms as salol, they should be at the service of any one who desires to prepare the substance. Discoverers in chemistry being fully protected by the patent laws from use of their discoveries without payment of royalty, need claim no further protection, and all laws permitting trade-marking of drug names ought to be repealed. Patenting, however, is incompatible with secrecy, and this is the reason trademarks and arbitrary names are sought to be made legal property. Secrecy in medicinal preparations is dangerous to patients, destructive of science, promotive of fraud and avarice. It fills our mails with circulars, often untruthful and scurrilous. It defiles the news and editorial columns of alleged medical periodicals and debauches the advertising columns of nearly all medical journals. The attempt to confound "secret" with "proprietary" is constantly made in order to cover up the fraud and the disgrace involved. But the issue is clear. A secret preparation is one concerning which there is withheld information necessary to its analysis and test for purity and standard quality. A secret preparation is, of course, proprietary, but there are many proprietary preparations, as for example, Squibbs' ether, or Paraf-Javal's strontium bromid, which are not secret but public, and which depend for protection solely on their excellence. This is legitimate proprietorship.

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[1] American Jour. of Insanity, April, 1904, p. 761.
[2] Lyon Médical, September 18 and 25, 1904.

REVIEW OF LITERATURE

Styptol (Cotarnin Phthalate).—Cotarnin, a substance closely resembling hydrastinin chemically, is combined with phthalic acid to produce styptol. It is praised by E. Toff[1] on account of its hemostatic properties in obscure cases of uterine bleeding. Styptol is an orange-red powder, soluble in water and becoming lemon-yellow; it contains 73% cotarnin; it is very bitter and therefore used in sugar-coated pills of 0.05 gm. (¾ gr.) each. Toff gives the details of his experience in 20 cases treated with styptol; in but three did he fail to control the bleeding; they were postabortive cases, in which bleeding stopped of itself after the patients were cureted. In most of the cases other measures had failed to arrest hemorrhage before styptol was tried. Styptol has also a slightly sedative action. [E.L.]

Hyoscin in the Treatment of Morphinism.—J. M. Buchanan,[2] in treating the morphin habit, advises the administration of hyoscin, .3 mg. ($\frac{1}{200}$ gr.) at first, the dose being gradually increased to .6 mg. ($\frac{1}{100}$ gr.) At first the patient sleeps, but in 12 hours a mild delirium sets in, which disappears a few hours after the drug is discontinued. He states that he has never seen any bad after-effects from its use. Calomel is given before the administration of the hyoscin, and the usual morning dose of morphin is allowed. When the patient asks for the afternoon dose, hyoscin is substituted, and from then on for 36 hours to 40 hours the patient is kept under the influence of this drug, which is given in .3 mg. to .6 mg. ($\frac{1}{200}$ gr. to $\frac{1}{100}$ gr.) doses every two hours or three hours. The patient is kept in bed. Diarrhea, nausea, and vomiting rarely occur. In the sleepless cases it is sometimes necessary to add trional, chloral hydrate, or bromid. The after-treatment consists in tonics, nourishing diet, and rest. [J.H.W.R.]

A Case of Lysol Poisoning.—F. Fries[3] reports the case of a girl, who took 25 gm. to 30 gm. (1 oz.) of pure lysol for suicidal purposes. She soon became unconscious, staying so for a few hours; during this time her stomach was thoroughly washed out. During the next few days she vomited bloody material and passed bloody stools. On the second day she began to have pain over the kidneys, her urine diminished, became bloody and contained much albumin. On the fourth day she had numerous uremic convulsions; they yielded to treatment after 24 hours, but the nephritis persisted for two weeks. This is the only case of lysol poisoning on record, in which hemorrhagic nephritis and uremia were recorded. Of 38 cases of lysol poisoning collected by Fries, 17 were fatal. From 4 gm. to 5 gm. (60 gr. to 75 gr.) he considers the toxic dose for children, from 10 gm. to 12 gm. (2½ dr. to 3 dr.) the toxic dose for adults. [E.L.]

Treatment of Gastric Vertigo.—A. Robin's[4] treatment for gastric vertigo is described by him as follows: The patient so affected must take before arising a cup of tea, to which has been added 2 gm. (30 gr.) of quassia; the quassia is permitted to macerate in the cold tea for two hours before it is taken. The patient then rises and walks for 15 minutes, and a half hour after this partakes of a breakfast of soft boiled eggs, toasted bread and stewed fruit; no liquid is given with this repast. The only liquids given with the other meals are plain water, neutral or alkaline waters. The patients are not permitted to eat butter, fats, sauces, stews, fat fishes, pork, preserves, pastry, sweets, salads, raw fruits, and acids. The meals usually consist of bouillon or thin soup, boiled, broiled or roasted meat or fowl, vegetables, stale bread, eggs, boiled fish, stewed fruit, rice pudding or cornstarch. After each meal the patient must drink a small cup of hot camomile tea or mint tea and five minutes after lunch and dinner he gets five drops of tincture of nux vomica or of cinchona. After lunch, dinner, and before going to bed he takes a powder of

Calcined magnesia	0.3 gm. (5 gr.)
Sodium bicarbonate	0.3 gm. (5 gr.)
Prepared chalk	0.5 gm. (7½ gr.)
Lactose	0.5 gm. (7½ gr.)

Dissolve in water.

Coffee and tobacco are forbidden. The bowels are regulated with the following pill:

Cape aloes	0.08 gm. (1⅕ gr.)
Gamboge	0.03 gm. (½ gr.)
Turpeth root	0.02 gm. ($\frac{3}{10}$ gr.)
Extract of belladonna	0.005 gm. ($\frac{1}{12}$ gr.)
Extract of hyoscyamus	0.005 gm. ($\frac{1}{12}$ gr.)
Extract of glycerrhiza	0.03 gm. (½ gr.)

If an attack of vertigo comes on, from three to six pills of the following are given during the day:

Virginia snakeroot	0.16 gm. (2½ gr.)
Powdered camphor	0.016 gm. (¼ gr.)
Asafetida	0.016 gm. (¼ gr.)
Extract of opium	0.002 gm. ($\frac{1}{30}$ gr.)

Nervous individuals, at the beginning of an attack, are given

Potassium bromid	5.85 gm. (1½ dr.)
Cherry laurel water	9.75 gm. (2½ dr.)
Syrup of ether	31.1 gm. (1 oz.)
Valerian hydrolate	77.7 gm. (2½ oz.)

One tablespoonful when an attack is threatened. [E.L.]

Treatment of Eczema in Infants.—In treating eczema in infants, it is first necessary to regulate the diet of the mother if she nurses her infant; a mixed diet, not too many beverages, suppression of meat, wine, beer and coffee. The infant should take the breast regularly every two hours, and it should be weighed every day, especially during the first few weeks. Local treatment consists in first removing all dried exudates from the skin by means of oil or poultices, followed by washes of boric acid. After thorough cleansing, the diseased area may be treated with applications which calm the pain and itching. Zinc oxid is one of the best, and may be associated with menthol or salicylic acid as follows:

Salicylic acid	0.05 gm. to 0.10 gm. (1 gr. to 2 gr.)
Zinc oxid Powdered starch	of each 15.0 gm. (4 dr.)
Lanolin Vaselin	of each 15.0 gm. (4 dr.)

At night, the hands of the child should be tied in such a way that he is unable to scratch the diseased area and produce secondary infections. Baths, in general, are not prescribed. Moist dressings with boiled water, which give such good results in adults, are very seldom employed. [L.F.A.]

Inhalation of Sodium Phenylpropiolate against Tuberculosis of Lungs and Larynx.—Elkan and Wiesmueller[1] have employed sodium phenylpropiolate in 13 cases of laryngeal and pulmonary tuberculosis with generally favorable results. They consider this especially remarkable as their experimental employment of sodium cinnamate, an allied substance, was not at all satisfactory. In two patients, who were treated with the inhalations the longest, the rales disappeared from the lungs and the bacilli from the sputum. One patient with an ulcerated larynx had these ulcers completely healed after a few inhalations. The sputum has the odor of the drug for hours after the inhalation showing that the vapors penetrate to the deeper situated bronchi. No unpleasantnesses were noted after its use, and the expectoration was less painful and was facilitated in every case. In most of the cases pulmonary examination showed considerable improvement as compared with the condition before treatment. Elevation in temperature during the employment of the inhalation is no counterindication as the temperature soon yields to the treatment. While Elkan and Wiesmueller record no actual cures they say that this is only because their patients did not remain under treatment long enough, the longest duration of treatment having been two months. [E.L.]

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[1] Deutsche medicinische Wochenschrift, 1904, No. 24, 883.
[2] American Journal of Insanity, April, 1904.
[3] Münchener medicinische Wochenschrift, 1904, li, 709.
[4] Bulletin Général de Thérapeutique, 1904, cxlvii, 725.

[1] Münchener medicinische Wochenschrift, 1904, li, 793, No. 18.

American Medicine

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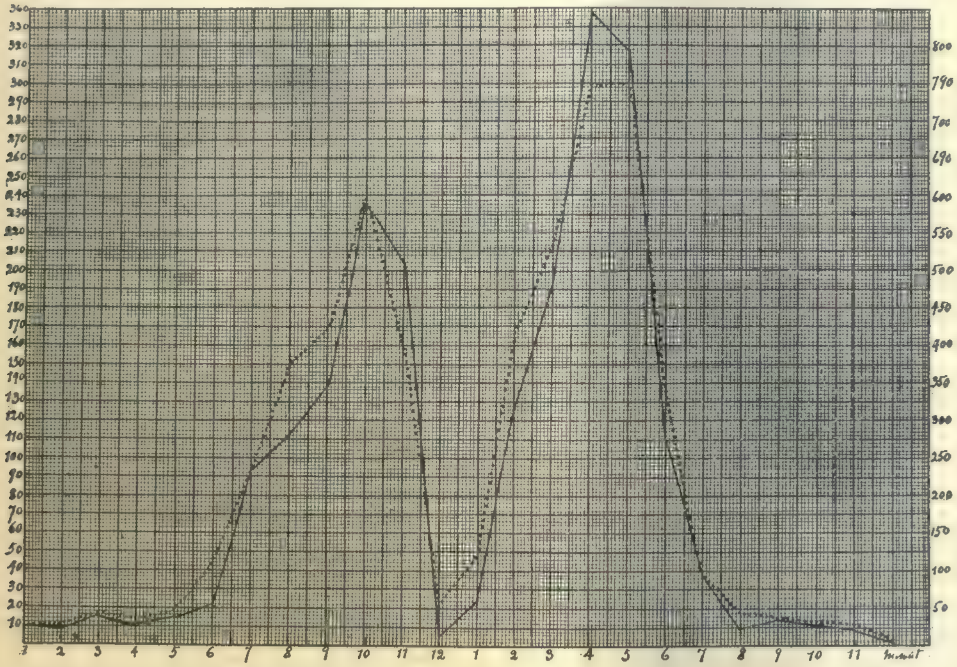
Semicompulsory and Wholly Compulsory Vaccination.—The Commissioner of Health of Chicago does well in calling the attention of employers, parents, guardians, and teachers to their legal duties and permissions as to vaccination. By the Illinois and city laws, these have a right to secure protection against smallpox of every person having the care, custody or control of any minor or other individual, and they shall cause and procure such individual to be so promptly, frequently, and effectively vaccinated that such minor or individual shall not take, or be liable to take, the disease. It is to the interest of every employer, says Dr. Reynolds, to cause and procure the prompt and effective vaccination of every one in his employ, and the law gives him the authority, and makes it his duty so to do. This gives the employer the means of protecting his own business, as well as the business of the city generally, against the injury which always follows the appearance of smallpox among employes. Employers have the legal right—and it is their duty—to make recent vaccination a condition of further employment whenever smallpox appears in the community to the extent that it now does. What is the law in reference to this question in other States and cities? If there is no law, what would be the decisions of the courts in case of suit against employers and others who have demanded that their employes and charges should be vaccinated? Are we not fast reaching the time, has it not indeed already arrived, when a straight compulsory law should be enacted and carried out in every community?

Smallpox from Infected Bedding, Clothing, etc.—According to the Bulletin of the Chicago Health Department and in the absence of any demonstrable source or cause of the 30 separate smallpox infection centers discovered during one week recently, the probability is strengthened that they arose from infected bedding and clothing of undetected cases that occurred last winter and spring. Because these cases were undetected no disinfection of their bedding and clothing was secured; with the advent of warm weather, blankets, underwear, etc., were packed away until the abnormally cool weather of the first few days of October brought them into use in artificially heated and poorly ventilated rooms, favorable to the active growth and diffusion of the contagion. No connection existed between the infection centers; they are widely separated; the families were unknown to one another and did not interchange visits. None of the victims had been away from the city; they had nothing in common, except the coincident development of the disease at a period directly related to the cold weather of three weeks previous. It is true, nevertheless, that there was one significant feature in common. Of the 30 victims 27 had never been vaccinated at all, and the 3 exceptions had never been revaccinated. These latter were 34, 39 and 42 years of age respectively and bore imperfect, nontypical marks of vaccination attempted in childhood. For parents the obvious lesson gains added significance from the fact that 10 of the cases or a third are of children under 6 years of age. Last year's figures showed that a population of 245,000 under 6 years of age furnished 89 cases, or one case in every 2,750 of this age-group—130% more than in the population over 6 years of age. Out of these 89 cases there were 14 deaths—a mortality rate of 15.7%, or 23.6% greater than the mortality rate among those over 6. The younger the child the more severe and fatal is smallpox. Vaccinate the child at once, is therefore the duty of parents—and the revaccination of adults is equally necessary.

"Business" and "Graft."—A surgeon received a letter asking a commission on the fee from a case to be referred to him. He replied in a somewhat noncommittal way, giving permission for the patient to be brought to him. Unfortunately his letter was widely published. When it was suggested that some construed his letter to mean a willingness to pay for a case, he said: "What of it"? Two friends, business men, had told him he need not mind the publicity of such an interpretation, as it would do him no harm. In other words, the "business" men saw nothing reprehensible in the proposal to secretly share the patient's money. Steffens has shown that it is "business" in politics that underlies almost all municipal corruption. The business man who wants a public contract, not seldom a private one, is perfectly willing to share profits with anyone who will help him to "land" the contract, so long as it is made easy to charge the "graft" to the buyer. Of course, then the "business" man sees no harm in the doctors "grafting" on each other, and on the patients. Shall we permit "business" to corrupt medicine as it has municipal government? Shall doctors take their moral principles from tradesmen who believe in "graft"? Certainly not. Medical "grafting" is vastly more prevalent among the "irregulars" of all stripes than among physicians. A few of us have fallen, and strange to say, the "country doctor," in very many instances has been the initial mover in such transactions. It is related that a "country" doctor agreed with a consultant on $500 as the fee to be paid by a patient for an operation. The "country" doctor then made out the bill to the patient for $2,000.00 and banked the difference—$1,500. In another case a city surgeon went to a remote district and there operated on four patients of a local doctor at an agreed upon fee of $400—or $100 for each case. Later he learned that each patient had actually paid $300 for the operation, the "country" doctor thus having "cleared" $800. Therefore it is seen that it is by no means always the consultant surgeon or specialist who is the chief sinner. Bribery (unrecognized by that name) is rife among "business" men. In every form, and under every temptation it must be shunned by physicians. In every case, where it seems just, an equitable division of remuneration can be made *with the full knowledge of the patient.* It is the secret commission that honorable physicians will not countenance.

The Influence of Fatigue in Increasing Accidents.—An article and translation in the *Literary Digest* seems to show conclusively that the number of accidents in trades and factories depends upon fatigue. By the courtesy of the *Literary Digest* we reproduce a cut in which the continuous line represents the distribution into hourly totals of 2,065 accidents, of which 56,468 workmen were the victims in the Department of L'Herault, while the dotted line shows, on another scale, a similar distribution of 5,534 accidents that happened to 140,407 workmen in nine departments around Toulouse.



It is thus seen that the number of accidents increases progressively from hour to hour during the first half of the day; after the midday rest, in the first hours of the afternoon, the number is notably less than in the last hour of the morning; in the course of the second half day, accidents become hourly more numerous; the maximum number of accidents hourly toward the end of the second half of the day is notably larger than the corresponding maximum for the morning. MM. Imbert and Mestra, the French statisticians, say that although fatigue is the inevitable consequence of all expenditure of energy, and although we cannot do away with it unless we abolish work itself, we can at least prevent it from reaching the degree at which its influence in the production of accidents is injurious. If we note what has been shown regarding the hours just after the midday rest, it would seem that a diminution in the number of accidents would result from interposing, in the middle of each half day, a rest, not so long as that of the noon hour, for fatigue would then be less, but of a duration to be determined by divers considerations. . . . This would only be applying to the mechanical labor of adults what has already been done for the mental work of children.

Government Food Laboratory in New York City.—The United States Department of Agriculture has done a most commendable thing in establishing in New York City a laboratory for determining the purity of imported food products. Such a step is particularly appropriate at this time when earnest efforts are being made by many States to put an end to the sale of adulterated foods within their jurisdiction. The cooperation of federal and State governments, with the help of common-sense judges and juries such as have recently been sitting in Philadelphia, can accomplish much toward securing to the American people a pure food supply. The examination of imported foodstuffs is not, of course, a new departure, but heretofore samples of those received at New York had to be sent to Washington for inspection. This meant a vexatious delay of several days with, at times, considerable deterioration in the foods that awaited the stamp of approval. The new arrangement cannot fail to expedite the work of the department and also prove an additional safeguard to the consumer. An increase in the staff, as the new laboratory necessitates, also ensures the examination of a larger number of invoices than previously was possible, though Chief Chemist Wiley says the force even then will be too small to meet the demand. The New York laboratory is the third of its class, the others being the central institution at Washington and a small one at San Francisco. Congress is to be asked for appropriations sufficient to establish a laboratory at each of the large ports in the United States. In addition to detecting adulterated foods the work of the laboratory consists in the prevention of petty smuggling in the shape of importing goods upon which has been placed the label of a more desirable product. A recent instance of such practice was unearthed when two invoices of foreign olive oil were found labeled "From California," oil from the latter place commanding the higher price. All goods not permitted to be sold in the country in which they were manufactured are also to be excluded. Another law is that no countries may export to us any class of goods they refuse entrance from this country. The scope of the work is thus seen to be far-reaching and no special pleading of the department should be necessary to secure means for establishing laboratories in other ports. The opening of this one in New York, where at least 75% of imported foods is entered, is especially gratifying.

Japanese Naval Hospitals.—A late addition to the literature on the medical aspect of the Russo-Japanese war is that of a special correspondent of *The Lancet*, who describes the Japanese naval hospital of 600 beds at Sasebo. The article is interesting, not so much as showing the excellent management of the hospital—we are getting to expect nothing else of Japanese institutions nowadays—as in directing attention to certain phases of modern naval warfare. Owing to the long range fighting, 90% of wounds are inflicted by fragments of shells, the remainder by flying splinters. These shell wounds are now being studied at Sasebo for the first time under good modern conditions and in large enough numbers by one set of observers to make their experience of great value. Less than 180 of such cases have been brought to Japan during the war, but of these, 145 are at Sasebo. Shrapnel wounds, which exhibit a special tendency to suppurate, are occasionally received by men on torpedo boats. A modern wound of increasing significance is that of the burn, caused by bursting shells, all men within a radius of several yards of the explosion being in great danger. These burns are of varying depth, and, although the flash lasts not more than a fifth of a second, may reach the fourth degree. Japanese hospitals employ the most rigorous asepsis in dealing with wounds. Local anesthetics have been almost entirely discarded as unsatisfactory, chloroform only being used. The röntgen ray room of the hospital is well fitted with supplies. No localizing apparatus is used, and the correspondent believes there is none in Japan. He states, however, that in but few cases would such apparatus furnish more information than is obtained by the cryptoscope. The Red Cross Society of Japan supplies all nurses for the hospitals. Many Japanese ladies were allowed at the beginning of the war to assist in nursing. We trust their aid was not so harmful to the patients as was the misguided zeal of the society women of this country at Camp Meade and other places during the Spanish-American war; but still their assistance is now restricted to rolling bandages and preparing "first dressings" for the field. The hours of the medical staff on duty at the hospital are from 8 a.m. to 6 p.m. daily, and however little work there may be to do, all members must be there the entire 10 hours. Considerable loafing is thus engendered, but much pathologic and statistical work is done that otherwise would not be undertaken.

The Writhing of a Scotched Snake.—Nearly four years ago one of the most notorious abortionists in Maryland was convicted of having caused the death of a woman by practising an abortion upon her. For nearly 20 years this man had advertised his business in the daily papers of Baltimore. He had "papered" the offices and homes of the city with handbills advising pregnant women *not* to take his remedies lest they should drop their fruit untimely. When his medicines failed to reestablish the menstrual function, his operations were successful and not very expensive. His methods in consultation and at operation are best described as shrouded. He saved his own face and that of his patient by never confronting the one with the other. His embryotokias must have numbered thousands; the lives of women lost in his practice were never counted. The huntsmen of the law gave him chase now and then, but had only the sport of pursuit, until on a certain date a physician, more fortunate than others who had crossed this bloody trail, secured in perfect form and contents the dying statement of a young woman who happened to know when, where, and at whose hands she had been done to death. Arrest, conviction, and a sentence of ten years' imprisonment, followed in due course. But the durance vile which inhibited one sort of energy released another, that of the villain's accumulated profits. The newspapers chronicled at intervals his declining health; the temper of the administration and of public opinion was most tactfully sounded. The signs at first were not encouraging, but the advent of a new State administration and the death of a distinguished lawyer opened a new prospect. A very strong petition for executive clemency was presented, and the governor was wise enough to publish the names of those who either signed the petition or made individual intercession for the prisoner. Among the petitioners were a member of Congress, an ex-congressman, a candidate for Congress, an ex-governor of Maryland, a very distinguished United States senator, the president of the First Branch of the Baltimore City Council, 7 clergymen, 8 physicians, one of them a health officer, fourteen State senators (one of whom died several months ago), 86 members of the Maryland House of Delegates, and about 100 other persons of influence. Of these intercessors the first two mentioned promptly denied both action and interest in the case. Their denials were followed up at once by the publication of their letters, typewritten on the note paper of the House of Representatives of the United States, addressed to the late governor of Maryland, and dated, one in November, 1901, the other in February, 1902, asking for pardon when the prisoner's term was scarcely more than begun. The other side of the case was everybody's business and therefore nobody's. Three daily papers printed editorials opposing the pardon. A few Methodist ministers made formal objection, and some 15 physicians wrote individual notes of protest. On the date fixed for a final consideration of the case, the friends of the prisoner appeared in force and spoke well, quoting Scripture. It was a moving appeal, acutely punctuated once or twice by the faint sob of a woman. At the end the woman said she was the mother of the girl slain. Whatever else she meant to say, sufficed unsaid. The judgment of the court stands.

Testing and Accepting the New Partial Truth.—Dr. Joseph H. Pratt, in an article on the Present Status of Hydrotherapy in *Modern Medicine* for October, excuses the belated attention of the medical profession to physical therapeutics by the explanation that "in the past the reluctance of scientific physicians to avail themselves of physical agents—light, water, air, heat, electricity, movement—has been in large part due to the fact that their use did not rest upon a scientific basis. They were employed chiefly by men devoid of scientific accuracy, untrained in careful diagnosis, who, content to allow physical methods to be judged by results obtained, made extravagant claims for them and introduced, to explain their use, wild conjectures and theories unsupported by physiologic and pathologic evidence." Exactly so! That is just the trouble with the medical profession. It is either too credulous, seizing enthusiastically upon some novelty, or it leaves such novelties without scientific investigation until they have been exploited and prostituted by charlatans and have become so malodorous that the scientist hesitates to touch them, lest he be tarred with the self-same brush of charlatanry. Witness bonesetting, hydropathy, mesmerism, telepathy, electricity, massage, etc. We are improving, however, in this respect. The röntgen ray, radium, and Christian science (suggestion) have been made the subjects of scientific study much more promptly than they would have been aforetime, and with corresponding benefit alike to the public and the profession.

A Renaissance of Old Nonsense.—All possible jokes are, it is said, repetitions of ancient ones, and all plots of romances. How often also it has been proved that new discoveries are not really new. There has recently been considerable newspaper talk about a wonderful new discovery made by some acute-minded American that all the diseases of the body are indicated in the iris of the eye. There lie before us two richly illustrated pamphlets printed in Tübingen, in 1887, and describing the epoch-making (homeopathic) discovery of Dr. Ignaz von Péczely. Every portion of the irises is mapped and supplied with numbers running as high as 121, each designating with mathematic accuracy, and according to the tints, spots, markings, etc., some organ of the body which is diseased. All diseases are mirrored in the irises, and all that one has to do is to note the fleckings, changes, conditions, etc., which are shown there, and the practice of medicine is as plain as plain can be. Diagnosis and treatment (the homeopathic varieties at least) are all included. The author of the pamphlets is Dr. Emil Schlegel, and his closing words are: "The great discoverer deserves our profoundest gratitude for his deep and long-unrecognized researches, and for the many brilliant discoveries which he has presented to the world."

"The City Nurse" is an institution, so far as we know, peculiar to Brooklyn. Her special duty is the care of foundlings. The *Evening Post* gives an interesting if pathetic account of her work:

> Mrs. Ullrich has held the position of city nurse for 21 years, her mother holding it before her for 30 years. Appointed by the Department of Public Charities, registered as a nurse, and licensed by the Health Department, Mrs. Ullrich receives the Kings County foundlings into her home and lodges them for the night. The day after an infant's arrival, the Department of Public Charities is notified, and in turn notifies either the Ladies' State Aid Society or the Guild of the Infant Saviour. These private charitable organizations, Protestant and Roman Catholic, engage to find homes for all foundlings till they reach the age of two years. The city pays $2.00 a week for their care. Either society is eager to bestow its own form of religious faith upon the babies, and the law divides the foundlings equally between them. In many cases it is not the mother who deserts the child. It is often the father. Beside the more formal record that Mrs. Ullrich must make for official purposes, she has kept for 21 years a minute, individualizing description of all the foundlings, and she usually keeps some bit of clothing, so that if the parents ever wish to find their child, she may furnish them with a clue. She has made more than 2,000 entries in her book. As long as 18 years after an entry, parents have come to Mrs. Ullrich for aid in tracing a deserted son or daughter. If Mrs. Ullrich still has possession of a child when its parents come to reclaim it, she has not the authority to give it up. They must apply to the Department of Public Charities, and give assurance of sufficient means and character to take care of a child. Now that the Ladies' State Aid Society and the Guild of the Infant Savior furnish lists of names to be given to the foundlings, many of the earlier oddities of baptism have disappeared. In the old days a child would be named from the place in which it was found. As Prospect Park was the place where the majority of babies were discovered, there grew to be a whole family of Prospect Parks, the members of which had perhaps the most illogic family tie in the world. One child was named "Sugar Barrel," and another "April Broadway."

EDITORIAL ECHOES

The Canteen Again.—Those who have paid any attention to the accumulating testimony of army officers will not be surprised at the report of Brigadier-General Burton, the inspector-general of the army, that the "abolition of the canteen leads to sickness, desertion and other crimes, as well as to impaired discipline." The policy of abolition has now been tried as an experiment for a sufficient length of time to justify a rational judgment as to the results. And the result is that closing the canteen promotes drunkenness and impairs the general moral tone of the army. It does this by denying to the enlisted soldier the social fellowship which in clubs and beer saloons his civilian fellow citizens enjoy, and to which he has been accustomed. It denies to him also a liberty which his officers freely exercise. To be thus treated like a boy who is unable to control himself and regulate his own diet, irritates him. Finding his club within the camp closed to him, or his liberties in that club so curtailed that he cares for it as a resort no longer, he seeks social fellowship in the disreputable saloons which cluster about a camp, and in the hangers-on who follow after and feed upon an army. It is not to be wondered at that the result is drunkenness, disorder and general demoralization. Of course, those who think that all drinking is a sin, will still oppose the canteen on the ground that it is never right to countenance sin, no matter what the consequences of discountenancing it. But those who agree with *The Outlook* that drinking is not a sin, and that drunkenness is, will agree in opposing a policy which, according to the nearly unanimous testimony of observers, has had the effect to increase drunkenness. In our judgment, the next Congress should reestablish the canteen in the interest of temperance and the general moral welfare of the soldiers in the regular army.—[*The Outlook.*]

BOOK REVIEWS

Nothnagel's Practice: Tuberculosis and Acute General Miliary Tuberculosis.—By Professor Dr. G. Cornet, of Berlin. Edited, with additions, by Walter B. James, M.D. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D. Philadelphia, New York, and London: W. B. Saunders & Co., 1904.

As stated by Professor James, the American edition of Professor Cornet's exhaustive work appears at a time when the subject of tuberculosis has a peculiar claim upon the attention of mankind. The work comprises an interesting historic sketch of the stages of discovery and investigation concerning the tubercle bacillus and its biologic characteristics; to these Dr. Baldwin has added a new chapter on the chemistry of the tubercle bacillus. Then follow in logical sequence discussions of the histology of the tubercle, the modes of invasion of the tubercle bacillus, infection, heredity, and predisposition; the pathologic anatomy, symptoms, courses, terminations, types, diagnosis, complications, prognosis, prophylaxis, and treatment of pulmonary tuberculosis. The volume concludes with a discussion of the etiology, pathology, symptoms, course, duration, termination, diagnosis, prognosis, prophylaxis, and treatment of acute general miliary tuberculosis. It is difficult to select any chapter for special comment, but one may say that even the best informed may derive something of value to himself and his patients from a reading of the excellent chapter on the treatment of pulmonary tuberculosis. As is well known, the work in the original German has received exceedingly favorable comment as being comprehensive in scope, logical in arrangement, complete in detail, and exhaustive in discussion. In its English dress, which fits well and is scarcely, if at all, ruffled with inelegancies of diction, it can but commend itself to the ever increasing body of men actively engaged in the crusade against tuberculosis.

Refraction and How to Refract.—By James Thorington, A.M., M.D. Third edition. Philadelphia: P. Blakiston's Son & Co., 1904.

In the third edition of this wellknown manual the text has been carefully revised and 15 new illustrations have been added, making the whole number 215, 13 of which are colored. There are included descriptions of several new instruments which have lately been suggested as material aid in estimating refraction errors.

Hand book of the Anatomy and Diseases of the Eye and Ear. For Students and Practitioners.—By D. B. St. John Roosa, M.D., LL.D., and A. Edward Davis, A.M., M.D. Philadelphia: F. A. Davis Company, 1904.

The purpose of this handbook is to furnish the undergraduate and postgraduate information relative to the eye and ear which they need in a succinct form to enable them to corroborate and amplify quickly what is seen in clinical practice, and thus better fasten it in the memory for ready use. The well-established views of the nature and treatment of ophthalmic and aural diseases have been presented in a concise and remarkably complete way, and even the most recent methods which are still on trial have received attention. Valuable space has not been wasted on obsolete views. The arrangement of the material has been excellently planned, and there is a very full and complete index to facilitate quick reference

Clinical Lectures and Essays.—By H. D. Rolleston, A.M., M.D., F.R.C.P. Philadelphia: P. Blakiston's Son & Co., 1904.

The work is a collection of clinical lectures and papers on abdominal and other subjects with four illustrations. The following is a list of contents: Vomiting in Diphtheria; The Treatment of Gastric Ulcer; Primary Carcinomatous Stricture of the Duodenum; Primary Carcinoma of the Ampulla of Vater; Primary Carcinoma of the Vermiform Appendix; Some Points in the Treatment of Typhoid Fever; Ascites; Melanotic Sarcoma of the Liver; Hypostatic Albuminuria; Persistent Hereditary Edema; A Case Showing Some of the Features of Erythromelalgia and of Raynaud's Disease; Von Recklinghausen's Disease; Progressive Myositis; Ossificans; Acute Nonrheumatic Synovitis; Uses and Abuses of Arsenic; On the Treatment of Acromegaly by the Extracts of Thyroid and Pituitary Glands Simultaneously; and On the Antagonism of Some Diseases and the Curative Effect of One Disease on Another, Real and Reputed.

Essentials of Materia Medica and Prescription Writing.—By Henry Morris, M.D. Sixth edition, thoroughly revised, by W. A. Bastedo, Ph.G., M.D. W. B. Saunders & Co., 1904, Philadelphia, New York, and London.

Dr. Bastedo has made an excellent revision of Dr. Morris's "Essentials of Materia Medica." Much of the text has been in great part rewritten. There have been introduced articles on adrenalin, stypticin, and on the iodin and silver synthetics. The student will continue to find it modern and helpful.

Radiotherapy and Phototherapy, including Radium and High-frequency Currents; Their Medical and Surgical Applications in Diagnosis and Treatment. For students and practitioners.—By Charles Warrenne Allen, M.D., with the cooperation of Milton Franklin, M.D., and Samuel Stern, M.D. Lea Brothers & Co., New York and Philadelphia, 1904.

Of this book it may be said that the author has creditably carried out the aim expressed in his preface of making a practical guide, emphasizing the limitations and dangers of the methods described, as well as illustrating their advantages and scope. Attention is given to exact dosage and auxiliary measures are widely discussed.

Light Energy, Its Physics, Physiologic Action, and Therapeutic Applications.—By Margaret A. Cleaves, M.D. New York, 1904. Rebman Company.

This is a thorough and clearly stated study of a very important subject. Its physics and physiology are modern, and its therapeutic enthusiasm is tempered with discretion. The citations from observers in various fields are not always well digested, and sometimes have not been submitted to the test of critical judgment. The illustrations are not too numerous, and are only fair in execution. The book as a whole is to be commended heartily.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

Clinical Lectures and Essays on Abdominal and Other Subjects.—By H. D. Rolleston, M.A., M.D., Cantab., F.R.C.P., Physician St. George's Hospital; formerly Fellow of St. John's College, Cambridge; and Examiner in Medicine, University of Durham. P. Blakiston's Son & Co., 1904, Philadelphia.

Beri-Beri: Its Symptoms and Symptomatic Treatment: An Essay printed by the Board of Trinity College, Dublin, for the Author.—By Percy Netterville Gerrard, B.A., B.Ch., B.A.O., M.D., Dublin University; L. M. Rotunda Hospital, Dublin; Member of the Authors' Society, London; Foreign Corresponding Member, Dublin University Appointments Association; District Surgeon, Federated Malay States Civil Service. P. Blakiston's Son & Co., Philadelphia, 1904. Price, $1.00 net.

Beri-Beri: Its Symptoms and Symptomatic Treatment: Being Extracts from "An Essay on Beri-beri."—By Percy Netterville Gerrard, B.A., B.Ch., B.A.O., M.D., Dublin University; L. M. Rotunda Hospital, Dublin; Member of the Authors' Society, London; Foreign Corresponding Member, Dublin University Appointments Association; District Surgeon, Federated Malay States Civil Service. P. Blakiston's Son & Co., Philadelphia, 1904.

The Principles and Practice of Gynecology. For Students and Practitioners.—By E. C. Dudley, A.M., M.D., President of the American Gynecological Society; Professor of Gynecology Northwestern University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, etc. Fourth edition, revised and enlarged. Octavo, 771 pages, with 401 illustrations, of which 50 are in colors, and 18 full-page colored plates. Cloth, $5.00, net; leather, $6.00, net; half morocco, $6.50, net. Lea Brothers & Co., Philadelphia and New York, 1904.

AMERICAN NEWS AND NOTES

GENERAL.

Too Many Doctors in Manila.—According to the *Boston Transcript*, Dr. Joseph T. Antibus, an American citizen, came into port recently on steamer Foyle, from Manila, having worked his passage home from the Philippines by his knowledge of medicine. His reason for desiring to get back to the United States was that the medical profession is too well represented in Manila at the present time to give more than a few of the best known doctors a successful practice. Hence he took the first opportunity afforded him of leaving for America.

The Regular School versus Homeopathy.—An interesting test of the respective merits of the homeopathic and allopathic treatment for the tuberculous is being made in the Home for Consumptives, at Kingston avenue and St. John's place Brooklyn. Two reports were read at the annual meeting of the institution, one from the homeopathic, the other from the allopathic physicians. The homeopathic report showed 72 men and 41 women under treatment in the year ended September 30. Of these, 10 men and 6 women were discharged as improved. There remained 21 men and 19 women. The allopathic report for the same period showed that 207 men and 104 women had been under treatment, of whom 38 men and 21 women were discharged improved, and there remained 45 men and 20 women in the home. Thus the homeopathists discharge 14% of their charges as improved, while the regulars discharged 19% of theirs.

Pan-American Medical Congress, Panama, January 2 to 6.—Dr. Rudolph Matas, secretary of Section of General Surgery for the United States, asks those who wish to contribute papers to send titles to him at No. 2255 St. Charles avenue, New Orleans. He also announces that the United Fruit Company's agents are offering as a special inducement to American "Congresistas" a reduction of the regular fare for the round-trip from New Orleans to the Isthmus to $50, that is, $25 each way. The steamers leave New Orleans every Friday; the last steamer to leave New Orleans in time for the opening of the congress will sail on December 30, 1904, at 11 a.m. It takes about four and a half days to reach Colon and seven days on the return trip on account of a stop-over at Port Limon, where ample opportunity is given to tourists to visit San Jose, the beautiful capital of Costa Rica—"the Paris of Central America"—where the most picturesque tropical scenery can be seen at this season, under the most favorable conditions.

Serum Does Not Prevent Summer Complaint in Children.—An exchange states that serum treatment has thus far failed to cure "summer complaint" in children. Less than a month after the death of his grandchild in 1900, Mr. John Rockefeller had put the machinery of science into motion to discover the cause of the disorder so fatal to infants, commonly known as summer complaint. He announced an initial fund of $200,000 to be devoted to research, and asked Dr. William H. Welch, who is one of the most distinguished pathologists in the world, to conduct the inquiry. In 1902 it was announced that an antidysenteric serum had been discovered. Since that time 12 bacteriologists have been in charge of investigations in New York, Boston, Philadelphia, and Baltimore. The second annual report of the board, just completed, says the serum is not a success. Almost half the children treated died, and in only a few cases has a noteworthy improvement followed its administration. Dr. Simon Flexner, of the University of Pennsylvania, who wrote this section of the report, declares that the figures indicate little of the gravity of the infection, since it is well known that the result in all forms of intestinal diseases depends upon the age and previous condition of the patient.

The fourth Pan-American Medical Congress will convene in Panama the first week in January next. The delegates will leave this country by the Atlantic, Pacific and Gulf Coasts the last week in December. The Public Health Association meeting will take place on the following week in Havana. There are two routes for the physicians to take from Panama to Havana. The first is by way of Jamaica to Santiago de Cuba by boat and overland by rail to Havana. The second is by water from Panama to Vera Cruz and from there to Havana. From Havana the return trip can be made directly north to New York by water, or via Miami or Tampa, Florida; or New Orleans. The Panamanian Government has appropriated $25,000 for the scientific session and the entertainment. The Congress will be held from January 2 to 6. So far as can be learned, the program in Panama will be a reception on the first day, by President Amador, of the Panama Republic, and the formal opening session of the Congress the same evening. The secretaries of the sections of the Congress for the United States are: Drs. A. H. Doty, of New York, hygiene and quarantine; Judson Daland, of Philadelphia, medicine; R. Matas, of New Orleans, general surgery; Bert Ellis, of Los Angeles, eye; Hudson-Makuen, of Philadelphia, throat; Frederick Jack, of Boston, ear; C. H. Hughes, of St. Louis, nervous diseases; Geo. Goodfellow, of San Francisco, military surgery; John Ridlon, of Chicago, orthopedic surgery; D. W. Montgomery, of San Francisco, dermatology; C. G. Kerley, of New York, pediatrics; Noble P. Barnes, of Washington, therapeutics; Walter Chase, of Boston, pathology. Communications from physicians in the United States, interested in these branches, can be sent directly to these different secretaries. Delegates intending to attend the Congress, desirous of obtaining information concerning it, should communicate with the Secretary of the International Executive Committee in the United States, Dr. Ramon Guiteras, 75 West Fifty-fifth street, New York City.

EASTERN STATES.

New Hospital Opened.—The Boston Emergency and General Hospital was formally opened recently with a reception to the members of the hospital association and their friends. For the past seven months the work of rebuilding the hospital has been going on. The building has been enlarged and is now five stories in height, and the interior has been changed and thoroughly equipped in every department with the newest and best of hospital furniture and appliances. The staff of the hospital consists of 12 surgeons and 16 nurses.

The Work Cure for Tramps.—In reviewing the work accomplished by the State charities in Massachusetts, the *Boston Transcript* states that only four almshouses received criminals, having a total of 272 committed to them during the year. A striking illustration of the success of the work test on ridding the town of tramps is furnished by the town of Sherborn. Sherborn in 1895 had 1,446 inhabitants and during the following year it lodged and fed at the town almshouse 1,844 tramps. In March, 1897, the overseers of the poor decided to employ tramps in labor for the almshouse and in chopping wood. The result of this experiment was a reduction in four years from 1,844 to 31.

State Sanatorium for Tuberculosis.—A Boston exchange states that it is to the honor of Massachusetts to have provided the first institution for the care of tuberculous patients under State care, control, and largely under State support. The sanatorium at Rutland, established as the result of the earnest appeals of physicians and philanthropists, has, in the judgment of the great majority of specialists familiar with its work, passed its experimenial stage. Its methods are the most approved and scientific, its results satisfactory, and the cost of maintenance within the average of the best institutions of the kind. The State Sanatorium now has a capacity for 325 patients. On the completion of present plans it will accommodate 400. Its report for 1903 shows 589 cases admitted and 576 discharged. Of these patients, 48.97% are recorded as having the disease arrested and apparently cured; 43% as improved; and 7.9% as not improved.

NEW YORK.

$35,000 for a Human Life.—What is said to have been the largest verdict ever awarded under similar conditions was returned in the Supreme Court recently, when a jury awarded Mrs. Mary C. Ganun $35,000 for the loss of her husband, who died as a result of injuries sustained in the Grand Central tunnel on January 8, 1902.

The Subway and Deficient Ventilation.—Complaints having been made that several persons had fainted in the great subway in New York, recently opened to transportation, and that many others were attacked with what has been termed "subway headache" after a trip through the great underground tunnel, investigation has been made concerning the purity of the air in the underground passageway. Dr. August Seibert has made a scientific investigation; 18% of oxygen, he says, is the lowest amount of oxygen that air can contain without poisoning those who breathe it, and air containing 14% is actually dangerous. In all 12 tests were made, and these were verified by a second test, and the investigation demonstrated that at 11 stations the average percentage of oxygen was slightly above 12. At the City Hall loop station it was 17%. During the 5 days in which the tests were made the surface air was dry and cool and showed a percentage of about 20 parts oxygen.

PHILADELPHIA, PENNSYLVANIA, ETC.

State Hospital Needs.—The trustees of the State Hospital for the Insane, at Norristown, will ask for about $250,000 from the next Legislature to meet the urgent needs of the institution. At present, 220 men and 231 women are obliged to sleep on the floors in the hospital.

SOUTHERN STATES.

The Dallas Medical College has consolidated with the Baylor University College of Medicine and the new institution will be known in the future as the Dallas College of Physicians and Surgeons, the Medical Department of Baylor University. The combined matriculation for this session numbers 250 students. The new consolidation carries with it membership in the Southern Association of Medical Colleges. The majority of the members of each faculty will have places provided in the new institution. On account of the location, laboratory equipment, and teaching facilities this will make one of the best schools in the Southwest.

WESTERN STATES

Resolution of the State Board of Health of Illinois.—At a meeting of the State Board of Health held in Chicago, October 22, 1904, the following resolution was unanimously adopted:

Resolved, That the Rules of the State Board of Health, adopted July 11, 1899, regarding the character of examination, are hereby amended as follows: On and after January 1, 1905, the Illinois State Board of Health will accept as an equivalent of a part of the examination required, satisfactory evidence of five or more years of reputable practice of medicine and surgery since graduation, and will allow a credit of 5% upon the required average of 75% for each period of five years of such practice on the part of a candidate for a certificate.

Whoopingcough in Chicago.—The Bulletin of Chicago's Health Department says: After a period of unusual freedom from whoopingcough the disease is increasing in many parts of the city. During the first nine months of the year there were only 64 deaths from whoopingcough. It is probable that the disease will not assume any such proportions as it did last year, when there were 256 deaths from whoopingcough during the first nine months. This, however, does not warrant any exposure of the young to the risk of contracting the malady. Osler says: Parents should be warned of the serious nature of whoopingcough, the gravity of which is scarcely appreciated by the public. Particular care should be taken that children suspected of the disease are not sent to the public schools or exposed in any way so that other children can become contaminated. There is more reprehensible neglect in connection with this than with any other disease. The patient should be isolated, and if the paroxysms are at all severe, at rest in bed. Fresh air, night and day, is a most essential element in the treatment of the disease. The medicinal treatment of whoopingcough is most unsatisfactory.

The following resolutions were adopted unanimously at the general meeting of the Wayne County (Michigan) Medical Society, October 31, 1904:

Whereas the members of the medical profession, as citizens, are entitled to the same privileges which are enjoyed by other citizens, and

Whereas the Board of Regents of the University of Michigan have ruled (Michigan Alumnus October, 1904, pp. 2 and 3) that the medical faculty of the University of Michigan must grant gratuitous medical and surgical treatment to everybody applying therefor, whether rich or poor, and

Whereas such a condition is contrary to all customs and rules governing the relation of one citizen to another, and

Whereas such a ruling deprives the medical citizens within the radius of the influence of the University of Michigan of part of their rights in an unwarranted manner, and is harmful to the State as well as to the medical profession

It is *Resolved* by the Wayne County Medical Society, Michigan, that the Board of Regents of the University of Michigan be asked to rescind its ruling concerning the indiscriminate free medical and surgical treatment of those who apply for treatment at the University clinics, and

Resolved that the Board of Regents of the University of Michigan be asked to give a hearing to representatives of the Wayne County Medical Society.

Chicago's Decreasing Typhoid Rate.—According to the Chicago Bulletin of the Health Department, a dozen years ago Chicago had the highest typhoid deathrate of any large city in the civilized world. Today its rate is among the lowest. During the four years, 1889-1892 inclusive, there were 4,747 deaths recorded from typhoid fever—an average rate of 10.86 in every 10,000 of population. In the four years since the opening of the drainage channel, there have been 2,235 such deaths—an average of 3.09 in every 10,000 of population. These figures show a reduction of nearly three-quarters (74.8%) in the typhoid mortality rate. In 1891, occurred the greatest typhoid mortality in the history of the city—1,997 deaths, and a rate of 17.22 per 10,000 of population. The highest in the last four years was in 1902—801 deaths and a rate of 4.40. The lowest in the early period was in 1899—453 deaths, and a rate of 4.84. The lowest in the later period was in 1900—337 deaths and a rate of only 1.99 per 10,000 population. Since the opening of the drainage channel in January, 1900, there has been a reduction of 44.4% in the seasonal mortality, that is, from 1.21 in 1901 to 0.67 in 1904 per 10,000 of population. And the public water-supply during the period has been the purest in the history of the city.

CANADA.

Medical Staff Changes.—News from Toronto states that Dr. R. W. Bell, second assistant physician at the asylum for the insane, London, has been appointed medical inspector on the provincial Board of Health. His position at London has been filled by the transfer of Dr. W. C. Herriman from Kingston, and Dr. MacNaughton, of London, has been transferred to Kingston to succeed Dr. Herriman. Dr. W. P. St. Charles, of Mimico asylum, has been appointed relieving officer to public institutions, and Dr. George M. Boggs has been appointed assistant to the superintendent at Mimico. Dr. W. T. Wilson, third assistant physician at Hamilton asylum, has been transferred to London to succeed Dr. MacNaughton.

FOREIGN NEWS AND NOTES

GENERAL.

Lower Animals Contract Plague.—According to Public Health and Marine-Hospital reports, report comes from Bombay that an elephant and a bullock belong to the Mysore palace contracted plague recently, the elephant dying. The correspondent is further informed that elephants, deer, cheetahs, and other wild animals are dying in large numbers in Heggaddevaukote forests. The cause of this is yet unknown, but is put down to plague infection, inasmuch as a number of villages on the Kabmi River are plague infected.

European Surgeons to be Stationed in the Far East.—An exchange states that it was hardly to be expected after the skilled surgical assistance rendered to the Amir of Afghanistan for his recent accident that he would be content to rely on his own Afghan medical men in the future, and it is now reported that he has intimated his desire for expert English medical men to be stationed at Kabul. The staff suggested is one medical officer, one lady doctor, and three hospital assistants, with a small compounding staff. The Government of India has the matter under consideration.

Practising Medicine at Ninety.—According to the *London Globe*, longevity of Irishmen is proverbial, but even in that country for a doctor to be in practice at the age of 90 is unique. Dr. Woods, of Birr, has that distinction, and at the last meeting of the District Board of Guardians it was decided to grant him a full superannuation allowance. Popular with his patients, whom he visited on a bicycle, the venerable practitioner strenuously objected to retiring when the proposal was first brought forward. He urged that he was willing and able to earn his salary, and did not wish to take money from the public that he did not earn.

OBITUARIES.

T. S. Hopkins, aged 87, at his home in Thomasville, Georgia, November 12. He was one of the best known physicians of the South, having graduated from the Medical College of the State of South Carolina in 1845. He organized and commanded two companies of cavalry for the Confederacy during the Civil war, and was afterward a surgeon at Andersonville.

J. A. Dibrell, from pneumonia, at his home in Little Rock, Arkansas, November 11. He was professor of general and surgical anatomy in the Medical Department of the University of Arkansas, and one of the most prominent physicians in the State; a graduate of the University of Pennsylvania, Medical Department, 1870.

Benjamin Frank Hart, aged 82, from paralysis, at his home in Marietta, Ohio, November 5; a graduate of the Ohio Medical College, Cincinnati, in 1844, and Bellevue Hospital Medical College, in 1864. Formerly a member of the American Medical Association, and a member of various local medical societies.

William H. Philpot, aged 76, after a long illness, at the home of his son in Columbia, South Carolina, October 22; a graduate of the Atlanta (Georgia) Medical College, in 1856. He formerly lived at Talbottom, Georgia, and was a surgeon in the Confederate service during the Civil war.

James Dritt Reilly, from paralysis, at the home of his son in College Park, Maryland, October 12; a graduate of the Medical Department of the University of Pennsylvania, in 1859, and a surgeon in the Federal army during the Civil war.

John E. Jones, aged 71, from heart disease, at his home in Cincinnati, October 31; a graduate of the Medical College of Ohio, Cincinnati, in 1853. A surgeon in the Federal service during the Civil war.

Andrew J. Dean, aged 46, from rheumatism of the heart, at his home in Haywards, California, October 26; a graduate of the University of California, Medical Department, San Francisco, in 1881.

Alexander J. Smith, aged 50, from heart disease, at his home in Cookston, Washington, October 24; a graduate of the College of Physicians and Surgeons, Baltimore, in 1885.

Edwin E. Webster, aged 82, at his home in St. Louis, October 26; a graduate of St. Louis Medical College, in 1856. He was one of the oldest and most honored practitioners in St. Louis.

Ralph Bridge Linn, aged 27, formerly of Wilcox, Arizona, recently at his home in Los Angeles, California; a graduate of the Medico Chirurgical College, Philadelphia, in 1899.

George B. Ellis, from cancer of the liver, at his home in Ellis Mills, Tennessee, October 29; a graduate of Vanderbilt University, Medical Department, Nashville, Tennessee, in 1883.

Charles H. Thomas, aged 55, of New Orleans, at Johns Hopkins Hospital, Baltimore, October 29; a graduate of Bellevue Hospital Medical College, New York City, in 1875.

Benjamin F. West, aged 47, formerly of Tecumseh, Nebraska, at Lincoln, Nebraska, October 24, from paralysis; a graduate of Rush Medical College, Chicago, in 1881.

Howard Grant Baird, aged 38, of Bright's disease, at his home in Falun, Kansas, October 27; a graduate of Jefferson Medical College, Philadelphia, in 1893.

Charles H. Potter, from heart disease, at his home in Baltimore, November 9; a graduate of the University of Maryland, Medical Department, in 1898.

Samuel Huston Lynde, aged 35, from pneumonia, at his home in Buffalo, October 25; a graduate of the University of Buffalo, Medical Department, in 1889.

Fred. D. Curphey, at his home in Thomas, Oklahoma Territory, October 28; a graduate of the College of Physicians and Surgeons of Kansas City, in 1902.

Mordecai A. Posey, aged 59, at his home in Chanceford, Pennsylvania, October 28; a graduate of Jefferson Medical College, Philadelphia, in 1882.

Joseph Rich, aged 100, from bronchitis, at his home in Saginaw, Michigan, October 23. He graduated in medicine in Geneva, Switzerland, in 1835.

Trueman E. Parkman, aged 82, at his home in Rock City Falls, New York, October 24; a graduate of Albany (New York) Medical College.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended November 11, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Illinois:	Chicago	Oct. 30-Nov. 5	28	2
	East St. Louis	Aug. 15-Oct. 20	200	25
Louisiana:	New Orleans	Oct. 30-Nov. 5	1	
Michigan:	At 50 places	Oct. 30-Nov. 5	Present	
	Detroit	Oct. 30-Nov. 5	1	
Minnesota:	Hennepin Co.	Oct. 25-31	8	
	Todd Co.	Oct. 25-31	1	
Missouri:	St. Louis	Nov. 1-7	7	1
New York:	New York	Oct. 30-Nov. 5	2	
Ohio:	Canton	Oct. 16-22	3	
	Toledo	Oct. 23-29	1	
Pennsylvania:	Philadelphia	Oct. 30-Nov. 5	[illegible]	
Wisconsin:	Milwaukee	Oct. 30-Nov. 5	22	
	SMALLPOX—FOREIGN.			
Austria-Hungary:	Prague	Oct. 16-22	4	
Brazil:	Pernambuco	Sept. 30-Oct. 13		43
	Rio de Janeiro	Oct. 3-9	236	115
rance:	Paris	Oct. 16-22	7	1
Great Britain:	Bradford	Oct. 9-22	4	
	Manchester	Oct. 16-22	3	
	Newcastle-on-Tyne	Oct. 16-22	17	[illegible]
	Nottingham	Oct. 16-22	6	1
India:	Madras	Oct. 2-8		1
Italy:	Catania	Oct 21-27		1
	Palermo	Oct. 16-22	1	5
Russia:	Moscow	Oct. 23-29	4	
	St. Petersburg	Oct. 19-25	5	1
	Warsaw	Oct. 20-26		19
Turkey:	Constantinople	Oct. 17-23		10
West Indies:	Barbadoes	Oct. 25	2	
	On Br. Bkt. Ensenada, from Rosario			
	YELLOW FEVER.			
Brazil:	Rio de Janeiro	Oct. 3-9	1	
Cuba:	Habana	Oct. 26	1	
	From Am. S. S. Havana from Mexico			
Mexico:	Merida	Oct. 23-29	1	
	Texistepec	Oct. 23-29	47	12
	CHOLERA.			
India:	Bombay	Oct. 5-11		7
	Madras	Oct 2-8		6
Russian Empire:	Saratov Province, Saratov	Sept. 27-Oct. 7	18	9
	Trans-Caspian Dist.	Sept. 25-Oct. 2	11	5
	Trans-Caucasia, Baku	Sept. 28-Oct. 11	191	114
Turkey:		Sept. 27-Oct. 3	233	160
	PLAGUE.			
Africa:	Port Elizabeth	Oct. 2-8	1	
Australia:	Brisbane	Sept. 10-24	1	1
	Perth	Sept. 5-24	4	1
	Sydney	Sept. 12-26	2	2
Brazil:	Rio de Janeiro	Oct. 3-9	43	15
Egypt:	Alexandria	Oct. 1-7	4	2
	Port Said	Oct. 1-7		1
Formosa:		Sept. 1-30	4	3
India:	Bombay	Oct. 5-11		71
	Karachi	Oct. 3-9	12	13
	Madras	Oct. 1-7	1	
Peru:	Arica	Oct. 1	Present	
	Callao	Sept. 25-Oct. 1	1	
	Eten	Oct. 1	Present	
	Lima	Sept. 25-Oct. 1	11	
	Pacasmayo	Oct. 1	Present	
Straits Settlements:	Singapore	Sept. 22-28		2

Changes in the Medical Corps of the U. S. Army for the week ended November 12, 1904:

Mason, George L., contract dental surgeon, is granted leave for one month, from about November 8, with permission to apply for an extension of twenty-three days.

Williamson, Captain Lleyellyn P., assistant surgeon, leave granted for fifteen days is extended fifteen days.

Wren, Major W. O., surgeon, is granted leave for one month, from about November 1.

Pinkston, O. W., contract surgeon, is granted leave for two months, to take effect when a medical officer shall arrive at Madison Barracks to relieve him.

Dade, Waller H., contract surgeon, is relieved from further duty in the Philippines Division, and upon the expiration of his present leave will proceed to Fort D. A. Russell for duty, relieving Contract Surgeon Alva R. Hull, who will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on the transport to sail from San Francisco about December 1. Upon arrival at Manila, Contract Surgeon Hull will report to the commanding general, Philippines Division, for assignment to duty.

Hallwood, J. B., contract surgeon, leave granted October 27 is extended one month.

Soll, Charles H., sergeant first class, Army General Hospital, Presidio of San Francisco, Cal., will be relieved from duty at that hospital in time and sent aboard the transport sailing from San Francisco about December 1 for Manila, P. I. Upon arrival at Manila, he will report to the commanding general, Philippines Division, for assignment to duty.

Guittard, Alvin M., contract surgeon, leave granted July 12 is extended one month.

Smith, Rodney D., contract surgeon, is granted leave for three months.

Sweazey, First Lieutenant Verge E., assistant surgeon, is relieved from duty at the U. S. General Hospital, Presidio of San Francisco, Cal., and will proceed to Fort Mackenzie for duty, relieving First Lieutenant Henry H. Rutherford, assistant surgeon, who will proceed to San Francisco, Cal., and report for assignment to duty at the U. S. Army General Hospital, Presidio of San Francisco.

Wertenbaker, Clark I., contract surgeon, now at Cleveland, Ohio, will proceed to Madison Barracks for duty.

Nash, F. S., contract surgeon, is granted leave for four months, from about December 1.

Raymond, Major Thomas U., surgeon, is relieved from duty at the Louisiana Purchase Exposition, St. Louis, Mo., to take effect not later than November 30, and will then proceed to Fort Assinniboine for duty.

Wittenmyer, Captain Edmund, is granted leave for twenty days, from about November 11.

Wolven, F. Homer, contract dental surgeon, is granted leave for two months, from about November 15.

McMillan, C. W., contract surgeon, leave granted for twenty days is extended ten days.

Dade, Walter H., contract surgeon, is granted leave for one month on account of sickness, to take effect upon the expiration of his present leave.

Metcalfe, First Lieutenant Raymond F., assistant surgeon, leave granted October 17 is extended one month.

Changes in the Medical Corps of the U. S. Navy for the week ended November 12, 1904.

Lewis, D. O., medical inspector, detached from the New York and ordered to the Chicago—November 7.

Furlong, F. M., passed assistant surgeon, detached from the Chicago and ordered to the New York—November 7.

Brown, E. M., assistant surgeon, detached from the New York and ordered to the Chicago.

Changes in the Public Health and Marine-Hospital Service for the week ended November 9, 1904:

Williams, L. L., assistant surgeon-general, granted leave of absence for eight days from November 7—November 7, 1904.

Kalloch, P. C., surgeon, granted leave of absence for two days from November 5—November 4, 1904.

Blue, Rupert, passed assistant surgeon, detailed to represent Service at convention of League of California Municipalities, at Santa Ana, Cal., November 16-18—November 5, 1904.

Clark, Taliaferro, passed assistant surgeon, upon being relieved at Baltimore, Md., by Assistant Surgeon J. W. Schereschewsky, to rejoin station at Philadelphia, Pa.—November 2, 1904.

Anderson, J. F., passed assistant surgeon, granted leave of absence for seven days from November 9, 1904, under paragraph 191 of the regulations.

Billings, W. C., passed assistant surgeon, to proceed to St. John, N. B., for exclusive duty in connection with inspection of aliens—November 7, 1904.

McClintic, T. B., passed assistant surgeon, granted extension of leave of absence for twenty-three days from November 7—November 4, 1904.

Schereschewsky, J. W., assistant surgeon, upon completion of examination to determine fitness for promotion to the grade of passed assistant surgeon, relieved from duty at the Immigration Depot, New York, N. Y., and directed to proceed to Baltimore, Md., for exclusive duty in connection with the inspection of aliens—November 2, 1904.

Safford, M. V., acting assistant surgeon, granted leave of absence, on account of sickness, for four days from October 21—November 2, 1904.

Roehrig, A. M., pharmacist, department letter of September 1, 1904, granting him leave of absence for thirty days amended to read twenty-five days from September 12—November 7, 1904.

Miller, Chas., pharmacist, granted leave of absence for fourteen days from November 10—November 7, 1904.

SOCIETY REPORTS

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, Held in Cincinnati, Ohio, October 11, 12, and 13, 1904.

[Specially reported for *American Medicine*.]

[*Continued from page 834.*]

Discussion.—E. N. GILLIAM detailed two cases of hypertrophy of the prostate upon which he had operated, and in the after-treatment recommended placing the patient in the Fowler position. H. J. SCHERCK mentioned cases in which it was difficult to diagnose the extent and nature of enlargement, and more than that, the effect of the enlargement on retention of urine. There was a class of cases in old men whose bladders contained a more or less amount of residual urine, irrespective of the condition and size of the prostate. The condition seemed to be more of an atonic state of the bladder walls than the effect of the enlarged prostate. BRANSFORD LEWIS pointed out that there was no particular operation which fulfilled all the indications in cases of hypertrophied prostate. He detailed the case of a man, 71 years of age, which he believed would not have withstood a prostatectomy at any time. The patient had a stone in his bladder as large as a fist,with a ragged edge. The author did suprapubic lithotomy, removed the stone, drained, and also performed a Bottini operation. The patient was relieved of a fistula that had existed, and had completely recovered. F. F. LAWRENCE said that if surgeons could convince the general profession that hypertrophy of the prostate was a surgical disease, the mortality now attending prostatectomy would immediately decrease as it had done from operations on cases of appendicitis, ovariotomy, and other surgical affections. H. O. WALKER had operated by the suprapubic route over 20 times, and had lost one patient. At the same time he preferred, wherever practicable, to do perineal prostatectomy. He removed a prostate suprapubically that weighed 7½ ounces.

Plastic Surgery of the Urethra.—G. FRANK LYDSTON (Chicago) read an interesting and valuable paper on this subject, in which he described the methods he had found most satisfactory in his own cases.

Therapeutic Value of Radium.—MYRAN METZENBAUM (Cleveland) related his personal observations in the clinical uses of radium. He discussed the physiologic action of radium of low activities contained in hermetically sealed tubes when placed on ulcerated areas and on the unbroken skin for 35 minutes; also the pathological condition resulting from placing radium of high activity contained in hermetically sealed tubes on the unbroken skin for long periods of time. The therapeutic results obtained by using tubes of radium of low activity and coarse were as good in the treatment of lupus, rodent ulcer and small epithelioma as these from the use of radium of high activity and great expense. The author reported and showed photographs of three cases of lupus, and one each of rodent ulcer and epithelioma that had apparently healed by the aid of radium rays. Photographs made by the röntgen ray and by radium were exhibited, showing that the latter had comparatively little value in the skiagraphy of bone as compared with the röntgen ray. He pointed out the results obtained by suspending hermetically sealed tubes in various solutions, showing that the same had not been rendered radioactive, and therefore that they had no special therapeutic value.

Two Cases of Pancreatic Cyst.—VAN BUREN KNOTT (Sioux City, Ia.) pointed out the physical signs of these cysts and the difficulties which sometimes attended their diagnosis. He showed how the surgeon might be misled by the symptoms. He discussed the method of treatment, made a comparison between incision and drainage and excision, and reported two cases which presented widely different symptoms, physical signs, and morbid influence, treated by different methods. Comparison of these two cases of cysts of the pancreas had been extremely interesting to him, and revealed many striking differences. The more important of these he briefly mentioned as (1) The difference in location and anatomic relations of the tumor; (2) neither cyst occupied the usual position for such tumors, *i. e.*, somewhat to the left of the median line; (3) neither was a socalled false cyst of the pancreas, which was a localized collection of fluid in the lesser peritoneal cavity, but each involved the tissues of the pancreas alone; (4) the appearance in the first case of symptoms of disturbed function long before evidence of cyst formation could be detected, while such symptoms remained entirely absent in the second case, even after the tumor had attained great size; (5) the even spheric form of the pancreatic distention in one case, and the peculiar sausage-like tumor in the other, gradually expanding into a spheric termination; (6) the fact that the patient who had much the less complete operation, *i. e.*, incision and drainage, had a much smoother and more rapid recovery than the one in whom the tumor had been almost completely removed; (7) the involvement of the stomach in the first case rendered possible the wounding of its walls during the puncture of the cyst, as the true nature of the stretched, flattened, and congested viscus was recognized with some difficulty. In the second case no such accident was possible; (8) the accumulation in the walls of the first cyst of a peculiar sticky, grayish, ash-like deposit, while the lining membrane of the second tumor was clean and smooth; (9) in neither case was the sallow, dry skin, said to be characteristic of cysts of the pancreas, present.

Tenotomy of the Tendo-Achillis in Partial Amputations of the Foot; also in Oblique, Compound and Comminuted Fractures of the Tibia and Fibula.—J. P. WEBSTER (Chicago) read a paper on this subject, in which he drew the following conclusions: 1. It is a well-established clinical fact that after tenotomy of the tendo-achillis (when the foot is kept at rest) the process of repair takes place and satisfactory functional use of the foot is the result. 2. It is much easier to maintain the foot in the exaggerated flexed position after the tenotomy of the tendo-achillis than with any other form of splint, anterior or posterior, metallic or plaster. 3. There is much less pain, as the foot and ankle-joints are placed at absolute rest. 4. When the patient commences to walk, none of the resistance of the contracted heel cord is present, so that there is but a slight limp. 5. In oblique and comminuted fractures of the tibia there is much less danger of overriding of the fragments of bone, after a tenotomy. This greatly simplifies the care of the leg and helps to prevent deformity.

The Mamma: Its Physiologic Purposes.—THOMAS H. MANLEY (New York) discussed the coarse and finer anatomic elements of the mamma in their bearing on some of its pathologic affections. He drew the following conclusions: 1. The mamma is a highly organized and structurally a most complex organ. 2. Its functions are manifold. It is an essential and integral part of the generative system. Intermittent in function, like the testes, total ablation, like double castration, makes its impress on the sensorium. 3. Very frequently degenerative or pathologic changes begin in a single isolated lobe, about 20 of which are in each breast. In all nonmalignant affections, radical measures should be limited as far as possible to the affected area or lobe. 4. It is only in malignant disease of a progressive type and life is imperiled, that total sacrifice of the breast is justifiable. 5. Inasmuch as the functions and purposes of the axillary lymph-ganglions are yet imperfectly understood, and their removal quite invariably enhances the risks of operation, involves a wide mutilation of the chest walls, and always leaves more or less, impediment in shoulder action, or even at times a painful tumefied limb, it is only as an extreme and exceptional measure that their complete extirpation should be practised.

Intestinal Surgery, with Remarks on Technic.—JOHN YOUNG BROWN (St. Louis) said there was a class of abdominal cases which might justly be considered acute, for the reason that the indications for immediate surgery were mandatory, and in which the mortality largely depended upon the time of operation and the technic of the work. He discussed (1) penetrating gunshot and stab wounds of the abdomen; (2) severe abdominal contusions associated with rupture of intestines or other visceral injuries; (3) strangulated hernia, confining himself as nearly as possible to a consideration of the operative technic, citing cases in point.

Gastroenterostomy.—WILLIAM H. WATHEN (Louisville) in this paper described all the pathologic conditions indicating the necessity for stomach drainage by the several methods that had been practised for this purpose. He said pyloric divulsion had proved unsatisfactory, seldom gave permanent results, and sometimes committed a traumatism that increased the trouble. Pyloroplasty and its modifications had given better results, but the operation was seldom indicated and was practically obsolete. Gastroduodenostomy, and especially the modification of Finney, was theoretically ideal, and in properly selected cases gave excellent results, but it was often impractical, because of adhesions or tumors, and could not be generally adopted; its simplicity could not recommend it, because gastroenterostomy might be performed as easily, as quickly, and with a mortality as low, and was applicable in nearly all cases. Wolfler's anterior anastomosis and von Hacker's posterior anastomosis, with their modifications, were the two methods generally adopted, but Raux's method of cutting the intestine across, implanting the distal end into the stomach and the proximal end into the side of the distal end, was theoretically ideal and avoided regurgitant vomiting, but it was difficult and prolonged, and if universally accepted would have a mortality that would be prohibitory. Gastroenterostomy by the surface-to-surface anastomosis of the stomach and the jejunum was applicable to the greatest number of cases and might be performed in nearly any condition requiring stomach drainage. Anterior gastroenterostomy as an operation of election must very soon become obsolete, and would finally be accepted only where an operation was necessary to give temporary relief or where the posterior operation was contraindicated, because of adhesions and the feeble condition of the patient that demanded a quick operation. The ideal operation of election must eliminate the intestinal loop, and this might be done by the posterior method, by attaching the jejunum very near its origin under the transverse mesocolon; the bowel incision might then be made longitudinally or transversely, but was usually made in a longitudinal direction, Kocher and Mikulicz making a transverse incision. This method was preferable if the opening into the bowel could be made large enough to permit of continued unimpeded drainage, but the anastomosis was more difficult than in the longitudinal bowel incision. Posterior gastroenterostomy was now the accepted method with Robson, Mikulicz, Kocher, Czerny, Moynihan and Mayo, with no higher mortality than the anterior method, with nearly an absence of regurgitant vomiting and other immediate complications, and with ultimate excellent results in drainage, the gastrojejunic opening seldom contracting enough to induce pathologic condition. The McGraw ligature in the anterior method gave good immediate results, but we could not judge correctly of the ultimate results in the patency of the gastrojejunic opening, and the ligature had probably not been tested in the posterior method. The Murphy button had the advantage of being quickly applied, but except in selected cases possessed no advantages over the suture, and was more frequently followed by complications.

The Indications and Limitations of Various Operations on the Gallbladder.—CHARLES A. L. REED (Cincinnati) reviewed the various operations usually performed for the relief of surgical conditions of the gall tract, summarizing them under the heads of cholecystotomy, cholecystectomy, cholecystenterostomy, and choledochotomy. He recounted his experiences during the last 15 years, first with cholecystotomy, and cited cases to show that operation had distinct limitations, and urged that it ought not to be done in cases in which prolonged drainage was required, or in which there was a demonstrable permanent obstruction in the common duct, or in cases in which there was reason to suppose that such obstruction might develop. He insisted that the gallbladder exercised functions of importance in the human economy, and that consequently it ought not to be removed without adequate cause. He recognized as legitimate indications for cholecystectomy conditions of atrophy and malignant degeneration of the gallbladder and cases in which benign neoplasms caused practical obstruction of that viscus; but insisted that the operation ought never to be done when the gallbladder could be restored to functional integrity with safety to the life and health of the patient. He urged that cholecystenterostomy should be considered the operation of choice in all cases in which the gallbladder and a desirable segment of the intestinal tract, preferably the duodenum, the ileum, or the jejunum, in the order mentioned, should be approximated, and in which drainage was demanded for accumulations within the gallbladder of whatever character; for occlusion of the common duct or following operations upon it; for cholecystitis in which the gallbladder could be safely left in situ, and in all chronic fistulas of the gallbladder. It ought, also, to be employed to complete an anastomosis in cases in which nature had attempted to accomplish the task by the formation of firm adhesions between the gallbladder and the intestines.

Ectopic Pregnancy.—F. F. LAWRENCE (Columbus, O.) reported cases of ectopic pregnancy. In ectopic pregnancy the deathrate should be lower than in appendicitis, providing the surgeon got the cases before rupture. The diagnosis of tubal pregnancy before rupture should be made with as much or greater certainty than could a normal pregnancy before the third month. The fact that a tubal pregnancy was allowed to go on to rupture was a reproach to obstetric practice, first, because of indifference or carelessness which prevented proper investigation of the case early. This might be on the part of the patient or physician, but the real fault lay in the indifference to obstetrics which had permitted women to look upon pregnancy as a simple matter, and not one demanding the attention of skilled service except in complicated labors. In unruptured cases the tube could be more safely removed through abdominal incision. In ruptured cases he was convinced that it was often very unwise to attempt to remove a patient to a hospital. The chances of infection in her home could be more readily overcome than the danger of increasing hemorrhage by handling. In all cases of extrauterine pregnancy, tubal disease, which was bilateral, seemed well established. The danger of a catastrophe in case the unaffected tube was left was, therefore, great, unless that tube be safely obliterated. Absorbable ligature was not a safe material to use for obliteration. Silk of large size only should be used. The better practice was to remove both tubes, retaining the ovary, if possible.

Etiology of Ectopic Gestation.—H. B. R. MC CALL (Kansas City, Mo.) read a paper on this subject, in which he discussed the genealogy of ectopic gestation relative to ovulation. He submitted a classification, reported cases, and made a plea for early diagnosis and operation, with special reference to etiology and diagnosis.

Brain Abscess of Otitic Origin.—GEORGE F. KEIPER (Lafayette, Ind.) reported cases of brain abscess of otitic origin, and made some observations concerning brain abscess in general. Case I was an abscess of the right temporosphenoidal lobe. Recovery. No symptoms of brain lesion. No abscess suspected. Operation made for mastoiditis. Removal of necrotic bone forming the roof of mastoid antrum, revealed abscess. No symptoms of aphasia. Case II. This patient had long-standing otitis media, recurring frequently, and had often complained of pain on mastoid, which, at those times, was often tender to the touch. When first seen, patient was comatose, with convulsions recurring frequently. Patient had had 60 in 24 hours prior to the author's first visit. The mastoid was opened, but no pus found. He continued opening the skull upward, over the temporosphenoidal lobe. Dura bulged. He incised freely, giving vent to flocculi and serum. Patient had but two convulsions since. Regained partial consciousness, but died in 48 hours after operation.

Foreign Bodies in the Cornea.—DUDLEY S. REYNOLDS (Louisville, Ky.) said that injuries of this character should be classified according to the depth of penetration and extent of surface. The foreign bodies should be classified as metallic, ligneous, vitreous, and calcareous. Of whatever character they might be, no kind of foreign substance should be left long in the cornea. When the epithelium alone was involved, the injury should be classified as severe. Wounds penetrating the anterior elastic layer, even though of very limited extent, should be classed as grave. Those which penetrate through the cornea should be regarded as perilous. Treatment of the serious, the grave, and the perilous varieties should conform with some general preconceived plan.

The Transverse Fascial Incision for Operations in the Pelvis.—EMIL RIES (Chicago) said that in order to gain reliable fascial protection for incisions for pelvic work, it was desirable not to have to incise the fascia in the median line. Pfannenstiel's method was a useful improvement where the organ or tumor to be removed was not large. It began with a transverse incision through skin, fat and fascia. The fascia was then dissected up from the recti and raised as a flap with fat and skin. The recti were then separated and peritoneum incised in the median line. After the operation in the pelvis was finished, the peritoneum and recti were sutured in the median line, the fascia and skin transversely. The author had used the incision for various operations on the tubes, ovaries, uterus, appendix, and reported favorable results.

Suppuration of Nasal Accessory Sinuses.—J. A. STUCKY (Lexington, Ky.) pointed out the importance of early recognition of suppuration of nasal accessory sinuses. Frequent peculiar anatomic interrelationship of the different sinuses, when involved in suppurative process, rendered the symptoms obscure and misleading. Suppurative products might exist in latent form, giving rise to no local symptoms, and eventually resulting in systemic infection. Chronic inflammation in a closed cavity had a tendency to pus formation. He reported fatal cases due to absorption of pus or the invasion of suppurative inflammation through the optic foramen or holes in the cribriform plate to the base of the brain. The sequels of chronic suppuration of any accessory sinuses were frequently due to some form of neurasthenia and migraine. An increased number of cases was probably due to la grippe, pneumonia, and strenuous indoor life. The treatment was the same as for pus formation in any other part of the body, that is, free drainage. The middle turbinate most frequently caused obstruction of natural openings or a hindrance to free drainage, and the early removal decreased the necessity for more extensive and radical operation later. The author gave a review of opinions of European writers on this subject, with conclusions.

Strictures of the Urethra.—A. RAVOGLI (Cincinnati, O.) said that urethral strictures were affections of localized tracts of the mucous membrane and of the submucous layer of the urethra, resulting often from gonorrhea, and not rarely from trauma or from traumatic urethritis. The symptoms were mostly local, but at times they might be the cause of general symptoms and of neurasthenia. Strictures were of different varieties, spasmodic, and organic. The organic strictures were to be divided into wide and narrow, the latter being the result of the former. Both were the cause of impairment of micturition and of the production of inflammatory symptoms of the genitourinary organs. Strictures were somewhat diminishing in their frequency, and this must be credited to the recent method of treatment of gonorrhea. In their treatment one might expect a great deal of benefit from systematic dilation and from remedial applications, but in some very serious cases external urethrotomy was imperative.

The Perilous Calms of Appendicitis.—ROBERT WALLACE HARDON (Chicago) presented the following conclusions: 1. Defervescence of symptoms and apparent better condition of the patient do not always mean recovery, but may be the forerunner of a dangerous condition. 2. As there is no specific for the disease, no matter what treatment is used, the one who procrastinates should shoulder the responsibility for the death. 3. When a clear diagnosis is made, but one treatment should be advised, that of operation as soon as possible under the conditions, or the golden opportunity may be forever gone. 4. The physician who does not explain the great dangers of delay and the small comparative danger of operation, is doing his patient a serious injustice which often leads to fatal results. 5. Operation at the proper time usually greatly shortens convalescence, and eliminates all danger from this cause thereafter. 6. Procrastination is the greatest cause of surgical death, operation often being performed as a last resort when little hope of recovery exists.

[*To be continued.*]

The Blind Boycotted.—The *Medical Times* arraigns the San Francisco labor unions for putting a boycott on brooms made at the blind asylum in Alameda county. It says: "Labor unions have, from time to time, done many a thing to indicate a reversion to complete savagery and most brutal animalism, but it is certain that there is no word in any existing dictionary sufficiently forcible to characterize the attitude of the labor unions of San Francisco."

ORIGINAL ARTICLES

THE SPHERE OF BACTERIOLOGY.[1]

BY
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of Chicago.
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It is possibly a contemporary delusion that we are living in a period of unexampled mental activity. The life of the intrepid modern scholar affords opportunity for self-deception. If one becomes a member of a sufficient number of learned and quasi-learned societies, and attends committee meetings for an adequate variety of purposes, the impression of profitable intellectual endeavor may be prematurely acquired. There is much, however, to account for the prevailing sensation of breathless advance. The physiologic and psychologic accompaniments of a breakneck pace are not altogether lacking in the modern world, and there are many bacteriologists in particular who will lend a credent ear to affirmations of the rapidity of scientific progress. However this may be, few can question that the development of the science of bacteriology has been marked by an unusual tempo. To those who have followed this development closely, discovery has trod upon the heels of discovery in bewildering succession. The scant thirty years of its history have been crowded with feverish activities, which have found their best justification in the results accomplished. At present the science touches nearly many human interests, and sustains manifold and far-reaching relations to the whole body of natural knowledge. It is no matter for surprise that such should be the case with a science that owes its birth to a chemist, that concerns itself with microscopic organisms belonging both to the plant and animal kingdoms, and that extends its ramifying branches into the regions of medicine, hygiene and the industrial arts.

In several respects the history of bacteriology might be held to epitomize that of the other natural sciences or of the living organism itself. Advance in complexity of structure entails greater complexity of relations and adjustment; maturity has more extensive connotations than youth. Bacteriology is a relatively youthful branch of the stream of knowledge, but in late years it has perceptibly widened its banks. It has even encroached upon certain neighboring sciences. Modern physiography uses the term *piracy* to designate the capture by one stream of that portion of a water-shed legitimately belonging to another stream. In the same way, one natural science, owing to peculiarities in its subject-matter, in its evolutionary history or in the tools with which it works, may enter upon a piratic career and appropriate territory which for various reasons has remained unexploited by the science to which topographically it may seem to belong. This annexation of neighboring fields has been not uncommon among the natural sciences, and bacteriology has not shown itself free from the general tendency. A notorious instance of piratic conduct on the part of bacteriology is the virtual appropriation of the whole field of microbiology. Perhaps most familiar in this connection are the discoveries concerning the life histories of various microscopic animal parasites. The tracing out of the relations between parasites and hosts in Texas fever, malaria and dysentery has by no means been exclusively or even largely the work of zoologists. On the contrary it is well known that much of the most important work in this direction has been carried out by bacteriologists and that the literature on these topics is chiefly to be found in the technical bacteriologic journals. A recent instance of this tendency is the renewed study of the remarkable protozoa called trypanosomes, which has in large part been undertaken by bacteriologists and by bacteriologic methods. Perhaps the most notable triumph yet accomplished in this field is the successful cultivation of these pathogenic protozoa outside of the animal body, a feat which has been achieved by one of the foremost American bacteriologists. The exploitation of zoologic territory by bacteriologic workers is one of the many instances of successful borderland invasion and, like the Louisiana Purchase, illustrates the impotence of territorial lines to prevent natural expansion. Many reciprocal piratic inroads among the sciences are due to the acquisition by one science of new tools which, when workers become generally acquainted with their use, are found to be applicable to other problems in other fields. Bacteriologic technic is one of these efficient tools the possession of which conduces to piracy; it can, however, never be forgotten that bacteriology itself owes its powerful equipment to a study of spontaneous generation which was undertaken primarily for the interest felt in its philosophic bearings.

Bacteriology stands in close relation to at least four other more or less defined fields of natural knowledge: to medicine, to hygiene, to various agricultural and industrial operations and pursuits, and to biology proper. Bacteriology, as has been often said, is the youngest of the biologic sciences, and for this reason has as yet contributed relatively little to the enrichment of the parent science. Morphologically the bacterial cell is so small and so simple as to offer many problems of surpassing interest but of great difficulty. The question as to whether a bacterium is a cell without a nucleus or a free nucleus without any cytoplasm, or a cell constituted in the main like those of the higher forms of life has, to be sure, been practically settled in favor of the latter view. But there are other debated and debatable morphologic questions to which up to the present no satisfactory answer has been given and to which our current microchemic methods are perhaps unlikely to afford any solution. On the physiologic side, the achievements of bacteriology in behalf of general biology have as yet been far from commensurate with its potentiality. This may be partly because of its temporary engrossment in other seductive lines of research, partly because of the lack of workers adequately trained in bacteriologic methods and at the same time possessed of an appreciation of purely biologic data. It may be justly urged that a rich harvest of fundamental physiologic facts waits here for the competent investigator.

There is no need to dwell in detail upon the manifold practical applications of bacteriology to the arts and industries. Particularly in agriculture and kindred occupations have the advances in bacteriology been immediately and intelligently utilized to bring forth in turn new facts and unveil new problems. The processes of cream ripening and vinegar making, the phenomena of nitrification, of denitrification and nitrogen fixation, the modes of causation of certain diseases of domestic plants and animals, have all been elucidated in large measure by bacteriologic workers. A new division of technologic science, dealing with the bacteriology of the soil, of the dairy, and of the barnyard, of the tan pit and the canning factory, has already assumed economic and scientific importance.

It is often a temptation to distinguish radically between pure science and applied science and to look upon the latter as unworthy the attention of the philosophically minded. True science can admit of no such distinction. No thing in nature is alien to her. She can never forget that some of the most fruitful scientific theories have been the outcome of the search for the utilitarian. Man's knowledge of the universe may be furthered in various ways. It is well known that the work of Pasteur was particularly characterized by applications to the problems of pure science of knowledge acquired in the study of the practical. One thing plays into the hands of another in wholly unexpected fashion. An attempt to improve the quality of beer gives birth to the germ theory of fermentation and this in turn to the germ theory of disease; the chemistry of carbon compounds leads to the discovery of the anilin dyes and these same anilin dyes have made possible the development of microchemic technic and thrown open spacious avenues for experiment and speculation; the attempt to obtain a standard for diphtheria antitoxin has resulted not only in the achievement of the immediate practical end, but in the discovery of unexpected theoretic considerations which have dominated the progress of an important branch of scientific medicine during the last five years. It will not be a hopeful sign for the advancement of science when the worker in pure science ceases to concern himself with the problems or avail himself of the facilities afforded by the more eminently utilitarian aspects of natural knowledge.

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[1] Read before the Section of Bacteriology, International Congress of Arts and Science, Universal Exposition, St. Louis, and published synchronously with *Science*.

In the quarter century of its history, bacteriology has sustained close and mutually advantageous relations with the science of medicine. This has been the scene at once of its greatest endeavors and its greatest triumphs. To recount these would be superfluous. There is hardly an hypothesis in scientific medicine that has not been freshened and modified, hardly a procedure in practice that has not been influenced by bacteriologic conceptions. The experimental method in particular has been given new support and received brilliant justification. Experimental pathology and experimental pharmacology practically owe their existence to the methods and example of bacteriology. The security afforded by aseptic surgery has made possible physiologic exploits that could not otherwise have been dreamed of, a pregnant illustration of the way in which applied science may directly further the advance of pure science. Conspicuous as these achievements of bacteriology have been, it cannot be truly said that the field is exhausted. There is hardly an infectious disease of known or unknown origin that does not still harbor many obscurities. Some of the most difficult problems that medicine has to face are connected with the variation and adaptation of pathogenic bacteria. The phenomena of immunity, certainly among the most complicated and important that human ingenuity has ever set itself to unravel, still await their full description and interpretation. The study of the ultramicroscopic, or perhaps more correctly the filterable viruses, is being prosecuted with great energy and in a sanguine spirit. The extension of bacteriologic method into the field of protozoon pathology has been already referred to and constitutes one of the latest and most hopeful developments in the study of the infectious diseases. Medicine, perhaps more than any other department of human knowledge, is most indebted to and maintains the most intimate relations with the science of bacteriology.

At the present time the relations of bacteriology to public hygiene and preventive medicine seem to me of particular importance and it is upon this theme that I wish chiefly to dwell. Personal hygiene is not necessarily pertinent to this topic, but falls rather into the same province with the healing art. Matters of diet, of clothing, of exercise, of mental attitude, affect the individual and contribute more or less largely to his welfare. But except in so far as the individual is always of moment to the community, they do not affect the larger problems of public hygiene. The pathologic changes that take place in the tissues of the diseased organism and the methods that must be employed to combat the inroads of disease in the body of the individual patient must for a long time to come remain questions of supreme importance to the human race. But over and above the treatment and cure of the diseased individual, and the investigation of the processes that interfere with the proper physiologic activities of the individual organism, rises the larger and more far-reaching question of the prevention of disease.

Racial and community hygiene are but just beginning to be recognized as fields for definite endeavor. The project may seem vast, but the end in view is undoubtedly the promised land. More and more will the problems of curing an individual patient of a specific malady become subordinated to the problem of protection. More and more will scientific medicine occupy itself with measures directed to the avoidance of disease rather than to its eradication.

Whatever else may be said of it, this is certainly the age of deliberate scrutiny of origins and destiny. Man no longer closes his eyes to the possibilities of future evolution or to those of racial amelioration. If we are to remain to a large extent under the sway of our environment, we can at least alter that environment advantageously at many points. We are no longer content to let things as we see them remain as they are. On the surface the wider relations of disease have often seemed of little significance as, before Darwin, the socalled fortuitous variations in plants and animals were considered as simple annoyances to the classifier; the causes of this variation were deemed hardly worth investigation. The rise and fall of plagues and pestilences have been readily attributed to the caprices of the *genius epidemicus*, and it has sometimes been thought idle to ascribe recurrent waves of infection to anything but "the natural order." Another phase, entered upon later and from which we have not yet entirely emerged, possesses its own peculiar perils. In meditating on the cosmos, the agile mind is always tempted to fill in the gaps of knowledge with closely knit reasonings or fantastic imagery. The imaginative man of science still frequently finds himself beset with the temptation to erect an unverifiable hypothesis into a dogma and defend it against all comers. It is now fortunately a truism that a more humdrum and plodding course has proved of greater efficacy in advancing natural knowledge. Theories that stimulate to renewed observation and experiment have been of the greatest service, but unverifiable speculations have often been a barrier to further advancement. Metaphysics tempered with polemic is not science, whatever be its allurements.

If the attainment of a rational position in public hygiene, community hygiene or preventive medicine must then be regarded as the main objective point in the campaign against disease, it follows that the part played by bacteriology in this advance will be an important one. The relations of bacteriology to public hygiene are fundamental. The etiology of many of the most widespread and common diseases that afflict mankind is intelligible only through the medium of bacteriologic data. The modes of ingress of the invading microorganisms, the manner of persistence of the microorganism in nature, the original source of the infectious material and all the varied possibilities of transmission and infection can be apprehended only through the prosecution of detailed bacteriologic studies. It is only by this means that the weak point in the chain of causation can be detected and the integrity of the vicious circle attacked. Success will inevitably depend upon a thorough understanding of the circumstances governing and accompanying the initiation and consummation of the disease process. Yellow fever cannot be suppressed by burning sulfur or by enforcing a shot-gun quarantine, the bubonic plague is not to be combated by denying its existence.

In the warfare against the infectious diseases a rational public hygiene is ready to avoid the mistake of beating the air. A preliminary survey of the possibilities reveals several distinct types of disease; those that are practically extinct or far on the road to extinction in civilized communities, those that remain stationary, or decline but slightly, and those that show a more or less consistent increase. The economy of energy would suggest that it is not a far-sighted policy for public hygiene to focus its endeavors exclusively upon those diseases that are yielding naturally before the march of civilization. The conditions under which civilized peoples live today are in themselves sufficient to render the foothold of many infectious diseases most precarious. What nation now fears that typhus fever will become a national scourge, or who looks to see the citizens of London driven into the fields by the Black Death? It is of course true that the continuance of this immunity can be secured only by unremitting watchfulness, although so long as existing conditions of civilized life are maintained, the recurrence of great epidemics may be relatively remote. The pestilences that once stalked boldly through the land slaying their ten thousands are now become as midnight prowlers seeking to slip in at some unguarded door within which lie the young and the ignorant. Already some once dreaded maladies have become so rare as to rank as medical curiosities, and their ultimate annihilation seems assured.

There are other diseases, however, that civilized life, or at least modern life appears to leave substantially unchecked, and some that it even fosters. These may be considered as shining marks for the modern hygienist. The scale between hygienic gain and loss is always in unstable equilibrium. There is no such thing as consistent improvement all along the line. As Amiel wrote in his journal, "in 1,000 things we advance, in 999 we fall behind; this is progress." It is almost a biologic axiom that progress in one particular entails loss in others. To maintain the efficiency of all parts of the complex of civilization calls for eternal vigilance. It may be that while we are waxing complacent over the fact that the opportunities for infection with certain parasites are diminishing and that other parasites are gradually losing what we vaguely denominate as their virulence, unforeseen and greater evils are raising their heads. The increasing exemption from certain diseases will itself lead to an increased prevalence of others as diversely vulnerable age groups are formed. In general, it will occur that the diseases peculiar to the advanced age groups will increase as the diseases of childhood and youth succumb to hygienic measures. A different age distribution of the population will bring in its train new problems of preventive medicine, which must be successfully solved if the issue is to be fairly met.

There are not lacking instances of a dawning consciousness on the part of mankind that the proper development of public hygiene involves a far more comprehensive view of its relations than has hitherto been taken. The study of tuberculosis is being approached by methods of unexampled broadness. We are just beginning to recognize the way in which the roots of this destructive malady are well-nigh inextricably interwoven with the whole social fabric. Bacteriologic, architectural and economic data are all levied upon for contribution to our knowledge of what is universally recognized as one of the most important of all human diseases. Here, as elsewhere, the care and cure of the infected individual still looms large, but beyond and above this is beginning to be placed the prevention of infection, the drying up of the stream at its source. That for this heavy task public hygiene will require the aid of many workers in many different fields is abundantly evident. For all of them, however, bacteriology must furnish the only definite point of view. In the full consideration of the "exciting causes," the tubercle bacillus can never be allowed to drop into the background. Given foul air, insufficient food, inhalation of dust, excessive and exhaustive labor and the other deplorable accompaniments of modern industrialism, and it still must be constantly kept in mind that without the tubercle bacillus these predisposing causes would never result in a single case of tuberculosis. On the other hand, without these contributing factors the tubercle bacillus would almost sink to the level of the negligible "nonpathogenic organism." Witness the impotence of the bacillus to produce infection or even maintain itself in the tissues of those individuals able to live an outdoor life.

It is evident that in the case of tuberculosis the forces of civilization are on the whole working for its extinction rather than for its perpetuation. The available statistics demonstrate that before the modern movement for the suppression of the disease began and in fact even before the discovery of the tubercle bacillus, pulmonary tuberculosis was already on the decline in widely separated parts of the world—in London, in Boston, and in Chicago. It is, perhaps, significant that pulmonary tuberculosis is now one of the tenement house problems and that as such it occupies a strictly delimited field. As yet the campaign against tuberculosis has been a desultory one, waged by a few enthusiasts without adequate material or moral support on the part of the community at large, but signs are multiplying that this condition will be a transient phase. The comparative absence of intelligent, systematic endeavor for the suppression of disease is certainly a curious phenomenon in an age of otherwise extensive coordination and organized action. The executive talents and restless energy lavished on commercial, industrial and engineering projects may some day be turned to devising and carrying out hygienic measures. If it were necessary to find an argument in the economic value of human life it would be readily forthcoming. The recent movements for the study and suppression of tuberculosis mark one of the first attempts to apply bacteriologic knowledge in a determined and radical way to a problem of public hygiene. As regards the ultimate extinction of tuberculosis, there may be more or less groping after ways and means, but there need be no misconception as to the scope of the problem.

There are other fields in which a similar mode of procedure based on ascertained bacteriologic facts and principles has been indicated and is being at least in part carried out. In typhoid fever the evidence from epidemiology has long pointed unmistakably to drinking water as being the chief vehicle of infection, and the first step toward suppression of this disease has been already taken in most civilized countries. The last half of the nineteenth century witnessed an improvement in the sanitary quality of public water-supplies which has diminished perceptibly the deathrate from typhoid fever. This change has been in part effected by the introduction of water from unpolluted sources, in part by the installation of sand filters. To cite a few well-known cases: For five years before the introduction of a filtered water the annual typhoid fever deathrate in Zurich, Switzerland, averaged 76; in the five years following the change it averaged 10. In Hamburg, Germany, for a corresponding period before filtration, the typhoid deathrate was 47; after the change it fell to 7. In Lawrence, Mass., under similar conditions the typhoid rate was reduced from 121 to 26, and in Albany, N. Y., from 104 to 38. A similar effect has been noticed where an impure water has been replaced by water from unpolluted sources. In Vienna, Austria, the abandonment of the River Danube as a source of supply in favor of a ground water diminished the typhoid fever deathrate from over 100 to about 6. In the United States the city of Lowell not long ago exchanged the polluted water of the Merrimac River for a ground water-supply with the result that the typhoid fever deathrate was reduced from 97 to 21. In spite of these remarkable facts there has been a lethargic slowness in profiting by the lessons that they teach. Many communities have remained to this day unobservant and negligent, and especially in the United States, the condition of the average public water-supply demands radical reform. A method that has not only reduced the deaths from typhoid fever by about 75%, but has also reduced the number of cases proportionately, is worthy of universal adoption. If the fatality in all cases of typhoid fever was diminished, say from 12 per 100 cases to 3 by the use of a new drug or an antitoxin, the world would ring with the discovery. The introduction of a pure water supply has achieved an analogous reduction in the deathrate and confers further the enormous benefit of preventing the occurrence of a similar proportion of cases. In the city of Albany, N. Y., the annual number of deaths from typhoid fever prior to the installation of a filter plant averaged 89 during a ten-year period; in 1902 there were but 18 deaths from this cause, representing a diminution not only of 71 deaths but of over 700 cases.

Important as is the function of a pure water-supply in preventing typhoid fever it is now clear that public hygiene can not stop here. In some countries, as in Germany, for example, where the larger cities and towns are supplied in the main with water of a highly satisfactory character, there still remains a notable residue of cases of typhoid fever. These we know are due to contact infection, to contamination of raw foods, such as milk, oysters, and the like, to the conveyance of the specific germ on the bodies of flies and to similar modes of dissemination. It is a fact full of significance that the existence of these various modes of spread is recognized, that they are held to be matters of public concern, and that preventive measures are being instituted under expert bacteriologic control for suppressing the existing sources of infection. One of the most difficult problems in this campaign lies in the prompt recognition and rigorous supervision of the mild and obscure cases. It may be comparatively simple to isolate and disinfect with thoroughness in the franker types of the disease, but it is not clear that the danger is most critical on this side. The application of searching and delicate bacteriologic tests is often necessary to determine the suitable mode of action. The dependence of public hygiene upon bacteriologic data and methods has rarely been better exemplified.

The vigorous warfare that is being waged against malaria in many tropical countries affords a further and striking illustration of the utilization of existing resources for the avoidance of specific infection. It is hardly necessary to reiterate the obvious truth that malaria constitutes the chief and, perhaps, the only serious obstacle to the colonization of the tropics by the white races. Political and economic questions of the gravest import to mankind are bound up with the fortunes of a protozoon and a mosquito. The complex life cycle of the malarial parasite offers an unusual number of points of attack. As is well known, several distinct views are current as to the best way of interrupting the continuity of transfer between man and the mosquito. It is conceivable that by the destruction of the malarial parasite within the body of man, the supply of parasites for the mosquito may be cut off and the circle broken at this point. If the mosquitos are prevented from becoming infected, man is safe. It is claimed by the adherents of one school that this method has proved very effective in certain localities where it has been systematically employed. The extermination of the parasite in the blood of man by the administration of quinin certainly constitutes an important weapon in the armory of public hygiene, whether or not it prove to be the most efficient one or the most economic in execution. In this same category are to be put the attempts to prevent the infection of the mosquito by guarding malarial patients against the bite of *Anopheles*. It is obvious that this plan may often be difficult of execution, because of the impossibility of exercising efficient control over the movements of individuals suffering from latent or recurrent infection.

A second possibility consists in the general protection against mosquito bite of all persons dwelling in infected regions. The pestiferous insect may beat its wings in vain against the windows of a mosquito-proof dwelling; if it cannot come near enough to the human being to inject the contents of its poisoned salivary gland, no single case of malaria will result. In parts of Italy, it is said, this mode of prevention has been practised with brilliant success in protecting railway employes, forced by the exigencies of their calling, to reside in highly malarious localities.

A third point of attack is presented in the possibility of destroying or at least arresting the propagation of the insect host of the malarial parasite. The extermination of a number of species belonging to a widely distributed and abundant insect genus may seem in itself a gigantic task to undertake. Remembering the ambiguous success that has attended the efforts of the human race to combat the ravages of certain insects injurious to agriculture, it is not easy to be sanguine concerning the speedy extinction of *Anopheles*. It is noteworthy that the most considerable triumphs attained along economic lines have been effected by the utilization of the natural enemies of the noxious forms. Efficient foes of *Anopheles* have so far not been discovered. There is no question, however, that in definite localities the numbers of individual mosquitos belonging to malaria-bearing species may be enormously diminished by the destruction of the breeding pools. The labors, in this direction, of English health officials in various parts of the world, have been rewarded by a decisive decrease in the prevalence of malaria.

It will not escape remark that the effect of any one or of all of these protective measures is cumulative. A diminution in the number of mosquitos, or in the number of persons harboring the malarial protozoon in their blood, or in the number of infected or noninfected individuals bitten by mosquitos, will inevitably produce a lessening in the amount of malaria in a given region. This will in turn diminish the opportunities for mosquitos to become infected, and will at least put a check upon indefinite extension of the disease. It is significant that a high degree of success apparently attends the enthusiastic and persistent application of any one of the measures instanced.

While malaria, typhoid fever and tuberculosis are today fairly in the field of view of public hygiene, such is not the case with a host of other maladies. A beginning is made here and there, but the vast majority of the diseases that affect mankind still lack an intelligent and organized opposition. This is partly because of insufficient knowledge. At the present time the apparent increase in pneumonia presents an imperative field for research. It seems unlikely that the available modes of attacking this disease are to be exhausted with attempts to improve individual prophylaxis. A clear understanding of the tangled web of statistical, climatic, racial, bacteriologic and hygienic questions that environ this urgent problem of public hygiene is likely to come only through renewed investigation of the phenomena. If it is true, as some conjecture on what seems insufficient evidence, that the virulence of the pneumococcus is increasing, what is the bacteriologic strategy suited to the emergency? Or if it turn out that an increase in the number of victims to pneumonia is largely made up of those who have escaped an early death from tuberculosis, what procedure is indicated?

We cannot always take refuge from the consequences of inaction under the plea of ignorance. There are few, if any, instances in which public hygiene is utilizing to the full the knowledge that it might possess. Some responsibility rests upon those who are prosecuting bacteriologic studies to see that the bearings of their investigations are not overlooked or neglected by those who are constituted the guardians of the public health. There is here no question of the sordid self-interest or commercial exploitation sometimes miscalled "practical application." In the long run the saving of life may play into the hands of the idealist. If John Keats had not died of pulmonary tuberculosis at the age of 25 the modern world would be a different place for many persons. It is not possible to estimate the loss to literature, science, and art since the dawn of intellectual life, which must be laid at the door of the infectious diseases. The relations of bacteriology to public hygiene, if properly appreciated and cultivated, will lead to an improvement in the conditions of life which will enhance both the ideal and material welfare of the race and will give greater assurance that each man shall complete his span of life and be able to do the work that is in him.

THE POSTDISCHARGE MORTALITY AMONG THE PATIENTS OF THE ADIRONDACK COTTAGE SANITARIUM.

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An inquiry into the results of sanatorium treatment of pulmonary tuberculosis falls naturally into two main divisions, first, the immediate results, and second, the permanent or ultimate results, a phase of which is discussed in this paper.

The first of these divisions has received much attention as a large quantity of material for its discussion is available. But owing to the relapsing nature of pulmonary tuberculosis the immediate results are of far less value than the ultimate. The terms used in classifying patients when discharged are in many cases, to say the least, ambiguous. The same definitions often admit of different interpretation, and consequently the value of statistics based upon these definitions is difficult to determine. Comparisons of results obtained by different observers cannot be made in many cases.

The same may be said to a certain extent of the ultimate results, as the time during which the greater part of the sanatoriums have been operating is comparatively short, and time is the most important factor in this question. The methods employed in the discussion of the ultimate results also have been somewhat imperfect and the conclusions reached have not been stated in such a form as to allow of their comparison with standards generally accepted in vital statistics.

It has not been forgotten that in Germany, especially in many cases the end in view in the treatment is the postponement of invalidism and an extension of the working lifetime, and that the statement of (1) the proportion of cases in which this result has been obtained; and (2) the approximate duration of the beneficial results, is perhaps the most appropriate way to estimate the value of such treatment. When, however, the end sought is the restoration to practical health a different method is requisite to judge how far this end has been attained, viz.: a comparison of the after-histories of the cases with some normal standard of health.

Two methods of comparison have been suggested: (1) By comparing the capacity for work; (2) by comparing the mortality experience or deathrate. The first of these is beset with so many difficulties that it appears at present to be impracticable. It is worth while to point out where these difficulties lie so that something may be done to overcome some of them. There is no generally accepted definition of "ability to work." Shall this term include a mere present ability to work, or only an ability to work without serious risk to future health and prospects? In the published statistics of treatment in Germany the number of those classed as "able to work" shows a rapid falling off in the first, second, and third years after treatment, which would seem to indicate that the term as there used includes all who can in any sense be considered capable of working and not only those who are in fit condition.

The patient himself is generally no fit judge of his ability to work,[1] and the mere fact that a man is working or not is in itself very little guide to a correct conclusion. The pressure of poverty, ambition, or other causes leads many to work who are not at all fit, and on the other hand, indolence (generated by the enforced rest during the treatment), and excessive caution owing to the knowledge of the relapsing nature of the disease lead others to stay idle who probably should be working. It is possible that in considering a large number of cases these influences might offset each other, but it is not safe to rely on such an assumption. The necessity, therefore, when "ability to work" is in question, of having a medical report by a competent man—say once every year, is a serious difficulty, as many patients consult no physician.

Again, there is at present no practical standard of working ability with which to compare results when obtained. The experience of fraternal orders, sick benefit clubs, etc., has, up to the present, furnished no statistics which can be generally used for this purpose. The experience of the German societies will no doubt furnish a basis for the solution of this problem in Germany in the near future; but it would be very hazardous to assume that the rates of sickness and invalidity there would be any guide to those in other countries. For these, and other reasons, it has been decided to use the mortality experience in studying the permanence of the results obtained at the Adirondack Cottage Sanitarium.

TABLE I.

Sex.	Admission.		Discharge.			1903.		
	Condition.	Number.	A. C.	D. A.	Act.	L'v'g.	D'd.	Untr'd.
Male	Incipient.	155	95	47	13	100	25	30
	Advanced.	490	55	208	227	174	198	118
	Far advanced.	120	—	21	99	10	81	29
	Total.........	765	150	276	339	284	304	177
Female ..	Incipient.	212	145	47	20	122	20	70
	Advanced.	463	73	200	190	178	172	113
	Far advanced.	102	—	22	80	6	71	25
	Total....	777	218	269	290	306	263	208
	Grand total....	1,542	368	545	629	590	567	385

A. C. = apparently cured; D. A. = disease arrested; Active = disease active.

Showing conditions, on admission, on discharge, and in 1903.

Material on Which Investigation is Based.—From its opening in 1885 to the end of 1901, there were admitted to the Adirondack Cottage Sanitarium, 1,542 patients, 765 males, and 777 females.[2] In 1902 an attempt was made to find out the condition at that time of all those who had been patients, and to establish a system of following up old patients once a year in future. This effort was so far successful that in 1903, on the anniversary of their respective discharges, 1,157 of the 1,542 were traced, only 385 being unfound. A summary of the cases, showing by sex, the condition on admission, condition on discharge, and condition in 1903, is given in Table I. It may be noted here that in 193 of the 567 deaths, the year of death could not be found.

Methods Adopted.—The ages recorded on admission are as on last birthday, which makes the patients on an average about six months older than the ages given. The period of residence was about seven months on an average, so that in taking the ages on discharge as being one year more than those on the records, the results are sufficiently accurate for the present purpose, as difference in age as a factor in the mortality during the postdischarge periods under discussion is insignificant as compared with the influence of the time elapsed since discharge. It is worth noting that if the average age of the various classes be taken instead of the individual ages the results are practically identical. This fact is of value as, owing to the age incidence of tuberculosis being remarkably uniform, and consequently the age distribution of cases in various sanatoriums being very much alike, it will allow of comparisons being made with other experiences without numerous tedious calculations, and yet with a degree of accuracy sufficient for all practical purposes.[1]

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[1] Turban: Beiträge zur Kenntniss der Lungen-Tuberkulose.

[2] All cases in which the diagnosis was doubtful, and all patients whose stay in the sanitarium was less than a month have been omitted.

As a standard with which to compare the numbers surviving and the rates of death among the Adirondack Cottage Sanitarium cases, the English Life Table No. 3, constructed by Dr. Farr,[2] has been adopted. This is a table of ordinary lives, not of those selected for insurance. It has the sexes separately treated and certain subsidiary tables, saving considerable calculation, were available, and for these reasons it was adopted. The use of any other legitimate standard would make no practical difference in the results.

Of the 1,542 cases, it was found impossible to trace 385. The question of how these should be treated is of fundamental importance. If they were all counted as dead the effect would be to give a rate of mortality far too high in general, and especially among the apparently cured cases. On the other hand, if considered living, the deathrate would be too low, especially in the case of those discharged with active disease. An analysis of the untraced cases is of value. The proportion of females untraced is greater than that of males (27% females, 23% males), and the difference is accounted for almost entirely by the apparently cured patients (untraced male, 16%; female, 31%); the disease arrested and disease active percentages being practically the same for both sexes.[3] For the cases belonging to the year 1901 the percentages of untraced are: Apparently cured, male, 5%; female, 17%; disease arrested, male, 21%; female, 24%, being a greater proportion in both sexes for the cases discharged, disease arrested than for the whole 17 years past. Since this investigation was made 4 of the 16 of the untraced patients who were apparently cured have been found to be dead, 12 to be living. Two of the dead were discharged in 1892 and 1 each in 1897 and 1898. One of the living was admitted in 1885, 1 in 1892, 1 in 1893, 3 in 1894, 1 in 1897, 1 in 1898, 1 in 1900, and 3 in 1901.

TABLE II.

Year of admission.	Apparently cured.			Disease arrested.			Disease active.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
1901	101	101	101	93	89	91	62	78	68
1900	102	102	102	84	75	79	20	45	32
1899	99	97	98	71	66	69	24	0	17
1898	80	90	85	85	83	85	52	45	48
1897	89	105	97	42	63	54	7	20	14
1896	94	75	84	59	66	63	11	28	22
1895	108	83	93	51	69	60	16	10	12
1894	109	109	109	60	44	55	20	13	16
1893	54	112	99	11	73	41	18	7	13
1892	110	75	87	18	28	22	6	9	7
1891	75	74	74	14	29	21	9	0	6
1890	0	91	76	10	68	29	0	19	8
1889	75	85	82	39	0	23	38	7	29
1888	57	0	38	47	0	39	—	—	—
1887	—	0	0	—	—	—	—	—	—
1886	—	120	120	—	—	—	—	—	—
1885	—	—	—	—	—	—	—	—	—
Total	93	93	93	62	68	65	23	21	23

Showing for each admission year, by sex and by condition on discharge, the percentages of the "expected" who were living in 1903.

From these figures it will be seen that to assume that all the untraced are dead, would be very far from the truth. The most reasonable conclusion is, therefore, that the untraced are living and dead in practically the same proportions as the traced of the same age, sex and class. This assumption is practically the same thing as discarding all the untraced. To test this assumption the data were treated as follows: Of the patients discharged in each year, only those at ages at which the information was complete were taken, as there was no reason why ages with incomplete data should show a different mortality from those with complete data. The result of this procedure was a strong confirmation of the foregoing assumption, the deathrates in some classes coming out slightly higher, and in others slightly lower than before, but taken altogether, not varying appreciably.

Classification.—Cases at the Adirondack Cottage Sanitarium are classified twice, once on admission and once on discharge,[1] and the ideal method would be to make separate groups, depending on condition both on admission and on discharge. The numbers in these groups would, however, be much too small for reliable results, and several must be combined for statistical purposes. Whatever may have been the condition of patients on admission, the most suitable method of evaluating the permanence of the results obtained by sanatorium treatment is to start from the results themselves and not from the previous conditions. Not that the initial condition of a patient has nothing to do with the permanence of the results, but it has less influence than the final condition. Subsequently, an attempt is made to indicate the influence of condition admission on the permanence of condition discharge.

The first series of tables (*Table II*) shows for each class and year of admission the percentage of "expected living" who were actually alive in 1903. The fact that in many cases the dates of death are unknown, causes no trouble in a comparison of this nature. The most striking features about these tables are:

(*a*) The effect upon the percentages living of the time elapsed since discharge.

(*b*) The marked difference between the patients discharged as apparently cured, and those discharged only as disease arrested, and between these latter and the patients discharged with active disease.

(*c*) The very high percentages in the apparently cured for the 1900 and 1901 cases.

This last peculiarity serves to draw attention to the fact that tuberculosis is a slow disease, and that considerable time often intervenes between reactivity and death. We should, therefore, expect those discharged apparently cured to show a very low deathrate immediately after discharge. The disease arrested cases are a striking contrast in this respect, deaths taking place very soon after discharge without any intervening period of comparatively low mortality.

An interesting question arises from a consideration of these facts as to whether the deaths among the apparently cured are a weeding out of patients that are only *apparently* cured, leaving behind a number who are cured in reality (possibly have acquired more immunity);

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[1] As an illustration take the following: Male apparent cures—expected living calculated for each age, 142.58; calculated for average age, 142.52. Male disease arrested—expected living calculated for each age, 259.87; calculated for average age, 259.21.

[2] Farr, W.: English Life Table.

[3] Marriage, with consequent change of name, may largely explain this.

[1] The classification is as follows:

Incipient Stage.—Slight local, with little or no constitutional involvement.

Advanced Stage.—The localized disease process extensive or in an advanced stage, or slight local pulmonic invasion with rather marked constitutional involvement, or with complications.

Far Advanced Stage.—Marked signs of pulmonic disintegration with marked constitutional symptoms.

Improved Condition.—Physical signs showing process less active, or general health improved with symptoms relieved or abated.

Arrested.—No activity in process in lungs, with absence of fever and other constitutional symptoms,

Apparently Cured.—Abnormal physical signs absent, or if present only slight and indicative of healed lesion. Absence for some months of pyrexia and of sputum, or of sputum containing tubercle bacilli.

Perfectly Cured.—Abnormal physical signs absent, or if present, only slight and indicative of healed lesion. Absence for two or more years of pyrexia and of sputum, or of sputum containing tubercle bacilli.

whether many have been cured and contract the disease again owing to a special susceptibility to it, or whether there is nothing more than an arrest of the disease for a period more or less lengthened.

The figures here submitted do not seem to favor the first conjecture, as the percentages of the living to the expected seem to fall steadily and show no tendency to become more constant with lapse of time. Of course, the length of time for which there are any considerable number of cases is short (at most about 10 years), and future observation alone can definitely settle the question.

In connection with this the causes of death among those dying must be considered. Of the 33 apparently cured who have died, the causes of death are known in 20 cases:

Tuberculosis	16
Appendicitis	1
Postoperative shock (?)	1
Pneumonia	1
Acute nephritis	1
Total	20

However, it should be borne in mind that of the 567 deaths the cause, when stated, was found to be nontuberculous in 10 only.

The second series of tables (*Table III*) is constructed on a different principle. Here the data for each class are all grouped together, irrespective of year of discharge; and the numbers living on each anniversary of their discharge are compared with the numbers dying in each postdischarge year. In other columns are shown the deathrate, or number dying during the year per 1,000 living at its commencement. In the table only 21 out of the 33 deaths among the apparently cured have been taken into consideration. Seven of the remaining 12 must have taken place during the first 10 years, so that the deathrate shown must be increased by at least a third. The remaining five deaths have to be distributed over the first 14 years, and it seems reasonable to suppose that they would follow the law which is shown by the deaths previously commented on. By adding a third to the rate for the first year it is probable that an error would be made, owing to the slow nature of the disease, and the last column shows what would appear to be the nearest approximation to the law which is possible from the data available. It may be expressed as follows:

TABLE III.

Postdischarge Years.	Disease active.			Disease arrested.			Apparently cured.			Hypothetic table for apparently cured cases.	
	Living at beginning of year.	Dying during year.	Deathrate per 1,000.	Living at beginning of year.	Dying during year.	Deathrate per 1,000.	Living at beginning of year.	Dying during year.	Deathrate per 1,000.	Deathrate per 1,000.	Expected deaths.
1	446	118	265	443	20	45	288	3	10	10	2.88
2	196	53	270	366	34	93	236	4	17	20	4.72
3	117	20	171	253	29	115	195	4	21	31	6.05
4	87	13	149	173	16	92	146	3	21	31	4.53
5	59	6	102	118	9	76	115	2	17	32	3.68
6	47	3	64	81	4	49	87	2	23	32	2.78
7	40	4	100	58	2	34	68	0	0	32	2.18
8	32	2	63	34	4	118	53	1	19	33	1.75
9	25	2	80	24	1	42	42	1	24	33	1.39
10	19	4	211	15	0	0	32	1	31	34	1.09
11	14	2	143	13	1	77	20	0	0	35	.70
12	9	2	222	8	1	125	13	0	0	35	.46
13	6	[illegible]	0	3	0	0	8	0	0	36	.29
14	2	0	0	2	0	0	8	0	0	37	.11
15	1	1	1000	—	—	—	1	0	0	37	.04
16	—	—	—	—	—	—	1	0	0	38	.04
17	—	—	—	—	—	—	1	0	0	39	.04
Deaths:											
Known dates	230=65%			121=68%			21=64%				
Unkno'n d'tes	125=35%			56=32%			12=36%				
Deaths, total	355			177			33			32.73	

Showing number living at beginning of, and number dying during each postdischarge year, with corresponding deathrates. Also hypothetic mortality table and expected deaths calculated thereby.

The deathrate among the apparently cured patients is very slightly above the general deathrate in the first year, becomes rather more than double in the second year, and increases thereafter to about three times the ordinary rate without showing any tendency to decrease within ten years.

The disease arrested cases show a different tendency; the deathrate increasing rapidly for the first three or four years and then apparently decreasing, as if a weeding out process had taken place. This showing is confirmed in a remarkable way by the returns of German insurance societies in which the ability to work is found to decrease rapidly in the first three years, and in the fourth to be practically the same as in the third year.[1]

TABLE IV.

Age groups.	Male.		Female.		Total.	
	A. C.	D. A.	A. C.	D. A.	A. C.	D. A.
Under 20	77%	59%	98%	73%	89%	69%
20 to 22	92%	62%	79%	68%	85%	64%
23 to 25	85%	57%	98%	61%	92%	59%
26 to 28	104%	62%	86%	65%	93%	65%
29 to 31	99%	67%	90%	72%	94%	69%
32 to 39	99%	60%	97%	71%	98%	65%
40 and over	98%	69%	108%	70%	102%	69%
All ages	93%	62%	93%	68%	93%	65%

Influence of age on permanence of results.

Percentages of the "expected" living who are alive; by age, sex, and condition on discharge.

From these figures it is readily seen that during the first few years after discharge from a sanatorium a patient should exercise the greatest care. The patients discharged with active disease show a very high deathrate in the first year and a still higher one in the second, but in the third and fourth years a marked decrease takes place, thus somewhat resembling the results in the patients discharged with the disease arrested.

The effects which occupation, habits of life, climate, and other influences have upon the deathrate among the general population are probably much less important than in those who have suffered from pulmonary tuberculosis, and this probability must be borne in mind when considering the foregoing figures.

TABLE V.

Condition on discharge.	Condition on admission.	Condition in 1903.		
		Traced cases.	Dead.	Percentage dead.
Apparently cured	Incipient.	177	19	11
	Advanced.	100	14	14
Disease arrested	Incipient.	62	13	21
	Advanced.	338	139	41
	Far advanced.	33	25	76

Influence of condition on admission on permanence of results.

Influence of Age on Permanence.—In Table IV are shown the percentages of the expected living who were actually alive in 1903, divided into classes and age groups, so as to show the influence of age upon the permanence of the results obtained by sanatorium treatment. There seems to be a slight tendency for the older patients to do better than the younger, but it is not safe to place much weight on the showing of so small a number of cases.

Influence of Condition on Admission on Permanence of Postdischarge Results.—The classification on admission is entirely arbitrary, but it yet serves to divide the cases into classes having in the aggregate very different prospects of improvement, and, as will be seen from the following figures, a very different after-history. (See Table V.)

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[1] This also seems to indicate that the German cases are mostly disease arrested, and not apparently cured.

These differences tend to show that even in the cases of those apparently cured, there is still a great liability to relapse, and that the more advanced the disease has been before the treatment, the more liable is the patient to relapse after discharge even when the stage of apparent cure has been reached. The bearing of this fact upon the importance of early diagnosis is clear.

In conclusion it may be said that:

1. The real test of the sanatorium treatment is not the immediate, but the ultimate results.
2. The lack of uniformity in classification renders the comparison or the combination of the results of various sanatoriums extremely difficult.
3. The classification on "the ability to work" is beset by so many difficulties in America that it is rendered of very little value.
4. The mortality among patients discharged in various conditions affords the best method of studying the permanent results of sanatorium treatment.
5. Of those discharged apparently cured, 93% of the expected living are alive; of the disease arrested, 65%; of the cases discharged with active symptoms, 23%.
6. The deathrate among the apparently cured patients is during the first ten years about three times the ordinary deathrate.
7. The deathrate among the patients discharged with the disease arrested increases during the first few years to many (10 to 15) times the normal deathrate, but afterward decreases.
8. Nearly half of the patients discharged with an active disease, died in the first two years.
9. Patients between 30 and 40, when discharged apparently cured, seem to relapse less than younger patients. This tendency is little if at all marked among the patients discharged with the disease arrested.
10. Incipient cases seem to relapse less than advanced, when both were discharged in the same condition.

THE FINSEN LIGHT, RÖNTGEN RAYS, AND HIGH FREQUENCY ELECTRIC CURRENTS IN CERTAIN DISEASES OF THE SKIN; ANOTHER YEAR'S EXPERIENCE.[1]

BY

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One year ago I had the pleasure of presenting to this Society, somewhat enthusiastically, my personal knowledge and experience in regard to the matters referred to in the title of this paper, and the incoming president very kindly and wisely, asked that the same be again presented, after a year's further observation and experience. This is gladly done, for it is always well in medicine and surgery to have previous experience confirmed or refuted; and especially in matters of such great importance as those now under consideration, it is wise to review more calmly, at a longer interval, remedies and measures which are so novel.

In presenting my personal experience of another year in the lines of treatment indicated, I shall take occasion also to refer to the observations of others, in order to present more definitely what I believe to be the true status of this branch of therapeutics.

1. In regard to the Finsen light, of which I spoke very fully last year. This has continued to attract much attention, especially in lupus, and favorable reports have come from many in regard to it, although few claim as successful results as Dr. Finsen, who has recently given tabulated results of 800 cases of lupus treated at the Finsen Institute.

The reason of this latter statement was explained somewhat in my paper last year, as the result of my personal observation in Copenhagen, and Dr. Finsen has recently called attention to the same in print. The truth is, that the extraordinary results obtained there are not due solely to the application of light for a longer or shorter period, but to the perfect technic which long experience at the Finsen Institute has shown necessary to secure the desired end. Some of the points involved were mentioned last year and may be briefly alluded to again. The closest personal attention and inspection is given to every patient, each day, by the physician in attendance, and also by the nurses in making suitable dressings after the light treatment; moreover another special physician treats locally those diseased areas on the mucous membranes which are not accessible to the light. The patients receive the light treatment for an hour every day, the nurse attendant sitting by and holding the lens-compressor firmly on the spot all the time. The area treated at each sitting is only about three quarters of a square inch, so that the process of cure is very slow and tedious, as some portions have to be treated again and again, after the effects of the light stimulation have passed off; one patient whom I saw had had 721 sittings, for a very extensive lupus.

Many attempts have been made by others to use different and stronger lamps, and to make the sittings much shorter, but, as far as I can learn, the results do not equal those obtained in the Finsen Institute. On account of the difficulties attending the treatment, especially in the matter of having an attendant devote an entire hour daily to holding the compressor, I have to report that I have not yet made use of the complete outfit in my office, brought from Copenhagen, as mentioned last year, but shall expect to do so when other methods fail. Thus far the results from the use of röntgen rays have been so favorable, as will be mentioned later, that it has not seemed advisable to take the great amount of time required for the Finsen light. But from what I personally observed day after day in Copenhagen, and from what I have learned of the work there since, I am fully as confident as I was last year that, if the time, intelligence, and patience can be given to it, the Copenhagen light treatment is one of the greatest advances yet made in the treatment of lupus. Whether the final results obtained by the röntgen ray will exceed those secured at the Finsen Institute remains yet to be seen; certainly thus far they are very promising, and considering the short and relatively infrequent exposures necessary, the advantages will be very greatly in favor of the röntgen ray, if an equally large proportion of good results can be thus obtained.

2. Röntgen ray therapy has continued to attract much attention, and an increasing number of observers are reporting concerning its success and failure. Sufficient time has hardly yet elapsed to determine accurately the real value of this treatment in all cases, but the evidence accumulates steadily that in it we have a most powerful means of influencing nutrition and overcoming certain forms of disease. On the other hand, evidence is also accumulating that it is relatively useless in certain conditions, in regard to which much had been hoped. But it is still difficult not to be really enthusiastic in regard to the results which one constantly sees in proper cases, as compared with those which are obtained by other measures, medical or surgical.

Most observers agree that in superficial epithelioma, especially of the rodent ulcer type, and situated about the face, the röntgen ray is most valuable, and, if properly used, cures a considerable proportion of patients, some of whom have now remained free from recurrence for a number of years. But many observers also agree that the röntgen ray has relatively little beneficial effect on deep-seated carcinoma or sarcoma, and, except in inoperable cases, experience does not warrant its use; many are very strongly opposed to its employment in operable cases, and declare that precious time is often thereby wasted during which a radical surgical operation would probably have been successful.

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[1] Read before the Connecticut State Medical Society, May 18, 1904.

But, on the other hand, the röntgen ray has been repeatedly observed to be most valuable in recurrent, inoperable cases, both in relieving pain and in checking the progress of the disease, while in some instances it has been followed, for a time, at least, by the disappearance of the malignant disease. These results have been verified at the New York Skin and Cancer Hospital.

My figures in the use of the röntgen ray during the past year, relate to 170 cases, of which 49 were in my office, and 121 at the New York Skin and Cancer Hospital. Of these, 10 of the private patients and 43 of the hospital patients were included in last year's report, leaving 121 new patients treated. During last year the office work was done mainly by my associate, Dr. Charles M. Williams, and that at the hospital by Dr. George Alfred Lawrence, to both of whom I am indebted for careful preparation of data relating to the cases.

In the treatment of these patients there were 2,830 sittings, 419 in my office and 2,411 in the hospital. In my office we have had but one burn of any consequence, and that was in a patient with a rather small primary carcinoma of the breast, who refused operation, and in whom the röntgen ray treatment was purposely pushed. The burn has lasted some two months and is gradually healing and the hard mass beneath has steadily lessened. There were no burns of consequence in the 2,411 applications of the röntgen ray in the hospital. Both in my office and at the hospital, superficial dermatitis has been repeatedly produced, which would always subside in a reasonable time, mainly under the use of ichthyol—in the office, at least.

Of the cases under röntgen ray treatment during the year there were 71 of epithelioma, 8 of which were recurrent. Of these, 7 discontinued treatment soon, 11 hospital patients are reported as not improved, 24 were improved, some being still under treatment, and 29 are recorded as clinically cured. It is to be remarked that of the 11 cases recorded as unimproved some were of very long standing and had already produced frightful destruction; of 8 recurrent cases, 2 patients discontinued treatment, 4 were improved, and 2 were clinically cured.

I will not weary you with the recital of many cases, but a few data from my private practice may be of interest. The case longest under treatment is one on which I reported last year.

Miss R., now aged 55, came to me first 12 years ago with an epithelioma of the bridge of the nose of three or four years' duration. This was thoroughly cureted and treated with pyrogallic acid, and healed well; but repeatedly new nodules would reappear, months or years after, on the scar or around, which were actively treated from time to time. In July, 1902, she returned, after a long absence, with considerable epitheliomatous deposit, both superficial and in a mass, beneath the left eye, movable, the size of a large split pea. Röntgen ray treatment was begun in October, 1902, with exposures of ten minutes at 10 inches' distance. The more superficial lesions melted away and the surface became smooth, but the deep lump remained, and was subsequently excised. The röntgen ray treatment was continued at longer and shorter intervals up to the present time, the surface improving and the cicatrices left by former operations smoothing down, so that now there is no evidence of the disease, except a little thickening beneath apparently healthy skin in one place. She has had in all 79 exposures over a total period of 593 minutes, almost 10 hours, in a period of 18 months. Slight burns have occasionally been made, which have healed readily in a short time.

This case, which cannot yet be regarded as cured, is a very unusual one, and rather discouraging. But from the long resistance to other treatment, and from the really perfect condition of the skin of the whole area, except the slight remaining subcutaneous nodule, which has steadily diminished under the röntgen ray, it was thought best to give this method its fullest test, as there were so many encouraging features.

In striking contrast to this is the case of an old gentleman, Mr. A., aged 76, who had an epitheliomatous growth on the right malar prominence, about three-quarters of an inch in diameter. For about 4 years he had had hardened verrucous formations, one of which had developed in six months into an epitheliomatous sore, bleeding when the crust was removed. The röntgen ray was applied for eight minutes at a distance of three and a half inches for only a single time; five weeks later he returned with a perfectly smooth, slightly reddened surface, giving no trace of the former disease. This also is a very unusual case.

Between these extremes are cases in which the disease disappeared clinically in various lengths of time, from seven to twenty-four röntgen ray exposures.

Last year I reported that the röntgen ray did not promise as much in epithelioma of the lip as in those cases in which the disease was seated on the upper portion of the face, and I still believe that in the majority of cases, in which the disease is at all extensive, a radical surgical operation is generally to be preferred. But I can report a most excellent result in one case.

Mr. P., aged 39. In this patient the disease had existed three years before the röntgen ray treatment. He had 24 exposures, lasting in all 154 minutes, in series of from four to eight, over a period of six months.

It is particularly about the region of the eye and nose, where surgical or other treatment will often cause so much disfigurement, and where the disease is so apt to return after operation, that the röntgen ray finds its greatest benefit. There were a number of this class of cases, and no words can fully express the satisfaction one feels in seeing lesions, which certainly would threaten serious results, steadily subside and heal without leaving anything of a scar under the magical influence of the röntgen ray.

Three patients with *lupus vulgaris* have done remarkably well under this treatment, and although none of them is yet entirely cured, a superficial glance would say that there was no longer lupus tissue present; it can however, be detected still to a very slight extent, in isolated points, by firm pressure by means of a transparent spatula.

One patient, Miss F., aged 15, had the disease since infancy, and has had forty-seven exposures, over a total of 280 minutes, during about one year. The disease is practically extinguished, the surface affected, on the neck, one inch by three, presents only a moderately reddened area, with possibly a few deep-seated lupus points, seen only on the most careful examination. She is to have a few more exposures at longer intervals, and there is every reason to believe that the result will be perfect.

The other two cases in private practice are equally encouraging, hardly a trace of lupus tissue remaining, but the patients are still under treatment. Of the six patients with lupus, treated with röntgen rays at the hospital, five are reported as improved, and one not improved by treatment.

While the results in these cases cannot be reported on positively, to one who watches them there can be no question that the ultimate result will be favorable, if the treatment is persisted in, as has been demonstrated by others. While the treatment seems tedious, the time occupied compares most favorably with that required for treatment by the Finsen light, which often requires hundreds of sittings, of an hour each, in severe cases. Lupus vulgaris at the best is a most distressing and often most hopeless disease, and from the manner in which its tubercles melt away under röntgen rays, I feel confident that this treatment will be accepted as by far the best and most feasible that has been thus far proposed.

I have to report that the case of keloid in the face of Miss H., aged 15, mentioned last year, has steadily improved, and most of the surface is quite flat. The skin burns rather readily, even under short exposures, but instead of aggravating the trouble, as do other measures, the disease seems to subside after each slight burn.

Six patients with late syphilis of the palm have been treated during the past year, with most satisfactory results; in each instance the hard, horny papules which had resisted other treatment, local and internal, disappeared in a surprising manner. One of them had also profuse hyperidrosis, and he noticed that after each exposure the profuse sweating stopped for about 24 hours or more; but this condition which had lasted many years returned in the interval.

A large number and variety of cutaneous lesions have been submitted to the röntgen ray in private and hospital practice, and while there were almost always visible beneficial results I am not prepared to speak very positively as to the final results in many of them. There were cases of lupus erythematosus, verruca, nævus pigmentosus, lichen planus, lichen pilaris, psoriasis, scleroderma, mycosis fungoides, eczema, acne, ulcer, and Hodgkin's disease, as also tuberculous glands. The hospital case of keratosis follicularis, spoken of last year, may be mentioned as most successful. The woman who had been practically bedridden for nearly a year, with the distressing condition of the feet, was entirely cured by the röntgen rays of that portion of her troubles and has been repeatedly seen since.

I have used the röntgen rays in two private cases of hirsuties, and in one of them the hair fell completely after a few exposures, but returned in some months in lesser degree, when it again fell after the röntgen ray was applied a few times. In the other case there has been some falling, but it is too recent to judge much as to the prospects. This method of treatment is not to be recommended in cases with coarse hairs, which can be treated by electric epilation; but in both these cases there was a large amount of very fine, downy hair, which caused much mental distress, and, from what has been reported by others, it is believed that a reasonable amount of repetition of the treatment will result in freedom from the trouble.

In looking back over the work of the past year with this means of treatment, I think that on the whole I am about as enthusiastic in regard to it as I was last year, for I then spoke of it as a "valuable addition to our armamentarium," rather than as a measure which was to be used indiscriminately to the exclusion of other and well-tried remedies and methods. We have by no means reached an understanding as to all it can accomplish, and we are beginning to learn what it cannot do. But it has already demonstrated its efficacy in many directions, and if only the results which have been obtained in epithelioma about the face are considered, we have every reason to be profoundly thankful for its introduction, and to feel amply repaid for all the time and thought that has been bestowed upon it.

A few words may be added in regard to some practical points in regard to the use of the röntgen rays in therapy. Operators differ considerably in regard to many features of the work, and as yet there is no absolute standard which can be safely followed, so much depends upon the intensity of the light produced, and upon the judgment, skill and experience of the operator.

The severe and intractable burns which occurred a few years ago, in the use of the röntgen ray for diagnosis and photography, are seldom heard of now, if they even do occur in its use therapeutically. But it is always wise to bear in mind the possibility of their occurrence, and to be most careful and circumspect in the employment of this very active agency, especially in those with light complexions.

Some writers speak of 10 or 15 minute exposures, repeated daily, but we have seldom employed the röntgen rays in anything like this severity; indeed, 10 minute exposures are rare with us, and very commonly the duration will not exceed five minutes. It is always well to begin cautiously with a new patient, for it seems pretty certain that skins differ in susceptibility to this form of stimulation, as to many others. Remembering that it may take from 10 days to three weeks for a burn to occur after exposure to röntgen rays, one should be cautious in the early use of this measure to new patients.

There is also a considerable difference of opinion as to the distance of the target from the affected surface. We have preferred a shorter distance and shorter exposures, with a tube of medium resistance, whose rays do not penetrate too strongly.

In our earlier practice we employed heavy lead foil as a protection, but for some months have used several folds of a thick rubber cloth sheeting as being more manageable, and serving the purpose equally well. All the work has been done with a static machine—12 plates, 36 inches. We have largely used the Queen's tubes.

3. High-frequency electric currents, a yet more recent addition to therapeutics, have also received great attention during the past year, and favorable reports constantly appear concerning their use.

During the past year I have treated 27 private patients, with nine different cutaneous conditions, by means of hyperstatic electricity from Piffard's generator, and it has proved a very valuable method of treatment in many instances. As reported last year, I have found it very serviceable in the removal of those rather trifling affairs —warts, which are often very troublesome, especially on the scalp, which have been thus treated on 10 patients with excellent results, as far as can be learned. A single thorough application of the current, with a carbon electrode, produces a moderate inflammation, often with slight hemorrhage in the tissue, and the wart dries down, falls off, and the process is ended without a scar. The same treatment has also been used with good result in four cases of small pigmentary moles on the face, only there have been generally several applications, removing a layer each time, in order to be sure not to destroy too deeply and leave a scar.

Last year I reported on a case of extensive port wine mark on the face of a girl aged 14. Certain portions thus treated had become almost normal, in striking contrast to those parts not treated. She returned after a while to her country home, and has not returned for further treatment.

This year I have had a more striking case, that of Miss W., aged 24, the right side of whose face, neck and ear was the seat of a distressing, brilliant purple, port wine mark. She had had from others a variety of treatments, off and on for years, with only the production of some scars here and there, and very little diminution of the affected area. The results of the application of the hyperstatic electricity, with the carbon electrode, at an inch distance, have been most gratifying. Considerable areas have returned almost to normal color, leaving only congestive redness, and in striking contrast to the untreated portions. Thus far she has had 21 sittings, and some areas have been treated more than once. There is a slight, superficial destruction of tissue, involving some of the bloodvessels; in five to seven days the crust falls, and the tissue beneath shows of a pale pink, which gradually whitens.

If this form of electricity should accomplish only the satisfactory removal of these disfigurements, which render so many lives unhappy, it would be a boon worth having.

I have used hyperstatic electricity in three cases of acne this year, of course in connection with other proper treatment, and the result has been satisfactory in causing the prompt disappearance of the lesions.

Three patients with lupus erythematosus have been under treatment, and while they are not yet cured, some patches have disappeared, leaving very little disfigurement. Two patients with eczema have been thus treated, with favorable results. The hyperstatic current is of value both in removing thickened patches, and in controlling itching. Piffard claims that it will arrest itching in severe cases of eczema, and from what I have seen of its effects I am inclined to believe that it will prove valuable in this direction. I shall make much more trial of it in this disease and hope and rather expect to report favorable results.

Taking the year's retrospect of this method of treatment I am impressed with the fact that we have in it a force, or mode of application of electric force, which promises greater utility as we learn more of its powers.

In connection with radio-activity I may mention that I have been greatly interested in the use of radium in my hospital clinic by Dr. Tracy. The number of cases in which it has been tried is relatively few, about a dozen, and while I cannot yet report any cures, I can testify that it certainly has active powers in connection with certain tissue changes. We have used it in a number of inoperable cases of epithelioma inside the mouth, and also in some external epitheliomas. The diseased tissue has become softer and diminished in size, and pain has been materially reduced and even arrested in the mouth. In two or three cases of lupus, the tissues have become reddened and then shrunken, but we have not obtained the brilliant results we were led to expect by the remarkable effects reported from Paris.

The radium used has been of a high radio-activity, at first 70,000, then a specimen of many times that strength. The applications have been from 15 minutes to an hour or more in length.

In concluding this rather rambling statement of my personal experience with the agencies under consideration, I have to say that I feel that we are only on the threshold of our knowledge of the important subjects under consideration, and that I am but an humble student of these profound matters. Until we know more of the real nature of what we call light and electricity, and radioactivity, we must grope in the dark, with faithful, honest, and diligent experimentation, and it is only by the truthful statement of personal experience that we can make advances in what must be our main object, namely in curing disease. If my slight contribution toward this end shall advance it, even to a slight degree, I shall feel amply rewarded.

THE AFTER-EFFECTS OF HYSTERECTOMY ON THE NERVOUS SYSTEM, THE GENERAL HEALTH AND THE SEXUAL FUNCTIONS.[1]

BY

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In the discussion of this subject there are two points of view to be considered: (1) The effects upon a patient arising from the removal of any important part of his or her anatomy, as the hand, an arm or a leg; and (2) the special effects that arise from the removal of an organ, devoted exclusively to special functions, like the uterus, which is before us for discussion tonight. In the removal of any large or important part of any individual, that indefinable condition known as shock, which is usually only a passing incidental experience, may at times be of such a character as to affect the mental characteristics for the balance of life. Then, too, the self-consciousness of disfigurement, of mutilation, although not actually apparent to the outside world, often restricts the social and business relations of life in ways that are not due to physical incapacity, so that the entire morale may be changed, and a forceful and strenuous life wrecked, or a well-balanced character made desperate and reckless. Such examples are not unknown to the experience of all of us. Such after-effects we may not unnaturally expect after removal of so important an organ as the uterus, and they sometimes though rarely occur in hysterectomy. To be sure, we are dealing with an organ not essential to the life of the individual. Its functions participate simply in the reproduction of the species, but it is so intimately related not only to the nervous system, but also to the psychologic equilibrium of a woman, that it is said to dominate her life. Certain it is, that the function of reproduction, or child bearing, exerts such a reciprocal influence upon the traits and characteristics of the individual as to place a distinct hallmark upon the parous as distinguished from the nulliparous woman. Not only is this true of womankind, but is markedly notable in some of our domestic animals. Who has not noticed the increased dignity, motherly instincts, and sense of responsibility in a dog or a cow that has been through the process of motherhood? The woman who is subjected to hysterectomy is deprived definitely of this experience, and to that degree has limited her moral, mental and emotional horizon.

It so happens, however that many women who are subjected to hysterectomy have already experienced the broadening influences of maternity, so that to discuss the question intelligently we must classify the cases according to age and previous condition. Not only this, but the character of the operation must be taken into consideration, as to whether the removal of the uterus is partial or complete, and whether it involves the simple removal of the uterus only, or embraces the ablation of the ovaries and the tubes. The removal of the uterus only takes away the function of child bearing and menstruation, but leaves the woman in possession of the functions of the ovary, and that, at once, raises the question of the function of each of these organs and their relative importance.

From the standpoint of the woman, there are three aspects in which the question of hysterectomy upon her is to be considered: 1. What will be the effect upon her sexual appetite and enjoyment? 2. What will be the effect of the suppression of ovulation and menstruation? 3. How will her nervous system functionate under the new order of things? What unfortunate results follow the deprivation of the experiences of maternity? Regarding the seat of sexual desire, authorities differ. At the meeting of the American Gynecological Society of 1903, Dr. Mann, of Buffalo maintained that the ovary is the seat of sexual passion in woman, and illustrated his meaning by saying:

> If you take out the ovaries of a young girl before the age of puberty, the sexual appetite will never develop. You may take out the uterus or the vagina, and it (the appetite) will develop just the same. Therefore, I say the ovaries are the determining factors in the sexual sense. If you take out these organs after menstruation is already established, it will cause the change which we know as the menopause to occur, and we know that the menopause is gradually followed by a loss of sexual desire. I have known of cases in which sexual desire was decidedly increased after operation (for removal of the ovaries), but this condition does not last long, nor does it return to the condition in which it was before, but gradually disappears. The presence of the ovaries, therefore, is the determining factor in the sexual appetite, and the removal of the uterus and tubes has absolutely nothing to do with it.

Dr. Reamy, of Cincinnati, took decided issue with this statement, and thought this physiologicopsychologic question must have a geographic shading, saying:

> Undoubtedly the ovaries determine feminine development. Besides furnishing the egg of procreation the ovaries impress and modify the physical, mental and moral characteristics of the child approaching womanhood and continue their domination in maturity. But sexual desire originates in the brain; capacity by coordination in the lumbar cord.

To my mind the ovary is the dominating factor, and my observation confirms me positively in the opinion that with the removal of that organ sexual desire, capacity and enjoyment gradually disappear. This I think coincides with the opinion of the majority of observers. Dr. Charles P. Noble, of Philadelphia, however, in the course of the discussion before alluded to, said:

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[1] Remarks made in discussion of this subject before the New York Academy of Medicine, October 6, 1904.

> I formerly asked every woman whose ovaries I had removed, every time I saw one, until I had asked probably over 600, and I have never had one tell me yet that it lessened her sexual desire; in many of them it had increased. I do not believe, when the ovaries are removed, these women lose sexual appetite any sooner than in the natural course of events.

Certain it is that the removal of the uterus and its appendages produces a premature menopause. It is logical to infer, therefore, that the same symptoms would attend it, exaggerated, however, by the sudden interruption of functions which nature gradually suspends only at a completed period of life.

The associated menstrual and ovulation phenomena are regulated by three factors, the uterus, the ovary and the nerve centers. The ovary and the uterus are the regulating and perhaps the exciting end organs, and the chief of these is the ovary. When both of these organs are removed the phenomena that follow are flushings, irregular nerve storms and explosions, as well as abnormal psychic and hysteric manifestations. Many patients promptly take on an excessive deposit of adipose tissue, which deprives them of their former comely figures. If the general system has been depressed from the disease whatever it may be for the relief of which the operation was performed, and such is generally the condition, general nutrition is improved and a gradual restoration to a normal healthy condition is the rule. The state of general health after the operation is the true test of the success of the procedure. The result of my work in this line as I have followed the cases year after year, has stood this crucial test in the large majority of the patients. The mechanism concerned in menstruation has gradually accommodated itself to the altered state of affairs, in the peripheral end-organs, and the patient's feet have been firmly planted on an enduring stratum of health. In cases in which the ovaries have been removed and the uterus allowed to remain, the phenomena of the menopause have been prolonged, and the remaining organ, the uterus, has continued a sense of local pelvic discomfort.

When the uterus only has been removed, and the ovaries left *in situ*, menstruation has ceased, but ovulation has continued. In these cases, the nervous storms and explosions, usually attendant upon the sudden production of artificial menopause, have been absent. The ovary, which is the end-organ presiding over the periodicity, still being present, periodic reminders of menstruation have frequently occurred, extending over several months, and even years. These consist of a fulness of the breasts and a slight sense of discomfort in the pelvis. Patients who have suffered from painful congestion in the pelvis, and general malaise occasionally, have these to endure for some months, when they gradually fade away.

Mr. C. J. Bond, writing in the *Lancet* last year, analyzes 50 cases of hysterectomy in his practice, with special reference to the after-effects and remote results. He says:

> In these cases I have been strongly impressed with the greater rapidity of convalescence, the smaller disturbance of nerve balance, and the far greater measure of good health and enjoyment, reached by those in whom the uterus has been removed and the ovaries left, as compared with the other class, in which the ovaries have been removed with the uterus.

In the technic of the operation of hysterectomy, this is the practical lesson to be learned from a discussion of this character and the latest: Whenever possible, leave at least one ovary. If the entire ovary is not sufficiently healthy to justify its preservation to the patient, leave as much of it as the condition will justify.

Walter Lindley, of California, reviewing his experience, says:

> In hysterectomy cases, the patients recover more promptly, and satisfactorily, when the ovaries are left. I could point to a considerable number of cases in Los Angeles, of women who have great responsibilities and hold, you might say eminent positions, upon whom hysterectomy has been performed, and yet are having the brightest and most successful years of their lives.

These quotations from Bond and Lindley so perfectly voice my opinion upon the comprehensive view of the subject that I ask you to accept them as my own.

THE TREATMENT OF BASEDOW'S DISEASE, WITH REPORT OF A CASE.

BY

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of Milwaukee, Wis.

During the last decade our knowledge pertaining to Graves' disease has been considerably enhanced, and at the present time it may be positively stated that no theory can be regarded as adequate without taking into consideration the function of the thyroid gland. It is generally conceded among authorities that the condition is a thyroid intoxication or hyperthyroidism of the organism, although many authors, among them von Mikulicz and Reinbach,[1] contend that exophthalmic goiter cannot be considered as essentially due to an excessive functionation of the thyroid gland; they admit, however, that a disturbance in the gland is a prominent factor, but regard the glandular changes as secondary. There still prevails a great discrepancy of opinions regarding the origin of the characteristic ocular, cardiac, and nervous features.

This paper is not intended to discuss the theories advanced as to the production of this singular symptom-complex, but it appears to me that the many brilliant results of our radical therapeusis (partial thyroidectomy) have considerably elucidated the origin of these manifestations, namely, that the tachycardia, exophthalmos and nervous phenomena are probably symptoms of irritation due to the excessive amount of thyroid extract (thyroidin) circulating in the system. Speaking from a medical standpoint, we cannot help but laud the surgeon, for the internist must admit that surgery has accomplished more gratifying results in the treatment of exophthalmic goiter than medicine.

Surgical Aspects.—The two methods in vogue today are resections of the sympathetic ganglions and partial thyroidectomy. The former, first practised by Abadie and Jaboulay, is at present less extensively done than the partial thyroidectomy as first practised by Rehn and von Tillaux. The exothyreopexy, as suggested by Poncet is obsolete, and only of historic interest. Both the foregoing methods are unquestionably of great value, but the mortality of each is high. The statistical report given by Rehn[2] of 32 sympathetic resections shows that 31.1% of the patients were cured, 46.9% improved, 12.5% unimproved, and 9.5% died. In 14 cases in which ligation of the thyroid artery was performed, 24% of the patients were cured, 50% improved, and 26% died. In 177 partial excisions of the gland, 57.6% of the patients were cured, 26.5% improved, 2.3% unimproved, and 13.6% died. Out of 24 cases of partial thyroidectomy, Williams[3] reports 7 complete recoveries, 7 showed improvement, 4 remained the same, and 6 terminated fatally, making a mortality of 25%.

Of the 80 patients operated upon by Buschan,[4] 32 (40%) recovered, 20 (25%) showed improvement, 22 (27%) were unimproved, and 5 (8%) died from the operation.

Starr[5] operated upon 140 patients (partial thyroidectomy). Of these 24 (17+%) recovered, 45 (32+%) improved, 3 (2+%) were unchanged, in 45 (32+%) the result was uncertain, and 23 (16+%) died.

These few statistics sufficiently demonstrate that the mortality in partial excision of the thyroid gland as a therapeutic agent in Basedow's disease is very high. In looking over the inexhaustible supply of the more recent literature, one is impressed with the idea that the deathrate of partial thyroidectomy in Graves' disease is somewhat lower than in former years. I do not believe that this is due so much to the improved methods in technic as to the fact that the cases in which operations are done are of the more favorable and selected ones. In severe cases, however, the mortality is not materially lowered. Of the numerous excellent results this procedure has offered, I am inclined to believe that sufficient time has not elapsed to draw definite conclusions, for the reason that the surgeon is not in the position to determine just how much of the gland to remove and how much to leave behind. Considering the variable duration of the disease (from a few months to so long as 20 years, Cheadle[6]) and the fact that Basedow's disease sometimes terminates in a myxedema (Sallier, Baldewin, Kowalewsky, Joffroy, and others), it remains an open question how many of these operated cases will not eventually develop into a condition of hypothyroidism.

Medical Aspects.—A great number of remedies have been used in the treatment of exophthalmic goiter, and each has its enthusiastic supporter, but it is my conviction that in many instances the principal factor in bringing about the favorable result was not the effect the remedy had on the root of the trouble as much as the inspiration the treatment brought with it in giving the patient confidence or new encouragement. To this end, Möbius reports favorable results through the use of hypnotic suggestion.

Since the introduction of organotherapy the administration of thyroid extract or its active principle thyroidin was frequently resorted to as a treatment in this malady. This treatment was successful in the hands of Kocher, Owen, Voisin, and others, but the results of Oppenheim, Eichhorst, and others were just opposite. Weiller[7] reports a case in which a cure was effected in three months by the daily administration of 3 cg. of iodothyrin, gradually increasing the dosage to 75 cg. These results would tend greatly to minimize the adequacy of our present theory concerning the nature of exophthalmic goiter. We know, however, from the experiments of Ballet, Enriquez, Lanz, Boinet, and others, that the symptom-complex of Graves' disease may be artificially produced by feeding large quantities of thyroid extract.

With our present knowledge of the disease, the administration of thyroid extract or its active principle is not only a counterindication, but is absolutely dangerous, and to me it is inconceivable how its use ever effected a cure, unless through one of the doctrines of homeopathy, "like cures like." Among the other organic extracts which have apparently proved efficient are those of the thymus (von Mikulicz, Owen, David, Monsin, Boisvert, and others), and suprarenal glands (Solis Cohen, Murray, Bates, and others), although Parker[8] used extract of thymus in four cases of exophthalmic goiter with uncertain and rather unsatisfactory results.

The drug treatment of Basedow's disease is similar to the treatment of other maladies, in which innumerable drugs have been strongly recommended, but a more certain and reliable one is still desired. Merely to mention them would be a source of monotony to the reader, although each drug has its advocate. The only one deserving consideration is iodin or its preparations, because of its indiscriminate use. To say little, it is a dangerous drug, as Breuer[9] has shown its administration greatly aggravates the symptoms, and many cases of acute thyroidism follow its internal use in cases of simple goiter, probably by causing a rapid absorption of the substances of the thyroid gland, with which the iodin enters into combination (thyroiodin).

I have personally witnessed the observations of Breuer while aspirant at the clinic of Prof. Nothnagel. It is also probable that chronic iodism is, in its true aspect, nothing other than thyroidism (Breuer,[10] Jaunin,[11] Gautier[12]). Still it is surprising in looking through the literature to find so many cases beneficially influenced through its use.

Abadie and Collon[13] used injections of iodin and ether, a plan first recommended by Pitres, in 1899, in 24 cases of exophthalmic goiter, of these, 12 patients were cured, 9 showed notable and permanent improvement and 3 temporary improvement. This would seem rather convincing of the efficacy of the drug. On the other hand, the authorities condemning its use are far more numerous than the supporters of this routine of treatment.

The results in the two cases of Allan,[14] in which the patients were treated with injections of bile, deserve mention, but the method has found no supporters; both patients were greatly benefited. The same may be said of the two cases of Minor,[15] who used large colonic injections of water, resulting in the recovery of one patient and a great improvement in the other.

Finally, galvanism of the sympathetic ganglions and hydrotherapeutic measures deserve a passing consideration, as both of these have undoubtedly produced favorable results, especially the former, but I am sceptical as to their efficiency in cases of grave intoxication.

As our knowledge regarding the true nature of exophthalmic goiter increased, the treatment was directed on a more rational and scientific basis, the socalled "antithyroidin method."

Ballet and Enriquez deserve credit for laying the foundation of this promising method. They injected the blood of thyroidectomized dogs into patients with Graves' disease with results that were encouraging, and the procedure proved worthy of further pursuit.

Following the suggestion, Burghart[16] treated a patient in this manner with the blood of a myxedematous patient. The patient improved rapidly, gaining 23 pounds in six months. Three other patients were treated with the blood of thyroidectomized dogs or with the dried alcoholic extract of their blood; two of them improved decidedly and gained in weight; the third improved somewhat, but left the hospital shortly after the treatment had begun.

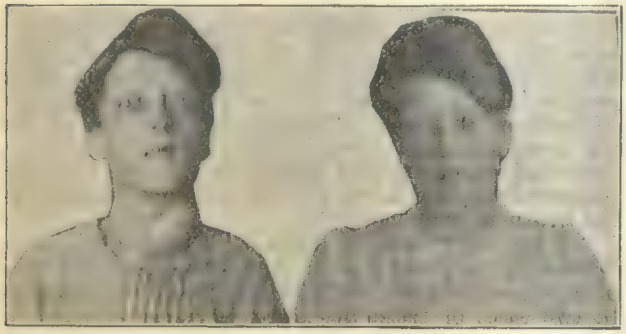
At the suggestion of Möbius,[17] Merck and Co., of Darmstadt, prepared a serum and tablets from the blood of thyroid extirpated sheep which the author instituted in two cases of Basedow's disease, administering the serum both per os and subcutaneously. The serum had the more decided effect, although the tablets had a beneficial influence in a member of the family of one of the author's colleagues, who was afflicted with the malady. In a later publication Möbius[18] states, that unquestionably the serum is a useful agent in the tachycardia and general nervous symptoms. He draws no conclusions, but is of the opinion that his serum cannot be regarded as a curative agent.

The result in the case of Schultz[19] in which the patient was treated with Möbius' serum, was extremely gratifying. In this case the symptoms of exophthalmic goiter had existed for four years with pronounced psychic disturbances at times. A course of two months' treatment with injections of the serum, in gradually increasing doses, ended in a complete recovery.

The simplest, most inexpensive and safest method of treating Graves' disease was suggested by Lanz in 1894. It appealed to the author that in thyroid cachexia a poison circulated in the economy, which under normal conditions is neutralized by the thyroid secretion, and the secretions of such a cachexia, if used in Basedow's disease might have an antagonizing effect upon the poison of this affection. This prompted him to feed exophthalmic goiter individuals with the milk of thyroidectomized goats. His first two patients thus treated responded favorably.[20] In a second publication,[21] the author reports four additional cases in which the patients were treated with the milk of excised thyroid goats. All of the patients showed a decided improvement in the symptoms and a marked increase in weight.

Goebel,[22] who also claims the credit of having conceived the idea of using thyroidectomized goat's milk as a therapeutic agent in Graves' disease, likewise reports a favorable case, but the case, however, is objectionable, other means, such as galvanism and the like, having been practised. The author's promulgated theory differs from that of Lanz; he contends that the milk has no antagonizing effect, but acts directly on the gland itself limiting its production of iodothyrin.

Burghart and Blumenthal[23] report a number of encouraging results of treatment with the milk or its derivatives of thyroidectomized goats. Besides the favorable cases reported by Stevens[24] in his excellent thesis "On the specific treatment of Basedow's disease," Christensen[25] is the only other author I find in literature who has given the treatment suggested by Lanz a trial; in two cases, he reports favorably of the method. The chemic analysis of the milk of thyroidectomized animals has been unsatisfactory and does not differ specifically from the milk of animals with an intact gland, although Treue found the milk of such animals to contain no traces of iodin. This is no criterion against the value of its therapeutic action, as it is probable the tests at our command are not delicate enough, or sufficiently adequate to determine any specific difference. It is not only reasonable to assume that the products of the thyroid gland affect the milk as well as the other secretions, but it is an established clinical fact. In this connection it is well to note the interesting observation of Bramwell;[26] in an infant six months old, the milk of the nursing mother, who daily took 16 cg. (2.5 gr.) thyroid tablets, caused symptoms of acute thyroidism; the symptoms disappeared when the tablets were discontinued. The Lanz method of treatment seemed to create but little enthusiasm, and so far as I am aware, the following case is the first in this country in which treatment was followed by this method.


Taken May 15 Taken August 1.

Case.—Miss E., aged 20, a native of Wisconsin. Her family history is negative. For the past two years she has been afflicted with chlorosis, since which time her menses ceased entirely. Her present trouble began last September with nervousness, loss of sleep, and increased excitability. During the following month, her neck, which had always been prominent, due to the presence of a small goiter, suddenly increased in size, progressing to such an extent as to interfere with her breathing. In November the patient's friends called her attention to the bulging of her eyes, which, she states, have since increased in size. By this time her symptoms had become considerably aggravated and were associated with profuse perspiration at night. Being no longer able to pursue her daily work she consulted a Christian scientist. Seeing that she was losing gradually in weight and that eddyism had no effect, a regular physician was consulted December 28, 1903. The medical attendant prescribed an ointment to be applied to the goiter and the administration of an internal remedy. Her condition under the treatment rapidly grew worse and from this time on the patient had a more or less incessant exhaustive diarrhea (8 to 10 passages daily, sometimes less).

The symptoms soon became alarming and desperate, and her loss in weight between January and May was something appalling (46 pounds). The periods of slight mental perturbation which she previously displayed, now became more frequent and pronounced. The attacks of syncope which now manifested themselves, together with the numerous choking spells, added considerably to the gravity of her condition. Walking and climbing stairs were only possible with assistance, and at that extremely exhausting, and very slow work. The almost complete anorexia made matters very serious. In brief, the physical signs and symptoms May 9 were as follow:

General condition, one of emaciation; slight mechanical dyspnea, moderate anemia, an anxious and staring expression, weight 96 pounds.

Eyes: Considerable ocular protrusion, particularly the left eye; exquisite v. Graefe and Stellwag symptoms (one lid closure about every 90 seconds), Möbius symptom (internal rectus insufficiency) not present.

Neck: Contour greatly altered, both thyroid lobes considerably enlarged, the enlargement of left lobe greatly in excess. A pronounced pulsation of struma was visible. Circumference 39 cm.

Thorax: Lungs negative. In the precardial area a diffuse, pulsation. The apex beat not circumscribed. A slight dilation to the right and left on percussion. Auscultation revealed a blowing systolic murmur over the entire cardiac area, most pronounced at the base. No accentuation of sounds.

Pulse: Wave small, though equal, regular, and rhythmic. Arterial tension diminished. Pulse-rate 165 per minute.

Nervous system: Reflexes considerably increased. A fine oscillatory motion of the fingers when abducted. (Marie symptom.) Pronounced choreiform movements of upper extremities. No disturbance in sensation.

Vasomotor disturbances: The entire body presented a moist condition. Vigoureux symptom positive. Increased electric conductibility of the skin, due to increased moisture.

Urine not catheterized; specific gravity 1,016, reaction acid, a trace of nucleoalbumin and serum albumin; indican not increased. Sugar, acetone, diacetic acid, peptones, etc., absent. An alimentary glycosuria upon the administration of 50 grams of grape sugar.

Stools: Consisted of watery discharges.

Blood: Erythrocytes, 4,760,000 per cmm.; leukocytes, 3,760 per cmm. (Türck modification); hemoglobin, 65% (Fleischl-Miescher with control). Stained specimen one of oligochromemia with a relative increase in lymphocytes. The hematologic findings are the true picture of a chlorosis.

The essential changes: Between May 9 and 16, large doses of bromids were given internally without effect. Loss in weight during this period, 2 pounds (weight 94 pounds). Pulse, 160. May 16.—Thyroidectomized goat's milk used (3 pints daily). Other medicines discontinued. May 27.—Condition improved. Patient less excited, diarrhea somewhat decreased, appetite improved, no choking spells. Weight increased 4 pounds (98 pounds). Pulse, 135. June 3.—Condition considerably worse. Patient received only one quart of milk the entire previous week. Diarrhea very severe, frequent attacks of choking spells. Weight decreased 2 pounds (96 pounds). Pulse, 155. June 10.—Condition better. Diarrhea less severe, appetite good, sleeps well, less excitable. Weight increased 3 pounds (99 pounds). Pulse, 130. Exophthalmos and goiter unchanged. June 20.—Condition greatly improved. Patient able to indulge in moderate exercise without fatigue. Diarrhea has disappeared, tremor considerably lessened. Choreic movements have almost entirely disappeared. Appetite, sleep, etc., good. Weight increased 4 pounds (103 pounds). Pulse, 125. Neck 38 cm., exophthalmos conspicuously less. June 27.—No more diarrhea, no choking spells. No complaints of any kind. Weight increased 2 pounds (105 pounds). Pulse, 120. July 5.—Fully able to do all kinds of domestic work. No complaints whatsoever. Weight increased 1 pound (106 pounds). Pulse, 125. July 11.—Condition excellent. Weight increased 2 pounds (108 pounds). Pulse, 130. July 23.—On the day previous to her visit she had diarrhea, which lasted 12 hours (probably due to an error in diet). Weight increased 1 pound (109 pounds). Pulse, 115. August 1.—Weight increased a half pound (109½ pounds). Pulse, 118. Neck, 36. A return of her menses during this week. Hemoglobin, 60%. Leukocytes, 4,080 per cmm.

Discussion.—It is not my purpose to discuss all the symptoms presented in this case, as the majority of them are thoroughly considered in almost every textbook. Of interest, and worthy of mention, however, is the great disproportion of the ocular protrusion and enlargement of the lobe of the goiter on the left side with the corresponding side, as the photograph of May 15, clearly indicates. The two symptoms deserving a passing consideration are the choreiform movements and the leukopenia.

The choreic twitchings, frequently occurring in Graves' disease, have prompted some writers (Fry, Sutherland and others) to suggest a possible relation between exophthalmic goiter and Sydenham's chorea. I do not dispute the possibility of a coexistence of both maladies in the same individual, and it is true that an exophthalmos may occur in chorea, but considering the prominent eyeballs of many normal individuals, and that a pronounced exophthalmos may occur in other affections, particularly chlorosis, I do not believe one is any more justified in suggesting a sort of relation between chorea and Graves' disease, simply because a common symptom or so may occur in both affections, than between true diabetes and exophthalmic goiter, because of the presence of glycosuria. Doubtless, the choreic movements have a similar origin in both Graves' disease and chorea, that is, cortical irritation, the one probably the products of the thyroid gland and the other, according to many authorities, an infectious agent. A leukopenia has been frequently observed in Basedow's disease, and it is possible that the toxic properties of the thyroid gland have a negative chemotactic action on the hematopoietic organs. The case in question shows a leukopenia of 3,760 per cmm., but the case is objectionable on the ground that the patient is chlorotic. The associated chlorosis, I believe, can only be regarded as coincident, but the coincidence is sufficient to hinder the drawing of conclusions as to what effect the hyperthyroidism had on the blood impoverishment. It would seem, however, that the thyroiodin, or possibly other toxic substances of the thyroid gland, affected the blood-forming organs but little, as the hematologic pictures remained practically unchanged (August 1, leukocytes 4,080 per cmm., hemoglobin 60%), whereas all the other symptoms improved decidedly.

However sceptical one may be regarding the proficiency of the milk treatment in exophthalmic goiter, it cannot be denied that this report is another striking evidence testifying to its merits.

In looking over the case one cannot help but admit the severity of its type. The fact that since January the symptoms ran an alarming course, together with a loss in weight of 46 pounds in less than 4½ months, or more than 10 pounds per month, and a pulse-rate of 165 beats per minute, would indicate the inevitable termination.

Surgical interference was beyond the question, as death would have certainly supervened through cardiac failure. Considering the history, it is not at all improbable that the patient's rapid decline from January to May might have resulted from the promiscuous use of iodin or its preparation, which the patient's previous medical attendant may have employed, as she states her condition became daily more aggravated during his treatment. The two comparative photographs sufficiently illustrate the improvement in her facial expression and the exophthalmos. The essential change in the goiter consists chiefly in a reduction of the left lobe, as the illustration clearly shows. The total difference in the measurement of the neck between May 9 and August 1 was 3 cm. Regarding her pulse and weight, it is to be observed the one gradually decreased and the latter increased. It is interesting to note that during the week of May 27 and June 3 the patient received only a small quantity of the milk, resulting in a loss of 2 pounds in weight, and the pulse-rate increased from 135 to 155 per minute.

The diarrhea, increased excitability, choking sensations, etc. (the latter probably also dependent on toxic effects, as the goiter remained unchanged), also returned. From June 3, three pints of milk were daily and regularly given, with a gradual increase in weight to 109½ pounds on August 1, or a total of 13½ pounds during these 2 months. During the same period the pulse-rate also decreased from 155 to 115 per minute, and her general condition improved to such an extent as to permit her to indulge in her ordinary walks of life. During the last week of July her long ceased menstrual flow (two years) again reappeared, and in the past six weeks her only reply regarding her condition was, "I feel perfectly splendid." She still continues to take the milk regularly, as I am convinced were it to be discontinued it would only be a question of time ere she would lapse into her former condition. The milk, therefore, cannot be regarded as a curative agent.

I cannot agree with Goebel, who regards the milk as directly affecting the thyroid gland, limiting its production of thyroiodin and possibly other toxic substances which the gland may secrete.

The theory of Lanz is the more plausible, but instead of the milk having a direct antagonistic action I am inclined to believe it is more of a process of neutralization or possibly combination and the effects only last as long as the milk is given, which the case in question uniquely illustrated during the period in which the patient received but a small quantity of milk. It is also my conviction that the severer the exophthalmic goiter, the more milk is required to neutralize. To this fact I attribute the brilliancy of the result over some of the other reported cases, as the patient received three pints of the milk daily, a larger quantity than in the majority of those reported. The rapid increase in weight was certainly not due to the nutritive qualities of the milk, although I admit its value as a nutritious aliment, but considering that the patient daily took large quantities of cow's milk constantly during her illness without the slightest beneficial effect, it is safe to assume the increase was due to the therapeutic action of the milk. The assumption too, is well founded, as the individual's increase in weight during the first half of the treatment was 12 pounds, whereas from July to August the gain was only 3½ pounds, notwithstanding the fact that the same quantity of milk had been given.

I would suggest the use of desiccated thyroidectomized milk in the form of tablets, as preferable to that in its natural state.

The goat, 2½ years old, still continues to give an abundant supply of milk. Following the operation, rapid emaciation took place, but the animal soon regained her lost weight. At times she is very frisky, which, previous to the removal of her thyroid, had not been observed. The animal drinks a surprisingly small amount of water, and eats her food with some indifference, preferring to be fed rather than to eat of her own accord.

In concluding this paper, I do not wish to be construed, as saying that in the milk treatment we have found a specific in Basedow's disease, as time alone can determine its value. My case, an unobjectionable one, only adds to its merits, and the brilliant result yielded by the milk is certainly inspiring and worthy of further pursuit.

I am deeply indebted to Dr. Earls for his kindness in permitting the use of the Trinity Hospital, and Drs. C. H. Lemon and E. J. Purtell, for having thyroidectomized the goat.

Parke, Davis & Co. are supplying me with capsules and tablets of desiccated thyroidectomized animal milk, with which I am at present experimenting.

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Soldiers Should be Instructed in Medicine.—In view of the fact that in all wars disease kills many more than bullets do, Dr. G. Weiss suggested at the recent meeting at Breslau of German naturalists and physicians that all soldiers and officers should receive thorough instruction in all the branches of personal hygiene and preventive medicine.

THE TREATMENT OF EPITHELIOMA BY MEANS OF THE RÖNTGEN RAY.[1]

BY

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The object of this paper is not to call attention to the fact that this most common form of malignant disease is amenable, in selected cases, to treatment by the radiation from an excited Crookes' tube, but to show what varieties of epithelioma may be most easily and successfully treated, how the success may be most uniformly obtained, and to discover if possible the most rational technic and the reason for failure when such failure occurs. To endeavor to do this successfully it will be necessary to cite cases in number, giving the technic employed and the result, successful or otherwise, obtained. It is unnecessary to state before this society that the greatest proportion of patients with epithelioma can be cured by the application of the röntgen ray, if the skill, experience and technic of the operator are adequate to the case in hand. In order to formulate an intelligent report of the results obtained in any such series of cases, it is necessary to divide them into two separate and distinct classes:

1. Those in which, owing to location, extent, metastasis, poor physical condition of the patient, and various other factors, no clinical cure may be expected, and the treatment instituted is solely for the relief of pain, cessation of irritating and offensive discharge, and possible prolongation of the patient's life. It is manifestly unjust to the treatment to include and classify as failures, cases which are recognized as hopeless and in which an absolutely fatal prognosis can be made at the first examination.
2. Those cases in which the location and extent of the disease are such as to enable a favorable prognosis to be given, and a cure may be reasonably expected to follow proper treatment.

The treatment of epithelioma possesses one advantage over the treatment of the various internal malignant growths. The disease being superficial, the effect of treatment can be readily seen and the dosage accurately adjusted to the needs of the case in hand. There is also far less danger of autointoxication in the treatment of such growths. The disadvantage, however, lies in the fact that the majority of these growths are recurrent, they have been excised, cureted, cauterized, or necrosed, often repeatedly before they are submitted to röntgen ray treatment. Another disadvantage lies in the fact that the majority of patients suffering from epithelioma are old, their vitality is low, the reparative power of the tissue is slow, deficient, in some cases absent, their nutrition is below par, their kidneys weak and inadequate, the skin inactive. These are all factors which must be considered.

In many cases we see the peculiar irritability of the skin, which might almost be termed the "epithelioma habit." The slightest abrasion or contusion is followed by a slow, irritable, chronic inflammation, with overgrowth of the horny layer, and the exfoliation of furfuraceous scales. Many cases are noticed with moles and nevi of various sorts, all ready to take on a malignant degeneration at the first irritation or injury.

Recently I saw a patient with an epithelioma on the right malar eminence and some eight other foci scattered over the face and neck. Several of these were examined and proved to be epithelioma. These cases often appear as relapses or recurrences, when they are really developments of other foci overlooked at the time of treatment.

The technic employed in the treatment of the following patients is the outcome of several years' work, in which I often blindly and in vain endeavored to reproduce results. It is copied in part from the observation of other men and it seems to admit of adaptation to each particular case. The time factor is a standard exposure of ten minutes. The distance is for all superficial growths eight inches from the surface of the tube. The vacuum of the tube is never allowed to rise. Self-regulating or very heavy tubes are employed, and these are reduced to the lowest point, and penetration is secured by means of sufficient series spark gap. A penetration is desired and obtained just sufficient to enter the diseased tissue and pass through it. Certain tubes, which will maintain very low vacuum and run for many treatments without change, are carefully preserved for such lesions as those of the eyelids, over bony prominences, etc. The amperage of the secondary discharge is estimated by the heat of the discharge when short circuited, the sound of the spark gap, the condition of the interrupter, and the amount of current flowing in the primary circuit, usually six amperes. Variations in dosage are administered by increasing tube distance and decreasing primary current. Screens are employed only when the hair and eyes demand protection and a number of treatments are always given in any case without a screen, When one screens a growth he pretends that the fenestra in the screen or shield exposes the full extent of the growth which he desires to treat. It takes a wise man to tell how much tissue around any malignant growth is infiltrated and ready to join in the cell propagation and parasitism which constitutes malignancy. Unless the outermost edges, the advance guard of the invading foreign embryonal cells are attacked and destroyed, recurrence is prompt. Screens are employed for cosmetic effect, and this is a secondary consideration when life is at stake.

In all cases of malignant disease the first group of lymphatic glands in the chain draining the seat of the growth, must be thoroughly rayed. The time which must elapse between the infection of a lymphatic gland by material from a malignant growth, and the recognition of such infection, through pain or enlargement, is an unknown factor, and when such tardy recognition occurs, glands beyond and inacessible may be infected.

The frequency of treatment is one of the hardest questions to decide. It is my habit to give ten daily treatments unless the approach of an undesirable degree of reaction appears imminent, when I give treatment every third day till the results desired are obtained. Occasionally a case is encountered which requires very vigorous treatment to obtain any result.

The question of dosage is one that depends entirely upon the behavior of the case under the standard dose. If results do not appear, the dose may be cautiously increased, bearing in mind the cumulative tendency of the agent employed. Occasionally a case is encountered which resists all treatment short of a severe burn. In such a case I have never hesitated to produce such a burn, always, however, warning the patient and obtaining consent, such burn being limited to the growth and a small surrounding area. Whenever possible, a photograph is taken at the beginning and end of treatment, but in private practice this is often objected to by the patient.

The following cases have been selected as illustrating the results in the treatment of epithelioma. As they are numerous, each will be described as briefly as is consistent:

CASE I.—Epithelioma. Mrs. G. G. (photo), aged 67. Location, entire nose. Began as boil on nose, following smallpox, 30 years ago. The boil left a wart, which remained quiescent for 20 years, then began to grow till present condition was reached, cauliflower nose with large sinus into left naris. Treated three months. Number of treatments, 30. Results perfect. No recurrence in two years.

CASE II.—Epithelioma. Mr. C. H., aged 50. Location, lower lip. Duration, six years. Began as small red point on inner surface, scaled off, and kept sore by inveterate smoking and drinking. Previous treatment, caustic paste. General condition bad. Growth covered entire inside of lower lip, thick and fungating. Submaxillary glands enlarged and tender. Operation advised and refused. Treated 30 times. Developed severe toxemia, acute desquamative, general dermatitis. Growth disappeared. Recurrence prompt. Operation by Mann, of Buffalo. Patient died of mediastinal recurrence three months later.

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[1] Read before the meeting of the American Röntgen Ray Society, September 9, 10, 11 and 12, St. Louis, Mo.

Case III.—Epithelioma. Mr. H. (photo), aged 58. Location, right side of neck. Duration, 15 years. Previous treatment, caustics. Area, 1½ x ¾ inches. Treated 18 times. Second degree burn produced. Result perfect; no recurrence.

Case IV.—Epithelioma. Mr. K. (photo), aged 75 years. Location, lower lip. Began as a cold sore three months before and spread rapidly. Deepseated induration of center of lower lip, with extensive ulceration, making removal out of the question. Previous treatment, cauterization. Pain, moderate and constant. Treated two months, with healing of ulceration and disappearance of swelling in submaxillary glands, but persistence of induration deep down toward center of chin. Operation advised and performed. No recurrence.

Case V.—Epithelioma. Mr. K., (photo), aged 77. Location, right side of nose, entire ala destroyed. Duration, eight years. Began as a small pimple which remained quiet for several years, then spread. Previous treatments, arsenic paste, curetment, etc. Mother died of cancer of the lower lip. Number of treatments, 22. Results perfect. No recurrence in two years.

Case VI.—Epithelioma. Mr. L. (photo), aged 68. Location, side of nose. Duration 10 years. Began as small dry scaly patch which burned and bled easily. Previous treatment, salves. Small raised ulceration ⅝ inch in diameter. Treated 15 times, result perfect. No recurrence.

Case VII.—Epithelioma. Mrs. L., aged 50. Location, tip of nose. Duration, six months. Small red ulcer with ragged edges stringing and bleeding. Treated 20 times, smooth soft scar, no recurrence in three years.

Case VIII.—Epithelioma. Mr. L. (photo), aged 50. Location entire lower jaw. Duration nine years. Began as small ulcer on lower lip. Previous treatment, arsenic paste. Curetment. General condition bad. Entire mouth involved. Chin a honeycombed purulent mass. Treated three months. Much benefited. Ulceration healed. Discharge from sinuses in chin ceased. Able to masticate food. Went home and disease remained inactive for a year, then became active and death followed in two years.

Case IX.—Epithelioma. Mr. McC. (photo), aged 73. Location, temple and lower lip. Began as small fungating growth in center of lower lip. Treated by cautery and extensive resection of lip. Recurrence prompt. Entire mucous border of lower lip in an open excavated ulcer with sharp edges and bathed in foul pus. Submaxillary glands swollen and tender. On the left temple is a raised fungoid mass an inch in diameter. Lip treated 25 times and healed kindly. Temple given 8 treatments and second degree burn produced followed by disappearance of the mass.

Case X.—Epithelioma. Miss R., aged 45. Small epitheliomatous ulcer on side of nose, rough and bleeding easily. Treated 15 times, no scar and complete disappearance of ulcer. No recurrence.

Case XI.—Epithelioma. Mrs. S., aged 47. Large fungating warty mass bathed in pus, situated over left clavicle. Originally the site of a mole which was tampered with and took on degenerative changes. Duration one year. Treated 18 times. Disappeared and no recurrence in one year.

Case XII.—Epithelioma. Mr. S., aged 60. Location, center of lower lip. Duration three months. Began like a cold sore, was cauterized, then excised, but recurred. Small hard ulcer resembling a chancre in lip. Painful and deep. Treated 15 times. No trace or scar and no recurrence in one year.

Case XIII.—Epithelioma. Mr. S., aged 65 (photo). Duration, 15 years. Began as a small ulcer on the nose and spread slowly. Entire side of face and nose is an open sore, discharging profusely and very foul. Eye destroyed. Upper lid swollen and hard. Previous treatment, arsenic paste. Treated for one year. Marked improvement. Ulceration healed but eyelid remained enlarged. Ulceration remained closed until his death from heart disease three years later.

Case XIV.—Epithelioma. Mr. V., aged 76. Ulcer three-quarters of an inch in diameter in front of the left ear. Patient had diabetes and care was necessary to prevent gangrene of tissue exposed. Treated 8 times. Cured and no recurrence in one year.

Case XV.—Epithelioma. Miss I. (photo), aged 40. Location, angle of the mouth. Duration, seven years. Previous treatment, caustics. Ulceration an inch long and a half inch wide, discharging yellow seropus. Treated 26 times. Result perfect. No recurrence in one year.

Case XVI.—Epithelioma. John T., aged 46 (photo). Ulceration covering bridge of nose, an inch long, three-quarters of an inch wide. Duration three years. Previous treatments, zinc chlorid. Treated 20 times. Complete disappearance. No return in three years.

Case XVII.—Epithelioma. Robert M. (photo), aged 67. Duration, 15 years. Began as small ulcer on side of nose. Previous treatment, arsenic paste. Right eye blind from gunshot wound. Entire left side of face involved. Left eye has both eyelids involved. Discharge was profuse and foul, but cleared up after six treatments. Treated three months with complete disappearance of the growth and healing of ulceration. Face is disfigured from failure of granulation to cover more than facial bones.

Case XVIII.—Epithelioma. Dr. O. B. Small epithelioma of nose from irritation of glasses. Case of two years' standing. Cured in six strong treatments. No recurrence in two years.

Case XIX.—Epithelioma. Rev. D., aged 70 (photo). Epithelioma of right orbit, destroying fundus and lids. Treated four months, and the result as shown is like an enucleation. Freedom from recurrence for one year, when a slight ulceration began in the center of the orbital cavity, which would heal under treatment, then promptly break down again, and inclement weather preventing his attendance, the disease progressed rapidly to a fatal termination.

Case XX.—Epithelioma. Mr. M., aged 50. Epitheliomatous ulcer on right cheek, one inch in diameter. Treated 15 times. No recurrence in three years.

Case XXI.—Epithelioma. Mr. McC. Small epithelioma of left temple of one year's standing. Treated daily for 21 days. No scar and no return in three years.

Case XXII.—Epithelioma. Mr. M. Epithelioma of nose, of three years' standing. Ulceration one inch in diameter. Treated 10 times. No recurrence in two years.

Case XXIII.—Mrs. B. Small epithelioma of chin. Treated 10 times. No recurrence in two years.

Case XXIV.—Mrs. R. (photo). Epithelioma of left brow and temple. Duration, five years. Treated 20 times; scar is soft and scarcely visible. No sign of recurrence in six months.

Case XXV.—Mr. W. (photo). Epithelioma of angle of mouth and inside of upper lip. Treated three months; would not heal till second degree burn was produced. Result is good from cosmetic standpoint, and there is no recurrence in one year.

Case XXVI.—Professor W. Squamous-celled epithelioma of left loin. Rapidly growing bluish-black, flat mushroom-like tumors with thick, tough pedicles, bleeding profusely at a touch and surrounded by purpuric spots in skin. Clinical diagnosis, probable melanotic sarcoma. Microscope showed epithelioma only. Tumors injected with pure fuming nitric acid, then röntgen ray applied for two months. Skin surrounding the tumors sustained third degree burn, which was very painful and slow in healing. There is a small scar, and no recurrence after one year.

Case XXVII.—Mrs. W. Epithelioma in center of lower lid a half inch in diameter. Duration, one year. Treated 23 times, and complete disappearance followed. There is now no difference in the two eyes, and one cannot tell which lid was affected.

Case XXVIII.—Mr. D. (photo). Epithelioma horns an inch long, side by side, on right cheek. Bases sore and beginning to ulcerate. Treated 15 times, when the larger horn became loose and fell off and its bases ulcerated and healed. The smaller was very resistant, but finally also disappeared. No recurrence in one year.

Case XXIX.—Mr. D. (photo), aged 50. Epithelioma of lower lid following entrance of piece of steel a year ago. Elevated bleeding rose-like mass an inch in diameter, with depressed center and piled up edges. Treated ten times in five weeks. Complete recovery, with very little ectropion and no return in three years.

Case XXX.—Mrs. D., aged 40. Epithelioma of nose, of two years' standing. Ulceration three-quarters of an inch in diameter. Patient was a confirmed headache-powder fiend and suffered from chronic acetanilid poisoning. It was necessary to get some hemoglobin in her blood before any reaction could be obtained or any attempts at healing made on the part of the tissues. By withdrawing the acetanilid and substituting a course of tonic treatment she was built up and the röntgen ray was then applied with immediate result. No scar and no recurrence after two years.

Case XXXI.—Mr. M., aged 55. Epithelioma of temple an inch in diameter, of three years' standing. Cured in 15 treatments. No scar and no recurrence in 18 months.

Case XXXII.—Mrs. M., aged 70. Epithelioma, an inch in diameter, situated in center of forehead. Duration, two years. Treated ten times. Healed and no recurrence in two years.

Case XXXIII.—Mr. McA., aged 37. Epithelioma involving side of nose and inner canthus of left eye. Duration, three years. Treated three months. Result is complete disappearance with very slight scar. No recurrence in one year.

Case XXXIV.—Mr. O., aged 51. Large squamous-celled epithelioma of right thigh. Patient has bad case of Bright's disease with albumin up to 30% by volume. Tumor base injected with fuming nitric acid and surrounded area rayed for one month. No recurrence.

Case XXXV.—Mrs. M., aged 70. Epithelioma of right buttock three inches in diameter. Previous treatment, several months with small Finsen light; no result. Treated 15 times. Disappeared and no recurrence in two years.

Case XXXVI.—Mrs. McC., aged 55. Small epithelioma of right temple following removal of wart with thread. Treated 18 times; small white scar remains after two years.

Case XXXVII.—Mrs. S., aged 70 (photo). Epithelioma of eyelids, of seven years' standing. Treated with caustics for three years. Treated by röntgen ray for a year at intervals, with the result that I have been able simply to hold the destructive process in check. Cessation of treatment is followed by prompt recurrence. Patient will not consent to enucleation.

CASE XXXVIII.—Mr. F., aged 50. Epithelioma of nose, of five years' standing. One inch in diameter. No previous treatment. Treated 20 times. No scar nor recurrence in two years.

CASE XXXIX.—Mr. W., aged 65 (photo). Epithelioma involving entire orbit. Previous treatment, pastes. Treated 10 times, with great improvement. Stopped treatment because he was told röntgen ray would burn his eyes out.

CASE XL.—Mr. N. (photo), aged 42. Epithelioma of eyelids. Lower lid entirely gone. Upper lid half destroyed. Treated three months and disease checked. This patient will have to be kept under constant observation to prevent recurrence.

CASE XLI.—Mrs. H. (photo). Epithelioma of nose. Fungating mass ½ x ⅝ inch on end of nose. Duration, three years. Cured in 10 treatments. No recurrence in two years.

CASE XLII.—Mr. H. (photo). Epithelioma of cheek. Duration, 15 years. Remained slow and quiet up till six months ago, when a fall, striking the growth on some timber, caused it to spread rapidly and pain greatly. Treated one month and became a simple ulcer, which healed without further treatment. There is no recurrence after 18 months.

CASE XLIII.—Mr. L. (photo). Epithelioma of breast, of five years' duration. Operation and caustics previously. No axillary involvement. Rather rare in a male patient. Treated one month. Healed and no recurrence.

CASE XLIV.—Mrs. L. (photo). Small epithelioma of chin, of three years' standing. Cured in 10 treatments. No recurrence in three years.

A tabulation of these 44 cases shows the average duration rather high, viz. four years and eight months. This average is raised by four patients having each a duration of 15 years, and two of ten years.

The nose seems to be a favorite site, 12 cases being located there. Of the 44 cases, 10 or 33% were recurrent, 34 or 77% were primary. The average number of treatments necessary in each case was 22. In but 3 of the 44 cases had metastasis occurred. Eight patients, or 18% were benefited; in 3 cases, or 7% there was recurrence; 30 patients, or 81% were cured. Three cases, or 7% terminated fatally. Of the 3 cases in which death occurred, 2, viz., VIII and XIX, were cases in which a cure could not reasonably be expected by any method of treatment. In the other case, II, the patient drank, smoked, and interfered in every possible way with the treatment. He attempted to dictate how often and how long he should be treated, and insisted that a screen must be used containing an opening the exact size of the growth. Consequence was a prominent recurrence. He refused operation till such time as it had little to offer him. I believe that had he been more reasonable, and had I been more experienced, a very valuable life might have been saved.

The mistake that is most commonly made in the treatment of epithelioma is the use of a tube of high penetration and the employment of protective screens. Success in the treatment of this class of malignant disease as in all other, depends upon the ability of the operator to limit metastasis. The treatment of the initial lesion is easy, and is usually successful, often in spite of glaring defects in the technic employed. In all cases the degree of success achieved by the operator will be in direct proportion to his experience, the correctness of his technic, his familiarity with the apparatus, and his ability to distinguish an active from a worthless tube, and in the majority of cases the better radiographer he has made himself, the easier will he find his therapeutic work, for there is no true measurement of the efficiency of the radiation thrown off from an excited Crookes' tube, quite so beautiful, exact, and so easily read as the power of that radiation to produce chemic changes in the emulsion of the silver salts upon a photographic plate.

CARCINOMA OF THE BREAST.

CASE I.—Mrs. K., aged 64. Referred by Dr. Frederick. Carcinoma of right breast. Duration, one year. The growth began as a small hard nodule below nipple, with little pain. Previous treatment, none. Condition on presentation: entire breast is a hard nodular mass, with a center crater discharging sanious pus. Axillary glands are enlarged and tender. Patient is weak and anemic, and has a bad mitral insufficiency, with poor compensation. Appetite and digestion poor. Bowels very constipated. Slightly cachectic. Father died of Bright's disease, mother of pulmonary tuberculosis. Treated three months, in all 40 treatments. Breast decreased in size, pain disappeared. Patient developed a severe bronchitis, and died one year later of pneumonia. Breast at this time was small and painless.

CASE II.—Miss B., aged 40. Referred by Dr. Cunningham. Carcinoma of right breast, of one year's standing. Previous treatment, none. A hard, painful nodular mass was present in the lower part of the breast. Axillary glands were enlarged and tender. Nipple was slightly retracted. General condition was good, save for hay asthma. Treated five months. Number of treatments, 50. Slight dermatitis produced on three occasions. Result, complete disappearance of tumor and subsidence of axillary glands. No recurrence, and no difference in the two breasts in 18 months

CASE III.—Mrs. T., aged 54. Referred by Dr. Langfitt. Carcinoma of breast. Mother of a physician. Operation refused by surgeons on account of feebleness. A large, hard mass was present in the left breast, and tender axillary glands. Case of three months standing. Skin adherent to growth. Nipple pulled down. Breast painful to touch, and stinging. Treated four months. Number of treatments, 30. Complete disappearance of tumor, subsidence of glands, and great gain in general health. No recurrence in 18 months.

CASE IV.—Mrs. D., aged 44. Referred by Dr. Dranga. General carcinoma. Recurrent. Original focus, right breast. Radical operation. Recurrence in one year in scar and in axilla. A number of nodules, red and painful, occurred along the line of incision. Some enlarged and painful glands were present above the clavicle on the left side. There was constant pain in left side, pleuritic in nature. There was no tuberculosis present. The patient was treated for one year, and all visible signs of disease disappeared, but she is going down hill from some internal recurrence which I am unable to locate.

CASE V.—Mrs. P., aged 32. Referred by Dr. Stevenson. Carcinoma of left breast of one year's standing. No previous treatment. Patient absolutely refuses operation. A hard, painful, and nodular tumor is present in the lower part of the breast. Axillary glands are enlarged but not painful. Treated 24 times. Tumor has apparently disappeared, but patient still complains of some pain in the breast. Axillary glands have disappeared. A bad burn was produced at fourth treatment in this case.

CASE VI.—Miss F., aged 46. Referred by Dr. Stevenson. Carcinoma of breast of three years' standing. Enormous mass of fungating growths with sinuses, etc. Operation advised and consent obtained. Radical operation by Dr. Langfitt. The patient was rayed as soon as convalescent, and treated constantly for four months. No sign of recurrence in one year.

CASE VII.—Miss F., aged 47. Referred by Dr. Stevenson. Large schirrus of right breast, axillary involvement. Mass so large that operation was advised. Radical operation by Dr. Langfitt. Rayed as soon as able to walk. Postoperative radiation continued, front and back for three months. No recurrences in one year.

CASE VIII.—Mrs. E. Referred by Dr. Langfitt. Large carcinoma of right breast. Rayed ten times, then radical operation by Dr. Langfitt. Postoperative raying for two months. Stopped treatment and died six months later of mediastinal recurrence.

CASE IX.—Mrs. S., aged 65. Referred by Dr. Strickles. Large carcinoma of breast with involvement of scapular muscles, axilla, etc. Rayed ten times, radical operation by Dr. Langfitt. Postoperative raying on tenth day following. Prompt recurrence and death in six months from internal metastasis.

CASE X.—Mrs. J. Recurrent melanotic sarcoma of right breast. Recurrence 15 days after operation. Treated five times. Went to Ohio and was treated two weeks. Died of exhaustion.

CASE XI.—Mrs. D. Carcinoma *en cuirasse*. Entire external thorax an infiltrated mass. Treated for relief of pain. Became absolutely comfortable and was sure that she would recover, in spite of my repeated denial of such possibility. Died while seated at breakfast table. Cause of death unknown.

CASE XII.—Mrs. W., aged 70. Referred by Dr. Tufts. Carcinoma *en cuirasse*. No previous operations. Treated for relief of pain and inhibition of growth. Developed albuminuria and evidence of toxemia and ceased treatment after the eighth exposure. Died six months later of exhaustion.

CASE XIII.—Miss C. Referred by Dr. Everson for postoperative raying. Breast removed by Dr. Everson one month previously. Rayed for one month. No recurrence in six months.

Art and the Healing Art.—The *New York Evening Post* says: Pittsburg is the home of a hospital that professes a theory of healing art. It set out to be esthetic as well as anesthetic. Artists were called in and painted pictures on the whitewashed walls. The theory was that, under the influence of those artificial forests and flowers, the patients would all get well. But, unluckily, some of them died. Moreover, all the patients who died in the decorated ward grew worse after they had been taken there for treatment. The doctors held a consultation, and their verdict was that the pictures must go. The art cure, one gathers from the catastrophe, is only another phase of Christian science. Meanwhile, in the light of the high mortality while the paintings remained, we may perceive a profounder significance in the proverb: "Ars longa, vita brevis."

SPECIAL ARTICLES

THE CELL: ITS CHARACTER AND FUNCTIONS.

BY

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Complete analogy between inorganic and organic things is not demonstrable; however, while not identical, a measure of analogy obtains in them. The atom in physics and chemistry is in a sense the counterpart of the socalled "cell" in biology and medicine; both are at the beginning of things, each in its own domain.

The atom and the atomic theory are undergoing reconsideration and readjustment to recent discoveries and advanced knowledge of cosmic facts and factors, and likewise the cell and the cell theory are being influenced by the spirit of research and discovery, now so prevalent. The conception of the cell and the exploitation of the cell theory have never been perfectly satisfactory; as a working hypothesis, however, they have served a useful purpose, and do yet. The cell theory has never been so fully accepted and so firmly intrenched as the final thing, as had been the atomic theory up to recent years. Professor Lionel S. Beale, of London, many years ago called attention to the imperfect and rather misleading nature of the cell conception. Several years ago Professor Jos. McFarland, of Philadelphia, in private correspondence, recognized and emphasized this difficulty, and Professor V. C. Vaughan, of Ann Arbor, states his conviction that no such structure as the cell wall exists. Such a stage in the history and progress of science is reached that reconsideration and possible reconstruction to more advanced knowledge of the facts and factors out of which they arose are needed. It is not necessary to enter upon any consideration of the rise and history of the cell theory; the question for discussion and elucidation is: What is that which has so long gone under the cognomen, the "cell?" Is it an entity and what are its place and part where it has been supposed to obtain?

As the atom is the ultimate of material things, so the cell is the ultimate of the organic body; it is the unit of organic structure in plant and animal. A distinction must be recognized between or in the organism as to its structural entity and its identity.

The cell is not the ultimate or unit of the organism save in its aspect as a structural body; there is no unit of the organism in its identity. An organism has functions in operation as well as organs and parts. A "cell" is a structure, it is the anatomic unit. Something other than a structural thing is the ultimate of the organism in functional capacity. The ultimate of the organism is the protoplasm, Dr. Huxley's physical basis of life. This needs no other designation than bioplasm.

The cell conception has included the protoplasm, but it has not recognized the distinction in the structural and the nonstructural of its constituent factors with sufficient clearness. And this is a vitally important matter, for upon this, very much depends the ability to "construct an objective picture of the nature of the vital processes" (Virchow), an essential requisite for the practise of medicine, as well as for interpretation of biologic problems.

However, admitting as we must that the term "cell" has but indifferently, perhaps illy served its purpose, what better term have we?

To reject the conception of an "enveloping membrane" and to break down the "cell wall," marks no advance in itself, a structural entity is there, some term must express it.

The conception of the cell or membranous structure has a basis in entitative factors and has aided in interpretation of the nature and functions of the anatomic or structural unit. The masterly work of Professor Virchow, alas, now out of print, his "Cellular Pathology," found its basis here, and that which the socalled cell stands for will certainly hold its place for some time to come.

The cell is not, therefore, merely a bit of protoplasm. Being the anatomic unit it includes more than bioplasm. The question arises how and where are enzymes formed, and from what and where are they extracted? Something structural is veritable here. Bioplasm is the germ-plasm, but it is not even a germ until it has some structure! A bit of protoplasm is not a spermatozoon, or ovum; it is not anything but a speck of bioplasm until it has tissue or structure of some sort. Go down the scale of life to the bottom, the one-celled organisms, socalled, and even between the plant and animal, the "blob of albumen," and these are something more than purely protoplasm. Nothing that lives consists solely of bioplasm, there will be some molecularly arranged matter present and demonstrable. Cell respiration, or more exactly, physiologic, and metabolism are the primordial act of life, and tissue formation is the inevitable outcome of the life processes. Bioplasm is a delicate substance and easily destroyed. It is largely in solution, 95% water (Beale). As a germ it is supposed to be, in a manner, encelled, an enveloping membrane to be made apparent, in instances. Metabolism and tissue formation being primordial provide the tissue encasement or protection. Nothing reaches the bioplasm save as it is in solution. What protects the living matter from contact of substances, intercellular matters, possibly not always in solution? Inorganic salts are found intracellularly, raising the questions how they came there, and specifically as to the effect of their juxtaposition with the nucleus or bioplasmic contents, so to say, of the cell? Voluminous interpretation of these points is not facile, scarcely, at present.

The side-chain theory of Ehrlich sends out receptors, a special receptor for each kind of nutrient matter, and even for toxin! molecules, and Professor Ehrlich will hold on to the cell conception for dear life, of his theory.

The foregoing observations have been advanced with the purpose of establishing the following two points as foundation for this discussion: 1. That bioplasm in function is associated with structural tissue of some class or grade; it is inconceivable otherwise. 2. From the nature of the bioplasmic functions a "cell," or tissue of membranous character is a very natural, if rude and imperfect, conception in the premises.

At the stage of organic life or evolution, when the cell conception is taken up, there is certainly something more than protoplasm, something which may be analyzed and demonstrated as having molecules or atomic groups, and altogether different from protoplasm which will not submit to test and analysis. And here I must mark and emphasize the distinction just recognized between the living and the nonliving matter, between the bioplasm or protoplasm and structural tissues of the organism as a whole, and of the socalled cell. It should be put in head lines that a protoplasmic molecule is unknown to biologic science, because undemonstrable, and however sure one may be that the facts warrant their assumption (for what else can there be?) nothing may be established or built up out of the assumption, for we are dealing, at least in part, in physical science. Until the demonstration of molecular structure in protoplasm is forthcoming, it is untenable and unscientific to interpret processes in which protoplasm is not only a factor, but the active and dominant factor, on the basis of an atom group composition. This is the Gibraltar which wrecks so many medical and biologic theories. The tendency has been to minimize or ignore this distinction, with results that have not aided in the matter of clear conception or correct interpretation of the factors and the phenomena involved. Sir Oliver Lodge foretells the laboratory production of matter from stuff which is not matter, not necessarily an unreasonable expectation; but that is quite different from the laboratory manufacture of protoplasm and life.

A chemic laboratory deals with chemic things, with atomic and molecular matters, and knows nothing whatever of substances other than of atomic groupings in nature. This is the last place in the world for the manufacture of substance which shows no molecular constitution. If a laboratory could be grown, and the tools, so to speak, grown with it, being vital parts of the laboratory itself, as was that in which protoplasm is produced, then there might be some speculation as to laboratory produced protoplasm. And even then only one kind of matter could be made, that which would grow into other laboratories, for an apple tree cannot be grown from bioplasm taken from a rosebush.

And not only is it impossible to make protoplasm, it is equally impossible to unmake it. It will not be disintegrated or decomposed; it will not reveal its nature, it will "die" first. All attempts to form protoplasmic substance on the basis of atomic and molecular science, prior to the demonstration of atom group structure in protoplasm itself, cannot be other than following a will-o-the-wisp.

I maintain that recognition of the facts in regard to bioplasm as a substance, the physical basis of life, and its essential and demonstrated properties and powers, is vital to a correct biologic science. Starting with its nonstructural nature, it is the active and dominative agency in all organic phenomena. Not only does it refuse to lend itself to tests and analysis, but it "dies," and may the language be permitted, it dies by its own hand, in reaction to environment, or external irritant or causal factor. All organic phenomena are protoplasmic in origin and potential agency, being reactions to external environment and stimuli; and when as an organism it dies, although many millions of bits of protoplasm which were the site and the potentiality whence the life processes originated and proceeded, shall have disappeared, nothing shall have added to or taken from the weight of the body, now "dead"! Matter, tangible enough surely, but of such unaccountable nature and properties and powers could not be made in a chemic laboratory, and by chemic methods and skill.

Recognizing these facts, with which the world of science may be challenged, a mere tyro's conception of protoplasmic activities will forbid the abandonment of the "cell" conception, or some membranous or other tissue structure as associated with protoplasm in the incipiency of its primordial action.

Protoplasmic phenomena, as we have seen, being so largely reactions to environmental stimuli, are put on exhibition in chemic groups of matter, and in chemic processes involving the bringing into entity of these chemic structures termed the "cell," or in other environment the more artistic elaborations of karyokinesis. It should be marked that these tissue formations originate here and now. They are not mere transformations of the molecular structures of the nutrients forming the basis of the protoplasmic action, but specific products or creations, one might say, of these vital activities. In simple chemistry the nature and number of the molecules entering into the combination and chemism may be accurately stated, and identically the same number of molecules of the same kind, transposed differently, may be found when equilibrium is reached. Nothing of the kind obtains in the instance before us. As said, structural tissue formations originate here and now, coming into entity in the socalled cell membrane, or in karyokinetic architecture, and in more or less stable physical structures.

We are, therefore, in the presence of the cell, at the center and origin of physiologic processes, and the structural in this unique form is at the heart and base of the organism, being the anatomic unit whence originate the organic functions which are the outcome of the protoplasmic activities. At the risk of repetition it is important that these protoplasmic phenomena are more specifically considered.

The germ of an organism is a bit of protoplasm or bioplasm in physiologic respiration, commonly termed cell respiration. No respiration, no life; no bioplasm, no respiration or life; no life without bioplasm; eternal facts, eternal truths!

But why the designation, cell respiration? Because respiration is effected and put on exhibition in association with structural tissues. The protoplasmic function of respiration is only perceived and demonstrable in association of the nonstructural protoplasm with the molecularly structural "cell" tissues, and cell respiration, so understood, is a correct designation of the facts in the case. With nutrient environment, physiologic respiration will put itself on exhibition. Metabolism presupposes cell respiration, oxidation being the primordial condition of vital activity. In dealing with oxygen we are outside the living world in a nice, specific, or metaphysic sense, and possibly in a real and factual sense, too. I am not sure but this may involve the question of "action at a distance" in chemistry, so strenuously antagonized by Faraday.[1]

Physiologic respiration originates in the protoplasm of the cells, bioplasm the effective agency in the phenomenon. Respiration has also to do with the structural constituents of the organic ultimate, it is, therefore, dual in character; nonstructural as to its physiologic bases, and structural as to the anatomic unit. Oxygen is atomic and molecular in nature, and its action may only be understood as, with and upon matters like itself, molecular in character. It is inconceivable that oxygen should act with or upon protoplasm, nonstructural in nature as we find it. Here it would seem to be action at a distance, if action at all!

Oxidation, or any phenomenon in which oxygen plays a part, is chemic, its molecules acting with or upon molecular matters of like character. Protoplasm having no such known atomic and molecular constitution, such chemism is untenable as an interpretation of it. If there are chemic atom groups associated with protoplasm, intracellularly, may it be said, the chemistry of oxygen with such factors may be allowed, but until demonstration of the protoplasmic molecule, protoplasmic chemistry is untenable, and the chemic incorporation of substances with protoplasm of like atomic grouping with constituents of the cell, is certainly unscientific, and which assumption seriously vitiates the side-chain theory.

It will from this be apparent that a "cell" or other structural tissue formation is necessary to any quite intelligible understanding of protoplasmic phenomena, the cell conception finding support in the demonstrable structural tissue.

In the construction of an objective picture of the vital processes in their primordialism, one step onward, one remove from the protoplasm and appears the socalled cell. When one thinks of a germ of an organism to be, the step forward from the mere and sheer bioplasm is already taken and the cell conception is utilized. Nutrient phenomena are of chief importance in embryologic evolution and development, and indeed throughout the life of the organism. Initiatory in the nutrient function in the molar aspect is prehension, as to the cellular and molecular, Nageli has intussusception, while Ehrlich's theory is that of receptor, a chain of receptors, different kinds of food molecules having a special receptor, a labored and farfetched, although not to say impossible hypothesis. Professor Beale speaks of the selected nutrient substance coming infinitely close to and being taken up and into the substance of the living matter. The nutrient molecules lose their identity as food substance, in fact, lose their molecular character entirely, and take on the nature and character and powers of the protoplasm or nonstructural matter. Intussusception shows how the nutrient matter gains the entree intracellularly, the receptor hypothesis may possibly be more lucid. Any interpretation which does not provide a "cell" or some structural constituent as adjuvant in the intussusception or receptor function, leaves a gap in the hypothesis of interpretation. My plea is for the retention of the cell conception until idea of the actual structures now demonstrable, more lucid and of more practical utility, is forthcoming.

The phenomenon of nutrition has so far occupied attention, but there are other functions and phenomena in which the "cell" is cooperative, hence another phase of the question demands consideration.

The ultimate destiny of drugs in medical therapeusis is the bioplasm of the cells; there will be no response save that which originates in and from protoplasmic action.[2] Drugs affect two classes of tissues specifically, the muscular and the nervous, and their role is specifically dynamic, as nutrient factors they are almost nil. In other words, drugs are not taken up by the protoplasm and transformed, their chemic compounds metamorphosed into protoplasm and afterward into structural tissues—they play no such part as this in organic processes. Of course, in drugs of vegetable nature this may be possible, but where it may be actual, it is at a minimum and insignificant in comparison with correct and simple dynamics, in which they are factors.

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[1] Of course, Faraday's standpoint was simple, not organic, chemistry. In Cohen's Physical Chemistry, quoting Ostwald's definition of catalysis as "the acceleration of a slowly progressing chemic action," he marks two characteristic properties: (1) The smallness of the mass of the catalysing agent in comparison with the mass "acted" upon; (2) that the catalyser does not itself enter into the reaction, being often unchanged at the end of the reaction. Still another fact should not be overlooked, which is that the catalysing agent does not initiate chemic action; it merely alters the velocity of the reaction already in progress. The catalyser plays an active, though not an integral, part and this looks like "action at a distance."

[2] This is the central, basic principle in medical science, which, when recognized and appreciated, will largely reconstruct medicine in the two branches of pathology and therapeutics.

As a general statement the exhibition of drugs is in interest of the manipulation of the vital processes. The object is to modify, to change or alter, to repress or to stimulate, to suppress even, temporarily, the various organic processes—in a word to manipulate and dominate and guide the vital phenomena in interest of their return to normal.

Disease is "cellular pathology." It is protoplasmic in origin—not bacterial. There can be no disease if physiologic respiration and nutrition processes and related protoplasmic activities, in which the socalled cells are factors, are maintained. All other factors in disease are "*external*," incidental or causal to the protoplasmic. The word external is italicized because used in the sense in which Faraday discussed "action at a distance." The font and origin of disease is cellular and protoplasmic; this is the physician's point of attack, his Port Arthur. The destiny of drugs, therefore, or other medicinal agencies, is the protoplasm of the cells, and, as said a moment ago, some drugs affect the muscular and others the nervous tissues primarily, but both by first influencing the protoplasmic activities. The "cell" as a specific structure is less in evidence, perhaps, as associated with protoplasm and protoplasmic activities in nerve than in muscle and other organs and tissues. Karyokinesis is a different phenomenon, somewhat, from ordinary cell proliferation, both, however, producing tissue structures. The role or action of drugs will at once appear a very nice and specific, yet not necessarily an involved role. Drugs are chemic compounds and their action simply chemic. Nothing difficult or involved here. Any action of drugs upon protoplasm is not to be thought of for a moment. Drug action will be chemic action in disgregation and reintegration of its own molecules under the changed environment of temperature and other factors. What action there may be or accrue outside or in addition to its own compounds must be upon other chemic compounds with which it is in juxtaposition, namely, the "cell" itself or chemic compounds found intercellularly or intracellularly. No other action is conceivable. The socalled lethal action of drugs may be destructive to the "cell" or to the karyokinetic structures involved, as illustrated by Ehrlich's conception of the breaking off of a receptor, necessitating cell repair, or, perhaps, illustrating the structural conditions in nervous instability or collapse—not necessarily a drug sequel. The point emphasized is that all drug action is simply chemic, there can be no such thing as physiologic action of drugs! All physiologic action is simply and solely protoplasmic, as to origin and potentiality, but in which the cell is an active factor. The role of the drug and of the chemic action of the drug are simply causal to the protoplasmic reaction, which is physiologic in nature and protoplasmic in potentiality. These are important facts and distinctions to be recognized in the interpretation of organic phenomena and need emphasis to be effective.

The chemism of chemic compounds with protoplasm, excepting as "action at a distance," is untenable and unscientific. First, because it is undemonstrable, there being no structure in protoplasm; and second, because protoplasmic phenomena are reasonably interpreted and accounted for without such direct chemism, and on the principle of a sort of "action at a distance" in this specific instance. So long as are allowed the crudities of the impossible physiologic action of drugs, and the equally impossible socalled germ origination of disease, correct interpretation of organic phenomena is and will be impossible. As seen, drug action is simply chemic action, and while there may be chemic action with certain atom group constituents of the "cell," or structural tissues associated with the protoplasm, no such action or chemism as that which Faraday stood for, excluding action at a distance, is tenable with structureless protoplasm. Drug action as related to protoplasm and to protoplasmic activities must be, if at all, "action at a distance," causal action, the response being protoplasmic. It must be conceded that the laws operating in the realm of chemistry and physics are not dominant in the world of life, an example of which is given by Lord Kelvin, who confesses that the law of the reversibility of motion is not operative in the living world. The role of drugs and other factors in disease and its socalled cure must be interpreted in recognition of the principle that protoplasmic activities are sole and sovereign as the agency and the potentiality in all organic phenomena. Since in chemistry action at a distance is impossible, or at least untenable (no one has disproved Faraday's position), there can be no chemic incorporation of chemic compounds, which are molecular in composition, with protoplasm, which is structureless, and consequently all factors in organic processes, excluding nutrients, must be "external" and causal to the protoplasmic, which is sovereign and sole as the active agency in the phenomena.[1]

The "cell," or that which it represents, is the site, the theater where is enacted the organic drama. It is also an active factor in the processes which are by these means put on exhibition, under the dominance of protoplasmic potentiality. Irritability is a property not of the tissues, molar or molecular, but solely of the protoplasm, and therefore environments, including temperature, solar energy, nutrient and other matters, "influence" protoplasmic action, in instances being definitely acted upon by the protoplasm. The physiology of pathology and therapeutics is more complex than are the normal processes in organic phenomena, for here we have heterogeneous and foreign elements to the normal conditions playing their part in the vital drama. Drugs are not nutrients, they are in a sense foreign bodies; theirs is a dynamic role, they are causal to protoplasmic reactions, and having discharged their potentiality in chemic processes affecting like chemic compounds with itself, in altered environment of temperature, solubility and rapidity of chemic action of matters in juxtaposition with the protoplasmic or chief actor in the phenomena, they are to be eliminated with other debris the result of the vital processes. This dynamic character of drug chemism is causal, irritant or stimulant to protoplasmic activity, their dynamics, in this sense, being extrachemic, if the terms may be allowed! Protoplasmic reactions are influenced by the chemic processes in operation, which chemism requires and makes active the cell as a factor in the phenomena. It is readily to be seen that this discussion has but lingered at the threshold of this large and important subject, but mayhap enough to indicate the need of reconsideration and possible reconstruction of medical principles in conception and interpretation of organic processes, and especially in regard to medical interference in the same when found to be abnormal or pathologic, which may as well be confessed as the purpose of this paper.

Percentage Losses in Battle.—The *Public Ledger* of Philadelphia states that in the 90 years, from 1790 to 1880, 4,470,000 lives were lost in battle. Further data and deductions are as follows: The review of battle losses during the various stages in the improvement of weapons seems to support the theory that the mortality in battle has diminished with the improvement of firearms. In the first period under review, infantry were composed of pikemen and musketeers in about equal numbers. During this period the casualties ranged from 35% at the battle of Lutzen to 16% at Marston Moor. The average percentage was 26. The large proportion of killed to the entire amount of casualties is a notable characteristic of this era. The substitution of the smooth-bore flintlock for the pike marks the beginning of the next period, during which the rate of casualties declined from 26% to 20.5%. In one of the battles, Zorndorf, in 1755, the casualties reached 40%. At Eylau they were 35%; Borodino, 31%; Waterloo, 23%. This period covered the American Revolution. The losses at Bunker Hill were 24%, considerably above the average percentage. With the introduction of the rifled barrel and percussion cap the average casualty percentage was reduced to 15. This period began with the battle of Alma, in 1854, in which 102,000 allies and Russians were engaged. The casualties were only 9%. The period included the American Civil War, during which the high casualty percentages were those of the battles of Chickamauga, 28%; Shiloh, 24%; Murfreesboro, 23%; Gettysburg, 20%. The breechloader has decreased the casualties to 11%. This era begins with the battle of Koniggratz, in 1866, in which 415,000 Prussians and Austrians were engaged. The Prussians were armed with breechloaders. The casualties were 7%. At Mars-la-Tour, in 1870, with 200,000 Prussians and French in action, the percentage was 16. At Sedan, when the contending forces numbered 343,000, the casualties were 27,000, or 8.9%.

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[1] A toxic molecule taken up by a receptor, *à la mode* Ehrlich, is inconceivable in correct pathologic physiology.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

November 12, 1904. [Vol. XLIII, No. 20.]

1. Injuries to the Anterior Vaginal Wall in Labor: Their Primary, Intermediate and Secondary Repair. B. C. HIRST.
2. The Etiology and Pathology of Cystocele and a New Operation for Its Relief. J. RIDDLE GOFFE.
3. Clinical Experience with the Appendiculoovarian Ligament. DANIEL H. CRAIG.
4. Pelvic Deformity. GEORGE M. BOYD.
5. Is Cesarean Section a Rational Method of Treatment in Placenta Prævia? JOHN F. MORAN.
6. Prostatectomy in General, Especially by the Perineal Route. GEORGE GOODFELLOW.
7. Prostatectomy: Is It Wise to Try to Make Any One Operative Method Apply to All Cases? EUGENE FULLER.
8. Erythema Nodosum. ISAAC A. ABT.
9. Prophylaxis of Tuberculosis in Children. LOUIS FISCHER.
10. The Present Status of the Treatment for Deafness Due to Chronic Catarrhal Otitis Media. PHILIP D. KERRISON.
11. The Hot-water Douche in Treatment of Chronic Catarrhal Deafness. GUSTAVUS P. HEAD.
12. The Elimination of Disease. SURGEON-GENERAL WALTER WYMAN.

1, 2.—See *American Medicine*, Vol. VII, No. 25, p. 970.
3.—See *American Medicine*, Vol. VII, No. 24, p. 924.
4.—See *American Medicine*, Vol. VII, No. 25, p. 969.
5.—See *American Medicine*, Vol. VII, No. 25, p. 970.
6, 7.—See *American Medicine*, Vol. VIII, No. 4, p. 140.
8.—See *American Medicine*, Vol. VII, No. 24, p. 924.
9.—See *American Medicine*, Vol. VII, No. 24, p. 925.
10, 11.—See *American Medicine*, Vol. VIII, No. 1, p. 10.

Boston Medical and Surgical Journal.

November 10, 1904. [Vol. CLI, No. 19.]

1. Tuberculosis, Its Nature and Prevention. HENRY BARTON JACOBS
2. The Ideal Doctor. DAVID W. CHEEVER.
3. The Technic of Resection of the Cecum. CHARLES L. SCUDDER.
4. Plastic Operations for Resection of the Nasal Septum and Excision of Septal Spurs. GEORGE H. POWERS, JR.
5. A Case of Intraperitoneal Rupture of the Bladder. DANIEL FISKE JONES.

3.—Technic of Resection of the Cecum.—Charles L. Scudder reports that a man of 39 complained of symptoms indicating appendicitis; the appendix was removed, but at the operation a diseased condition of the cecum was found. Three days after appendicectomy, the patient consented to the more formidable operation and the cecum was resected, and the ileum was attached to the transverse colon by end-to-side anastomosis. The technic of the operation is given in detail. The most essential features of the operation are: Free exposure of the cecum and ascending colon; peritoneum incised along external border of cecum and the latter lifted from its bed and all vessels ligated; mesentery connecting distal portion of ileum to be removed, and cecum and colon to be removed, tied off in sections; clamps on ascending colon so operator can cut between; colon divided and ends closed by suture securely; pursestring suture and invagination at the now distal end of ascending colon reinforces and makes secure previous closure; ileum severed at convenient point and the now freed cecum removed; distal end of ileum anastomosed to ascending or transverse colon. Thorough protection of peritoneal cavity by gauze is very essential. Illustrations accompany the article. [A.B.C.]

4.—Operations for Resection of the Nasal Septum and Excision of Spurs.—George H. Powers, Jr., says that for some years the Asche and Gleason operations have been practically the only measures employed for relief of this condition. The Asche operation consists in a crucial incision through the septum at the point of greatest convexity, followed by a forcible reduction of the deviation. The Gleason operation consists in making a U-shaped incision through the septum, the flap thus produced being forced toward the concave side, and maintained in this position either by means of a splint or gauze packing. The purpose of the resection operation is to completely remove the offending portion of the septum, whether cartilaginous or bony, or both, preserving, however, a flap of mucous membrane and perichondrium which is intended to cover the site of the resected portion on completion of the operation. It is the latter operation with certain modifications that Powers employs. The fear of a "saddle-nose" deformity resulting is very remote. In 20 such operations during the past year he has seen no tendency to such. The technic of the operation and also that of excision of septal spurs are given in detail. Several instruments are illustrated. [A.B.C.]

5.—Intraperitoneal Rupture of the Bladder.—Daniel F. Jones reports that a woman of 22 was brought to the Massachusetts General Hospital. Four days previously she had been delivered by her physician of a child at term. The placenta was delivered with difficulty, and when the physician returned on the following day it appeared that the uterus had ascended within the abdomen. He reported that he cureted the uterus. The patient was brought to the hospital with an ill-defined group of symptoms, the abdomen being somewhat distended with fluid and there was some fever. She appeared to improve until the fifth day after entrance, when she suddenly grew worse. Laparotomy was done at once and bloody fluid found in the abdominal cavity. Examination of the bladder revealed an open rupture in its posterior wall. Operation was completed, but the patient failed to rally, and death followed. More rigid inquiry into the case brought out the statement from the physician who attended the woman in labor that when he returned on the day following the labor and found a supposedly enlarged uterus he quickly piled books on the bed and threw the patient over these so they would make pressure on the abdomen. Jones believes the abdominal tumor was in reality a distended urinary bladder and that rupture occurred. [A.B.C.]

Medical Record.

November 12, 1904. [Vol. 66, No. 20.]

1. Nephrectomy for Tuberculosis of the Kidney, with a Report of Four Cases. HIRAM N. VINEBERG.
2. The Lymphoid Affections of the Upper Air Tract of Children. WALTER F. CHAPPELL.
3. A Clinical Observation of 108 Cases of Typhoid Fever, with Special Reference to Therapeutic Fasting. R. M. HARBIN.
4. The Treatment of Prolapse of the Umbilical Cord. W. RENOLDS WILSON.
5. Formol Iodin, a Modified Claudius Method for the Preparation of Catgut. WILLARD J. STONE.
6. Strophanthus in Lobar Pneumonia. C. AM ENDE.

1.—Nephrectomy for Tuberculosis of the Kidney, with a Report of Four Cases.—H. N. Vineberg says that renal tuberculosis is usually very insidious in its course, and may exist for a long time without giving rise to any appreciable symptoms. The first symptoms to manifest themselves, in the majority of cases, are those referable to the bladder, and hence it is that the patients are treated a long time for cystitis and no suspicion of a kidney affection is entertained. The urine is usually acid, contains a varying amount of pus, some leukocytes, and, according to Israel, some red corpuscles. Cysts are seldom found, and some authorities hold that this is characteristic of renal tuberculosis. Tubercle bacilli are found in 59% of the cases that are complicated with tuberculous cystitis. Some authorities look upon ulceration about the orifice of one ureter, with the rest of the bladder wall being healthy, as pathognomonic of tuberculosis of the corresponding kidney. The author regards this sign as an important one, but in a case of his own it proved misleading. In this instance the topical application of a 10% silver nitrate solution to the erosions was effectual, and this measure has given such uniformly good results in all other forms of cystitis that when a case is encountered which resists this treatment the author suspects tuberculous cystitis. The author has employed the diagnostic measure of Völcker and Joseph, consisting in the subcutaneous injection of indigo-carmin as a preliminary to cystoscopy, and believes that it is of value in ascertaining the existence of the second kidney before operating. Cryoscopy, he believes, may prove misleading, unless carried out by an expert. The author describes in detail the operations on his four patients, to which a fifth has since been added. All the patients are in good health, except one, who has developed a mild form of nephritis in the remaining kidney.

2.—The Lymphoid Affections of the Upper Respiratory Tract of Children.—W. F. Chappell describes the anatomy, functions and diseases of the pharyngeal and faucial tonsils. The relative degree of development or dimensions of the nasopharynx is an important factor in determining the danger line of the pharyngeal tonsil, as is also the temperament of the child. An acute pharyngeal tonsillitis of a catarrhal nature is quite common in small children, without any other part of the lymphoid ring being affected. It is usually the result of a cold and attacks the vertical clefts of the gland. Conditions requiring differential diagnosis from adenoids are: (1) Lymphatism; (2) syphilitic and gonorrheal rhinitis; (3) congenital occlusion of the nares; (4) digestive disturbances; (5) congenitally high-arched palate; (6) small or occluded nostril; (7) unusually small postnasal space; (8) anterior projection of the bodies of the cervical vertebras; (9) some malformations of the soft palate, and (10) hypertrophy of the tongue. If small, adenoids and tonsils not causing symptoms may be treated by nonoperative means; but large tonsils and large lymphoid masses in the nasopharynx should be removed, even if they do not produce symptoms.

3.—Observation of 108 Cases of Typhoid Fever, with Special Reference to Therapeutic Fasting.—R. M. Harbin discusses the treatment of typhoid fever, and lays especial stress on restriction of the food given. Surplus food causes accumulations in the intestines, which augment the toxemia, cause diarrhea, and increase the risk of hemorrhage. The author employs cocoa, coffee, egg albumen, peptonoids and broths of beef, mutton, chicken, oysters, etc, in prescribed amounts. Milk is undesirable, unless diluted two to five times with one of the other fluids, owing to its tendency to form curds. Some of the author's conclusions are: There is a greater degree of toxemia in cases associated with gastrointestinal disturbances. A great majority of clinicians of long experience feed typhoid patients in a very restricted manner. Fasting and a restricted diet are indicated, because of pathologic conditions, and to a great extent eliminate the dangers of sthenic cases. The eliminative treatment, socalled, is irrational, except to mitigate the sins of overfeeding. What the patient loses in food is more than compensated by a lessened degree of toxemia. Peristalsis favors the absorption of toxins, and cathartics should be used only to remove undigested food. Nitrogenized food and water are essential to a normal nitrogen equilibrium, and there is little danger from inanition in sthenic cases. The presence of ulcers in the intestines should be assumed in every case of typhoid fever, and the proper treatment is rest, which is better attained by fasting and a restricted diet, thus preventing hemorrhage and perforation. The presence of diarrhea and vomiting indicates the adoption of fasting. Gelatin is a valuable adjuvant in the dietetics of typhoid fever, and lessens the nitrogenized waste and prevents hemorrhage.

4.—The Treatment of Prolapse of the Umbilical Cord.—W. R. Wilson says of this complication that it would appear that the most favorable results are offered by resorting to prompt delivery. This can be accomplished in suitable cases by manual dilation, followed by direct version, rather than by attempts at reposition, either by posture or by mechanical means. We are dealing with a condition that offers almost as unfavorable a prognosis for the child as placenta prævia, and therefore, radical means are called for by the gravity of the conditions. The prognosis is so favorable for the mother that it is apt to obscure the necessity for serious consideration for the child's welfare. We are apt to look upon prolapse of the cord as a complication which may be treated expectantly, as long as pulsation can be detected, forgetting the danger of sudden compression. When prolapse of the cord is to be detected, together with a faulty presentation or position before the membranes have ruptured, the treatment should be directed to attempting to preserve the bag of waters until the position of the fetus may be corrected or the os is fully dilated. In cases with imperfect dilation, the best course is to etherize the patient and pack the cervix and vagina with gauze, taking care to avoid pressure on the cord. As soon as the cervix becomes dilatable, manual dilation, followed by extraction, should be done. In breech cases, when dilation is advanced, the cord must be disregarded if, after an attempt at reposition, it again prolapses, and the delivery quickly completed by extraction. Careful watch of the fetal pulse during the course of the labor will often give more satisfactory information regarding the degree of compression than vaginal examinations.

5.—Formol Iodin, a Modified Claudius Method for the Preparation of Catgut.—W. J. Stone points out the many advantages possessed by catgut prepared according to the Claudius iodin method. The only defects are a possible impairment of tensile strength and too rapid absorption in the tissues. These drawbacks are entirely eliminated by preliminary treatment with formalin according to the following method: The modification consists simply in submerging the raw commercial catgut in an aqueous 4% formalin solution for 36 to 48 hours, then washing in running water for 10 to 12 hours to free the excess of formalin, and then to submerge in the iodin solution recommended by Claudius. The gut should be loosely wound on glass spools and put in the formalin solution. When in the running water, strands 10 to 12 inches long are cut from the spool and put into the iodin solution. The writer has found that, providing a certain batch of catgut is old and brittle, the addition of 5% solution of boroglycerid (glycerite of boroglycerin, United States Pharmacopeia) or of glycerin to the iodin solution, improves its pliability without in any way lessening its tensile strength. The boroglycerin, or glycerin, should be sterilized in a container surrounded by boiling water for a half hour on three successive days. Scrapings from gut prepared in this way have been found to be absolutely sterile in a half hour after submersion in the iodin solution. The material is left in iodin or iodin-glycerin solution until ready for use.

6.—Strophanthus in Lobar Pneumonia.—C. Am Ende values this drug very highly in the treatment of pneumonia, and describes a number of cases in which its action was markedly beneficial. The author begins its administration immediately upon the establishment of the diagnosis, the dosage being varied according to the circumstances, and other supporting measures and drugs, such as strychnin, nitroglycerin and oxygen also being employed as indicated.

New York Medical Journal.

November 5, 1904. [Vol. LXXX, No. 19.]

1. Woman's Duty Toward the Health of the Nation. S. A. Knopf.
2. The Outlook in This Country from the Medical Point of View. Andrew F. Currier.
3. A Clinical and Statistical Study of Convergent Strabismus. Wendell Reber.
4. Clearing Ship for Action. J. A. Guthrie.
5. Chronic Dysentery: Two Cases Treated by Inguinal Colostomy and Irrigation. G. Childs Macdonald.
6. Primary Nasal Diphtheria: A Plea for Its Early Recognition and a Report of Three Cases. Anna S. Wilner.

3.—Convergent Strabismus.—Wendell Reber offers the following propositions as the result of his experience with esotropia: 1. Esotropia is most likely to manifest itself before the end of the third year. 2. It cannot yet be said whether any of the various reasons assigned by parents for the appearance of strabismus have aught whatever to do with it. Whooping-cough may be related to it. 3. Heredity certainly plays a part in bestowing upon some children a congenitally deficient visual apparatus. 4. The degree of deviation will average about 30° in a large number of cases. It is in no special way bound up with the degree of refractive error. 5. The amblyopia of esotropia is presumably an amblyopia exanopia, the present-day evidence being against Schweigger's theory of a congenital amblyopia. 6. The degree of amblyopia increases with the length of time elapsing between the appearance and the time of treatment; especially is this true after the seventh year. 7. Improvement may be expected in the amblyopic eye in 50% or 60% of cases by properly adjusted glasses. This improvement varies from 20% to nine-fold betterment. 8. While a defectively developed fusion apparatus has much to do with the genesis of esotropia, the influence of hypermetropia and its allied states seems almost as important as in the days of Donders. The part played by astigmatism is no little one. 9. There seems to be no special relation between the degree of refractive error and the degree of deviation. 10. Hypermetropic conditions of from one to four diopters, seem most commonly associated with esotropia. 11. A very high degree of hypermetropia does not necessarily exclude strabismus, as three cases in the series presented were of 11 D. and over. 12. If taken before the fifth year, there seems no reason why the strabismus should not be cured by nonoperative methods in

70% of cases. This percentage will, in all probability, be increased to 80% in the next 10 years. 13. The results of nonoperative treatment in children, if adhered to with any persistence, are infinitely better than any "scissors" statistics thus far obtained. [C.A.O.]

5.—Inguinal Colostomy in Chronic Dysentery.—G. C. Macdonald reports two cases in which inguinal colostomy was followed by complete recovery. The second case is of particular interest because of the length of time, three years, during which the patient was incapacitated from earning his living, and of the many medical hands he had passed through and the treatments to which he had been subjected. The writer says there is no doubt in his mind that all chronic cases of dysentery and most acute ones should be operated on. He says the cecum is the home and head center of the germ, whatever one is there and he believes that this will soon be a common operation. He has had some difficulty in closing the wound. He says if the gut is closed carefully, and then we dissect back far enough, so as to get to the peritoneal surface of the bowel, and use a Lembert suture, the closure should be easy. [C.A.O.]

Medical News.

November 12, 1904. [Vol. 85, No. 20.]

1. Hepatoptosis Complicated by Gastroptosis: A Suggestion as to Treatment. ELLSWORTH ELIOT, JR.
2. Races and Peoples with Regard to Tuberculosis. JOHN B. HUBER.
3. Tuberculosis in Our Public Institutions. JAMES GREENWOOD.
4. Colloids and Ions. WILLIAM R. WILLIAMS.

1.—Hepatoptosis Complicated by Gastroptosis.—Ellsworth Eliot, Jr., discusses the causes leading to downward displacement of the various viscera, and suggests a plan of surgical treatment for hepatoptosis complicated by gastroptosis. The operation consists in the exposure of the liver and stomach through a median incision above the umbilicus. The obliterated umbilical vein, forming a thick cord in the free edge of the falciform ligament, is then identified and drawn forward until it comes in contact with the parietal peritoneum. The hepatic extremity of the ligament then rests against the under surface of the right lobe of the liver in front of the transverse fissure. The lower or umbilical extremity is in close contact with the anterior parietal peritoneum, the two portions of the ligament now forming a right angle. In this position the round ligament is sutured to the anterior parietal peritoneum with chromic gut and the redundant falciform peritoneal reflection is spread out laterally and sutured to the contiguous portion of the parietal peritoneum with the same material, in this way forming a species of shelf for the under surface of the liver. The abdominal wound is then closed in layers. Three cases are reported; one patient was treated medically, and two were operated upon by the above method. Those operated upon showed such improvement that the operation is strongly recommended, though the author advises that operation in any case be withheld until other means of treatment have been exhausted. [A.B.C.]

2.—Races and Peoples with Regard to Tuberculosis.—J. B. Huber states that every other adult among American negroes is destroyed by tuberculosis, although the disease was almost unknown among the slaves, and is found in Africa only where there is contact with whites. Its malignancy is due to lack of inherited immunity, to unhygienic habits, to eating tuberculous pork, to the weakening of the system by syphilis, gonorrhea, and alcoholism, and to lessened resistance from small lung and brain capacity. Half of the deaths among the Indians is also attributed to tuberculosis, although it was unknown before the advent of the white man. Among the Chinese in this country the rate is very high. A diagram shows that the Irish lead all other Europeans here, with Bohemia and Scandinavia coming in a long way behind. The Hungarians, Russians, and Poles are mostly Jews, who, on account of temperate habits, food regulations, and 40 centuries of racial existence, are comparatively immune. Italians return so frequently to their own land to die, and are so given to concealing their cases that statistics regarding the disease among them are unsatisfactory. [H.M.]

3.—Tuberculosis in Public Institutions.—J. Greenwood considers this the most serious of asylum diseases, because of the lowered vitality and the impossibility of preventing expectoration. In the Southwestern Insane Asylum the deathrate in the 1,000 is more than from all other diseases on the outside and three times as great as from tuberculosis alone in the United States between the ages of 20 and 55. A special hospital is needed for the tuberculous insane and a law should be enacted requiring all patients admitted to asylums to be free from this disease. [H.M.]

4.—Colloids and Ions.—W. R. Williams reviews recent investigations bearing on vital processes, discussing the dissociation of electrolytes by solution and the relation of ions to the electric poles and the reversibility of colloids from liquid (sol.) to semisolid (gel.) states and vice versa, and the change in their electric affinities in alkaline and acid solutions. Living protoplasm exhibiting this reversibility was noted by Darwin in insectivorous plants. Chromatin and the heads of spermatozoa contain nucleic acid and are electronegative; cytoplasm is electropositive. The writer reviews experiments showing the effect of ions on different kinds of protoplasm including that of muscle and nerve tissue and unfertilized eggs. When a certain equilibrium exists between sodium and calcium ions the isolated center of medusa will beat rhythmically and muscles from vertebrates are just as sensitive. The transmission of an impulse is associated with the temporary gelation of successive particles of nerve protoplasm, in fact this wave of gelation *is* the impulse. The gelation is due to electric change. Ions act electrically rather than chemically. Solutions of nonelectrolytes of equivalent osmotic pressure, such as cane sugar or urea, are as effective as $Mg\ Cl_2$, when used in the same way for the development of nonfertilized eggs. This seems to mean that the egg has within itself the power of development, but something from outside is necessary to start the process. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN . A. O. J. KELLY

REVIEW OF LITERATURE

Two Cases of Weil's Disease, with Unusual Complications.—Max Einhorn[1] reports two cases of this disease, during which tumors the size of a walnut appeared in the liver; they disappeared again in the course of a few days. Einhorn believes the condition was one of acute hepatitis, with particularly prominent severely affected circumscribed foci. These nodes might have been caused by an accumulation of exudative products which disappeared with the subsidence of the inflammation. The condition has not previously been mentioned. The fact that such tumors may occur and rapidly disappear is of direct value, in that by palpation they cannot be differentiated from malignant tumors or gummas. If such tumors are met with in patients suffering from fevers, it is best to wait for some days before giving a diagnosis. [A.G.E.]

Acute Leukemia.—A. Osswald[2] reports the case of a man of 26, who complained of severe pain in the chest, especially about the lower part of the sternum for three weeks; he stated that he had been getting very weak gradually. An examination revealed the skin of the chest covered with a number of flat, painless nodules varying in size from a pea to a bean; the mucous membrane of the mouth bled easily; but all the internal organs were found to be normal. A few days later he had a profuse hemorrhage from the mouth and numerous small ecchymoses appeared in the skin of the neck, back and loin, also profuse epistaxis. Camphor was found necessary and at the points of injection large hematomas appeared. Hemophilia could be excluded, and glandular swellings did not exist; the blood was not examined during life as it was thought to be a case of Werlhof's disease; the patient died a week after the appearance of the first hemorrhage. The autopsy revealed hemorrhages all over the body, a small lymphoma in the apex of the right lung, the bone marrow typically leukemic, the bronchial glands, thymus and spleen enlarged and filled with exuded blood. Marked augmentation of leukocytes was observed in the blood. [E.L.]

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[1] American Journal of the Medical Sciences, November, 1904.
[2] Korrespondenzblatt für Schweizer Aerzte, 1904, 475.

Anomalies of Thyroid Secretion.—F. C. Shattuck[1] sketches the evolution of our knowledge of thyroid function, and discusses myxedema and Graves' disease. Fully developed cases of either are not at all difficult to recognize, and Shattuck believes the profession is not sufficiently alive to the fact that many grades of each exist. During the past year he has seen four cases of Graves' disease in males, and two in females; the nature of the trouble was not certain, but the true condition apparently had not been suspected by their previous attendants. The exophthalmos and goiter were entirely absent or slight. Among the important symptoms of myxedema is a lessened renal secretion with a proportionately smaller output of urea. Shattuck's main reliance in treatment of Graves' disease is neutral bromid of quinin, which is given in 0.33 gm. (5 gr.) pills, three or four times daily. He has had little experience with thyroidectomy, but has seen a few cases which operation has greatly improved. He concludes that Graves' disease for the present is to be treated by rest, diet, climate, attention to the bowels, and neutral bromid of quinin. If these measures are not followed by distinct improvement, operation in severe cases is to be seriously considered. [A.G.E.]

Causes of Chronic Habitual Obstipation.—The cause of chronic habitual obstipation has usually been considered a primary injury of the motor apparatus of the intestines (abnormal innervation of the intestines, atrophy of the intestinal muscle, atonic and spastic form of constipation). H. Lohrisch,[2] however, considers that his examinations favor the views of Strassburger, who says that a number of individuals afflicted with habitual constipation assimilate their food better than normal individuals. In many cases of chronic habitual constipation a very small amount of dry substance is excreted. This diminution of dried substances is due to extraordinarily complete absorption of the foodstuffs taken up. Feces poor in nutritive substances form an unfavorable medium for the fermenting properties of the intestinal bacteria. With this loss of fermentation and decomposition products, very important irritants of the intestinal peristalsis are lost, and thus we have a slowing of intestinal movements and the product a habitual constipation. [E.L.]

Cure of Chronic Nephritis following Renal Decapsulation.—A. Caillé[3] gives a further report upon a girl of 7, who was 4½ years old at the time decapsulation was performed. She was in a serious physical condition at the time of operation. Both kidneys were stripped of the capsule and found to be typic large white organs; there was primary union of the wound, convalescence was uneventful and the result has been a cure. The patient's general health is all that can be desired; the urine is essentially normal. From his observations in this case and in others Caillé would not hesitate to advise inspection of the kidneys through a lumbar incision in cases in which an acute nephritis not secondary to heart lesion does not clear up with six or eight months. Edebohls' claim that his operation is beneficial by reason of an increased blood-supply is by the writer not considered proved; he believes that some of the effects of decapsulation of the kidney are due to massage incident to handling the affected organ. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Diagnosis and Treatment of Abscess of the Liver.—J. E. Thompson[4] has operated upon 21 cases of abscess of the liver, 15 of which had a history of previous dysentery, a disease which is endemic in Texas; 9 of the 15 patients died. Thompson believes that while the causal relationship of dysentery to abscess of the liver has been proved, there is no reason to believe that it can produce suppuration in a liver that is not weakened by excess in eating and drinking. Active amebas were found in eight of the cases, and bacteria in only one. Among the symptoms, Thompson ascribes great diagnostic value to pain in the tip of the left shoulder in case of abscess in the left lobe, and in the right shoulder when the abscess is on the right side; this symptom is found to be invaluable. Thompson once found pus almost exactly like that from liver abscess in a case of hypernephroma of the right kidney. The symptoms were those of hepatic abscess. Thompson believes the favorable or unfavorable termination of a case depends entirely on the amount of liver substance destroyed by the abscess, although occasionally this rule does not hold. Treatment is, of course, evacuation, and for deep-seated abscess the method of Manson is preferred. [A.G.E.]

The Association between Diseases of the Biliary Passages and Pancreatic Inflammations.—W. Koerte[1] points out that inflammatory processes of the biliary passages may penetrate the pancreas either directly through the wall of the common duct into the glandular tissue, or by the common opening of this duct and the pancreatic duct at the ampulla of Vater. He repeated Vater's experiments and found, that if the apex of the papilla be ligated and coloring matter be injected into the common duct, it will pass into the duct of Wirsung. If therefore the orifice of the duct be occluded by stones, cicatrices or tumors, the passage of infectious fluid from one duct to the other is possible, and in fact has been observed in man by Opie. Chronic inflammation of the head of the pancreas is often seen in cholelithiasis and disappears after resolution of the latter through removal of the stone and drainage; this was first seen by Riedel. Koerte has seen acute pancreatitis associated with disease of the biliary passages in 7 cases: Two of abscess of the head of the pancreas, 2 peripancreatic abscesses, 1 acute fat necrosis, and 2 cases of acute necrotic pancreatitis and fat necrosis. In 6 of these he considered the biliary disease the cause of the pancreatic affection. The symptoms of the 2 affections are separated with difficulty; a transverse epigastric tumor is very important for the diagnosis of a pancreatic inflammation. The complication is a very grave one, 4 of the 7 patients dying. The head of the pancreas may be reached during biliary operations either by the retroduodenal route, anteriorly in the angle of the duodenum or by opening the omental bursa between stomach and colon. [E.L.]

Removal of the Normal Appendix when the Abdomen is Opened for Other Reasons.—O. A. Gordon[2] believes that when the appendix is involved secondary to inflammatory disease of the uterine appendages it will be readily found by reason of contact adhesions. The fact that it cannot, in many cases, be easily found is considered strong evidence that it is free from inflammatory processes, and an extended search for it after removal of infected pelvic structures where there is no evidence that it is diseased, is unjustifiable, as such search may carry infection. There can be no doubt that operation for removal of the normal appendix carries with it a deathrate, and the writer believes one is not justified in subjecting the patient to additional risk, however small. [A.G.E.]

Chondroma and Other Rare Tumors of the Joints.—Langemak[3] calls attention to the fact that these neoplasms may give rise to symptoms which simulate tuberculosis of the joint; in one case there was atrophy of the muscles of the thigh, flexion of the leg at the knee, pain in the joint, accumulation of fluid in the synovial sac and progressive cachexia. [J.F.]

A Simple Method for Gastroenterostomy and Intestinal Anastomosis.—H. M. Hepperlen[4] describes a method of anastomosis with which he claims to perform the operation in less time and with less manipulation of the parts, and with more secure results, than by any other method used. He abandoned the effort to work without support of some sort, and finally used gelatin for this purpose. He has the material moulded in the size and form required for different operations, made aseptic, and of the proper thickness and consistency to retain its shape from 15 to 30 minutes, after which it harmlessly absorbs. When the gelatin support is placed in position, a few interrupted sutures through all the coats of the bowel hold it in place. The work is then completed by a suture recommended only by the author, which is described in detail. It is essentially a double silk suture, with a needle on each end, and the stitches applied according to the method of Lembert. For gastroenterostomy the gelatin cylinder has a small flange on one end to hold it secure; in ureteral work, a small cylinder of gelatin with an opening through the center for the passage of urine is employed. The greatest difficulty was in getting the material aseptic and at the same time hardened properly to retain its shape for a sufficient length of time. These difficulties have been overcome. [A.G.E.]

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[1] Transactions of the Maine Medical Association, Vol. xv, 1904.
[2] Deutsch. Archiv für klinische Medicin, 1904, lxxix, No. 5.
[3] Archives of Pediatrics, October, 1904.
[4] International Clinics, Vol. ii, Fourteenth Series, 1904.

[1] Centralblatt für Chirurgie, 1904, xxxi, 114, Beilage 27.
[2] Brooklyn Medical Journal, November, 1904.
[3] Arch. für klin. Chirg., 1903, Bd. lxxii, Heft 1.
[4] Western Medical Review, October, 1904.

PATHOLOGY.

ALLER G. ELLIS

EDITORIAL COMMENT

Pericranial Lipomas.—In a thesis upheld at Lyons some two years ago, Dr. Bisquerra calls attention to a rather rare type of lipoma, which presents quite special characteristics. Under the name of pericranial lipomas this authority includes those fatty tumors which develop on the walls of the skull, seated in the scalp or frontal region, and always intimately connected with the periosteum. They are consequently deep seated and covered by the epicranial aponeurosis, so that they differ entirely from the superficial tumors of the same nature. Hardly more than 60 cases have been recorded. Many of these pericranial lipomas are congenital, and some of them contain an abundant vascular tissue, which has caused them to be called angiomatous lipomas. In other respects they present the usual characters of lipomas in general. The anatomic situation occupied by these neoplasms is quite remarkable; being subjacent to the epicranial aponeurosis and separated from it by the subcutaneous cellular tissue. In shape they are ordinarily round with a large base, but when they have attained a considerable size they become pedunculated. The neoplasm is smooth and regular, occasionally lobulated. It is movable, but adheres at its base on account of its connection with periosteum and bone. Sometimes they are diffuse, at others encapsulated. In the first case the tumor is adherent to the integuments, so that the latter cannot be made to move over the neoplasm. In the latter instance the growth is distinctly limited, while the skin covering it can be moved over it, and even be picked up between the fingers. The integuments covering the growth nearly always preserve their normal characters, but when the tumor has acquired a very considerable size the skin may be either thickened, atrophied, or even ulcerated, while occasionally it contains a network of superficial vessels. The hair is thin and finer than in the remaining healthy scalp. The consistency is variable according to the amount of tension of the aponeurosis. These neoplasms are in general indolent. In size they range from that of a walnut to an adult head. The frontal region is their site of predilection, and then in order of frequency comes the occipital, temporal, and lastly the parietal region. The development of pericranial lipomas is extremely slow, but they may also grow by fits and starts. In some cases their growth has been so rapid that they have been mistaken for malignant tumors, especially sarcomas. Ordinarily, however, several years are required before they attain any very considerable size. In a case recorded by Rotter, the growth reached the knees, and had taken 33 years to arrive at this extraordinary volume. Ulceration may occur, even before the tumor has attained a very large size, being usually due to mechanical causes, and in no manner simulates the same process of a malignant nature. Chalky transformation, according to Lannelongue, is not infrequently met with in these tumors. As may be seen, the prognosis of pericranial lipomas is excellent. They may by their size or situation become a source of discomfort or pain to the patient, and the complications to which they give rise, the most serious of which is atrophy of the bone from pressure and adhesion of the growth to the meninges, indicate surgical interference, which is usually a most simple matter.

Action of the Röntgen Ray on Leukemic Blood.—A considerable number of cases of leukemia treated by the röntgen ray are now on record. In certain of them the use of this agent was attended by a very gratifying improvement in the general condition of the patient and a gradual return to the normal blood picture. In these cases the spleen, sometimes an enormous organ, became reduced to nearly or quite its usual size. Other cases have not yielded in the slightest to this therapy, and among the first group there is noted a tendency to relapse sooner or later after the röntgen ray is discontinued. The manner in which this agent exerts its influence is of extreme interest and importance, but at present is understood but little better than is the nature of the disease itself. The most careful study yet made of the blood of a röntgen rayed case is that of Aubertin and Beaujard.[1] The patient was a man of 60, with typical myelogenous leukemia of nine months' duration, upon whom arsenic and splenic extract produced no effect. Twelve semiweekly exposures, of eighteen minutes each, to the röntgen ray improved his general condition and reduced the leukocytes from 124,000 to 52,000. Frequent counts of the leukocytes, hourly or even oftener at times, showed that for a day or more after each exposure the leukocytes increased, in some instances to double the number before exposure. They then gradually fell, until at the time of the succeeding treatment they reached a point considerably lower than before the preceding one, the posttreatment rise becoming less with each seance. Differential counts showed this increase due mainly to polynuclear cells. No changes in the nucleus, cytoplasm, or granules of the leukocytes could be detected and the nucleated reds were not notably influenced. The writers suggest two reasons for this leukocyte rise: (1) Overproduction and maturation of myelocytes and polynuclears, which is improbable, or (2) the emigration into the blood of leukocytes from the spleen as they normally come from the marrow. No explanation of the ultimate diminution of the leukocytes is offered. To those who attribute the action of the röntgen ray on diseased tissue to the presence of increased numbers of polynuclear phagocytes, the increase of those cells in the case reported will appear significant. In this connection the findings of Heineke[2] are of interest. This observer found that the action of the röntgen ray on the viscera of animals is first exerted on lymphoid tissue, particularly the malpighian corpuscles of the spleen. The nuclei of the lymphoid cells fragment and are engulfed by phagocytes, the malpighian bodies being thus largely destroyed. This process takes place also in lymph-nodes, intestinal follicles, and thymus gland. Heineke considers this an indication for the employment of the röntgen ray in chronic hypertrophy of the spleen, in pseudoleukemia or lymphosarcoma, and in the various forms of leukemia. Ahrens[3] views the subject from an entirely different aspect. Under the use of the röntgen ray he was gratified to see the blood, spleen, and general condition of a patient suffering from leukemia return to essentially the normal, but soon after its discontinuance the condition returned. Renewed application reduced the size of the spleen, but exerted no influence on the blood. The case is explicable to Ahrens only upon the basis that leukemia is an acute infection. Upon the pathogenic agent the röntgen ray exerted a direct action, successfully in the primary attack, with but little avail in the recurrence. Which of the views herein cited is nearest correct is at present impossible to decide. Heineke's findings would indicate that destruction of tissue and consequent removal by phagocytes is an essential feature; those of Aubertin and Beaujard, as before stated, may possibly be considered as supporting this view. On the other hand, the view of Ahrens is more in line with the modern conception of leukemia as probably being an infection, though this is given greater support by the acute than by the chronic type of the disease. To aid in clearing the problem, the blood of every patient being röntgen rayed should be systematically examined at frequent intervals preceding and following each exposure. The action of the röntgen ray needs to be determined and a careful study of such action may throw light upon the origin of the disease.

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[1] La Presse Médicale, August 20, 1904.
[2] Münch. med. Wochenschrift, May 3, 1904.
[3] Münch. med. Wochenschrift, June 14, 1904.

The Transmission of Acquired Characters.—That specific cytolysins or cytotoxins, cell solvents, may be produced by the injection of various cells into living animals, was one of the earliest and most important of the discoveries made by modern investigators of immunity. It paved the way for solving, at least theoretically, numerous complex problems and practically it has led to valuable differential tests. In view of what has been accomplished it is reasonable to believe that further elucidation and application of this principle will render clear many pathologic phenomena now imperfectly understood. An instance of recent work along this line is that of Delamare,[1] who, as the result of experimental researches on morbid heredity detailed in his thesis, assigns to maternal cytolysins an important part in the transmission of acquired characters. His conclusions are based on a study of the effect of nerve and visceral mutilations in pregnant rabbits and guineapigs. Wounding of the kidney or liver of females was followed by hemorrhagic and degenerative lesions in the corresponding organ of the fetus. This is believed due to the production in the female by the absorption of cellular elements from the wounded areas, of cytolysins which pass through the placenta and exert their specific effect upon the developing embryo. The injection of hepatic extract into goats produced in their young intense lesions of the liver while other organs were not involved. Delamare is inclined to believe that familiar visceral dystrophies, certain morbid predispositions, and perhaps even cellular immunities may be of this genesis. He does not regard this mechanism of transmission as being in any sense exclusive, hence does not deny the existence of other modes. The studies are very suggestive and should stimulate further investigation in a most promising field.

The Leishman-Donovan Body.—This peculiar body, first found in the blood of a soldier invalid from Dum-Dum, in 1900, still remains a puzzle to workers in tropical diseases. Obtained originally from the spleen, it has since been found in the liver, mesenteric lymphnodes, bone marrow, kidney, ulcers of the intestinal tract and possibly of the skin. The soldier above mentioned was suffering from tropical cachexia and splenomegaly, to which condition, for want of a better name, was applied the term Dum-Dum fever. Now it is regarded as probably identical with the Indian disease known as kala azar. The symptom-complex found in individuals harboring the bodies, is splenic and hepatic enlargement, peculiar earthy pallor of the skin, long-continued, irregular remittent fever, hemorrhages, transitory edemas, and frequent complications. Anemia is moderate or well marked; the leukocytes are diminished in number and there is a conspicuous increase in the mononuclear types, particularly the larger. The uncertainity regarding the nature of the parasite is attested by the various opinions of eminent authorities in tropical diseases. Three views are held: Ross regards it as a new genus of sporozoa; Laveran and Donovan as a piroplasma; and Leishman as a developmental stage of a trypanosoma. The last view has lately received very strong support from Rogers, who reports the development of trypanosoma in cultures of the parasite obtained from the spleen of a Chinese subject of the disease. His findings, however, must receive confirmation before they are generally accepted. The classification of the parasite is proving one of the most difficult and interesting of the many problems in the pathology of tropical diseases. The recent finding (unpublished) in certain southern States of this country of a possibly similar unclassified body in the splenic blood of individuals suffering from a peculiar and very fatal febrile affection, lends additional interest to the study of the Leishman-Donovan parasite.

REVIEW OF LITERATURE

Bacteriologic Examination of Oysters and Estuarial Waters.—A. C. Houston[2] presents the main facts obtained during a prolonged investigation of the pollution of tidal waters and shell fish on behalf of the Royal Commission on Sewage Disposal. The results indicate that the water of a tidal river grossly polluted in its lower estuarial reaches, may after a flow of 25 miles become so far purified by sedimentation, dilution, and the presumable operation of bactericidal agencies as to become seemingly as little objectionable, or in some respects less objectionable, bacteriologically, than certain of our public water-supplies. It is not advisable to rely on septic tanks, contact beds, and continuous filters to remove altogether the potential danger to health, associated with the discharge of effluents from these processes of sewage treatment either into drinking-water streams or into estuarial waters in the neighborhood of shell fish layings. Conclusions regarding the degree of potential danger to health arising from sewage pollution must, if sound, be based consciously or unconsciously on an assumed or real knowledge of the amount of fresh sewage matters present in the water, and more particularly on the number of living microbes of recent intestinal origin. Studies of oysters lead to the inference that essentially all of the best known English varieties are liable to contain coli-like microbes, indistinguishable from the human *B. coli* in 100% of any given sample. Until the "permissible degree of biologic impurity" can be defined, no English oysters should be condemned on bacteriologic grounds alone unless the results show such gross pollution as to allow of no possible room for doubt as to their objectionable quality.

Pulmonary Streptothricosis.—A. S. Warthin and H. S. Olney[3] add to our knowledge of streptothrix infections the history of a case clinically resembling tuberculosis. The sputum contained a branching organism that with acids was as acid-fast as are tubercle bacilli; the latter organism was not present. Although autopsy was not permitted (the patient died rather suddenly), Warthin believes the case was one of pulmonary streptothricosis, and should be classed with those reported by Eppinger, Buchholz and others. From the cases reported he concludes there is a distinct form of pulmonary infection clinically resembling tuberculosis and caused by an acid-resisting streptothrix having a wide geographic distribution. The existence of such a condition becomes of great importance in so far as the differential diagnosis of tuberculosis is concerned. The frequency of occurrence, symptomatology, and therapeutics of this form of streptothricosis, remain yet to be worked out. It is highly desirable that those happening to meet such cases should make a thorough investigation as to these points, and also as to the cultural characters of the infecting organism.

Effects of Periodic Loss of Blood.—Theobald Smith[4] reports the results of examination of a large number of horses used for the production of antitoxin. This regular periodic extraction of blood, after it has been carried on for two or more years, leads, in certain cases, to serious derangements and death. Smith studied particularly the osmotic tension of the red corpuscles and the effect on this of the loss of blood. He found the resistance of the red corpuscles of most of the horses which had been repeatedly bled was so changed as to correspond to a rise in osmotic tension of .04% to .09% salt solution, in the latter case to nearly half the total range of resistance. He found no evidence to show that the injection of diphtheria toxin played an appreciable part in this change; he also found that the osmotic tension of the serum does not adapt itself to the change in the corpuscles.

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[1] La Presse Médicale, September 10, 1904.

[2] Journal of Hygiene, April, 1904.

[3] American Journal of the Medical Sciences, October, 1904.

[4] Journal of Medical Research, October, 1904.

Criticism on a Socalled Pancreatic Reaction in the Urine.—C. E. Ham and J. B. Cleland[1] take exception to the claim of specificity made for a certain reaction in the urine, as indicating pancreatic disease. This reaction was described by Dr. Cammidge in the "Arris and Gale" lecture for 1904. The crystals supposed by him to be indicative of disease of the pancreas are by the writers believed to be lead compound crystals derived from the lead carbonate used in the test. The possibility of differentiating acute pancreatitis from malignant disease of the pancreas by certain behaviors of the crystals is also considered very remote. The criticism is made for the reason that many people place value upon the test, which the writers consider valueless. They therefore call attention to the fallacies involved, their conclusions having been reached after experimenting with urines from healthy persons, those suffering from pancreatic disease, and those otherwise affected.

Bacteriologic Study of the Throats of 100 Cases of Scarlet Fever.—J. F Schamberg and N. Gildersleeve[2] made inoculations from the throats of 100 patients suffering from scarlet fever, between the second and sixth days of the disease. Streptococci were found in 88 cases, staphylococci in 73 cases, and a diplococcus corresponding to that described by Class in 15 cases. The streptococci were, as a rule, of the ordinary type. Inoculations were also made from the throats of 100 apparently well persons, and from 82 of them streptococci were obtained. The writers conclude that streptococci and staphylococci are frequently concerned in the complications of scarlet fever, but are not to be regarded as the specific agents of that disease. The diplococcus described by Class cannot be regarded as bearing any etiologic relationship.

Toleration of Animals to Tuberculin.—H. Vallee[3] has investigated the effect of repeated injections of tuberculin in cattle. According to Nocard, a month has to elapse after an injection before reaction can be obtained by a second trial. Vallee injected 36 cattle, known or suspected to be tuberculous, with 32 positive and 4 suspicious results. From 36 to 48 hours after they were injected a second time with 28 positive results and 8 suspects, none were indemnified. In the latter test, the temperature was taken every 2 hours and after the injection instead of waiting 12 hours. The first reaction is slow to appear; the second appears rapidly, and usually disappears before 12 hours. If this fact is not known many infected cattle might be passed as harmless. Vallee asserts that toleration to tuberculin cannot be induced in the great majority of cattle. If the veterinarian suspect that an animal has previously been tuberculinized, he should inject it at 5 or 6 in the morning with double the dose of tuberculin used for ordinary animals and take the temperature every 2 hours. A reaction of 1.5° indicates tuberculosis; between 0.8° and 1.5° should excite suspicion.

The Influence of Fats on the Formation of Acetone.—E. P. Joslin[4] gives the results of a series of 12 experiments, of four days' duration each, upon a medical student during 1901 to 1903; two meals of unrestricted diet were taken during the first half of the first day, while on both the second and third days the diet was restricted to 1,000 cc. (1 quart) of water; a return to the mixed diet was made on the fourth day. Stearic, palmitic, and butyric acids were each given once, and the effects of sodium palmitate, tristearin, triolein, glycerin, and sodium bicarbonate were observed. The acetone was determined in the breath and the urine. Joslin finds that conclusions as to the relative action of the various fats upon the elimination of acetone are of little value without proof of their absorption. Neutral fats, whether of the higher or lower fatty acids, do not increase the elimination of acetone in a healthy individual during starvation for two days; the glycerin contained in such fats suffices to prevent acetonuria. Oleic acid produced a marked acetonuria, while the same quantity of butyric acid was without effect. Sodium palmitate produces marked acetonuria in the healthy starving subject, but butyric acid does not.

Bone Formation in Lymph-glands and Tonsils.—O. Lubarsch[1] finds but little mention in literature regarding bone formation in lymph-nodes, but regards it of comparatively frequent occurrence. Of 275 cases examined by Pollack, and 587 by Lubarsch, 179 contained calcareous lymph-nodes. In the 862 cases, 137 showed bone formation in the lymph-nodes, 15.8%; of the 179 cases in which calcareous infiltration occurred 80.5% showed bone formation. Lubarsch discusses three types of bone production, the principal one being that in which bone formation occurs between the central calcareous and necrotic focus and the outer capsule of fibrous tissue. He believes bone formation is due largely to metaplasia of the fibrous tissue capsule, this formation being stimulated or brought about by the calcareous infiltration in the center. Bone formation in the tonsils he considers due partly to metaplasia of connective tissue and partly to fetal cartilage remains.

The Pathology of Gout.—J. Van Loghem[2] details an experimental study of the absorption of uric acid and sodium urate. He does not confirm the observation of Freudweiler that crystals of uric acid placed under the skin of rabbits disappear by phagocytosis. Uric acid, on the contrary, is readily dissolved in the body fluids, both within and without the body. From body fluids containing concentrated solutions of uric acid, sodium urate is readily precipitated in a form identical with that found in gouty tophi; this precipitation does not take place in normal tissues. Sodium urate occurring in the body by precipitation or introduced by injection, disappears by phagocytosis. Van Loghem explains the influence of trauma in causing attacks in gouty people by the fact that the resulting exudate contains an abnormal quantity of uric acid, and, as already shown, this is readily deposited as sodium urate. Attacks following influenza may be explained in the same way, articular inflammations often being caused by the disease.

Soluble Toxin of the Typhoid Bacillus.—Rodet, Lagriffoul and Wahby[3] review various opinions on this subject, and describe an elaborate series of experiments undertaken to decide the question. They conclude it is not true that the toxic products of the typhoid bacillus are entirely intracellular. Filtered cultures of the bacillus are not deprived of their toxicity, though it is true they are but little toxic; but the bacilli themselves, taken under similar conditions, and studied in a manner truly comparative, are not more toxic, in fact they are generally less so. The principle which gives toxicity to filtered cultures is not a product of disintegration of dead bacilli; it is found in the medium among living bacilli, and is not an endotoxin, but a toxic secretion. Nevertheless, a notable part of this product appears to remain incorporated with or adherent to the bodies of the bacilli. The toxic principle is insoluble in alcohol, sensitive to moderate heat, and changes rapidly in growing cultures, its characters being of such sort that the toxicity is precarious and unstable. The toxin may be prepared by the methods usually employed for the preparation of toxins in general. Whatever, then, may be the role of substances truly intracellular, this soluble toxin is probably one of the most important of the products of the typhoid bacillus, and is the cause of the systemic effects of the organism.

The Etiology of Variola.—W. T. Howard, Jr., and R. G. Perkins[4] present a final report upon their studies of variola in Cleveland during the past two years. Their conclusions are: (1) The bodies described in the skin lesions of variola by Councilman and his coworkers represent stages of the life cycle of a protozoon parasite; (2) the entire cycle as made out by Calkins has been confirmed, except the invasion of nuclei by gemmules, these going through a stage leading to the formation of male gametocytes; (3) a study of the material permitted the recognition of a primary and a secondary cytoplasmic and a primary and a secondary intranuclear stage. The end-forms of these stages are: (*a*) The gemmule; (*b*) large solid nucleated forms—the zygote-like body of Calkins; (*c*) small ring-like spores in both the intranuclear stages; (4) the relation of these parasites to the skin lesions is of such a definite and intimate character as to lead to the conclusion that they are the cause of the disease.

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[1] Australasian Medical Gazette, August 20, 1904.
[2] Medicine, September, 1904.
[3] Annales de l'Institut Pasteur, September 25, 1904.
[4] Journal of Medical Research, October, 1904.

[1] Virchow's Archiv, B. clxxvii, Heft 3.
[2] Annales de l'Institut Pasteur, July 25, 1904.
[3] Archives de Med. Exper., et d'Anat. Pathologique, July, 1904.
[4] Journal of Medical Research, October, 1904.

Syphilitic Lesions in Anthropoid Apes.—Arnal and Salmon[1] present a study to be considered an appendix to the paper of Metchnikoff and Roux, published late in 1903. They studied microscopically an indurated chancre and secondary syphilids from a female chimpanzee and a chancre from a male chimpanzee. The chancre from the first animal was healing and also was the site of a secondary infection, hence was not clearly specific. The syphilids showed the same appearance as similar lesions in man. More important and more characteristic were the findings in the chancre from the male animal. Infiltration by mononuclear cells, periarteritis and endophlebitis were present; the histologic picture of the lesion and the inflammatory reaction were identical with those found in syphilitic chancre in man. M. Darier, whose competence regarding the subject is well known, also examined the sections and confirmed the diagnosis. As the chancre of the male was derived from the female in question, the writers consider logical the conclusion that the two animals had been attacked by syphilis.

Tuberculins from Human and Bovine Bacilli.—S. B. Wolbach and H. C. Ernst[2] carried out experiments partly to repeat the original experiments of Koch with tuberculin upon tuberculous guineapigs and partly to test for differences in specificity in tuberculins made from human and bovine tubercle bacilli. The work was divided into three parts—the relative virulence of the human and bovine cultures used, the relative strength of the tuberculins made from this culture, and the treatment of tuberculous guineapigs. The technic of the tests is given, together with elaborate tables of the results, 27 guineapigs being used. The writers conclude: 1. There is no difference in specificity between tuberculins made from human and bovine tubercle bacilli. 2. The tuberculin treatment on the whole acts favorably upon tuberculous guineapigs. 3. There are no essential differences in the disease process caused by the human and bovine tubercle bacilli.

Attempted Solution of the Glycogen Problem.—A. Wolff[3] says the foundation for all previous glycogen theories included the view that the leukocytes in normal circulating blood did not contain any glycogen. It has been shown, however, that glycogen is a normal constituent of the leukocytes. In order to demonstrate its presence a special method must be employed, consisting in subjecting the blood preparations to the action of iodin vapor, while they are still moist. The glycogen of normal leukocytes is very soluble in water; hence the failure to demonstrate it by other methods. This solubility varies in different species, and probably reaches a maximum in the mouse, in which animal the reaction has not been obtained in previous experiments. The solubility of the leukocytic glycogen also varies in the same species; it is lessened by emigration of the leukocytes from the vessels, also by infective processes. The presence of glycogen in the leukocytes formerly has been regarded as a degenerative change, but now must be considered an evidence of diminution in the solubility of the glycogen that is normally present. [B.K.]

Chorea Insaniens with Autopsy.—Isabel A. Bradley[4] reports a case of this disease in a young woman of 19, and the results of the autopsy. The duration of the disease was only a few days, and the patient died during maniacal excitement. Unfortunately, the spinal cord was not examined, but the brain showed the presence of a change in the cells of the cortex. There was diffuse chromatolysis; the nuclei were small and the nuclear membrane absent. The change was most advanced in the small pyramidal cells of the second layer. Extensive perivascular and pericellular changes were found in the parietal convolutions. Macroscopically, small clear spaces were observed in the white and gray matter of the cerebrum, while in the cerebellum they were confined to the white matter. In Mitchinson's cases there was edema of the brain and in Bertram Abraham's case there was some cortical change similar to those found in Bradley's case. Dana reported a case of chorea in which the white matter of the brain was the seat of numerous little spaces. [J.H.W.R.]

Local and General Action of Röntgen Rays.—G. Baermann and P. Linser[1] have performed a series of experiments to control the statement of Scholz, who says the epithelium is the tissue most quickly and severely damaged by the röntgen rays. From a consideration of these experiments, as well as after careful theoretic deduction, they conclude, contrary to Scholz, that the bloodvessels are the structures primarily and most severely affected, and this damage the most important of the effects produced by the rays. If the rays are applied to a psoriasis spot, the diseased and therefore not very resistant epithelium will not suffer, but on the contrary rapidly regenerate while the circulatory disturbance disappears. They relate their experiments in detail. They found that flowing blood is not altered in such a way as to be demonstrable by any chemic or biologic method and therefore regard such a change as excluded. The changes are limited almost entirely to the intima. Careful examination of the metabolism of even patients treated with the rays were also made, to note the reason of fever after such treatment. In all cases an increased excretion of nitrogen was found in the urine; it increases for several days after the treatment is stopped. The authors believe the action of the rays on the tissues produces a toxin, which may be compared to the toxin after severe burns. [E.L.]

Glycolysis.—A. Braunstein[2] has performed experiments in an endeavor to determine whether a glycolytic ferment is present in all tissues of the body or glycolysis is accomplished by the combined action of the pancreas and the other tissues. His investigations concerning the glycolytic powers of the pancreas and the liver were inconclusive. On the other hand, he found in coagulated blood a ferment which showed strong glycolytic power, even without the addition of pancreatic tissue. The author believes that this ferment is bound to the leukocytes, and becomes active when they are destroyed. [B.K.]

The Influence of Metabolism upon the Production of the Antibody.—Paul H. Müller[3] experimented with pigeons under conditions of hunger and in the fattened state and under the effects of alcohol. The experiments with the starved pigeons showed that the agglutinating qualities of the serum were higher than that of control animals when the typhoid and pyocyaneus bacilli were used. When the bacillus of dysentery, the vibrio Metschnikoff, and *Bacillus proteus* were used the results were reversed. A comparison was made between the agglutinating quality of pigeons fed with milk and water and those fed with potatoes, with the result that the agglutinating value of the former was greater in most experiments. In a third series of experiments, dogs were treated with alcohol and typhoid bacilli were used, resulting in the demonstration of a lowered agglutinating value in the alcoholized animal. He concludes that the production of the antibody is closely related to nutrition and metabolism, and varies with the character of the disturbing conditions as well as the character of the immunizing process. [J.H.W.R.]

Congenital Lesion of the Medulla and Spinal Cord.—P. Stewart[4] reports the case of a man of 41, who as a child, was very slow in developing. He did not walk until four years old, and never had any molar teeth either in his first or second dentition. His voice had always been hoarse and hearing slightly dulled on the right side. The external auditory meatus and lobule on the right side are smaller than those on the left side; there is no mastoid process on the same side and the jaw

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[1] Annales de l'Institut Pasteur, July 25, 1904.
[2] Journal of Medical Research, October, 1904.
[3] Zeit. für klin. Med., Bd. li, p. 407.
[4] American Journal of Insanity, April, 1904.

[1] Münchener medicinische Wochenschrift, 1904, Vol. li, 996, No. 23.
[2] Zeit. für klin. Med., Bd. li p. 359.
[3] Wiener klin. Woch., 1904, No. 11, p. 300.
[4] Brain, 1904, cv, 89.

is but poorly developed. Most of the muscles on the right side of the neck (sternomastoid, sternohyoid, sternothyroid, thyrohyoid, stylohyoid, digastric and omohyoid, also parts of the trapezius, the levator palati and azygos muscle) are absent as proved by clinical and electric examination. The right vocal cord is immobile and the right side of the tongue small. The deep muscles of the neck seem normal and the movements of the neck are apparently well performed by them. A diagnosis of congenital lesion of the spinal accessory, vagus and hypoglossus nuclei of the right side was made, the lesion extending to the anterior cornu of the spinal cord at least as far as the third cervical segment; the spinal root of the trigeminus nerve was also thought to be affected. The patient unexpectedly died of pontine hemorrhage occurring in the course of chronic renal disease. The autopsy revealed the absence of the muscles mentioned; some of the muscles of the larynx and the palate were also missing. The right spinal accessory and hypoglossal nerves could not be found; the right lingual nerve supplied the hypoglossus muscle. In addition to the hemorrhage in the tegmental portion of the pons, the vagus, spinal accessory and hypoglossal nuclei were found missing, the gray matter being implicated as far as the anterior cornu of the sixth cervical segment; the spinal root of the trigeminal nerve was found diseased. There were no spinal accessory and hypoglossal nerves on the right side, and the vagus was markedly reduced in size. [E.L.]

The Result of Injecting Various Albuminous Substances into Animals.—F. Hamburger and A. V. Rensz[1] experimented upon animals to determine if the results of the injection of human milk into animals resembled those when human serum or cow's milk was injected. Hamburger had shown previously that human serum remained unchanged when injected into animals and he concluded that the cells of the intestines were incapable of digesting foreign serum. To determine if this applied to serums of different animals he injected into dogs different blood-serums and various kinds of milk. Later he made experiments with eggs and the blood serum of chickens. The dogs received intravenously a definite amount of the substance employed and the serum of the injected animal was examined at different times to determine the amount of foreign albumin present. After a single injection of serum there was a fall in the amount of the foreign serums, then the amount remained the same until a certain time when it rapidly disappeared. After each injection of the serum, precipitin made its appearance. After one injection of milk or eggs was made, the foreign albumen disappeared rapidly, usually within the first 24 hours, but no precipitin was formed until after the second injection. The writers have not been able to make definite deductions. The disappearance of the foreign albumin has some relation to the leukocytes. Each time the milk or eggs was injected there was an extraordinary diminution in the leukocytes, followed by leukocytosis. The diminution following injection of serum was less marked. [J.H.W.R.]

Bactericidal Action in Normal and Infected Animals.—E. Hoke[2] has found that the bactericidal action of blood-serum upon anthrax, typhoid, cholera and colon bacilli, and staphylococci, is neutralized by contact with the cells of various organs. The kidneys and lymph-nodes act the most powerfully in this respect, while the bone marrow and leukocytes exert little if any influence. The effect of the spleen and liver is variable, the former having little effect upon typhoid bacilli and staphylococci. This neutralizing effect of the various organs is obtained by combination with the complement, while in the case of the kidneys and suprarenal glands the immune bodies are also taken from the blood-serum. The presence of leukocytes and bone marrow does not interfere with the neutralizing action of other tissues. Experiments on animals, infected with various organisms, show that under the influence of infection the bone marrow assumes an active role in inhibiting the development of bacteria. Hence the conclusion that the bone marrow is the main protecting organ against infecting agents. [B.K.]

The Specific Causes of Smallpox, Chickenpox, Scarlet Fever, Measles and Typhus Fever.—P. M. Neviadomski[1] makes the sweeping announcement that he has succeeded in discovering the specific microbes of all these diseases! The germ of smallpox is a vegetable, not an animal parasite, possessing peculiar and complex morphologic and biologic characteristics. Its specific relation to smallpox has been established by means of inoculations on calves. In vaccinia and in varioloid, the same microorganism has been found. Thus the identity of these three is decisively proved. On the other hand, the germ of chickenpox, also discovered and obtained in pure cultures, is different from the smallpox germ. Furthermore, the author lays claim to the discovery of the specific germs of measles, scarlatina and typhus fever. All three germs are somewhat similar, though not identical. They are very different from those described by various predecessors. Complete reports on these discoveries will follow in the near future. [L.J.]

Lipemia.—E. Neusser and L. Derlin[2] report a case of marked lipemia in an advanced diabetic, in which their investigations were directed toward determining the source of the fat in the blood. For this purpose they examined the fat deposited in various parts of the body, the fat of chyle, and fat obtained from various articles of food. The method of examination consisted in the application of two quantitative tests—the "iodin test" and the "Reichert-Meissl test." The former determines the percentage of oleic acid (unsaturated fatty acids) in the fat, while the latter determines the percentage of volatile, water-soluble, fatty acids. The results of the investigation showed a close correspondence between the composition of the fat found in the blood and that of the chyle fat. Hence the deduction that in lipemia the fat of the blood is derived from the chyle, *i. e.*, from the fat of the food. [B.K.]

Gruber-Widal Reaction in Icterus.—Vittorio Zevi[3] studied the agglutinating power upon the typhoid bacillus of bile from 34 cadavers dead from different diseases, with negative results except in one case. A mixture of bile and serum of nonicteric individuals whose serum did not agglutinate the typhoid bacillus, also gave negative results. In 24 trials negative results occurred in 5 cases of icterus neonatorum, 6 of cancer, 1 of cirrhosis of the liver, 1 of sepsis, 1 of echinococcus of the liver, 1 of hereditary lues, and 1 of phosphorus poisoning. Positive results followed in 1 case of cystoma ovarii, 1 of carcinoma ventriculi with metastasis to the liver, 1 of atrophic cirrhosis of the liver, and 1 of cancer of the gallbladder in cholelithiasis. The four positive cases were also tested with the paratyphoid bacillus, Flexner's bacillus, Shiga-Kruse bacillus, and *B. coli communis*. The results were positive with the paratyphoid bacillus, and with Flexner's bacillus. With the Shiga-Kruse and the colon bacilli the reaction failed. [J.H.W.R.]

Blood Investigations in Measles, Scarlet Fever and Chickenpox.—According to F. Erben[4] a relative polynuclear leukocytosis occurs during the febrile period in measles, resulting especially from destruction of the small lymphocytes. When the temperature falls there occurs regeneration of the small lymphocytes, while the large lymphocytes, large mononuclear leukocytes and transitional forms begin somewhat earlier to rise above physiologic limits. The eosinophiles disappear during the eruption, or reappear in the postfebrile stage. The blood-serum in measles agglutinates normal erythrocytes and the red cells are dissolved by normal serum, this erythrolysis being prevented by the presence of serum from measles. In scarlatina there is a progressive fall in the number of erythrocytes and a disproportionate diminution in the percentage of hemoglobin. There is a distinct leukocytosis produced by an absolute increase of the polynuclears, the eosinophiles and mononuclears not being affected. After the acme of the fever is reached, the eosinophiles undergo a marked increase in numbers. Active isolysis was observed by the author only to a slight degree, as was also active and passive isoagglutination. In varicella there was an increase of the large and small lymphocytes. [B.K.]

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[1] Wiener klinische Wochenschrift, 1904, No. 31, p. 859.
[2] Zeit. für Heilkunde, 1904, Bd. xxv, Heft 8, p. 197.

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[1] Russki Vratch, August 14, 1904.
[2] Zeit. für klin. Med., Bd. 11, p. 428.
[3] Wiener klin Woch., 1904, No. 31, p. 861.
[4] Zeit. für Heilkunde, 1904, Bd. xxv, Heft 8, p. 274.

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Charity-Crime.—The ugly illustrations of trading on the selfish and thoughtless charity mongers increase. There are few criminals so dangerous as the sturdy beggars who mask themselves as cripples, epileptics, etc. All over the country institutions are springing up to bleed the unfortunate and improvident tuberculous patient, the drug and whisky takers, the epileptic and weak-minded, and the diseased of many other types. The inevitable result will be that the very springs of love and benefaction will be dried up in the reaction that will follow exposures of the deceptions. It therefore behooves the profession and the community to punish ruthlessly the frauds and the scoundrels who are double criminals. There has been lately published an amazing story of a set of these wretches. The humbuggery began five or six years ago with the "Illinois Home for Epileptics." Trouble and disgrace followed Mr. Held, S. F. Cleveland, Rachel Gorman, Dr. Maharg, and Dr. Gibson, and their institutions under various names, the last of which was a socalled "neuratorium," in Chicago. Governor Yates and Wm. Jennings Bryan contributed liberally to Rachel Gorman's bank account. Despite the prosecutions and "persecutions" Rachel is still able to hold the police at bay and get money from the foolish to enable her to do so. It is evident that the private institutions of the kind must be made public, and put under the close supervision of the law and its officers.

The shame of football has steadily increased despite the years of warning of all lovers of true sportsmanship and genuine athletics. Ten years ago the Harvard team averaged 172 pounds and the Yale 174. Today the average is 200, the centers weighing 227 and 236. If weight and brute force were the only ideals of the colleges who allow and support this rank abuse of athletics and caricature of education, it would surely be bad enough. But far worse is the admitted and brazenly patent "brutality and trickery," which Laurence Curtis whips in the *Boston Transcript:* The main requirements, he finds, are "brutality and trickery;" the game is "stupid to watch," there are often "lifelong injuries and occasionally death." Some of the requirements are "paid coaches, paid trainers, surgeons, and ambulances, helmets to prevent broken skulls, ear-guards to prevent tearing off of ears, and nose-guards to prevent noses from being broken in or bitten off." After each "great struggle" there is always a flood of recriminations, "angry accusations of foul play, dirty game, etc., as in the recent Harvard-Pennsylvania contest." The ruin of sportsmanship is probably one of the worst results of the degradation of American football. We recently overheard a player telling his friends how he and others had been able to cripple rivals by cunning brutality; and he was proud and boastful of his ability to do this and escape the umpire's eye. The prize fight is honorable and dignified in comparison. And worse yet is the fact that after the great games, doctors' offices show the resultant diseases of "rooters" and celebrators, who have seized the occasion to lapse into indescribable barbarism and debauchery. And this is called encouraging manliness! This is education!

The National Association for the Study and Prevention of Tuberculosis.—The history of civilization in the twentieth century will consist in large part of the story of humane endeavor. The growth of the humane motive, since its comparatively recent entry into politics, definitely characterized the past half-century, and its assured influence in human affairs gives to the coming years their most hopeful aspect. The modern campaign against tuberculosis illustrates, as strikingly, perhaps, as any other movement, the power of this idea, and nowhere is the status of that campaign more interesting than in America. In the Association for the Study and Prevention of Tuberculosis many laborers from many fields have united upon a single task in the field of preventive medicine. To call the roll of this association is to be reminded of every important event in the history of tuberculosis in this country during the past 20 years, and there is no doubt that the growth of the association means a national movement under the best possible leadership. The composition of the board of trustees offers satisfactory proof that the diverse relations of the problem have been well considered, and it will be the first duty of the trustees to formulate a broad and logical plan of coordinating the many forces now engaged, or about to engage, in the work of repressing tuberculosis. The leading features of such a plan are not yet announced, perhaps not determined, but it may be assumed that the scope of their work will have no narrower limits than the boundaries of the United States. Every State has its problem of tuberculosis, and in a majority of the States the problem has received political recognition. The local tuberculosis commissions, Boards of Health, and lay societies very far exceed in number the roll of the States. Each one of these widely distributed agencies desires to bring the experience of other localities to bear upon its own local problem, and, under present conditions, aid of that sort is sought very laboriously. Through affiliation with the national association an enormous economy can be effected. One would have expected the new association to include, from the date of its organization, a large number of official hygienists. Beside the 45 State Boards of Health, there are in the United States no less than 500 cities of considerable size having independent Boards of Health, and of county, town, and village Boards of Health there are thousands. Among the members of the National Association for the Study and Prevention of Tuberculosis there are not 50 health officers. This fact would be less significant if American health officers were federated in any way, but they are not. It is certain that the American crusade against pulmonary tuberculosis owes very much more to the medical profession in general than to Boards of Health. Of the many tuberculosis commissions created in various parts of the country in recent years, but one, it is said, owes its existence to a Board of Health. The causes of this inertia may not be far to seek, but to overcome it will be one of the early difficulties in the path of the National Association for the Study and Prevention of Tuberculosis.

Watercress as a Vehicle of Infection.—The State Board of Health, of Pennsylvania, through its executive officer, Dr. Benjamin Lee, has recently made public some interesting observations on watercress. The circumstances which brought a cress bed under suspicion are not published, but the results of the investigation are quite shocking. The water in proximity to the cress gave a bacterial count of 36,000 to the cubic centimeter. At a distance from the cress bed the count was not so high (21,000 per cc.). Sterilized water in which a handful of cress had been washed grew 5,000,000 bacteria to the cubic centimeter. In all the samples, colon bacillus was present. Vegetables which are eaten raw have often been held accountable for typhoid infection, though satisfactory proof has rarely been obtained. Watercress has often been suspected, but never convicted of causing typhoid fever. The observations of Dr. Lee show this toothsome little plant to be a remarkable accumulator of organic filth, and its efficiency as a carrier of infection is probably very high indeed, considering its comparatively unimportant rank as a food. The 5,000,000 bacteria introduced into each cubic centimeter of the water in which a bunch of cress was washed, illustrates very strikingly the difficulty of cleansing raw vegetables. The conditions of market gardening are well known, but accurate information about the bacterial contamination of celery, cress, lettuce, and cabbage is wilfully, though not unwisely, repudiated by sensitive people. Raw fruits and vegetables should not be excluded from the dietary, even though their use involves some danger, but the kind and amount of such danger are very well worth the consideration of sanitarians. Large sums of money are annually expended upon the administration of pure food laws. Of this expenditure, 80% or 90% is devoted to questions of fraudulent adulteration, having important enough commercial bearings, but often very trivial relations to public health. An experimental diet, having as its essential features, raw cress, celery, lettuce, and cabbage, might immortalize a "poison squad."

Progress Toward Compulsory Vaccination.—In Shenandoah (Pennsylvania) there are at least 27 distinct languages spoken, four of which are official. In these four, smallpox notices are widely circulated, notifying all citizens that all persons must be vaccinated immediately, and that those failing to do so must undergo compulsory vaccination. Any person may be vaccinated free of charge by any physician, all practitioners having been appointed vaccine physicians. Prejudice and the neglect of vaccination have brought back an epidemic of smallpox in Illinois. As foretold by the State Board of Health in its warnings, the virulent type of the disease has returned. During the month of September, in one infected district, 10 patients among 50 afflicted died in a period of 4 days—1 death in every 5! In another, 25 among 200—1 death in every 8! During August, a few cases of smallpox, improperly diagnosed as some harmless disease, were found in a certain town in Illinois. No precautions were taken to prevent contagion. Vaccination was neglected. In a few weeks contagion had spread into five adjoining counties, and the malignant type of the disease appeared. Panic reigned, travelers avoided the town, and business was practically suspended. Human lives were sacrificed to pay for the failure of local authorities to appreciate and act upon the repeated warnings of the State Board of Health. The State Board now urges that every effort be made to induce managers and owners of manufacturing and other plants or establishments employing large numbers of persons to unite in a determined fight against the disease, by insisting upon evidence of satisfactory vaccination of every employe. That such an effort may result in great good is shown by the fact that great Chicago packing houses have just decided that only recently vaccinated persons will be retained in employment. Practical business men will usually cooperate with health officers in checking the spread of disease, especially if the business losses of an epidemic are impressed upon them. But all this is only preparatory to the need of general State laws making vaccination compulsory. Why can we not be as civilized as Germany and Japan?

Governmental Recognition for Brilliant Achievement.—Some of the friends of Dr. James Carroll have from time to time suggested that his brilliant and courageous work in connection with yellow fever had won for him the right to some special recognition in official life and it has been suggested that the least that could be done for him would be to promote him to the grade of full Surgeon, thus giving him rank and pay of a Major in the Army. We now understand that some of his friends are urging special legislation looking to such a step, and we believe *American Medicine* voices, not only the feeling of Dr. Carroll's personal friends, but also of the entire medical profession of the country, when we say that this movement has our full endorsement and our best wishes for success. Dr. Carroll is now First Lieutenant and Assistant Surgeon. He has worked his way up from the ranks by hard, conscientious, faithful, and courageous labor. We Americans have reason to be proud of him and to hope that the government will reward him for his work, especially in connection with yellow fever.

A Civil Service Experiment in Medicine.—Few medical events in Chicago have caused as much comment as the decision of the Board of Cook County Commissioners to put the attending staff of the County Hospital under civil service rules. In consequence of this action the County Civil Service Commission has advertised examinations, beginning November 18, to fill the positions of members of the attending staff. A medical examining board of 31 members has been appointed, and this body, after electing Dr. Hugh T. Patrick chairman, has designated an executive committee of seven members: Drs. A. D. Bevan, Wm. E. Quine, James Nevins Hyde, W. H. Hipp, Arthur B. Black, E. M. Bruce, and the chairman. Separate examinations will be held in each of the departments of the staff, *i. e.*, medical, surgical, etc. The outcome of this unique experiment will be watched with great interest by the profession everywhere. There is much opposition to the plan among those who hold that medical men of long experience in practice should not be asked to undergo an examination as a test for appointments of this character. Of course, others hold that no fairer basis of apportionment of coveted appointments can be devised, and that there is no other way to circumvent occasional political appointment of the unfit. Indeed, feeling runs so high that there is promise of an injunction suit to test the validity of the action of the County Commissioners. The experiment should be carried out in order that a thorough test may be made of the applicability of civil service rules to hospital appointments.

Physical Culture Journalism to be Professional.—There are many signs that there is to be a new spirit shown in socalled physical culture methods. The attainment of riches in the name of physical training by hiring a hundred typewriters and having these copy a score or two of form letters to subscribers unknown and unseen, is perhaps a thing of the past. The issuance of nickel magazines devoted to the "science," by ignorance, cupidity, and sensuality, will also, perhaps, be supplanted by something better. An illustration of this something is the appearance of a magazine entitled, *Health and Recreation*, concerning which the editor says that it is, to a certain extent, a physical culture magazine. It advocates right living. It will teach that physical training will correct certain deformities and be of benefit in certain diseased conditions. Physical training should be considered a specialty in "medicine." It is not by any means a cure-all. The editor is a practising physician, and for years a physical director in Y. M. C. A. gymnasiums in New York City. Most of the contributors are in the same class. It will not be trashy. It will work with the medical profession and must meet their approval.

Special Lectures of the Philadelphia County Medical Society.—Earlier in the year we made mention of contemplated special lectures for the Philadelphia County Medical Society, the object being to furnish the members a series of instructive addresses by men not hampered by restrictions necessarily applied to those appearing on the regular programs. The first of the series was given on November 16. Dr. George McClellan spoke on "The Relation of Anatomy to the Needs of the General Practitioner of Medicine," and Dr. A. P. Brubaker on "The Nervous Mechanism of the Heartbeat." The lectures were illustrated by blackboard and crayon drawings, and the first also by a living model. Both were by men peculiarly well fitted to handle their respective subjects and were relatively brief and to the point. The attendance, though not entirely satisfactory, closely approximated the average of the regular meetings of the society. We believe we voice the sentiments of those present by saying the meeting was a distinct success and should encourage the continuance of this feature. Judiciously managed, with the careful selection of lecturers and topics, these lectures may be the means of gaining the attendance of members who are rarely or never present at the regular meetings. The lecturer has sufficient time to present his subject in a comprehensive and intelligent manner instead of reading a hurried abstract, as is usual at the stated meetings, and in this way furnishes his hearers with a broader view of the topic. At the meeting in question, an invitation to discuss the lectures was extended, but met no response. We believe discussion should not be asked nor permitted, in this way differing from the ordinary program. Discussion of papers, if rightly conducted, is a most valuable part of any program, but nothing will more quickly kill a meeting than the abuse of the privilege. Recently we witnessed, at a meeting of a prominent medical society, the result of the leniency of the presiding officer in allowing a discussion, relevant and irrelevant, to the subject in hand, to occupy at least twice the time limit. Singly and in groups the tired members withdrew, until the two remaining men on the program had only the proverbial corporal's guard as audience. Special lectures should differ from regular meetings and discussions would best be eschewed; in this way members will be assured they are to hear certain men only. We trust the Philadelphia County Medical Society will thoroughly try out the scheme so auspiciously begun and determine its value for themselves, and in this way for other societies as well.

The Endless Chain and Vaccination.—According to the Public Health Reports, it is proposed to resurrect the endless chain in the interests of universal vaccination. The principle is, that to each properly vaccinated person should be given, for a trifling sum, four coupons. With these he is to induce four other persons to be vaccinated, and on the presentation by them of these coupons to the vaccination authorities, he is to receive a reward several times the amount he paid for the coupons. Each of the newly vaccinated ones in his turn becomes a fresh focus of coupon vaccination, and thus the work is to go on until no unvaccinated person, or only the most perverse recalcitrants, remain. Such a scheme, if practicable, would undoubtedly be beneficent in its results; and, as the victim of the coupon agent would be asked to gain, in place of being called upon to give something, he might not find the plan such a nuisance of persecution as it was esteemed in its former incarnations. But, geometric progression is sure to be somewhat surprising in its workings. In a number of instances of the former use of the plan, for instance, the postal authorities were compelled to intervene in order to save themselves from utter submergence by the consequent deluge of letters. There is an old story of a blacksmith, who asked for shoeing a horse, that he be paid merely a penny for the first nail, twopence for the second, fourpence for the third, and so on through the 32 nails in the horse's four shoes. It seemed so simple that the demand was eagerly acceded to, but the amount reached the respectable sum of 2,984,257,298 pennies by the time the shoeing was completed. Even under a plan founded on arithmetical instead of geometric progression, one might be led to inquire where the money is to come from to pay the premiums on these ever increasing coupons?

False certificates of vaccination, according to Director Martin, of Philadelphia, are constantly signed by physicians. He says that the department has the names of as many as 30 physicians thus falsely certifying to successful vaccinations, when it was a fact that there were no takes. Possibly some did not intend to subscribe to a lie, but if so stupid and blunderful as to sign a certificate immediately after the vaccination and before it was known whether or not there was real inoculation, the physicians are hardly to be excused. They are, in practical results, only one step removed from those antis who make a scar without vaccine in order to fool the health officers. In the blank certificates issued by Boards of Health the words "successful vaccination" should be used, and when a physician signs this without waiting to see if his attempted inoculation is a real one or not, he should be held accountable for his mistake whether it is a blunder or a crime. It is said that in some States and cities the wording of the law is indefinite, and no penalty may be given for breaking the vague command. In such cases an amendment is urgently needed.

Light is Electricity.—News from Berlin states that Professor Braun of Strasburg, the well-known inventor of one of the German wireless systems, who spoke at a recent session of the German Society of Naval Architects, on the new method and the aims of wireless telegraphy, affirmed that the problem of directing an electric wave exclusively to one point of the compass was possible of solution, but it must be solved by creating electric energy at points along the same line. Turning to the relations of light and electricity, Professor Braun asserted that he had recently proved that light was only another form of electricity, as physicists had already anticipated. In establishing this point he discovered structures in vegetable and animal tissue hitherto unsuspected, which are only visible by means of miscroscopes of the utmost intensity.

AMERICAN NEWS AND NOTES

GENERAL.

Red Cross Nurses to Japan Have Returned.—News from San Francisco states that Dr. Anita McGee and her eight associates of the American Red Cross Society, who have returned from Japan, where they served with distinction as nurses to the wounded soldiers, say they received every attention and were honored in every way possible during their stay in the country by the officials and representatives of the Japanese army.

Alien Asylum Inmates.—A report from the local United States immigration inspectors has been forwarded to Frank P. Sargent, commissioner of immigration, on certain frauds perpetrated by aliens. The administration has discovered that in nearly every State in the Union a large percentage of the inmates of asylums for orphans and aliens are persons who have been sent to this country especially for the purpose of being placed in such institutions, where the treatment is better than the care given in European institutions. The facts will be presented to Congress.

Campaign against Tuberculosis.—Plans of organization for the first annual meeting of the National Association for the Study and Prevention of Tuberculosis, which is to be held in Washington the third Tuesday in next May, were discussed November 17 in New York City at a meeting of the board of directors of the association. The general plan for the coordination of all associations in the country which are interested in the movement was referred to the executive committee to report at the annual meeting. Among those present were Dr. William Osler, of Johns Hopkins; General George M. Sternberg, retired surgeon-general of the United States Army; Dr. Lawrence F. Flick, of the Henry Phipps Institue in Philadelphia; and Dr. William H. Welch, of Johns Hopkins.

The National Association for the Study and Prevention of Tuberculosis will hold the first annual meeting of the Association in Washington, D. C., on the third Tuesday of May, 1905. Arrangements have been made for a two days' meeting, in which there will be one or two general sessions with distinguished speakers upon the broad topics of tuberculosis, and special meetings of the three following sections: 1. Sociologic. 2. Pathologic and bacteriologic. 3. Clinical and climatologic. So far as possible, these sectional meetings will not conflict one with another; each section is to be presided over by gentlemen distinguished in their respective work, and only papers of undoubted merit and interest be presented. The membership of the Association includes a large proportion of the most eminent workers in the subject of tuberculosis throughout the country, and it hopes to make its first annual meeting an important one in the crusade in this country against tuberculosis.

The first congress of the Society of International Surgery will meet in Berlin, in September, 1905. The subjects on the program for discussion are as follows: 1. The value to surgery from the examination of the blood. Discussion, W. W. Keen, Philadelphia; Sonnenburg, Berlin; Ortiz de la Torre, Madrid; Depage, Bruxelles. 2. The treatment of prostatic hypertrophy. Discussion: Reginald Harrison, London; Rovsing, Copenhagen; von Rydygier, Lemberg. 3. Surgical intervention in cancer of the stomach. Discussion: Mayo Robson, London; von Eiselsberg, Vienna; Mattoli, Ascolu Piceno; Monprofit, Ahgers; Rotgans, Amsterdam; Jonnesco, Bucharest. 4. The treatment of tuberculosis of the joints. Discussion: Bier, Bonn; Broca, Paris; Bradford, Boston; Codivilla, Cologne, Willems, Gand. 5. Treatment of peritonitis. Discussion: Lennander, Upsala; Friedreich, Leipzig; Lejars, Paris; McCosh, New York; Krogius, Helsingfors; De Isla, Madrid. 6. The diagnosis of surgical diseases of the kidney. Discussion: Albarran, Paris; Kümmell, Hamburg; Giordano, Venice; Lambotte, Bruxelles.

Typhoid Fever and Oysters.—In the discussion of the oyster as a means of communicating the germs of typhoid fever in Europe and in the United States, many inaccurate statements have been put in circulation, so that the Government has deemed it necessary to have the matter investigated by an expert commission in order to avoid any possible damage to the oyster industry. The report of this body states that under normal conditions the oyster is not unwholesome at any time during the year, and that its peculiar microbian diseases, which are exceedingly rare, are not transmissible to man. "Wild" oysters, although not always fit for food, are free from contamination and do not endanger public health, while those raised or fattened in beds are usually free from suspicion. The transmission of typhoid by oysters is possible, yet well authenticated cases of such action are rare, and involve a series of exceptional circumstances. The chief sources of danger are in the beds where the oysters are kept before transportation, the caring for them during transportation, and finally the shops of the retail dealers. It is believed that the connection between typhoid fever and the eating of oysters is due largely to the fact that indulgence in this form of shell-fish begins at the time when there is a maximum number of typhoid cases, and the matter is one of coincidence rather than cause and effect.—[*Harper's Weekly.*]

Miscellaneous.—New York: Dr. Lord Removed.—Approving the recommendation of Secretary Shaw, President Roosevelt has dismissed from the Marine-Hospital Service Dr. C. E. D. Lord, stationed at Ellis Island. **New York Orthopedic Dispensary and Hospital.**—The trustees of the New York Orthopedic Dispensary and Hospital announce that the surgeon-in-chief, Dr. Russell A. Hibbs, will give a course of clinical lectures on "Orthopedic Surgery" at the institution, on Tuesday and Thursday afternoons, at 4 o'clock, from December 6 to January 5 (both inclusive). The course will be free to the medical profession and students. **Chicago: Dr. Brown.**—At the last regular meeting of the board of directors of the Chicago Eye, Ear, Nose, and Throat College E. J. Brown, M.D., was elected to professorship of histology. **Jefferson's Oldest Doctor.**—The oldest living graduate of Jefferson Medical College, Philadelphia, Dr. Jacob L. Ziegler, of Mount Joy, Pa., on November 17, celebrated the eighty-second anniversary of his birth, and the sixtieth completed year since his graduation from that institution. He is still a very active and successful practitioner. **Baltimore: Cambridge Hospital Dedicated.**—The Cambridge Hospital was dedicated on November 17. It is said to be the finest hospital in the State outside of Baltimore, costing $75,000.

NEW YORK.

Railway Surgeons Meet.—Modern methods of surgery, as applied on the great railroads of the country, were considered and discussed on November 17, at the annual meeting of the New York and New England Association of Railroad Surgeons.

War on Pneumonia.—New York City is the center of a large district which is waging war against pneumonia. Thirty hospitals in various large cities in every section of the country have promised active cooperation in the pneumonia investigation recently begun by a special commission of eminent specialists, under the direction of the Department of Health of New York City. The laboratory work will be carried on in Boston, Philadelphia, Saranac Lake, and in New York City. Twenty thousand cases will be studied in a period of six months which began November 1. The "clearing house" or central laboratory of the investigation, will be at the headquarters of the Department of Health in New York City. All cultures isolated by the physicians working under the commission will be sent to this central laboratory. There they will be investigated or compared for identification or further classification. The value of the data presented to the commission will by this means be greatly increased, as the same methods and standards will be applied to the study of all cultures, and errors arising from hasty studies by workers in the field or without the same facilities will be corrected.

PHILADELPHIA, PENNSYLVANIA, ETC.

Mütter Lecture on Surgical Pathology.—The Mütter Lecture for 1904 will be delivered in the Hall of the College of Physicians, northeast corner of Thirteenth and Locust streets, on Friday, December 2, at 8.30 p.m., by Dr. George H. Monks, assistant visiting surgeon, Boston City Hospital; lecturer on surgery, Harvard Medical School. Subject: "Studies in the Surgical Anatomy of the Small Intestine and its Mesentery." Members of the profession are invited.

Diphtheria Increase.—For the week ended November 19, there are 102 new cases of diphtheria reported in the city. This is 42 more than were reported for the previous week. In order to stamp out diphtheria, dwellings in all parts of the city are being fumigated by the health officers, and antitoxin is being administered to patients. Most of the cases are comparatively mild, and there have been few deaths. According to the health report for the past week, deaths from all causes in the city numbered 401, a decrease of 22 from that of the previous week.

Jefferson Medical College Library.—The report of the librarian of Jefferson Medical College Library for the year just ended showed some very interesting facts concerning the contents and circulation of the college library. There were 3,009 volumes in the library, of which 439 were added during the year; 203 by gift, and 236 by purchase and binding; the largest gift being 78 volumes from the library of the late Dr. C. W. Horner. There are no fewer than 2,000 volumes of general textbooks in the library and from these there was a circulation of 10,663 volumes.

SOUTHERN STATES.

Births and Deaths in Baltimore.—The report of the health department for the week ended November 19, shows a total of 190 deaths, as compared with 179 the corresponding week of last year, 181 in 1902, and 200 in 1901. The deathrate per 1,000 population was: Whole, 18.24; white, 16.73; colored, 26.61.

An Unsanitary City.—*Times Democrat*, commenting on the unsanitary condition of affairs in New Orleans, particularly with reference to the surface drainage of sewage, says in part: Frequent complaints are heard as to the conditions of the gutters in parts of the uptown section of this city, and it is evident from the tone of those making the complaints that if the disgraceful conditions are not removed that some concerted action will probably soon be taken. It seems incredible that within the very shadow of one of the city's greatest institutions for the cure of disease and the care of the sick the very conditions which produce disease should be allowed to exist and to grow worse day after day, and the city authorities take no steps whatever to remedy the evil.

WESTERN STATES

Converting Brush Lands into Forests.—According to *Science*, Los Angeles, Cal., has 3,000 acres of brush land called Griffith Park, which it intends to convert into a commercial forest. This is said to be the first instance of a city in the United States creating a forest. The practice is common in Europe, where the forest parks have not only contributed to the pleasure of the people, but have been more than self-supporting through their timber output. The idea is to convert a waste piece of land into a productive forest, which will not only pay for its creation and care through the sale of mature timber, but will be a place of recreation for the citizens of Los Angeles.

Would Amend Constitution of the Chicago Medical Society.—The following amendment to the constitution of the Chicago Medical Society has been proposed by Dr. Arthur D. Bevan: "Any member who is guilty of giving or receiving a commission, or of entering into any arrangement for the division of a fee for professional services, which arrangement is not known and fully understood by the patient or party by whom such fee is paid, shall be guilty of unprofessional conduct." This follows as the result of the recent exposure by decoy letters, which was discussed by the interested parties at the meeting of the council of the Chicago Medical Society on November 9, 1904. Those who gave the results to a newspaper have offered their explanation, and the matter, at least officially, will probably be dropped.

Pneumonia Increase in Chicago.—The Bulletin of Chicago's Health Department, for the week ended November 12, states that for the first time this year, since the week of May 28 ult., the deaths from pneumonia exceed those from tuberculosis; there were 57 pneumonia and 47 tuberculosis deaths recorded during the week—an excess of 21.2% of pneumonia. During the intervening five months there were 1,188 deaths from tuberculosis and 685 from pneumonia—an excess of 73.4% of tuberculosis deaths. The pneumonia season has fairly set in in Chicago, nearly a month later than usual. In New York it took the lead as the principal cause of death some three weeks earlier; that is, in the week of October 22, since which date there have been 15.9% more deaths from pneumonia than from tuberculosis in that city.

Mortality of Michigan during October, 1904.—The total number of deaths returned to the office of the Secretary of State for the month of October was 2,565, corresponding to a rate of 12.0 per 1,000 population. This rate was lower than that for September (12.7) and also lower than that for the corresponding month of the previous year (12.5). By ages, there were 483 deaths of infants under 1 year of age, 152 deaths of children aged 1 to 4 years, and 789 deaths of elderly persons, aged 65 years and over. Important causes of death were as follows: Tuberculosis of lungs, 195; other forms of tuberculosis, 34; typhoid fever, 67; diphtheria and croup, 27; scarlet fever, 3; measles, 4; whoopingcough, 9; pneumonia, 109; diarrhea and enteritis, under two years, 168; cancer, 146; accidents and other violence, 195. Deaths from pulmonary tuberculosis and pneumonia increased for October, as compared with the preceding month, but there was a large diminution in the number reported from diarrheal diseases. Typhoid fever showed a very slight increase over September.

Chicago's Municipal Laboratory will Test Vaccine.—Bulletin of Chicago's Health Department for the week ended November 5, states that the increased demand for vaccine has caused some producers to put "unripe" lymph on the market. During the week, samples brought to the department laboratory for examination were found, from two producers, to contain bacteria which had not been destroyed by the action of the glycerin. Such lymph causes pus sores and impairs the protection of the vaccination. The commissioner has, therefore, tendered to all producers of vaccine the services and facilities of the laboratory of the Health Department, and of its expert clinicians, in the bacterial and clinical examinations of their respective vaccine products offered for sale and use in the city of Chicago. All vaccine submitted for such examinations and found to be pure—that is, free from disease-producing organisms, and potent—that is, producing not less than 90% of successful primary vaccinations—will be so certified by the Department. Defects in either respect will be duly notified.

FOREIGN NEWS AND NOTES

GENERAL.

Miscellaneous.—**Dr. Yersin** has resigned the position of director of the Medical School of Hanoi to become head of the Pasteur Institute of Nha Trang.

Many Medical Journals in Germany.—The number of medical journals in Germany is extraordinarily large and still on the increase. At the end of 1903 there were 230, and 10 more were added in the nine months following.

Monument to Inventor of Sphygmograph.—At the Sixth Annual Congress of Physiology at Brussels, Professor Heger, president, inaugurated a movement to erect a monument to Marey, the inventor of the sphygmograph.

Race Suicide in France.—The official figures just published of the population of France in 1903 are as follows: Births, 826,712; deaths, 753,606; excess of births, 73,106; excess in 1902, 83,944. Tables are given showing that while the excess of births over deaths in 1901–1902 was 21 per 10,000 inhabitants, the ratio for the same period in Germany was 153 and in Great Britain 119.

To Improve Hygiene of Homes.—News from Paris, under date of November 5, says: The first international congress of hygiene and sanitation in dwellings was inaugurated here on Thursday under the presidency of the minister of public instruction. Members of the congress paid visits to workshops, workingmen's houses, and several hospitals at Paris on Friday. The congress will close tomorrow. Prominent representatives from many countries are present.

An Antirheumatic Serum.—The discovery by Menzer, a physician of Halle, of a curative serum for articular rheumatism, seems full of promise. In the two years in which Menzer has been studying this question, he has become more and more convinced that this disease is caused by a streptococcus which enters the organism through the lungs. His treatment has been equally successful in cases of acute and chronic rheumatism.—[*La Revue médicale du Canada.*]

London Insane Increasing.—News from London states that the total increase of 996 lunatics is the largest annual increase we have had to record, and the prospect of any diminution in the increase of lunacy appears to be most problematic. Such is the state of affairs reviewed in the annual report of the asylums committee of the London county council for the year ending March 31, 1904, just issued. The figures for London alone show a total of nearly 24,000 lunatics on the first day of the current year. This, as compared with three previous years, shows an annual increase of from 700 to nearly 1,000 in 14 years, since 1890. The number of lunatics has increased by the enormous total of 7,590, which is out of all proportion to the increase in population. Among the causes of insanity in patients admitted to the London asylums last year were the following: Intemperance, 666; hereditary, 783; love affairs, 61; domestic worries, 282; religious excitement, 78.

The Value of Medical Training.—Sir Conan Doyle, who graduated in medicine and practised for a time before devoting his talents exclusively to the writing of stories, states that there was a time when a young man who was going to do anything in the world was passed mechanically through the bar. He says: I believe the time will come when the similar young man will be passed through medicine, because I know no other means by which he could get to the fundamental and absolute facts of life. The mere fact that in his training a man has to undergo so searching an ordeal in the most critical years of his life, and pays such enormous attention to detail, is in itself evidence that he receives a splendid training. I have always said that for a man who has mastered "Gray's Anatomy" life has no future terrors. If our young army officers had five years' study in the same sense that the young medical man has five years' study, we should become the terror of Europe.

The Mosquito Pest Eliminated.—According to the *London Globe*, Khartoum has been cleared of the mosquito pest and danger. This is one of the results of Dr. Balfour's work in the new laboratory. For the last eight months Khartoum has been rid of the pestilent insect. This means not only new comfort to the community, but immunity from malaria. In the first place, it has been established that the mosquito at Khartoum is malaria bearing. The species which haunts Cairo is not—it is merely troublesome. But the Khartoum insect is dangerous. It is, indeed, held to be the cause of all the malaria of the country. Dr. Balfour has attacked it in the breeding places. These are found in the stagnant wells, of which there are 700. These have been treated with crude petroleum, which affects their public utility only for two or three days, but keeps them clear of mosquitos for a month. Steamers are stopped a mile and a half from Khartoum and thoroughly disinfected, all heir bilge water, which is the prolific recruiting ground of the reature, being treated with petroleum.

Consumption of Alcohol in the United Kingdom.—Mention has been made already in the *Evening Post* of the decrease in the consumption of alcohol in the United Kingdom. The latest report of the Commissioner of Internal Revenue shows that while the estimated population increased by about 412,000, the quantities of beer retained for consumption in the United Kingdom were less by 631,082 barrels, the total quantity of beer produced being also less by 824,165 barrels. The number of licenses issued to brewers for sale diminished from 9,337 in 1893–94, to 5,495 in 1903–04. But while the number of such licenses in England fell from 9,150 in 1893–94 to 5,340 in 1903–04, the number in Ireland was in both years the same, namely, 38. The decrease is attributed to the disappearance of small breweries. The great decline in the practice of private brewing is illustrated by the number of licenses issued to brewers not for sale. In 1893–94 there was 17,199 licenses of the kind in the United Kingdom—16,926 in England, 272 in Scotland, and 1 in Ireland—but on March 31 last the total number did not exceed 11,359. There was a decrease last year in the quantities of beer imported into the United Kingdom, and the quantity exported was less by about 14,000 barrels. At the present time there are in force in the United Kingdom 230,171 licenses for the sale of intoxicating liquors—4,532 fewer than in 1902–03, and 641 more than in 1893–94. Of the existing licenses, 91,502 are held by retailers of spirits, and the fact is noted that it is only the more expensive houses that are increasing, while the tendency of the cheaper establishments is to disappear.

OBITUARIES.

Henry E. Allison, medical superintendent to the Matteawan State Hospital for the Insane, New York, near Fishkill Landing, November 12, of Bright's disease. He was a prominent alienist, member of the American Medicopsychologic Association, and the New York State Medical Society. He was a graduate from the Medical Department of Dartmouth College, in 1878, and subsequently served as assistant physician at Willard Hospital. In 1894 he was elected medical superintendent of the State Asylum for the Insane Criminals at Auburn, where he remained until he was appointed to take charge of the Matteawan Institution.

Thomas M. Drown, president of Lehigh University, Pa., November 16, at his home in Bethlehem, Pa. He was a graduate in medicine from the Medical Department of the University of Pennsylvania, in 1862. He subsequently studied in the school of mines at Freiberg and at the University of Heidelberg, and became an instructor in metallurgy at Harvard University, in 1869. He later became professor of physiologic chemistry in Lafayette College and was elected to a similar position in 1885 at the Massachusetts Institute of Technology, in 1895 he was chosen president of Lehigh University.

Hunter A. Bond, committed suicide at the residence of his mother, in Petersburg, Va., November 14, by shooting himself in the right temple with a 32-caliber pistol. He was a graduate of Bellevue Hospital Medical College, in 1891, and was for 12 years physician to the Manhattan State Hospital, Ward's Island, New York. He had been in bad health for some months and for a month preceding his death had suffered greatly from insomnia and a general nervous breakdown. He was held in high esteem by the hospital authorities and his associates and friends.

James L. Bryan, at his home in Cambridge, Md., November 16, at a very advanced age. He was a veteran of the Mexican war, having organized a company at the Virginia Military Institute and served throughout the conflict. He was graduated from the University of Maryland, School of Medicine, in 1849. He practised to the close of the Civil war when he founded the Cambridge Military Academy.

DeWitt Clinton Wade, aged 68, of Holly, Mich., November 4, in a hospital at Flint, Mich, after an operation for appendicitis; a graduate of the Albany (N. Y.) Medical College in 1860; member of the American Medical Association, local surgeon to the Grand Trunk Railway, Supt. of the Holly Hospital and a member of various medical organizations.

Thomas S. Duckett, aged 90, at the home of his son in Blandenburg, November 12; a graduate of Jefferson Medical College, Philadelphia, in 1836. In later life he gave up the practice of medicine and devoted himself to literature and to the pursuit of agriculture. At one time he represented Prince George County in the State Legislature.

Abner D. Kimball, aged 65, November 11, at his home in Marion, Ind., from diabetes; a graduate of Rush Medical College in 1860: surgeon in the Federal service during the Civil war; chief surgeon at the National Home for Disabled Volunteer Soldiers at Marion, Ind.

William H. Huntington, aged 47, November 7, at his home in Rochester, Vt., from appendicitis; a graduate of the University of Vermont, Burlington, in 1881; member of the American Medical Association; president of the Vermont Medical Society in 1900.

Jacobus Pollatsek, aged 63, one time quarantine officer at Cairo, Egypt, November 6, at the Harbor Emergency Hospital, San Francisco, presumably from poison self-administered, a graduate of the Royal University, Budapesth, Hungary, in 1878.

Thomas L. Laliberte, aged 53, November 5, at his home in East Minneapolis; a graduate of Laval University, medical department, Quebec, in 1876; member of the American Medical Association and a prominent physician.

Frederick Lefew, aged 29, who on October 30 received a stab wound from an assailant, died on November 13, at his home in Roanoke, Va. He was a native of Richmond, and graduated from the Medical College of Virginia, in 1900.

Charles N. Brush, Jr., aged 32, of Anderson, Ohio, October 29, from tuberculosis, at Wickensburg, Ariz., where he went for his health two years ago; a graduate of the Medical College of Ohio, Cincinnati, in 1891.

James Paulson, aged 65, at his home in Cokesburg on Onancock Creek, Va., November 15. He was in the Confederate service during the Civil war and for a number of years practised medicine in Texas.

Augustus G. Holloway, aged 65, November 4, at his home in Decatur, Ind., after a long illness; a graduate of Cleveland Medical College in 1854; surgeon in the Federal service during the Civil war.

D. Morrow Barrere, aged 54, November 5, at his home in Dayton, Ohio, from pneumonia; a graduate of the Miami Medical College, Cincinnati, in 1878; member of the American Medical Association.

Littleton R. Tull, aged 83, November 6, at his home in Carrolton, Mo.; a graduate of McDowell Medical College, St. Louis, in 1848. He had practised more than half a century in Carrolton.

Seth S. Ullrich, aged 46, November 20, at his home in Baltimore; a graduate of Jefferson Medical College in 1881. He was associate professor of surgery in the Baltimore Medical College.

William McClelland Reber, aged 61, November 19, at his home in Wilkesbarre. He was a member of the Americal Medical Association and of State and county medical societies.

Charles H. Cockey, aged 60, November 20; a graduate of the University of Maryland Medical School and one of the founders of the Baltimore University Hospital.

Charles H. Ludlow, November 10, at his home in Covington, Ind., from concussion of the brain; a graduate of the Medical College of Ohio (Cincinnati) in 1902.

Cassius L. Guerney, aged 62, November 5, at his home in Doon, Ia., from apoplexy; a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1878.

John F. Minot, aged 71, November 16, at his home in Boston. He served for a time in the regular army; a graduate of Long Island College Hospital in 1882.

Rufus A. Shimpoch, October 30, at his home in Goldhill, N. C., from Bright's disease; a graduate of Long Island College Hospital, N. Y., in 1860.

Cassius W. Hore, November 10, from apoplexy, at his home in Brentsville Va.; a graduate of the Medical College of Virginia, Richmond, in 1886.

Henry L. Shireman, aged 63, November 5, at his home in Nazareth, Pa., from paralysis; a graduate of Toledo (Ohio) Medical College in 1885.

William H. Oliver, aged 80, November 9, at his home in Chicago; a graduate of the University of Victoria College, Cobourg, Ont., in 1868.

J. Wallace Collins, October 31, at his home in Victor, Col., from apoplexy; a graduate of Denver (Col.) College of Medicine, in 1888.

John Kerr, aged 85, November 8, at his home in Cedar Falls, Ia.; a graduate of Western Reserve Medical College, Cleveland, in 1848.

George Streeter, at his home in Waco, Texas, November 19; a graduate of Hahnemann Medical College, Philadelphia, in 1872.

David A. Wood, aged 72, October 30, at his home in Norwalk, Ohio; a graduate of Cleveland Medical College in 1872.

William Bray, aged 46, of Dubuque, Ia., November 8, at the Mercy Hospital in that city, from typhoid fever.

J. Milton Welch, aged 70, November 6, at his home in Los Angeles.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended November 19, 1904:

			Cases	Deaths
	Smallpox—United States.			
Illinois:	East St. Louis	Nov. 5-12	8	1
Michigan:	At 50 places	Oct. 29-Nov. 5	Present	
	Detroit	Nov. 6-13	3	
Missouri:	St. Louis	Nov. 5-12	18	1
New York:	New York	Nov 5-12	1	
Ohio:	Cleveland	Nov. 5-12	1	
	Smallpox—Foreign.			
Austria-Hungary:	Prague	Oct. 22-29	13	
Brazil:	Bahia	Oct. 8-15	11	3
	Para	Oct. 1-21	29	4
France:	Lyon	Oct. 22-29	3	
Great Britain:	Leeds	Oct. 22-Nov. 5	4	1
	London	Oct. 22-29	1	
Russia:	Moscow	Oct. 15-22	2	
Turkey:	Alexandretta	Oct. 22-29	1	
	Beirut	Oct. 22-29	Present	
	Constantinople	Oct. 23-30		20
	Yellow Fever.			
Cuba:	Santiago, Punta de Sal	Nov. 8	1	
Mexico:	Coatzacoalcos	Oct. 29-Nov. 5	3	2
Venezuela:	La Guayra	Oct. 22	Present	
	Cholera.			
Persia:	Tabris	Sept. 27-Oct. 2		209
Turkey:	Bagdad and vicin.	Sept. 17-Oct. 1	272	216
	Plague—Insular.			
Hawaii:	Honolulu	Nov. 11		1
	Plague—Foreign.			
Brazil:	Bahia	Oct. 8-15		3
Egypt:	Alexandria	Oct. 8-14	2	1
India:	Karachi	Oct. 8-16	9	11
Mauritius:		Aug. 5-Sept. 8	31	20

Changes in the Medical Corps of the U. S. Navy for the week ended November 19, 1904.

Fitts, H. B., surgeon, ordered to the Buffalo—November 12.

Parker, E. G., passed assistant surgeon, detached from the Buffalo November 26, and ordered to the Naval Station, Tutuila, Samoa, and also to additional duty on the Adams, sailing from San Francisco, Cal., December 1—November 12.

McLarty, C., pharmacist, detached from the Navy Yard, Norfolk, Va., and ordered to the Solace temporarily, and thence to the Naval Hospital, Yokohama, Japan.

Brock, F. W., pharmacist, detached from the Naval Hospital, New York, N. Y., November 25, and ordered to the Navy Yard, Norfolk, Va.—November 12.

Farenholt, A., surgeon, detached from the Monterey and ordered to the Raleigh—November 14.

Young, R. M., assistant surgeon, detached from the Oregon and ordered home—November 14.

Webb, U. R., assistant surgeon, detached from the Naval Station, Cavite, P. I., and ordered home—November 14.

Mayers, G. M., assistant surgeon, detached from the Raleigh and ordered home—November 14.

Hoen, W. S., assistant surgeon, detached from the Naval Station, Cavite, P. I., and ordered to the Oregon—November 14.

Dykes, J. R., assistant surgeon, detached from the Rainbow and ordered to the Naval Station, Cavite, P. I.—November 14.

Cowan, J., pharmacist, retired, detached from the Naval Station, Port Royal, S. C., and ordered home—November 14.

Changes in the Public Health and Marine-Hospital Service for the week ended November 16, 1904:

Gassaway, J. M., surgeon, granted leave of absence for four days from November 23—November 12, 1904.

Young, G. B., passed assistant surgeon, granted leave of absence for one month, or so much thereof as may be necessary, on account of sickness—November 15.

Grubbs, S. B., passed assistant surgeon, granted leave of absence for six days from November 11—November 11, 1904.

Anderson, J. F., passed assistant surgeon, granted extension of leave of absence for three days from November 16—November 12, 1904.

Currie, D. H., passed assistant surgeon, to proceed to Merced, Cal., for special temporary duty—November 10, 1904.

Steger, E. M., assistant surgeon, granted leave of absence for four days from November 9, 1904, under paragraph 191 of the regulations.

Hallett, E. B., acting assistant surgeon, granted leave of absence for two days from November 23—November 12, 1904.

Stearns, H. H., acting assistant surgeon, granted leave of absence for thirty days from December 2—November 15, 1904.

Cook, B. J., acting assistant surgeon, granted leave of absence for eighteen days from November 19—November 15, 1904.

Davis, H. E., pharmacist, department letter of October 13, 1904, granting him leave of absence for fifteen days from October 26, 1904, amended so that said leave shall be for twelve days only—November 5, 1904.

Board Convened.

Board convened to meet at the Marine Hospital, Port Townsend, Washington, November 21, 1904, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon J. H. Oakley, chairman; Passed Assistant Surgeon D. E. Robinson, recorder.

Promotions.

Assistant Surgeon Dunlop Moore commissioned as passed assistant surgeon, to rank as such from June 4—November 11, 1904.

Assistant Surgeon Carroll Fox commissioned as passed assistant surgeon, to rank as such from July 27—November 11, 1904.

Assistant Surgeon Matthew K. Gwyn commissioned as passed assistant surgeon, to rank as such from August 8—November 11, 1904.

Assistant Surgeon Chas W. Vogel commissioned as passed assistant surgeon, to rank as such from July 27—November 11, 1904.

Removal.

C. E. D. Lord removed from the position of assistant surgeon in the Public Health and Marine-Hospital Service, November 15, 1904.

SOCIETY REPORTS

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirtieth Annual Meeting, Held in Cincinnati, Ohio, October 11, 12, and 13, 1904.

[Specially reported for *American Medicine*.]

[*Concluded from p. 874.*]

The Prevention of Appendicitis.—WILLIAM M. HARSHA (Chicago) stated that from available figures it would seem that this disease was more frequent in America than elsewhere. This was on the assumption that the mortality rate was much the same in England, Germany and France, where modern methods of medical and surgical treatment were practised, and where statistics were or should be reliable. In England and Wales, with a population of about 33,000,000, there were 1,244 deaths from appendicitis and perityphlitis in 1901, or 38 per million. In 1902 there were 1,485 deaths, or 45 per million. In Illinois, with a population of about 5,000,000, there were in 1903, 471 deaths from appendicitis, or 94 per million. In Chicago alone, which represents nearly two-fifths of the population of the entire State, there were 249 deaths in 1902, and 260 in 1903, being at the rate of 140 per million. The same high deathrate was approximated in other cities of the United States, especially in similar latitudes. New York City had, in 1903, 439 deaths, or 123 per million. Statistics of deaths from this disease in various cities both at home and abroad were given. Considering the causes that might be influenced by treatment, Harsha believed errors of diet were the most frequent. The disease occurred most frequently at the age and in the sex in whom faulty habits of eating and errors of diet were most common, from 10 to 30 years. It was common to see attacks follow an immoderate meal, or the ingestion of indigestible articles of food. If one had transgressed in either of these ways and felt the approach of an acute digestive disturbance, the rational treatment was the prompt evacuation of the whole digestive tract, keeping it empty, and urging strict recumbency. Cholera morbus ushered in many cases of appendicitis, which were regarded as the primary trouble. The acute digestive disturbance, irritating the mucosa, was followed by stenosis of the base of the appendix, and the infection ensued. This he had observed formerly in a considerable general practice. While fecal concretions or foreign bodies were less frequent causes of appendicitis than was formerly supposed, they caused probably 10% of cases. As to treatment, the individual case must be considered by itself, its etiology carefully studied, as well as any peculiarity, and treatment adapted accordingly. In one case it would be necessary to regulate the habits of eating, in another to cultivate immunity from colds, or proper habits of exercise, while digestive disturbances of various kinds would require attention in others. In all, the proper hygienic conditions should be secured to keep the vital resistance up to the highest point. During the past six or seven years he had advised these measures as preventive after one attack in which there had been no operation, and so far as can be known, he believed recurrence had not occurred in over 20%, most of these being in young people, partly because of the greater frequency in the young, and in part, he believed, because of lack of intelligent cooperation on the part of the patient. The consensus of opinion was that more than 50% of the cases not operated upon, recurred.

The Mortality of Appendicitis.—CHANNING W. BARRETT (Chicago) read an interesting statistical paper on this subject, which was accompanied by a series of tables. Table I showed that Chicago still had a mortality in appendicitis about equal to .01 of the mortality from all causes. Table II showed that the percentage of female mortality from appendicitis varied very little from the percentage of female mortality from all causes, and that appendicitis was to be looked for as common in the female, notwithstanding the old belief that it was rare. Table III showed the greatest mortality at the best period of life, early adult life, the greatest number dying at any one year of age being 22 at the age of 19, the average age for all deaths being 26.34 years. Table IV showed that leaving out the chronic cases the average duration of the disease in the 372 cases in which the time was mentioned was $8\frac{33}{76}$ days. Murphy's mortality cases showed that the average time after operation until death was 2.8 days. This demonstrated that this vast number of fatal cases were operated upon at the end of the sixth day, while all authorities conceded that an operation on the first or second day was safe and desirable. Table V showed that the most frequent cause of death from appendicitis was suppuration of the appendix, caused by perforation, gangrene, or passage of the infection through the wall, and peritonitis; and further, that adhesions and obstruction were common. Many patients did not have the advantage of hospital treatment or an operation. An early diagnosis was most desirable, yet the Bureau of Vital Statistics considered that a diagnosis was not made at all in 105 cases; a few of the remainder were made by the coroner. Some were made postmortem, and one could never know how many were made too late for any operation to save life. The long, but only partial list of vague diagnoses copied from the death certificates, showed that in all probability some cases escaped detection. The author submitted the following conclusions: 1. An early diagnosis is of the first consideration. 2. All troublesome appendices should be removed without waiting for an acute attack. 3. All acute cases should be dealt with surgically in the interval between the onset of appendicitis and the dangerous rupture, without waiting for pus outside the appendix, for peritonitis, for adhesions, or for a possible but remote interval. 4. Cases of perforation or gangrene, with localized abscess, should be operated with drainage or removal of the appendix, according to the judgment of the operator. 5. Patients with perforation or gangrene without a wall of adhesion are in still greater need of an outlet for the infection to lessen the tendency of infection to travel inward. 6. Prince, Murphy, Hawkes, and others, have shown a better percentage of recovery by the operative treatment of acute perforative peritonitis. 7. A case of acute appendicitis should be operated upon at any time if the patient's condition will admit of an operation, unless the case is rapidly, and beyond a question of doubt, convalescing. In this latter case we should wait until all acute symptoms have passed. 8. Healthy appendices should be left alone. 9. Proper treatment does not contraindicate the use of stomach lavage, or the withholding of food, and when proper, these things should be employed, with or without operation. 10. Life is not the only consideration. The time of cure and after-conditions are important. A patient going through an acute attack without operation is saved by the adhesions. Adhesions are life-saving for the time, but they may be death-dealing afterward. The waiting treatment favors adhesions; early operation avoids them. An early operation sends the patient home in from ten days to three weeks. Twelve cases treated by the rest treatment, reported in the *Journal of the American Medical Association*, June 22, 1902, show an average of $60\frac{7}{12}$ days from the onset of the disease to the discharge of the patients from the hospital.

Remarks on the Etiology of Fissure in Ano.—J. RAWSON PENNINGTON (Chicago) said that a fissure might be located at any point in the circumference of the anal canal. Its most frequent location, however, was near the posterior median line. No satisfactory explanation for this fact had been given; neither had anyone proffered a satisfactory reason why it occurred in the anterior quadrant in less than 1% of the cases in males, and in more than 8% of the cases in females. It seemed to the author that the theories usually taught and accepted as the cause of this disease were, at least in many cases, erroneous, and that we should have a more comprehensive etiology. He regarded the location of the ulcer as anatomic, and depended principally upon the support given to the tissues of the anal canal by the sphincters and levatores ani muscles. When the canal was overdistended the dorsal surface received the least support from these muscles, the anterior the next, while the sides received the greatest. At the terminal portion this relative support is due to the difference in the distance between the posterior commissure and the tip of the coccyx, the origin of the external sphincter, and the tendinous center of the perineum, its insertion and the anterior commissure. Because of this difference, the posterior fibers of the muscle are more deployed than those of the anterior. Hence, when pressure was made from within outward it was obvious, since muscle fibers were easier separated or split than broken at right angles, that the weakest point in this muscle was at or near the posterior commissure; the next weakest point was at or near the anterior commissure. This latter point was weaker in women than in men. The lateral quadrants or sides received the greatest support from this muscle. Anatomic conditions and relations, almost identical with these, existed between the levatores ani and the proximal portion of this canal. Therefore, when this canal was placed under sufficient stress to rupture its tissues, the tear, all things being equal, should occur first on the dorsal surface, as it received the least muscular support; second, on the anterior surface, as it was the next weakest point, and third, or last, on the sides. This was the sequential order in which the respective tears of this canal should and do occur, and they not only corresponded with the weakest points in the muscular cylinder that surrounded and supported these canals, but with the statistics of the sequential location of fissure in ano.

The following papers were likewise read and discussed: "Causation and Radical Cure of Quinsy," by John F. Barnhill, Indianapolis, Ind.; "Cranial Injuries," by Shelby C. Carson, Greensboro, Ala.; "Internal Hemorrhoids, and their Treatment," by Wells Teachnor, Columbus, O.; "A Case of Bilateral Tic Douloureux, Treated by Removal of the Right Gasserian Ganglion and the Left Inferior Dental Nerve," by W. O. Bullock, Lexington, Ky.; "Hernia of the Tube," by Frank T. Andrews, Chicago.

Experiment in Prison Reform.—In January of the present year Miss Charlotte Smith-Rossie, lecturer to the Hauts' County Council and Portsmouth Prison, initiated at the latter place a course of fortnightly lectures on sanitary subjects, the best-behaved women being selected as students. Demonstrations were given on nursing, the care of children, and domestic hygiene. The lectures were not official, and consequently there was no way of determining how much the women understood of what was told them. The plan is endorsed by English journals, some of which are of the opinion that the work should not be left to private enterprise.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A CABINET FOR INVESTIGATING THE ACTION OF VAPORIZABLE AND GASEOUS DISINFECTANTS AND INSECTICIDES, AND FOR TEACHING DISINFECTION TO STUDENTS.[1]

BY

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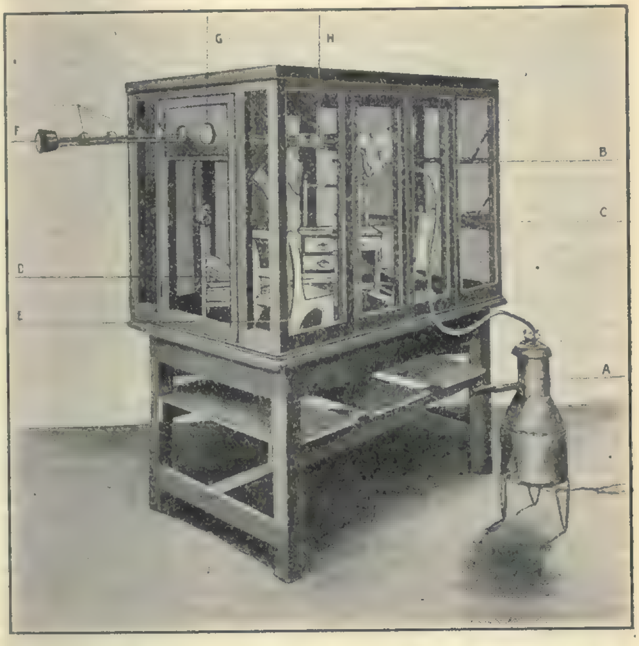
of Philadelphia.
Professor of Pathology, Jefferson Medical College.
(From the Laboratories of the Jefferson Medical College Hospital.)

This cabinet is a rectangular compartment 1 meter (40 in.[2]) in width, 1 meter (40 in.) in height, and 1.5 meters (60 in.) in length, constructed of wood and glass. The wood frame is of dressed yellow pine, 4 cm. (1⅝ in.) square, solidly framed together and resting on a table 67 cm. (27 in.) in height. The glass is bedded in putty and secured in position by strips of wood; the bottom of the case at its junction with the table, as well as the doors, is rendered as tight as possible by the use of rubber-edged weather strips. Upon one side are two doors, each 30 cm. (13 in.) wide and 90 cm. (36 in.) in height, hinged and closed so as to afford as accurate coaptation as possible. One of these doors fastens on the inside with two bolts, the other closes and locks to the first, and is supplied with an ordinary door knob of a kind usually applied to the doors of dwelling houses, and like them, removable for the introduction of the discharge tube from a formalin generator. At one end there is another door, which it was thought might be useful for the introduction and removal of anything after the connections with the formalin generator had been made by the device already indicated; it could have been omitted without imperiling the value of the device. The top of the case is also panelled and glazed, thereby fully lighting its interior; if for any reason it is desired to darken the case, a light-proof rubber cloth is thrown over and around it.

At one end of the case is a flat shelf 15 cm. (6 in.) in width, for the reception of petri dishes, test solutions, etc. Just below this is a second shelf, inclined at such an angle that tubes containing bouillon may be laid upon it without spilling the fluid or moistening the cotton plugs which may be left in place. The interior of the cabinet is supplied with a complete set of doll's furniture, consisting of bed, mattress, pillows, the necessary linen, an ordinary chair, a rocking chair, and a bureau; the drawers and side compartment of the latter contain the trousseau necessary for a young lady of her social position.

In one end of the case, shown in the accompanying illustration, occupying the upper portion of the door, is a device for the introduction of test objects and also for their removal during disinfection of the chamber. This device is made in duplicate, both parts being exactly alike. It consists of a board 5 cm. (2 in.) in thickness, set in the upper part of the door, and perforated by two openings each 7 cm. (3 in.) in diameter, through which passes a movable carrier, each end of which is supplied by a conical wooden plug that can be made to engage in the circular opening so as to secure a practically air-tight closure. This carrier is 60 cm. (24 in.) in length, and consists of five round, wooden rods, so set into the small ends of the plugs that together they form a tray, in which can be deposited pill boxes, small petri dishes and bottles or tubes, the diameters of which do not exceed that of the opening through which the carrier passes. When out and loaded, the carrier can be forced into position in the fraction of a second, or can be withdrawn from the interior in the same length of time. As both ends of the carrier terminate in conical plugs that tightly fit the opening, the latter is always closed, except during the brief interval necessary for pushing the carrier in or pulling it out. When pulled out, the opening is closed by the inner plug, and when pushed in, by the outer plug. Were I reconstructing this device, I should so arrange it that one carrier would be at the upper and the other at the lower end of the door. The cabinet should be longer, certainly 2 meters (80 in.) and so constructed that it could be placed on end or flat to meet special indications. I do not recall any publication describing a similar device, but Dr. M. J. Rosenau, Director of the Hygienic Laboratory of the United States Public Health and Marine-Hospital Service, has applied essentially the same principle to the wall of a small room in which experiments on disinfection are conducted; although we had used the disinfection chamber for several years, the device for securing removable test objects was based on a rather imperfect recollection of Dr. Rosenau's apparatus.

For instructing the class in the principles of disinfection the following steps are necessary. The two side doors are opened, giving free access to the interior; it is then explained that in actual practice, before entering the room the individual having charge of the disinfection would put on a suit consisting of impermeable overalls, jacket and overshoes; that if a carpet were present this would be raised, rolled and placed in an impermeable bag for transportation to a steam disinfecting plant in the city. As in many localities such facilities are not available, the carpet is then so suspended that it can be sprayed on both sides with formalin solution, and later exposed to the action of formalin vapor used for disinfecting the chamber. It is also explained that the mattress and pillows would be similarly treated. The drawers are removed and stood on edge and their contents, along with the bed clothing, suspended from a cord placed across the upper part of the chamber. Small openings are made in the mattress and a number of test objects introduced; one pillow is suspended from the cord and the other, as shown in the illustration, is laid on top of the mattress, with test objects interposed. Test objects are also placed upon the shelves and in the carriers. The carpet is then sprayed with formalin solution and it is explained to the class that the individual making the arrangements would now remove his impermeable suit and overshoes, step out of the room, close and lock the door, removing the knob and introducing the nozle of the formalin generator. The method of sealing windows and doors is now explained and illustrated.



A, formalin generator, heated by electricity; B, flat shelf for test-objects; C, inclined shelf for fluid mediums; D and E, bed and chair of doll's chamber suit, the bureau of which can be seen in the back part of the cabinet; F, device for the introduction and removal of test objects, etc., this tray is withdrawn; G, same as F, but pushed into the cabinet; the leader from the letter G is on the conical plug that closes the opening through which the tray moves; H, test objects in tray F, outside the cabinet; I, test objects in tray G, inside the cabinet.

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[1] Read before the Pathological Society of Philadelphia, October 27, 1904.

[2] The metric equivalents in inches given in this article are approximate.

Around some of the openings, or part of one door, cotton or rag strips are forced into position by the use of a case knife; other cracks around doors are closed by pasting over them strips of paper or what is better but more likely to injure highly polished surfaces, strips of rubber adhesive plaster. The formalin generator is now started and the test begun. At appropriate intervals (2 to 10 minutes) a test object—either a pill box or an open petri dish—is removed from the carrier and given to the student who prepared the test object. In this way 50 students may be permitted to participate in the experiment and observe the results of disinfection over long or short periods. On the following day the cabinet is opened, any test objects in the interior are removed and portions of the carpet or other bodies permeable with difficulty, may be excised with sterile instruments and studied by cultural methods. It is possible to arrange on the carrier a container so that samples of the mixed air and gas can be removed from time to time for percentage determinations. It is unnecessary to describe other methods that may be tested as it is evident that any of the methods or appliances for disinfection of a room can be utilized and studied in similar ways; the apparatus readily yields itself to any method of fumigation.

The cabinet is also especially useful for the study of the insecticidal value of combined insecticides and disinfectants, or for the study of insecticides alone. Insects, such as mosquitos, bed-bugs, roaches, flies, and also small animals, if desirable, can be placed in the chamber, and the action upon them of known volumes of the gas can be investigated. Of course, the glass sides are impermeable, and the small strips of intervening wood offer practically no opportunity for the escape of gas; percentage leaks can be arranged for by valves; imperfect seals or the carrier can be left but partly closed. Flies and mosquitos lodge upon the glass, and can be watched with a lens if necessary, or they may be introduced in cages upon the test object carriers, and are therefore removable after selected periods. The chemic action of disinfecting agents can, in a small way, be studied by the use of this cabinet. Especially well does it afford an opportunity for observing the bleaching action of chlorin compounds; test paper saturated with dyes or special reagents may be suspended in the chamber to show clearly, by their reaction, the lines along which diffusion of evolved gas follows.

The apparatus has been in use in the laboratories of the Jefferson Medical College Hospital for a number of years, and has fulfilled our expectations. Where a number of men are moving about in a rather restricted space around the cabinet a formalin generator heated by oil or alcohol might be upset and constitute a danger that is avoided by the use of a generator heated by electricity as shown in the cut. The electric heated generators are not satisfactory for the disinfection of large quarters, as those with which I am familiar do not afford sufficient heat to secure rapid volatilization of the formaldehyd solution in large quantities.

RECORDS OF SWALLOWED SAFETY-PINS.

BY

ARTHUR DeVOE, M.D.,

of Seattle, Wash.

Richard B., aged 5 years, swallowed an open safety-pin one and a half inches long at 8 o'clock a.m., September 4, 1904. At 11 o'clock a.m., three hours later, by aid of the röntgen ray, the pin was observed in the esophagus just above the upper border of the sternum. The boy was soon chloroformed and the pin pushed down into the stomach. His parents refused to submit to a gastrotomy for its immediate recovery. September 7, at 1 p.m., the pin not having passed the bowels nor produced any symptoms of distress, the patient was given stewed dried prunes to eat of freely. At 6 o'clock a.m., September 8, the pin passed readily, along with a mass of partially digested prune skins notably visible.

This pin might have passed naturally into the stomach by the aid of some suitable effort at swallowing food or drink. Nothing of the kind was tried. Picture shows pin above the sternum.

The safety-pin, a notable household and nursery convenience, made with bent wire, a spring temper, and a sharp point, is acquiring something of a record in medical literature for passing in open form through the alimentary canal in children. Once started, point backward, and it cannot start otherwise; this formidable looking affair seems to pass with unexpected readiness through the whole digestive tract, reappearing in a more or less corroded and damaged plight, the child meantime having presented few, if any, symptoms of distress from its presence. One, 2, 3, 4, 20, or even 60 days have been known to elapse between the ingress and the egress of the pin, the longer periods giving ample time, one would think, for the setting up of irritation by its presence in children aged 9 months to 4 or 5 years.

Safety-pins are in such common and familiar use that it is well for all to know that they have been occasionally swallowed in open form, and, the habits and impulses of parents and children remaining as in the past, such accidents are bound to occur from time to time in the future.

Now, the mechanism of an open safety-pin is such that if placed in a vitalized muscular canal, like the alimentary tract, it must advance, if at all, "like a crab, backward," dragging the point and hood of the pin by a safe motion, which gives small chance to pierce the tissues. This is true especially of the esophagus and the small intestine, the canals of which are not wide enough to permit an end-to-end turning of a one-and-a-half or two-inch pin in its course. It is true that the larger spaces of the stomach and large intestine offer better opportunity for the tumbling progress, but a careful study of the open safety-pin will show that it must soon right itself and advance in accordance with its name in true safety form, *i. e.*, backward, eye or loop leading, point and hood following; the advancing loop affording a resting place for prune skins or other undigested shreds, thus assisting the progress of the pin.

Within the past two years, 1902 and 1903, the *Medical World* of Philadelphia has placed upon record quite a number of cases of children of various ages who have swallowed open safety-pins, and who have successfully and safely passed the same after varying intervals of time. Within the past month two cases have come to my personal knowledge in this city.

If I were to be given a choice for my child to swallow a safety-pin open at the usual angle or a common straight pin, I should consider the straight pin the more dangerous of the two.

Sanitary Department to be Created by the Government of India.—Public Health and Marine-Hospital reports states that it is the intention of the government of India to create a sanitary department with a central laboratory at headquarters and a provincial laboratory in each of the larger provinces. This department is to be quite distinct and apart from the Indian medical service, and its commissioner, although probably an Indian medical service man, will be distinct from the director-general, Indian medical service. The object of the department is a complete reorganization of the sanitary department as it now exists, the provision of a competent scientific agency for the investigation of the prevalent diseases and the improvement of general conditions of life in India.

ORIGINAL ARTICLES

THE PROBLEMS OF INTERNAL MEDICINE.[1]

BY
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To recognize, to prevent, to protect, to heal—these are, in the broadest sense, the tasks of internal medicine now as ever. But how different are the problems which occupy our attention to-day from those of the period commemorated by this congress. Let us for a moment glance back at the medicine of the close of the eighteenth and the beginning of the nineteenth centuries. For over two hundred years the blind and binding faith of the Middle Ages, the faith that had so long fettered the human mind, had been slowly giving way before the forces of reason and truth. Now and again with ever increasing frequency, great and courageous minds had risen above the clouds of medical tradition and dogma, which had smothered the understanding and reason of mankind, as if, indeed, medicine were a part of the religious doctrine which ruled the world. For truly the medicine of the Middle Ages was largely a matter of faith, and as a matter of faith one in which reason beyond a certain point was heresy and sacrilege. Vesalius with genius and courage had begun to withdraw the veil from naked and iconoclastic truth. Harvey had made his great discovery. Glisson had demonstrated his theory of irritability. Mayow with his "Spiritus nitro-aereus" had anticipated the discovery of oxygen. Leeuwenhoek and Malpighi and Hooke had opened to the human eye the realm of the infinitely small. Bacon and Descartes and Newton and Locke had introduced into the world a rational and natural philosophy. Locke, himself indeed, a wise physician, had pointed clearly to the true path of medical progress. "Were it my business," says he, "to understand physick, would not the safer way be to consult nature herself in the history of diseases and their cures, than espouse the principles of the dogmatists, methodists or chymists?"

But the clouds of medical tradition were slow to clear away. Gradually, however, the first "lonely mountain peaks of mind" had been followed by an ever increasing number of earnest and untrammeled students. In the seventeenth century the opportunity to give one's life freely to the search for truth had become more and more open to all. The mysticism and animism of Stahl which, in the early part of the eighteenth, hung over the medical world, was already breaking away. The study of the natural sciences was pursued more eagerly and generally than ever before. Reaumur and Black and Haller and Spallanzani and Hunter and Priestley and Lavoisier had lived. Morgagni, sweeping aside the dogmatism of the old schools, had demonstrated the local changes in many diseases and had opened the way for the objective pathological anatomy of Bichat. In the field of practical medicine such men as Sydenham and Morton and Torti and Lancisi practised and taught much which holds good to-day. Boerhaave had introduced clinical instruction. Cullen and Cheyne and Huxham and Pringle and Heberden and Van Swieten and De Haen were all in many ways true and faithful students; yet methods and doctrines that were often strangely fantastic still held general sway—such, for instance, as the Brunonian system. A perusal of the writings of Stoll, one of the wisest practitioners of his day, cannot fail to impress one with the meagreness of the basis of anatomy and physiology, normal and pathological on which medicine rested, the almost entire lack of diagnostic methods, the absence of a rational therapy—how much of the conjectural, how little of the scientifically exact there was in medicine.

Diagnosis, based largely upon gross clinical conceptions, was necessarily vague and uncertain.

Prophylaxis, in the absence of any certain knowledge of the causes and manner of origin of disease, was devoid of any sound basis.

Treatment was almost wholly empirical, and, where it was not empirical, it was frequently based upon some theoretical system so arbitrary and dogmatic that the unfortunate sufferer was too often stimulated or purged, fed or bled as he fell into the hands of a Brown or a Broussais rather than according to the nature of his malady.

In the Dictionnaire de l'Académie française for 1789, a year which marks the end of an era in the world at large, one finds the following definition: "Médecine. s. f. L'art qui enseigne les moyens de conserver la santé & de guérir les maladies (La médecine est un Art conjectural. * *)" Medicine, a conjectural art! Such was the estimate placed upon our profession by the French Academy a little over one hundred years ago.

But the seeds of a new life had been sown and the germination had already begun. Even as these words were written Lavoisier, too soon to fall a victim to the premature explosion of the forces of pent-up freedom, was in the midst of his great work. In 1796 came the introduction of vaccination by Jenner and but a few years later, Bichat with his wonderful genius, took up the thread dropped by Morgagni and placed anatomy and physiology, normal and pathological, on a basis of accurate observation and experiment. Hand in hand with the introduction of exact methods of anatomical and physiological observation, Auenbrugger in 1761 had demonstrated in his *Inventum Novum*, a method of physical investigation which, for the first time, enabled the physician to determine changes in size, shape and consistency of the thoracic organs. At first unnoticed by the world, this important discovery was destined to gain a sudden general recognition in the early days of the nineteenth century. With the spread of knowledge of the gross pathological changes in disease which followed the inspiration of Bichat, the work of Auenbrugger, expounded by Corvisart, became a common possession of the medical world, and, less than ten years later, Laënnec, by the introduction of mediate auscultation, opened possibilities for accurate physical diagnosis such as had not been dreamed of in the ages which had gone before.

With the great school of French observers which followed Laënnec, Andral, Chomel, Louis, Bouillaud and Trousseau, with Skoda and Schönlein in Germany and Addison and Bright and Stokes in England, the exact association of clinical pictures with local anatomical changes made great advances. Typhus and typhoid fevers were distinguished; the relation between albuminuria and renal disease was demonstrated; the association of endocarditis with acute rheumatism was discovered; the corner stone of our knowledge of cerebral localization was laid. Clinical diagnosis was becoming more than a conjectural art.

In the meantime physiology was making great strides. Majendie, Bell, Johannes Müller, Beaumont and finally Claude Bernard, and a host of their followers, were shedding light upon many obscure corners of our knowledge of the vital functions. In the hands of Müller the microscope began to open up new fields of study which were destined in a few years through the cultivation of the genius of a Virchow and a Max Schultze to bear a noble harvest. The "great reform in medicine" which followed the introduction of the cellular pathology laid solid foundations for much which is most vital in our anatomical and physiological and pathological knowledge of today, and the correlation of these observations with the results of accurately recorded clinical studies, the application of the microscope to the study of the urine, the sputa, the blood, to pathological neoplasms, to exudates and transudates, soon brought new material for the rising edifice of a rational exact diagnosis. The sphygmograph, the thermometer, the ophthalmoscope, the laryngoscope, the binaural stethoscope, the stomach tube, the various means for studying the blood-pressure, all have brought their aid, while but yesterday the discovery of Roentgen has given us new and unhoped for diagnostic assistance.

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[1] Address delivered before the Section for Internal Medicine of the International Congress of Arts and Science, at St. Louis, September 22, 1904, and published synchronously with *Science*.

At the same time, physiological chemistry which, with the work of Berzelius on the urine, had taken its place by the side of the more purely physical methods of investigation, has year by year given us greater diagnostic assistance in the analysis of the different secretions and excretions of the body and in the explanation of the various metabolic processes of the economy.

The development in the hands of Duchenne and Erb and Remak of electrical diagnosis, together with the great advances in physiology and pathology of the nervous system have afforded explanation for much that was previously incomprehensible and have given us powers of diagnosis which a few generations ago would have seemed almost magical.

Finally Pasteur and Koch with the introduction of bacteriological investigation, opened the way to the discovery of the causal agents of a large group of infectious diseases. These discoveries, followed rapidly by the evolution of methods allowing of the clinical demonstration of many pathogenic micro-organisms, afforded an early, exact, and positive diagnosis, on the one hand in conditions where previously the disease was recognizable only at a stage in which it had made inroads into the system so great as to be often beyond relief, as in tuberculosis, and on the other, in maladies, the existence of which without these methods, was to be definitely determined only after the onset of an epidemic, as in cholera, plague and influenza. When one thinks of what the last quarter of a century has taught us with regard to tuberculosis, anthrax, tetanus, diphtheria, typhoid fever, cholera, plague, dysentery, influenza, not to speak of the great group of wound infections, we may begin to realize what bacteriological methods have done for diagnosis—how many diseases have been cleared up—how many symptoms have been explained.

In like manner Laveran, with the discovery of the parasite of malarial fever, did much to bring certainty and precision into a field in which many had gone astray, while opening the way for the important observations of Theobald Smith and all the knowledge which we have gained in recent years with regard to the haematozoa of man and animals.

As a direct result of the introduction of bacteriological methods, the study of the manner of action of infectious agents and their toxic products upon the animal organism, as well as of the powers of resistance of the economy against infection, has given us, with the discovery of specific agglutinines and precipitines, diagnostic methods of the greatest value, not only for the recognition of various infectious processes, but for the identification of specific sera, affording in particular, a test for human blood destined (probably) to prove, when properly applied and interpreted, of great medico-legal value.

This is indeed a gain over our knowledge of one hundred years ago. In how many fields has the conjectural given way to the exact! At the end of the eighteenth century the diagnostic effort of the physician, unaided by instruments of precision or even by the simplest physical methods of auscultation and percussion, was directed toward the detection of gross anatomical changes. To-day with our increased knowledge of anatomical, physiological and pathological processes, with our growing insight into the chemical and physical features of vital activity, our duty no longer ends in the recognition of physical changes in organs, in the determination of the presence of a specific lesion or infection; it is further our task to search for the earliest evidence of disturbance of function, which may later lead to grosser, more evident change, to separate the physiological from the pathological, to estimate as far as may be, the power of resistance of the different organs and tissues and fluids of the body to insults of varying nature, to determine the functional capacity of a given organ—its sufficiency or insufficiency. In addition to increasing opportunities in the field of pathological anatomy we find ourselves drawn further into the study of pathological physiology—and knowledge in the field of pathological physiology leads of necessity to power in functional diagnosis.

It must be acknowledged that with regard to many organs the determination of the limits of functional power and the estimation of the degree of impairment in disease are matters most difficult to appreciate, yet with improved methods and persistent research, progress is being made.

We are, after all, but beginning to realize a few of the possibilities before us, but even this is a step in advance which holds out no little promise for the future and offers new and tempting opportunities for study and investigation.

At the end of the eighteenth century but three important, rationally conceived measures of prophylaxis had been practised—the dietetic measures of protection from scurvy, the older inoculation and Jenner's great contribution of vaccination against smallpox. It was not, indeed, until the development of bacteriology that prophylaxis took its place as a scientifically exact branch of medicine. The recognition of the specific cause of many infectious diseases, the knowledge of the life history of the pathogenic micro-organisms, the discovery of the portals through which they gain entrance to the animal economy, and the conditions under which infection occurs, have brought to us material powers to prevent and protect. The first great result of this new knowledge was the development of antiseptic surgery and all that it represents. But apart from this we have but to remember what has been gained by a scientifically evolved prophylaxis against tuberculosis and typhoid fever—to reflect upon how far cholera and plague have lost their terrors—to contemplate the brilliant results of the discovery by Ross and the Italian school of the life history of the malarial parasites as manifested in the anti-malarial campaigns carried on in various regions by Koch, and in Italy by the Society for the Study of Malaria, a noble institution, of which our Latin brothers may well be proud, and lastly, to look upon the beneficent and far-reaching influence of the recent work of Reed and Lazear and Carroll and Agramonte with regard to yellow fever, to realize what bacteriological and parasitological studies are doing for preventive medicine.

But beyond this external prophylaxis, the studies of the problems of immunity beginning with Pasteur's inoculations against anthrax in 1881, have given us, so to speak, an internal prophylaxis, a functional prophylaxis, if one will, in the possibility of producing a greater or less degree of individual immunity, such for instance, as is now possible in diphtheria, cholera, plague, typhoid fever, and dysentery.

The enforcement of scientifically planned and accurately deduced prophylactic measures has become to-day one of the main duties of the practitioner of medicine. It is as much the task of the physician nowadays to guard over the disposal of the sputa of his tuberculous patient, of the excreta of the sufferer from typhoid fever, or cholera, or dysentery, as it is to attend to the immediate wants of the invalid. How rapidly has the exact replaced the conjectural in this branch of medicine!

But while diagnosis and prophylaxis were being removed from the domain of conjecture to the field of exact observation, and reason, and research, while the possibilities of surgery were rapidly widening through the discovery of anaesthesia and the introduction of antiseptic methods, medical treatment, until the last two decades, still remained largely empirical. The development of exact clinical methods of observation and the statistical tabulation of experience for which we are especially indebted to Laënnec and Louis, and their followers, gradually brought about, to be sure, many advances, while a large number of useful therapeutic agents introduced by the newly developed science of pharmacology, and exactly tested by improved methods of physiological study, added greatly to the armamentarium of the physician for the relief of symptoms. The power to combat disease specifically, however, remained much as it was at the beginning of the century. Mercury in syphilis, quinine in malarial fever, were the only specifics known to the medical world—and the action of these was unexplained.

The introduction by George Murray, less than 15 years ago, of the treatment of myxœdema and allied conditions by extracts of the thyroid gland, was a direct application of the results of physiological observation to the treatment of disease. If this gave rise to hopes of the possibility of obtaining like results from roughly obtained extracts of other ductless glands, which have hardly been fulfilled, yet this discovery was the first step toward the rational scientific therapy to which we are beginning to look forward to-day.

But a moment ago I spoke of the importance of the influence of the discovery of the causal agents of the infectious diseases upon the development of exact diagnostic and prophylactic methods. Great and impressive as these have been, yet the studies which have followed as to the manner in which these agents act upon the human organism, and of the powers of resistance which the body exerts against them, the investigation of the problems of immunity have opened out a far wider field. The early studies of Metschnikoff and Buchner and Nuttall were followed with rapidity by the epoch-making work of Behring and Kitasato and Roux with regard to tetanus and diphtheria. The diphtheria and tetanus antitoxines were not chance discoveries of empirically determined virtue, but true specific, therapeutic agents, the results of experiment scientifically planned and carefully prosecuted. Wide spread investigations of the various phases of immunity, bacterial and cytotoxic, have given us in a few short years a mass of physiological knowledge, the full import of which is scarcely yet to be comprehended. Few things in modern medicine are more impressive than a survey of the work of the last twelve years done under the inspiration of Ehrlich.

Beside the antitoxines of diphtheria and tetanus and the power of producing a greater or less degree of immunity, as has already been mentioned by preventive inoculations against cholera, plague, and typhoid fever, we have come to possess a bactericidal serum of a certain value in combatting the actual disease, plague, while the favorable influence of Shiga's anti-dysenteric serum seems to be undoubted. There is much reason to hope that the recently promised anti-crotalus serum of Noguchi as well as the anti-cobra serum of Calmette may prove to be real boons to humanity. But it is not alone in the production of specific anti-sera, that the therapeutic value of the modern studies of immunity lies. There are signs which justify us in looking forward to the possible discovery of an explanation of the mode of action of substances long empirically used, knowledge the value of which may be readily appreciated.

When we consider these facts it is indeed easy to appreciate to what an extent the exact has driven the conjectural from this last field of medicine. A hundred years ago we were depleting and purging and sweating and bleeding according to theories often strangely lacking in foundation, the prevalence of which depended rather upon the individual force and vigor of the expounder than upon their intrinsic merit. To-day from the study of the pathological physiology of bacterial and cytotoxic intoxications, we are rapidly evolving scientific preventive and curative measures, while searching out the rationale and mode of action of our older therapeutic agents.

But a few days ago, I happened to open a copy of Littré * bearing, by a curious chance, the date of 1889, and read "Médecine, (mé-de-si-n') 1° Art qui a pour but la conservation de la santé et la guérison des maladies, et qui repose sur la science des maladies ou pathologie"—An essential modification of the definition of one hundred years before and indicative of the changes of a century.

To meet the manifold problems of today, the training of the physician must, of necessity, be very different from what it was a hundred years ago. The strong reaction which set in in the earlier part of the nineteenth century against philosophical generalization in medicine, the insistence upon a strict objectivity, all the more emphatic because of the prevalence of anatomical methods of research, have held very general sway. Medicine, no longer resting upon a basis of philosophical speculation, stands upon the firmer foundation of the exact natural sciences. Almost from the beginning the student of to-day is taught methods, where a hundred years ago he was taught theories. The enormous expansion of the field which must be covered has led naturally, not only to an ever-increasing specialism, but to the fact that the course of study which is regarded as properly fitting the physician for practice is reaching backward farther and farther into the earlier years of his school training. On the other hand, in this country at all events, there is heard a common cry that the academic medical training is extending on the other side into years which should be given to practice; that the expense and duration of a medical education so-called, will soon be such as to shut out from the profession many a man who might be a useful physician and perhaps a valuable contributor to the world's knowledge. To remedy this it is advised that the prospective student of medicine should be led from the earliest stages of his training through the paths of exact research into the domain of the natural sciences to the greater or less exclusion of the classics—the old-time humanities, the study of which, useful as it may be from a standpoint of general mental training, is believed by many to be time wasted in the education of the student destined for a scientific career.

But there are not wanting voices which question the wisdom of the full extent of some modern tendencies. May the affectation of too strict an objectivity bred though it may be, of a wholesome skepticism; the more general cultivation of the natural sciences to the exclusion of the humanities, the search for facts and facts alone, circumscribe the powers of synthetical reasoning without which the true meaning of many an important problem might pass unnoticed? May they perhaps tend to smother the development of minds capable of grasping large general problems? Do the tendencies of the times justify the epigrammatic observation of a recent French author; "Autrefois on généralisait avec peu de faits et beaucoup d'idées; maintenant on généralise avec beaucoup de faits et peu d'idées?" †

That the cultivation of a strict objectivity in research has materially impaired our powers of reason—that the exact methods which are largely responsible for the enormous advances of the last 50 years in all branches of medicine have bred a paucity of ideas, I am not inclined to believe, despite the seductive formula of our Gallic colleague. But that when, in the period of so-called secondary education, it is proposed to *substitute* the study of the natural sciences for a good training in the humanities, there is danger of drying up some of the sources from which this very scientific expansion has sprung, seems to me by no means impossible. The study of the classics, an acquaintance with the thoughts and the philosophies of past ages, gives to the student a certain breadth of conception, a stability of mind which is difficult to obtain in another way. A familiarity with Greek and Latin literature is an accomplishment which means much to the man who would devote himself to any branch of art or science or history. One may search long among the truly great names in medicine for one whose training has been devoid of this vital link between the far reaching radicles of the past and what we are pleased to regard as the flowering branches of today. Greek and Latin are far from dead languages to the Continental student. They are dead to us because they are taught us as dead. With methods of teaching in our secondary schools equal to those prevailing in England and the Continent, 'twould be an easy matter in a materially shorter period, to give our boys an infinitely broader education than they now receive. There should be much less complaint of time wasted, much less ground for suggesting the abandonment of the study of branches which are invaluable to any scholarly-minded man.

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* Dictionaire de la langue Française.

† Eymin. Médecins et Philosophes. 8°, Lyon, 1903-4, No. IV.

The assertion that the time spent in the study of the humanities results in the end in the encroachment of the academic training upon a period which should properly be given to one's life work is, it seems to me, often based on an old idea—founded all too firmly, alas, on methods that yet prevail in many of our medical schools—that with his degree in medicine the student has finished a theoretical education, that he must now spend five or ten years in acquiring experience—at the expense, incidentally, of the public—before he can enter into his active life; that, therefore, unless some other branches of early instruction be sacrificed to courses leading more directly to medicine, so that he may enter upon his strictly professional education at a period considerably earlier than is now the case, the physician of tomorrow will become self-supporting only at a period so late in life as to render a medical career impossible to other than those well supplied with the world's goods. With proper methods of instruction this is a wholly false idea. Under fitting regulation of our system of medical training, with due utilization of the advantages offered by hospitals for clinical observation, the experience necessary to render a man a safe and competent practitioner should be not only offered but required for a license to practise; and even if the length of the strictly medical curriculum be extended one or two years beyond that which is at present customary, it will not be time lost. If one but look around him he will find, I fancy, that few men who have had such a training wait long before finding opportunities for the utilization of their accomplishments; the public, in most instances, soon recognizes the man of true experience.

But there is yet another side of the question which has hardly been sufficiently emphasized, a side of the question which must come strongly to one's mind when he considers the general education of many of the men who are entering even our better schools of medicine, a point of view which has been especially insisted upon by a recent French observer. A large part of the success and usefulness of the practitioner of medicine depends upon the influence which he exerts upon his patients—upon the confidence which he infuses—upon his power to explain, to persuade, to inspire. It can scarcely be denied that these powers are more easily wielded by the man of general culture and education than by one of uncouth manner and untrained speech however brilliant may be his accomplishments in the field of exact science. I can do no better than quote the words of Professor Lemoine: "C'est qu'en effet l'action morale qu'il peut exercer sur le malade, et qu'il exerce d'autant plus qu'il est supèrieur par son intellectualité, est un des principaux éléments de guérison. On guérit par des paroles au moins autant que par des remèdes, mais encore faut-il savoir dire ces paroles et présenter une autorité morale suffisante pour qu'elles entraînent la conviction du malade et remplissent le rôle suggestif qu'on attend d'elles. Ne fut-ce que pour cette raison, ju me rangerai parmi ceux qui demandent le maintien d'études classiques très fortes comme préparation à celles de la médecine, car le meilleur moyen de rehausser le prestige du médecin c'est encore de l'élever le plus possible au dessus de ses contemporains."[1]

These words express, it seems to me, a large measure of truth. May it not be that in the tendency to the neglect of the humanities we are taking a false step? May it not be that if, on the other hand, we teach them earlier and better, we shall find in the end that no essential time is lost, while we shall gain for medicine, men not only with minds abler to grasp the larger and broader problems, but with materially fuller powers for carrying on the humbler but no less important duties of the practitioner of medicine?

In that which I have just said I have touched upon the necessity of the requirement of a considerable amount of clinical experience as an essential for the license to practise medicine. To meet the enormously increased demands of the present day, medical education has become, of necessity, much more comprehensive, and must therefore extend over a longer period of time. The methods of research, anatomical, physical, chemical, which the student must master, the instruments of precision with which he must familiarize himself, are almost alarmingly multifarious; and experience in the application of these methods and in the use of these instruments demands increased time. Many of these proceedings, it is true, the physician will rarely be called upon to use personally in practice, for such measures must in great part be carried out by special students or in laboratories provided by the Government. Nevertheless with their significance and value he must be familiar—familiar from personal observation and experience.

But after all there are few diagnostic signs in medicine and not so many of the improved methods of clinical investigation yield diagnostic results, while to familiarize oneself with methods and instruments of precision is a very different matter from acquiring real experience and skill as a diagnostician or a therapeutist. It is only by gathering together and carefully weighing all possible information that one is enabled to gain a proper appreciation of the situation and to approach a comprehension of many conditions of grave import to the patient. And in forming a sound judgment with regard to these vital questions, that which comes from experience in the close personal observation of the sick is far the most important element. Bedside experience constitutes to-day, as it always has, and always will, the main, essential feature in the training of the physican. But this experience, if it is to bear its full fruit, must be afforded to the student at a time when his mind is still open and receptive and free from preconceived ideas—under conditions such that he may be directed by older trained minds into proper paths of observation and study, for few things may be more fallacious than experience to the prejudiced and the unenlightened.

That such experience may be freely offered to the student there is a grave necessity for a more general appreciation by institutions of medical training as well as by the powers in control of public and private hospitals and infirmaries of the mutual advantages to be gained by a cordial co-operation. It must be acknowledged that, in this country at least, despite the cultivation of improved methods of clinical investigation, there still prevails in the mind of the public the perverted idea that this bedside observation, this application of new methods of research and study are for the advantage of the student or in the interest of general science rather than for the benefit of the sufferer himself. It must further be recognized that a wholly mistaken conception of the true function of a hospital is widely prevalent. It is all too common to see large and ornate institutions with every arrangement for the comfort and even luxury of the patient, with a medical staff utterly insufficient in number or training to study properly the individual case, not to speak of carrying on scientific investigations. The service, usually under the direction of a busy, driven practitioner with barely time to make a short daily visit—large wards under the direct control of one or two young men whose time is wholly occupied by routine work—every care taken for the present comfort of the patient—little provision for enlightened study or treatment of his malady—no opportunities for a contribution on the part of the institution to the scientific progress of the day. Better far for the sufferer were he in the dingy ward of an old European hospital where he might be surrounded by active inquiring minds recording the slightest changes in his symptoms, ever ready to detect and as far as the power in them lies to correct the earliest evidences of perversion of function. What our hospitals need is men, students, whether or no they have arrived at the stage in their career—which, after all, is but a landmark, not a turning point—that entitles them to the right of independent practice, the enthusiastic, devoted student who, in watching and studying the patient is contributing alike to the interests of the sufferer, the hospital and himself.

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[1] Indeed the moral influence which he (the physician) is capable of exercising upon the patient and which he exercises to an ever increasing degree with his intellectual superiority, is one of the most important of therapeutic agents. One heals by words at least as much as by drugs, but one must know how to *say* these words and to exercise a sufficient moral authority, that they may bring conviction to the patient and carry the full weight of suggestion which is intended. Were it but for this reason I shall range myself among those who demand the maintenance of extensive classical studies as a preparation for those of medicine, for the best means to uphold the prestige of the physician is still to raise him as far as possible above his contemporaries."—Congrès Français de medecine, VI Session, Paris, 1902, 8°, T. II, p. XLI.

The three main functions of a hospital, the care of the sick, the education of the physician, the advancement of science, are not to be met alone by the building of laboratories and operating rooms and lecture halls, by the furnishing of the refinements of luxury to the patient, useful adjuvants though these may be. What the hospital mainly needs is men, men to study and think and work—*students of medicine.*

It cannot be denied that in this respect we in America are behind our cousins of the old world. Despite our many honorable achievements, the part which we are taking in the modern study of the physiology of disease is still not what it should be.

Ere long we must come to realize that our duty to the sick man consists in something more than to afford him that which most sick animals find for themselves—a comfortable corner in which he may rest and hide from the world; that our duty to the public is to give them as physicians, men of the widest possible general training, ready to enter upon independent practice with an experience sufficient to render them safe public advisers; that our duty to ourselves is to miss no opportunity for the study of pathological physiology at the bedside of the patient; that the accomplishment of these ends depends in great part upon the appreciation by our universities and hospitals of the mutual advantages of co-operation in affording every opportunity for the scientific study of disease while offering to the patient the privileges of enlightened observation and care.

But there are everywhere signs of a future rich in achievement. An improving system of medical education, the increasing opportunities for scientific research offered as well by the generosity of private citizens as by the wisdom of state and national governments, the community of effort which results from closer fellowship among students of all nations, are omens of great promise. The remarkable developments of the last twenty years in all branches of the natural sciences have brought a rich store of suggestion and resource for application in our laboratory, which is at the bedside of the patient. Let us look to it that our clinical methods keep pace with those which are yielding so abundant a harvest in these neighboring fields of scientific research.

SEVENTY INTUBATIONS FOR LARYNGEAL DIPHTHERIA WITH SOME STATISTICS REFERRING TO THE LACK OF HOSPITAL FACILITIES FOR THE CARE OF DIPHTHERIA AND OTHER CONTAGIOUS DISEASES.

BY
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In 1898 I published a series of 47 intubations done in our health department out-service, to which I now add 23 cases, making a total of 70 patients operated upon in 10 years. All the operations were done in squalid homes, under adverse circumstances, and the worst possible environment, for neither then nor now in 1904 does Chicago furnish proper or adequate facilities for the care of these patients. Cook County Hospital contemplates an enlargement of its present ward of 40 beds for the diverse communicable diseases, and the McCormick Memorial Institute, the establishment of a contagious disease hospital. With the maturity of these plans those concerned in the scientific aspect and treatment of the contagious diseases, and of diphtheria especially, hope to reduce the deathrate therefrom to the minimum point. All of my intubations were done in the post-antitoxin era and despite lack of nursing and favorable surroundings my percentage of recoveries compares fairly well with that of the following operators:

O'Dwyer showed a	30%	deathrate
Bokai (1895) in 90 intubations had	50%	"
Kaiser u. Kaiserin Friederich-Kinder Krankenhause (1895)	35.048%	"
Wareham	34.5%	"
Collective Report of American Pediatric Society	29.9%	"
Booker (1898) in 17 cases no mortality		
Manierre (1898)	25%	"
Stevens (1898)	$32\frac{5}{16}$%	"
Rosenthal (1898) in 18 cases	11.11%	"
Engelmann (1898) in 47 cases	38.29%	"
Engelmann (1904) in 23 cases	34.4%	"
Engelmann (1904)	37.2%	"
Chicago Health Department (1904) 608 cases	16.45%	"
Willard Parker Hospital (N. Y., 1901-1903, April) 578 cases, prolonged or chronic intubation cases	61.76%	"

The majority (47) of my operations were done in the earliest antitoxin period, when the greater efficacy of antitoxin from larger and more frequent dosage was not as well recognized as at present. Neither were my first operations as skilfully or rapidly done as my later ones, and some deaths paid tribute to my early inexperience. Consequently, there is a 38.4% mortality for my first series of 47 cases as compared to a 36.6% mortality for my second series of 23 cases; or, deducting 3 preventable unjustifiable deaths from this latter series (23 cases with 5 deaths) to a 21.7% mortality, and for the total of 70 cases to 37.2% mortality. One preventable death was due to a choked tube that the parents refused to have removed; another to a choked tube removed three hours too late when the child was dying (for not realizing the gravity of the situation I went 15 miles in another direction to place another tube and before my arrival at the first patient my young assistants failed to save the child by a tracheotomy upon the choked tube); the third was due to the removal for cleansing, of a tracheotomy tube by an uninstructed interne, who probably could not quickly enough replace a tube; the parts being so edematous and the six-year-old boy so nearly asphyxiated that I had had the greatest difficulty in placing even a No. 1 tube, designed for under one year of age, before sending him to the hospital. From my experience with these cases I confidently believe that laryngeal diphtheria, recognized as such in its early stage and treated properly by a *sufficient* antitoxin dosage, need never advance to the obstructive stage that necessitates even intubation, much less tracheotomy. The number of my cases, 47 in the first five years as compared to 23 in the next five years, supports this statement and shows furthermore that the general practitioner recognizes more fully the benefits of antitoxin, although he is still fearful of what I consider a large enough dosage of this remedy. I can quote nothing more emphatic nor instructive than a report from the Chicago Health Department as to the deathrate in the preantitoxin and postantitoxin era, and as to the results obtained from the use of antitoxin:

"TOTAL DIPHTHERIA DEATHS BEFORE AND DURING ANTITOXIN TREATMENT.

Before	11,488
During	6,088
Reduction in actual number of deaths, 47%	5,400

AVERAGE ANNUAL POPULATION.

Before	1,100,931
During	1,672,042

DEATHS PER 10,000 OF POPULATION.

Before	12.45%
During	4.55%
Increase of population	52%
Decrease of diphtheria deaths	63.4%

Between October 5, 1895—date of first patient treated—and December 31, 1903, the antitoxin administrators of the Health Department used the treatment in 7,435 cases of diphtheria, bacterially verified, of which number 479 resulted fatally; a mortality rate of 6.44%. The average mortality without antitoxin still remains about 35%.

That the value of antitoxin depends upon its early administration is shown by the following:

Of the total 7,435 cases, in 586 treatment was begun on the first day of the disease, with 2 deaths; mortality rate, 0.34%.

Of 1,913 patients treated on the second day, 28 died; mortality rate, 1.46%.

Of 2,624 patients treated on the third day, 85 died; mortality rate, 3.24%.

Of 1,374 patients treated on the fourth day, 148 died; mortality rate, 10.8%.

Of 936 patients treated later than the fourth day, 216 died; mortality rate, 23.1%.

There were included in the total 7,435 cases, 608 intubated laryngeal cases. Of these, 508 patients recovered; mortality rate in intubated cases, 16.45%.

The former mortality of this class—intubated and tracheotomized—was about 85%. There were 7,051 exposed and immunized with 500 units each; of these 46 were subsequently attacked, but all recovered. Percent of immunized subsequently attacked, 0.65."

In my first series of 47 cases, antitoxin was given whether seen early or late, and given as late as the eleventh day of the disease, while in my later series none was given later than the sixth day, and in generally larger and consequently more effective doses.

FIRST SERIES.

Years.	Day.	Deaths.	Recoveries.
1893	First	2	2
	Second	3	3
	Third	3	6
	Fourth	3	10
	Fifth	1	1
1893 to 1898	Sixth	2	1
	Seventh	2	1
	Eighth	1	1
	Tenth	1	2
	Eleventh	....	1
		18	29

SECOND SERIES.

Years.	Day.	Deaths.	Recoveries.
1898 to 1904	Second	1	....
	Third	1	6
	Fourth	1	1
	Fifth	4	4
	Sixth	1	4
		8	15

In the first series 208,600 antitoxin units, or an average of 4,438 units to a case, while in the second series 24,600, or an average of 10,260 units to a case, were given.

I would consider 10,000 units a fair average in a severe case, but I never hesitate to give up to 30,000 or 40,000 units or more, if the severity of the case demands it. I give enough to cure my patient, no matter what the amount may be, and cannot understand the hesitancy of the general practitioner to use bold doses. The smallest initial curative dose for a moderate type of disease now given is 3,000 units, while for a severe type more frequently double than not, repeating every 24 hours until the membrane has disappeared and toxemia has markedly diminished. I also advise giving antitoxin in even the mild cases of diphtheria, and cannot agree with the opinion of the Albany men in withholding it in mild cases, because antitoxin in sufficient dosage will at least minimize, if not prevent, such complications as nephritis, myocarditis, paralysis, etc.

The effect of season and school attendance upon the disease is shown in the following table:

January	8 cases
February	7 "
March	5 "
April	3 "
May	2 "
June	3 "
July	5 "
September	5 "
October	8 "
November	9 "
December	19 "

Sex and age are shown as factors as follows:

Males	49 cases
Females	21 "

The cold months November, December, January and February furnished the maximum number of cases. Note also that it is the school attendance season.

At and under.	No. of cases.	Deaths.	Deathrates.
1 year	6	3	50%
2 years	18	8	44.4%
3 years	12	6	50%
3-5 years	20	8	40%
5-8 years	14	1	7.12%
Total	70	27	38.4%

	Cases.
Primary laryngeal diphtheria	24
Secondary tonsillar or nasal diphtheria	46
Moderate	5
Mild	2
Severe septic stenotic	8
Severe stenotic	53
Moribund	1
Nearly asphyxiated	1

We speak of primary and secondary cases in the sense of the disease originating or exhausting itself upon the laryngeal mucous membrane without *apparent* faucial or nasal membrane, which descending, leads to secondary laryngeal involvement. Recent experiment and observation, however, have shown that many of the coryzas and catarrhs usually regarded as simple are of diphtheric genesis, although not recognized as such, from which the Klebs-Löffler bacillus can be grown. Consequently, we may be obliged to give up our classification of primary and secondary laryngeal diphtheria and be more upon the alert and thus account for the sudden onset of the very grave affection—membranous croup—and since in my series nasal cultures were not taken nor the cases seen in the early and possibly coryzal stage we will still call them primary cases.

The size of the tube used depended upon the size of the child, age, and the amount of edema or membrane in the larynx and presence or absence of laryngeal spasm; sometimes a matter of judgment, sometimes a matter of trial. By preference, I would insert a tube immediately upon the beginning (even though intermittent) of stenosis and not wait until the child showed symptoms of exhaustion. In fact, I would both resort to its use and remove it early rather than wait until late and thereby take the chance of a prolonged or chronic intubation case with its risks and complications.

The greatest number of times intubation was done on a patient was 19 times. The number of autoextubations or expulsion of the tube was 18 times in 1 case, 16 times in 4 cases, 3 times in 15 cases, 4 times in 4 cases, making 24 cases. The tube was placed and finally removed in 46 cases.

In the patients who recovered, the minimum number of hours the tube was worn was 7 hours, and the maximum, 692 hours, or 28 days, 20 hours. In another prolonged case that ended fatally, the patient wore the tube 548 hours, or 22 days.

The average time of wearing the tube in the 70 cases was 108½ hours, or 4 days, 12½ hours. In the death list we find the minimum, maximim, and average time of wearing the tube 2¾, 548, 86¾ hours, or an average time of 3 days and 14¾ hours. The culture was negative and unknown in 2 cases; showed Klebs-Löffler in 50 cases, staphylococcus and streptococcus in 3 cases, Klebs-Löffler associated in 9 cases, staphylococcus in 3 cases, streptococcus in 1 case, *B. lanceolatus* in 1 case.

The patients were stimulated with whisky and strychnin and a mercuric chlorid mixture given in the secondary cases. Three patients received inhalations of oxygen and two were put into a steam tent.

They were all fed by the inverted Casselbury method either upon the bed, with the head hanging over the edge of it or in the same position on the mother's lap. There was spasm of the larynx in 11 cases and the tube was found choked in 14 cases. I had ocular evidence of this. Pneumonia complicated 13 cases, rashes 15; arthritis 1, measles 1, and decubitus of the larynx 1 case, sepsis 8 cases, cardiac paralysis 1, nephritis 1 known case; but in the majority no urine analysis was made. In making up statistics the difference in type of the disease in different years and at different periods must be kept in mind. The type I have seen during the past year is more malignant than that observed by me in the previous years; I have also seen comparatively more of the socalled primary laryngeal type during the past year than in the previous nine years and also did the largest number of the 23 cases in this short period. The malignant type thus seems related to the comparatively high mortality.

In an investigation last winter I learned that Chicago with its 1,873,880 inhabitants, had outside of its efficacious provision for the prevention, detention, and isolation of smallpox cases in its well-equipped hospital, but 50 hospital beds assigned to the cure of the acute contagious diseases—scarlet fever, diphtheria, measles, erysipelas, etc. It is consequently easy to appreciate the limitations imposed upon those of us who are brought into daily contact with these diseases, and to deplore so shortsighted a municipal policy from a humane, financial, or socioeconomic standpoint. Diphtheria, at least, for which we already have a specific preventive and curative remedy, should become as comparatively innocuous as smallpox when properly controlled by the enforcement of State laws. There is, however, no correlation of these regulations nor uniformity of method in the several States concerning the prevention, detention, and isolation of these preventable communicable diseases. Our sanitarians should publicly direct attention to this fact and to the importance of a unification of preventive measures, and the necessity of larger and better hospital facilities for the detention, isolation, and treatment of these contagious disease cases. Thus a presentation of what other cities are doing in this respect is timely. I am much indebted to the various health commissioners for their ready and courteous response to my inquiries, in consequence of which I am able to place this condensed report before you:

- New York City, population 3,716,139.
    - Willard Parker Hospital (70 beds): Receives all contagious diseases except smallpox and plague.
    - Kingston Avenue Hospital (260 beds): Receives all contagious diseases.
    - Riverside Hospital (340 beds): Efficient ambulance and transportation service. A total of 670 beds.
- Chicago, population 1,873,000.
    - Smallpox Hospital (40 beds).
    - Cook County Hospital (40 beds): Contagious disease pavilion.
    - McCormick Memorial Hospital (10 beds): One smallpox ambulance, one contagious disease carriage.
- Philadelphia, population 1,367,716.
    - Municipal Hospital (540 beds): Pavilion for smallpox, 250 beds; pavilion for scarlet fever, 190 beds; pavilion for diphtheria, 100 beds. Two hundred and fifty beds for smallpox (the greatest number in the country), all out of proportion to what should be; 290 beds for other contagious diseases.
- Boston, population 598,000.
    - City Hospital (780 beds).
    - South Department (400 beds): For diphtheria, scarlet fever, and measles taken from hotels, etc.
    - Central Department (80 beds): For smallpox.
    - Quarantine Station: Three hospitals with 300 beds, for contagious diseases.
- Baltimore, population 531,313.
    - No provision for contagious diseases other than smallpox. At quarantine station complete detention house and hospital for care of suspects and smallpox. "Without facilities for care of *minor* infectious diseases."
    - The foremost university town in the country and a great shipping port, and absolutely no provision for what I hardly consider the "*minor*" infectious diseases, upon which millions of dollars each year are spent in their care rather than in their prevention.
- Cleveland, population 414,950.
    - Isolation Hospital (180 beds): For smallpox, 150 beds.
    - Annex to City Hospital (30 beds): For diphtheria, scarlet fever, and measles.
- Buffalo, population 381,000.
    - Municipal Hospital projected for smallpox.
    - County Hospital: Several beds in wards for diphtheria, scarlet fever, tuberculosis.
- San Francisco, population 355,919.
    - Contagious Pavilion (54 beds): For diphtheria, scarlet fever, erysipelas; 9 rooms, 6 beds each.
    - Isolation Hospital: For smallpox and leprosy. "We have no cases of plague."
- Pittsburg, population 345,000.
    - Isolation Hospital (150 beds): For smallpox.
    - Municipal Hospital (70 beds): For diphtheria, scarlet fever and erysipelas, measles, etc.
- District of Columbia or Washington, population, 278,000; 330,000.
    - For smallpox, 30 beds; for scarlet fever, 31 beds; diphtheria, measles, and other such communicable diseases, 43 beds.
- Newark, population 246,000.
    - Smallpox Hospital (250 beds). City Hospital, (50 beds): Annex for scarlet fever, 25 beds; for diphtheria, 25 beds. "Measles here a nonreportable disease not coming under hospital care until it assumes a pneumonic type." "Our hospitals refuse cases of measles."
- Louisville, population 215,000.
    - Eruptive Hospital being built in large suburban area.
- Jersey City, population 206,000.
    - Smallpox hospital (75 beds). Emergency hospital (14 beds): For diphtheria, scarlet fever, measles, and erysipelas.
- Minneapolis, population 204,000.
    - Quarantine Hospital—smallpox (66 beds). City Hospital (55 beds): Pavilion for diphtheria, 15 beds; scarlet fever, 10 beds; measles, 10 beds; erysipelas, 15 beds; tuberculosis, 5 beds.
- Providence, population 175,000.
    - Contagious ward built by city for Rhode Island Hospital (private) 20 beds. City pays the hospital $15.00 a week for each patient.
- St. Paul, population 172,000.
    - "Contagious Disease Hospital: Scarlet fever, diphtheria, measles, erysipelas, and suspects.
- Denver, population 144,588.
    - Sand Creek Hospital: For smallpox. Steele Hospital (40 beds): For scarlet fever, diphtheria, erysipelas, measles, chickenpox.
- New Haven, population 108,000.
    - Smallpox Hospital (40 beds): No facilities for care of scarlet fever, diphtheria, etc. "Need one badly—would have had one years ago if it had not been made a political issue as regards location."

TABULATION OF 70 INTUBATION CASES.

No.	Date.	Name of physician.	Name of patient.	Sex.	Age		Day of disease.	Type.	Form, laryngeal.	Intubation.				Culture.	Antitoxin units.	Other treatment.	Complications.	Urine.	Result.	Remarks.
					Years.	Months.				Size of tube.	Day of tubage.	Number of times intubated.	Hours of tubage.							
1	1896. March 23.	Engelmann.	D. D.	F.	2	5	7	Severe. Stenosis.	Primary.	2	3	Twice; choked.	17	....	9,500	Stim'lation; mercuric chlorid.	Unknown.	Unknown.	Death.	Toxemia.
2	April 25.	Engelmann, Sloan and Thorpe.	H. P.	M.	4	0	3	Severe. Stenosis.	Secondary; tonsils.	4	3	3 times; choked.	Unknown.	Klebs-Löffler bacillus.	4,500	Stim'lation; whisky; strychnin.	None.	Normal.	Recovery.	....
3	September 1.	Stoll, Engelmann and Sloan.	M. R.	M.	2	6	2	Severe. Stenosis.	Secondary; tonsils.	2	2	3 times; removed.	73½	K.-L. B., and staphylococcus.	7,000	Stim'lation; whisky; strychnin.	"	"	"	....
4	October 15.	Engelmann and Thorpe.	M. R.	M.	1	11	8	Severe. Stenosis.	Primary.	1	8	Once; removed; refused retubation.	28	Negative.	4,000 Refused more.	Stim'lation; whisky: strychnin.	"	Unknown.	Death.	Toxemia; exhaustion.
5	October 25.	Moran, Engelmann and Thorpe.	J. K.	M.	2	3	7	Severe. Stenosis.	"	2	7	3 times; spasm of larynx.	86½	Streptococcus, 3 cultures.	7,000 10 cc. anti-str'ptococcus serum.	Stim'lation; whisky: strychnin.	Broncho-pneumonia.	"	"	....
6	November 19.	Engelmann.	S.	F.	0	7	4	Severe. Stenosis.	"	1	4	Once.	7	Pseudo-K.-L. B., streptococcus, staphylococcus.	1,600	Stim'lation; whisky; strychnin.	Cardiac paralysis.	Normal.	"	Thought to be grip; not recognized until dyspnea appeared.
7	November 21.	"	A. T.	M.	4	0	6	Severe. Stenosis.	Secondary; tonsils.	4	6	Ineffectual attempt.	....	K.-L. B., staphylococcus.	4,500	Stim'lation; whisky; strychnin.	None.	Unknown.	"	Asphyxia during intubation.
8	December 17.	Engelmann and Thorpe.	J. L.	M.	2	6	4	Severe. Stenosis.	Primary.	1-2-3-4	2	19 times; choked; traumatic; spasm.	548	K.-L. B., staphylococcus, streptococcus.	7,500 20 cc. anti-str'ptococcus serum.	Stim'lation; whisky; strychnin.	Syphilis; broncho-pneumonia, laryngeal; ulcers.	Albumin for 11 days.	"	Refused a necessary tracheotomy.
9	1897. January 5.	Engelmann and Gillespie.	P. G.	M.	2	0	4	Severe. Stenosis.	Secondary; tonsils, etc.	...	2	Twice; choked.	74½	*B. lanceolatus*, K.-L. B.	5,000	Stim'lation; whisky; strychnin.	None.	Normal.	Recovery.	....
10	January 15.	Engelmann and Goodman.	J. B.	F.	2	0	3	Severe. Stenotic.	Secondary; tonsils.	2	3	4 times; choked; spasm; removed once.	246	K.-L. B., streptococcus. staphylococcus, *B. lanceolatus.*	7,000	Stim'lation; whisky; strychnin.	Broncho-pneumonia.	"	"	Reinfection after 10 days' interval.
11	February 15.	Engelmann.	C. B.	M.	7	0	2	Severe. Stenotic.	Secondary; tonsils.	5	2	Once; removed.	20	K.-L. B., staphylococcus.	3,000	Stim'lation; whisky; strychnin.	None.	"	"	....
12	March 17.	Stough and Engelmann.	L. G	F.	1	6	4	Severe. Stenotic.	Secondary; nares and tonsils.	2	4	3 times; choked; removed.	231½	K.-L. B., staphylococcus.	8.500 8 cc. str'ptococcus serum.	Stim'lation: whisky; strychnin.	"	"	"	....
13	March 19.	Meyerowitz and Engelmann.	B.	M.	3	6	4	Moderate.	Primary.	3	4	Twice; removed.	107	K.-L. B.	5,500	Stim'lation; whisky; strychnin.	"	"	"	....
14	April 2.	Engelmann.	L. M.	F.	2	3	30	Severe. Stenotic.	"	2	2 3 4	6 times; laryngeal; spasm; expelled 5 times; removed once.	197¾	K.-L. B., streptococcus.	6,500 20 cc. anti-str'ptococcus serum.	Stim'lation; whisky; strychnin.	Giant urticaria; edema of larynx; broncho-pneumonia; sepsis.	"	Death.	Tracheotomized; sepsis.

15	May 7.	Marschek and Engelmann.	K. P.	F.	3	0	8	Severe. Septic.	Primary.	8	3	Once.	Unknown.	K.-L. B.	2,000	Strychnin.	None.	Unknown.	Recovery.	....
16	June 8.	Meyerowitz and Engelmann.	E. J.	F.	2	0	10	Severe. Stenotic.	Secondary; tonsils.	8	2 3	Twice; spasm.	68 to 70	"	3,500	"	"	"	"	....
17	July 8.	Engelmann.	R. F.	M.	6	0	5	Severe. Moribund.	Secondary; tonsils.	5	4	Once; choked and coughed up.	9 hrs. 15 min.	"	4,000	Artificial respiration.	"	Normal.	"	Almost dead when tube placed; astonished that not needed after the ninth hour.
18	June 11.	Regent and Engelmann.	B. L.	M.	6	0	2	Severe. Stenotic.	Secondary; tonsils and larynx.	2	...	Once.	Unknown.	"	4,000	Stim'lation; bichlorid.	Unknown.	Unknown.	Death.	....
19	July 8.	Engelmann and DeStefano.	O. T.	M.	0	11	4	Moderate.	Secondary.	1	...	"	8	Staphylococcus.	4,000	Stim'lation; bichlorid.	Broncho-pneumonia; rickets; erythema.	"	Recovery.	Thought tube slipped down; tracheotomy.
20	July 14.	Miller and Engelmann.	H. M.	M.	3	6	2	Moderate.	"	3	...	"	73	K.-L. B.	3,500	Stim'lation; bichlorid.	None.	"	"	....
21	July 18.	Kolar and Engelmann.	J. F.	M.	3	0	4	Severe. Stenotic. Septic.	"	3	...	Twice; removed.	120	Unknown.	3,500	Stim'lation; bichlorid.	"	"	Death.	Should have been retubed.
22	July 27.	Cullen and Engelmann.	J. McC.	M.	3	6	7	Severe.	Secondary; nares.	3	...	Twice.	28½	K.-L. B.	3,500	Stim'lation; bichlorid.	Sepsis; extension below tube.	Nephritis.	"	....
23	September 21.	Massman and Engelmann.	L. M.	M.	8	0	2	Severe. Stenotic.	Primary.	5	...	Once; removed.	78½	"	7,000	Stim'lation; bichlorid.	None.	None.	Recovery.	....
24	September 29.	Martin and Engelmann.	F. C.	M.	2	1	3	Severe. Stenotic.	"	1	...	3 times; removed.	172½	"	4,000	Stim'lation; bichlorid.	"	"	"	....
25	October 12.	Meyerowitz and Engelmann.	K.	F.	0	9	2	Severe. Stenotic.	"	1	2	3 times.	Unknown.	"	2,600	Stim'lation; mercuric chlorid.	Unknown.	....	Death.	Cause unknown.
26	....	Litvine and Engelmann.	G. L.	M.	2	1	4	Severe. Stenotic.	Secondary; tonsils and larynx.	2-3	4	3 times; spasm.	23½	....	....	Strychnin; O. gas.	Broncho-pneumonia.	....	Recovery.	Too much strychnin and plus toxemia, leading to twitching, etc.
27	November 1.	Silverberg and Engelmann.	B. S.	M.	3	2	1	Mild.	Secondary; tonsils and larynx.	3	1	Once; coughed up.	22	Staphylococcus, 2 cultures.	3,500	Stim'lation; bichlorid.	None.	None.	"	....
28	November 7.	Gray and Engelmann	C. P.	M.	3	0	3	Severe. Stenotic.	Secondary; tonsils, nares, uvula, and larynx.	3	3	3 times; spasm; removed once.	317½	K.-L. B.	7,500	Stim'lation; bichlorid.	"	Normal.	"	....
29	November 12.	McIntyre and Engelmann. Cook Co. Hospital.	F. G.	M.	4	0	5	Severe. Septic.	Secondary; tonsils, nares, uvula, and larynx.	3	5	Once; removed.	Unknown.	"	Unkn'wn.	Stim'lation; bichlorid.	Broncho-pneumonia; sepsis.	Unknown.	Death.	Tracheotomy.
30	November 23.	Gilman and Engelmann.	F. K.	M.	0	8	2	Severe. Septic.	Secondary; tonsils, nares, uvula, and larynx.	1	2	Once; expressed after death.	72	K.-L. B., streptococcus, staphylococcus.	4,000	Stim'lation; bichlorid.	Broncho-pneumonia; sepsis.	None.	"	....
31	December 1.	Engelmann.	M. P.	M.	5	6	4	Severe.	Secondary.	4	4	3 times; removed.	84½	K.-L. B.	6,000	Stim'lation; bichlorid.	None.	Normal.	Recovery.	....
32	December 2.	"	F. T.	F.	6	3	11	Moderate.	Primary.	1	1	Twice; removed.	96	Streptococcus, 3 cultures.	3,000	Stim'lation; mercuric chlorid.	"	....	"	Measles, plus dyspnea and laryngeal obstruction.
33	December 5.	Novak and Engelmann.	A. R.	F.	3	0	6	Severe. Stenotic. Septic.	Secondary; uvula and nares.	3	6	Once; autoextubation.	145½	K.-L. B.	4,500	Stim'lation; mercuric chlorid.	"	....	"	....
34	December 11.	Weiland.	B.	M.	1	4	4	Severe. Stenotic.	Primary.	1	4	Twice; spasm.	59½	"	4,500	Unknown.	Cardiac paralysis.	Unknown.	Death.	Unrecognized until stenosis appeared.
35	December 8.	Roler and Engelmann.	L. B.	F.	1	6	3	Severe. Stenotic.	Secondary; tonsils and larynx.	1	...	3 times.	17	"	3,000	Strychnin; syrup ferri iodidi.	None.	"	Recovery.	....
36	December 20.	Heartz and Engelmann.	B. G.	M.	2	2	4	Moderate.	Secondary.	2	4	Twice; choked; autoextubation.	52	"	5,000	Stim'lation; bichlorid.	"	Normal.	"	....
37	December 25.	Vollmm and Engelmann.	G. DeB.	M.	1	10	4	Severe. Stenotic.	"	2-3	4	Twice; autoextubation.	65¼	Staphylococcus.	5,000	Unknown.	Toxemia.	"	"	Died 3 weeks later from pneumonia after complete recovery from croup.
38	1898. January 22.	Goodman and Engelmann.	A. C.	F.	1	1	4	Severe. Stenotic.	"	1	4	Once.	118	K.-L. B.	4,500	Strychnin; whisky.	Bronchitis.	Unknown.	"	....

No.	Date.	Name of physician.	Name of patient.	Sex.	Age		Day of disease.	Type.	Form, laryngeal.	Intubation.				Culture.	Antitoxin units.	Other treatment.	Complications.	Urine.	Result.	Remarks.
					Years.	Months.				Size of tube.	Day of tubage.	Number of times intubated.	Hours of tubage.							
39	January 11.	Stulik and Engelmann.	W.K	M.	1	9	11	Severe. Stenotic.	Secondary; nares, tonsils and uvula.	2	4	Once; removed.	119¼	Streptococcus, staphylococcus.	7,000	Unknown.	Sepsis; emaciation; anemia.	Unknown.	Recovery.	Most surprising recovery, considering tender age and lateness of treatment.
40	January 19.	Regent and Engelmann.	B. B.	M.	1	7	3	Severe. Septic.	Primary.	1-2	3	Twice; removed.	9	Staphylococcus.	1,000	"	Unknown.	....	Death.	Too late, since diphtheria had extended to bronchial tubes.
41	February 3.	Litvine and Engelmann.	L. K.	M.	5	0	3	Severe. Stenotic.	Secondary.	4	3	Twice; autoextubation.	31¼	K.-L. B.	3,500	Stim'lation; bichlorid mixture	None.	None.	Recovery.	....
42	February 3.	Miller and Engelmann.	W. S.	M.	3	3	7	Severe. Almost asphyxiated.	"	3	7	Once; autoextubation.	126¾	"	4,000	None.	"	"	"	Great toxemia; uremia probable; tube served purpose.
43	February 15.	Burdick and Engelmann.	G. F.	M.	0	10	10	Septic. Severe. Stenotic.	Secondary; nares, fauces and larynx.	1-2	2	Twice; choked; autoextubation.	51¾	Streptococcus, staphylococcus.	3,000	Stim'lation; strychnin; bichlorid.	Sepsis; nephritis.	....	"	....
44	February 15.	Pirosh and Engelmann.	W. L.	M.	1	9	4	Severe. Stenotic.	Secondary; tonsils and larynx.	1	...	Twice; removed.	48½	K.-L. B.	3,000	Stim'lation; O. gas.	Pneumonia.	....	Death.	....
45	February 2.	Engelmann, Cook Co. Hospital.	J. H.	M.	3	6	3	Severe. Stenotic.	Secondary.	3	3	Once; removed.	60	"	3,000	Strychnin.	Bronchopneumonia; sepsis.	....	"	....
46	1897. March 4.	"	M. S.	M.	2	0	0	Severe. Stenotic.	"	1-2	...	3 times; removed.	122	Negative.	4,500	Unknown.	Urticaria.	....	Recovery.	....
47	1898. February 2.	"	F. G.	M.	5	0	3	Severe. Stenotic.	"	...	4	Twice; removed.	199	Streptococcus, staphylococcus.	5,500	None.	None.	....	"	....
48	March 5.	Engelmann.	....	M.	3	3	3	Severe. Stenotic.	Primary.	4	3	Unknown.	Unknown.	K.-L. B.	4,000	Unknown.	Unknown.	Unknown	Recovery.	Sent to Cook County Hospital.
49	1901. January 21.	Engelmann and Pirosh.	....	M.	...	...	5	Severe. Stenotic.	"	3-4	5	Autoextubation 3 times in 1¼ hrs.	Unknown.	K.-L. B, staphylococcus.	12,500	"	"	"	Death in 2 days.	Wore first tube 5 minutes. Coughed up No. 4 tube in 20 minutes. Replaced it; coughed up in 1 hour. Sent to Cook County Hospital.
50	January 28.	Engelmann and Miller.	M. B.	F.	4	6	5	Severe. Stenotic.	Secondary; tonsils.	3	5	Twice; removed.	48	K.-L. B.	6,000	"	"	"	Death in 2 days.	Membrane pushed ahead of tube. Extubated immediately. Cast of trachea down to bifurcation expelled.
51	September 26.	Engelmann and Graham.	J. G.	F.	2	1	2	Severe. Stenotic.	Secondary; tonsils.	1	2	Twice removed; first in 29½ hrs., because choked; replaced.	35¾	"	11,000	Strychnin, whisky and glonoin.	"	"	Death.	Removed tube after death. Completely choked. Parents refused necessary extubation and intubation that were frequently indicated in this case.
52	October 3.	Engelmann.	H. M.	M.	3	0	3	Severe. Stenotic.	Primary.	2	3	Once.	Unknown.	"	5,000	Unknown.	"	"	"	Sent to Cook County Hospital. Not enough antitoxin given.
53	October.	"	A. B.	F.	5	0	3	Severe. Stenotic.	Secondary; tonsils.	2	3	3 times.	76	"	7,000	Mercuric chlorid; stimulation.	"	"	Recovery.	....
54	November 29	"	C. D.	M.	3	0	6	Severe. Stenotic.	Primary.	2	6	Once; removed.	20 minutes.	"	9,000	None.	None.	"	"	Parents would not permit reintubation.
55	1902. December 19.	"	E. F.	F.	6	0	6	Very severe. Stenotic.	Secondary; faucial and postpharyngeal.	2	6	Twice; autoextubation; final removal.	135½	"	17,000	"	"	"	"	First tube worn 10 hours; free 12½ hours. Retubed; worn 125½ hours; then removed.

56	December 27	Engelmann.	H. I.	F.	6	0	4	Severe. Stenotic.	Secondary; tonsils.	3	4	Once; autoextubation.	50½	K.-L. B.	11,000	None.	None.	Unknown.	Recovery.	....
57	1903. January 21.	"	K. L.	F.	0	8	5	Very severe. Stenotic.	Primary.	1	5	4 times; final autoextubation; choked; tubes removed 3 times and replaced.	196¼	"	29,000	"	Bronchopneumonia; sepsis.	Albumin.	"	Suckling; very sick; tube choked; 3 times removed and replaced; final autoextubation. Sent to Cook County Hospital.
58	March 13.	Walls and Engelmann.	....	M.	3	0	3	Severe. Spasmodic.	"	1-2	3	4 times; final removal.	Unknown.	"	15,000	Unknown.	Unknown.	Unknown.	"	First tube too small; coughed up first within a few hours; next twice in a half hour. Placed No. 2 tube, which remained until removed.
59	April 29.	Engelmann.	B. L.	M.	8	5	5	Severe.	"	3	5	Once; rem.	97¾	"	9,000	"	None.	"	"	....
60	June.	"	M. O.	M.	1	6	4	Severe.	Secondary; nasal and faucial.	1	4	3 times; autoextubation.	2¾	"	16,000	"	Unknown.	"	Death.	Parents refused necessary reintubation.
61	1903. March 13.	Gary.	....	M.	2	0	6	Severe. Stenotic.	Primary.	1	6	Unknown.	Unknown.	"	8,000	"	"	"	Recovery.	....
62	September.	Engelmann and Goebel.	....	M.	2	0	3	Severe. Stenotic.	"	1	3	Unknown.	Unknown.	"	10,000	"	"	"	"	....
63	November 10	Engelmann and Rose.	R. F.	M.	3	6	3	Severe. Stenotic.	Secondary; tonsils.	2	3	Once; removed.	86½	"	10,000	Strychnin; whisky.	None.	None.	"	....
64	November 11	Graves.	N. O.	F.	2	6	5	Severe. Stenotic. Septic.	Secondary; faucial.	1	5	Once.	6	"	6,000	Unknown.	Sepsis.	Unknown.	Death.	Septic; cyanotic; exhausted after placing of tube and not properly stimulated.
65	December 23.	Engelmann and Barrow.	G. G.	F.	3	6	5	Severe. Stenotic.	Primary.	2	5	Once; remov'd while choked.	118½	"	12,000	Strychnin; whisky.	None.	None.	"	Lived 3 hours with choked tube. Could have been saved had I reached there 1 hour earlier, or had a tracheotomy been done upon the tube.
66	December 28.	Engelmann and Rose.	B. L.	M.	6	6	5	Severe. Stenotic.	Primary.	3	5	Once; removed.	165	"	7,000	Strychnin; whisky.	Erythema.	None.	Recovery.	....
67	November 28.	McHugh.	G. L.	F.	1	0	5	Severe. Stenotic.	"	1	5	5 times.	692	"	16,000	Strychnin; whisky.	Prolonged intubation; bronchitis.	None.	"	Tube placed 3 p.m., Nov. 28; tube removed 10 a.m., Dec. 10; replaced 4 p.m., Dec. 10; removed a.m., Dec. 15; replaced p.m., Dec. 15; removed a.m., Dec. 20; replaced p.m., Dec. 20; final removal Dec. 28. Worn, 30 days.
68	December 3.	Allbrecht and Engelmann.	B. V.	M.	1	6	3	Severe. Stenotic.	Secondary; post-pharyngeal.	1-2	3	3 times.	171¼	"	11,000	Strychnin; whisky.	None. Should have had more antitoxin after first tube. Physician did not follow my orders.	None.	"	Tube worn 70¾ hours first time; tube worn 1 hour second time; tube worn 99½ hours third time.
69	December 12.	Engelmann, Cook Co. Hospital.	B. B.	M.	3	8	6	Very severe. Septic. Such laryngeal edema that No. 1 tube placed with difficulty.	Secondary; nasal and faucial.	1	6	Once; removed unnecessarily.	20	"	5,000	Unknown.	Unknown.	Unknown.	Death.	Sent to Cook County Hospital, where interne unjustifiably removed tube to clean (?) it.
70	1904. January.	Philips.	....	M.	2	0	6	Severe. Stenotic.	....	1	6	3 times; removed.	504	"	11,500	"	"	"	Recovery.	Wore tube 6 days; removed; replaced. Wore 7 days; removed; replaced. Wore 4 days; removed; replaced. Removed finally twenty-first day.

Omaha population 102,555.
  Emergency Hospital (110 beds): For smallpox, 40 beds; under pressure, 70 beds. No provision for other contagious diseases.

Memphis, population 113,000.
  "For smallpox ample provision." City Hospital: "Pavilion for contagious diseases to be built."

Los Angeles, population 106,400.
  Smallpox Hospital (25 beds). County Hospital: For contagious diseases—being built.

Salt Lake City, population 53,000.
  For smallpox, 40 beds. "The city itself does not provide hospital accommodations for any other of the contagious diseases."

Seattle, population 80,000.
  Smallpox Hospital (75 beds). No beds for other contagious diseases.

Portland, Me., population 50,000.
  Smallpox hospital (40 beds). Isolation Hospital (20 to 30 beds): For other contagious diseases.

Tacoma, population 37,000.
  City quarantine for smallpox, 35 beds. "Diphtheria, scarlet fever, measles, etc., quarantined where found."

In the analysis of the data received from the 25 cities, note the disproportion between the number of beds assigned to smallpox and the other communicable and preventable diseases—note how Philadelphia leads in this disproportion; note what inadequate provision is made in the student cities, Baltimore, New Haven, Chicago; note how many of the smaller western cities have awakened to the necessity and have made, or are about to make provision for these cases.

Boston, New York, Philadelphia, lead in the order named in the adequacy of provision for the hospital care of contagious diseases other than smallpox.

Baltimore, the fifth city of the union, fails utterly in this respect, despite the fact that it has Johns Hopkins University in its midst as an educational factor. The same is true of New Haven, the home of Yale University.

Chicago, the third city in size, nearly fails, but will soon partly or in whole, remedy this evil.

San Francisco, Buffalo, Pittsburg, Washington, Newark, Jersey City, Minneapolis, St. Paul, Providence, Denver, and Portland (Maine) all make a fair provision for their cases.

State Commissioner Lewis, of New York, recently said that $94,000,000 is yearly lost by preventable diseases.

Is comment needed when probably not a twentieth of this amount is spent for prevention? Political influence in each State and municipality cuts down the sum for this purpose to a minimum.

LABORATORY AIDS IN THE RAPID DIAGNOSIS OF RABIES.*

BY

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The preventive inoculation against hydrophobia stands today as one of the great triumphs of scientific medicine, but the great hope that is held out to people who have been bitten by rabid animals is conditioned by the number of days that elapses between the time of the injury and that of coming under treatment. Since an interval of only a week may utterly destroy the possibility of a favorable outcome of the Pasteur treatment, it is of paramount importance to make the diagnosis within a day or so after the bite, if possible within 24 hours, for the longer the interval, the smaller the chance for a cure. To this end, a number of histologic examinations of the tissue of the supposedly mad animal can be made, and it is the purpose of this paper to enumerate some of the microscopic findings which will help to make a diagnosis of probable rabies in the suspected animal, and to describe briefly the technic to be followed. Inoculation experiments are not to be considered here, for they can in no sense be interpreted as a means to a rapid diagnosis.

In 1892, Babes[1] published an account of a pathologic change in the medullas of animals that had succumbed to rabies. Since that time he has repeatedly urged the importance of his findings, claiming them to be characteristic of the disease. What he has described has been known as Babes' tubercle ever since his first paper upon this subject. It consists of leukocytal thrombi of capillaries and of accumulations of embryonal cells around the vessels and around the nerve cells of the medulla of a rabid animal. These microscopic changes are found by him with certainty in dogs that have died of rabies, but less constantly in animals that have been killed in the course of the disease. McCarthy and Ravenel[2] found this pathologic structure in all but two out of 67 cases in which the medulla was examined. In their series, the vascular tubercle was much oftener found than the one originating from a nerve cell.

In spite of the confirmatory reports from different sources upon the nodule of Babes, it has not been given the full confidence as a trustworthy aid to the diagnosis of rabies that has been granted the later work of Van Gehuchten and Nélis.[3] In 1900, these authors reported upon a pathologic change in the spinal, gasserian, and pneumogastric ganglions which has ever since been known under their names. It consists of a proliferation of cells, probably from the capsule of the ganglion cells, and has as a result the filling up more or less completely of the space between the capsule and the nerve cell, and an augmentation in the number of the cells outside of this ganglion cell envelope. Associated with this process there is some degeneration of the nerve cell and nucleus, leading in some cases to a total disappearance of the nervous element. This pathologic picture, striking as it is in animals that have died of rabies, is not so clear in those that have been killed before the disease had run its full course.

There has been abundant verification of the work of these French investigators. McCarthy and Ravenel (loc. cit.) were able to give a prompt diagnosis in 87 out of 105 cases by an examination of the ganglions alone. Rabieaux[4] found a positive reaction in 37 animals, dogs, cats, mule, and goats, that had died of rabies. In the 15 months that I have worked in the pathologic laboratory of the Ohio Hospital for Epileptics, five dead animals suspected of having had rabies, four dogs and one calf, have come under my observation. In each case the gasserian and spinal ganglions have been removed by a procedure recently described by Dr. A. P. Ohlmacher.[5] After turning back the scalp of the suspected animal, the cranial cavity is opened by cutting with a heavy saw through the skull and brain at right angles to the craniovertebral axis in a line about midway between the external auditory meatus and the orbits, and by pressing apart the divided portions. The brain is then removed for preservation, the medulla is excised for purposes of inoculation, and, with the encephalon out, the dissection of the gasserian ganglions can be easily and safely made. The spinal ganglions are exposed by cutting away the dorsal portions of the vertebral column with a strong bone forceps. Pieces of the gasserian and of the spinal ganglions are fixed in Carnoy's fluid and in absolute alcohol, and are as quickly as possible brought into paraffin, with the caution that dehydration should be complete. Usually within 24 hours thin sections of such specimens can be ready for microscopic examination. The ordinary hematoxylin-eosin stain is employed. It would seem the ideal method to freeze the tissue and immediately make sections, but the results from such preparations are apt to be misleading because of the necessary thickness of the slices. In the five cases mentioned, the described technic was carried out. In two cases a diagnosis of rabies was made, and Dr. Ohlmacher urged the bitten persons to take advantage at once of the preventive treatment. In three cases the verdict from the histologic examination was that the animals did not have the disease. Inoculation experiments in rabbits by the Leclainche-Morel (intracerebral) and the Galtier (nasal mucous membrane) methods confirmed these conclusions from the microscopic tests.

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* Read at the fourth semiannual meeting of the Association of Assistant Physicians of the Ohio State Hospitals, held at Columbus, October 5 and 6, 1904.

Though the Van Gehuchten-Nélis reaction offers at the present time such hopeful possibilities, there are a few exceptions to its absolute reliability. The clinical history of the animal must be brought into the evidence, for lesions somewhat similar to this capsular change have been discovered in other conditions, viz., endothelioma, diphtheria, chronic alcoholism, and forage poisoning (V. McCarthy and Ravenel loc. cit.). Goebel[6] found it in a case of syphilis. Therefore, with a little care the presence of the capsular reaction may easily be correctly interpreted.

It is necessary to mention again that this microscopic lesion is not always found in animals that are killed in the early stages of the disease. Rabieaux (loc. cit.) saw it fail 11 times out of 29 cases, and it is an established rule among men who have worked on this diagnostic aid that the absence of the reaction does not exclude rabies, while its presence is almost pathognomonic. The possibility that it may be present in dogs that have died of diseases with symptoms similar to those of rabies has been excluded by, among others, Rabieaux, who examined with a negative result the ganglions of 17 dogs dead of such diseases.

This Van Gehuchten-Nélis reaction therefore stands today as the most trustworthy aid in the rapid diagnosis of rabies. Recently, however, there has been some work published by Negri,[7] and verified by a number of other investigators, that bids fair not only to displant the nerve cell capsule change, but possibly to lead us to the knowledge of the etiology and pathogenesis of the disease in question. This Italian worker found a structure in the central nervous system of different mammals afflicted with rabies, and very cautiously suggests that it might be a parasite and perhaps the causative agent of the disease. No specific technic is required to discover it, for the ordinary fixing agents are adequate, though others who have repeated Negri's work have preferred a saturated solution of mercuric chlorid or Zenker's fluid. For coloring the sections, the common routine stains, like hematoxylin and eosin, may be employed with success, but Mann's method of methylene-blue and eosin is adjudged the most perfect. The best material is derived from dogs that have been experimentally inoculated by the subdural route with street rabies and which die after the fourteenth day. After death by this procedure, the socalled parasites are found within the nerve cells of the horn of ammon, in Purkinje's cells of the cerebellum, in the cortex, principally in the pyramidal cells, and sparingly in the pons, the medulla, the spinal cord, and in the various ganglions. The same bodies are found in experimental rabies of rabbits, whether the inoculation is subdural, intraocular, or conjunctival, provided that death does not occur before 14 or 15 days. If the infection occurs by way of the sciatic nerve the picture is as a rule different. Under those conditions the organisms are abundant in the spinal cord, especially in the lumbar region. From the medulla up they are then scantily present. To remove the suspicion that these microscopic pictures are artefacts, some of the gray substance of the horn of ammon was teased in a weak acetic acid and these bodies were found as perfect as in the tinted tissue. Even some of the minuter characteristics seen in the stained specimens were reproduced in the colorless preparations. In pieces of central nervous system which have been exposed to decomposing processes for days and also in those that had been saved for weeks in glycerin, these bodies were found after staining. A human cerebellum, which had been obtained from a fatal case of hydrophobia and which had for a long time been in a laboratory, was searched by Negri with a positive result. Bertarelli and Volpino[8] claim to have been the first to report a case in which the Negri bodies were present in man, but, though Negri examined only the cerebellum, his was the first instance in the human.

Negri tried to determine the time when the parasite first appeared in rabbits inoculated subdurally. Those killed after 13 or 14 days' incubation showed very small bodies, and these were few in number. On the fifteenth day, when the first paretic symptoms developed, they were more numerous, and on the sixteenth day with advanced symptoms they were abundant. The shorter the period of incubation, the smaller is the organism, and therefore, when using fixed virus, the observation is apparently negative because of the difficulty in finding the bodies. But it is possible to discover them, and Negri demonstrated them in sections of the spinal and gasserian ganglions of rabbits that had died seven days after being inoculated by way of the sciatic nerve.

These bodies, which may possibly be parasites, are spheric, elliptic, or pyriform in shape. Their size varies from 1 or 1.5 microns to 10, 12, or 15 microns in diameter. Those which are not round are at times 22 to 23 microns long and 6.5 microns wide. These large ones are not the most numerous. The organisms * are found within the protoplasm of the nerve cell and often within the processes, and frequently four or more may be present in one neuron. These interesting masses are not structureless. By Mann's method, and in good preparations, two distinct characters may be distinguished within the organism: Small round glistening forms, which are variously distributed within the parasite and which are numerically present in proportion to the size of the containing structure; and large, oval, less glistening central bodies, of which there are only a few, perhaps only one. To decide whether the latter are nuclei and whether the smaller spheric parts represent processes of division would be premature. The parasites stain red by the methylene-blue eosin procedure indicated.

In a later paper, Negri[9] has verified his first results and has applied them to the purpose of rapidly diagnosing rabies. He has made the interesting announcement that when dogs are inoculated by the sciatic route, the parasites are found practically only in the spinal cord region, as mentioned before, and that there are then no symptoms of the higher centers. When the subdural, intraocular, conjunctival, or mucous membrane path is selected the disease arises in its usual form, and the organisms are found most abundantly in the brain in the usual locations. Among 75 dogs suspected of having had rabies, and in which Negri was able to get the horn of ammon, 52 were by the biologic test proved to be truly rabid, and, among these, 50 had been so declared by finding the body which may eventually be shown to be the causative agent of the disease in question.

This very briefly is an enumeration of the main points that have been raised by Negri, and though his contentions as to the specificity of the organism he has described have been questioned by some men, his general conclusions have been verified by Daddi[10] and Volpino,[11] among others. The findings reported by these men make it imperative that we include the Negri bodies among our aids in the rapid diagnosis, and by using the technic described for opening the cranium of

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* This word organism and similar terms are used throughout with a full appreciation of the doubtful nature of the Negri bodies.

any suspected animal, material can be easily gained to be quickly fixed and examined for these bodies in conjunction with the Van Gehuchten-Nélis reaction and the "nodules rabique" of Babes.

Another aid toward the diagnosis of rabies in an animal is the presence of foreign bodies in the stomach, and, like the ganglion cell lesion, it speaks for the disease when it is a positive one and is noncommittal when there are no such extraneous matters. Such substances are anything that the animal, in its disturbed condition, may swallow, and most often consist of straw, sticks, stones, glass, and the like. In one of our five cases mentioned, the calf, we received only the head and neck of the animal, and in the carcasses of the two dogs proved rabid both histologically and biologically, only one showed foreign matter in the stomach, or 50%—a percentage which is obviously of no value because of the small number of cases. The stomachs of the two nonrabid dogs gave a negative result. Gowers[12] gives evidence that the presence or absence of such material in the stomach is not conclusive, for it may be missing in rabies and may be found in other diseases. In a recent tabulation, Galtier[13] found foreign bodies in the stomach 657 times out of 1,428 autopsies on many different kinds of animals having rabies, or 46%—a considerable percentage and a suggestive one. A publication similar to Galtier's upon the frequency of this finding in animals not rabid would be of much value.

In addition to the help given by the presence of these abnormal gastric contents, there are some minor aids. One of these is the leukocytosis of rabies. Courmont and Lesieur[14] found an increase of white cells to 24,000 with 88% of polynuclear neutrophiles in two people one to five hours before death from rabies. In rabid dogs, guineapigs, and rabbits they were able to demonstrate, respectively, 94%, 85%, and 75% of such corpuscles. Since this leukocytosis is constant in hydrophobia, its absence would speak against that disease. They add the caution, that in tuberculosis in dogs such an increase of white cells may be detected. This same pathologic change has been discovered in a young girl by Kasparek and Teuner.[15] These authors quote the earlier work of Courmont and Lyon, and add that the rabbits which were inoculated from their case gave the same finding as that mentioned by the latter investigators. A like result has been obtained by Nicolas, Froment, and Dumoulen,[16] who, though they had in view the relation between splenectomy and polynucleocytosis, confirmed the presence in rabies of from 50% to 70% increase in polynuclear leukocytes.

The other change which might be of aid, though doubtfully so, consists of an alteration in the voluntary muscles of rabid animals as found in rabbits by Alzais and Bricka.[17] These authors report that with the beginning of the symptoms of rabies, about the eleventh or twelfth day, the muscle fibers show a longitudinal division into fibrillas, and many are entirely transformed into such threads; the nuclei are increased in number; amyloid degeneration is sometimes seen. There is no change in the interstitial tissue.

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INVERSION OF THE UTERUS: THE TREATMENT IN CASES COMPLICATED BY NECROSIS OF THE INVERTED PART.

BY

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The patient whose case forms the basis of this report was admitted to the gynecologic ward of the University Hospital, on August 16 of this year. In the absence of Dr. John G. Clark the case fell into my hands. The patient was a married woman of 30. She had had two labors, both of which were marked by difficulty during the third stage in delivering the placenta. Her physician told me that at her last labor in September, 1903, he had been obliged to give her ether and extract the placenta by intrauterine manipulation. This was done with some difficulty, but with no bad result—at any rate none that was recognized.

Three months after confinement, December, 1903, the patient noticed a slight irregular hemorrhage from the vagina. This continued until June, 1904, when every 10 days there was a free loss of blood—not enough, however, to require packing. During the latter part of July the patient suffered from a hemorrhage more severe than any of the previous ones; with it there was marked backache and much bearing-down pain. A week before admission, the discharge had a greenish tinge and a very offensive odor. The patient was sent to the hospital with a provisional diagnosis of carcinoma. Upon admission she had a temperature of 100.8°; pulse 100; respiration 22. There was a putrid, dirty red vaginal discharge. Upon examination, a spheric mass was felt, completely filling the vagina—semifluctuant and gangrenous.

The cervix could be felt surrounding the upper pole of the tumor which was pedunculated. Because of pain and tenderness, the rest of the examination with regard to the uterus and the adnexa was unsatisfactory, although no indication of anything abnormal could be found. The diagnosis lay between a necrotic fibroid tumor and inversion of the uterus. Because of the pain and tenderness a positive diagnosis was out of the question. The mass in the vagina was so necrotic that it was useless to look for the uterine ostia of the tubes.

Under ether the diagnosis was readily made. The uterus was completely inverted. A cup-shaped depression could be felt above the cervix and the finger introduced within the cervical canal could not be passed anywhere more than three-quarters of an inch; the cervical wall at this point turning downward to form the pedicle of the tumor. The adnexa were normal.

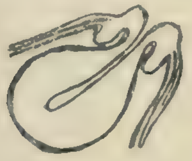
If the inverted part had not been gangrenous I should have tried manual replacement and failing in that would have adopted the plan of splitting the posterior lip of the cervix. As it was, although replacement might have been possible in this way, the organ would certainly have sloughed either entirely or in part, exposing the woman to the danger of general infection and leaving her with an organ useless for child-bearing purposes.

It seemed that the gangrenous condition of the inverted part demanded its removal. Vaginal hysterectomy was rejected because of the danger of infection. The simple plan was therefore adopted of amputating the inverted mass.

The hips of the patient were elevated so as to allow the intestines to gravitate out of the pelvis. The pedicle of the mass was compressed by a large hysterectomy forceps; the tumor was first incised in the median line (Fig. 4) in order to avoid a mistake in diagnosis and so that if a knuckle of intestine had been caught in the funnel of the inversion it might be released. The entire thickness of the uterus was edematous and necrotic. The inverted peritoneal surfaces of the uterus were recognized at the center of the mass. The fallopian tubes were not seen but at the time they were forgotten and the specimen after removal was not saved. At any rate as the section was made in the middle line and as they were probably considerably drawn out and attenuated they were easy to overlook. After cutting away the necrotic mass beneath the forceps, the latter were left in place, their points being pushed back into the uterus and packed with gauze (Figs. 1, 2 and 3). Forceps seemed safer than sutures because there was less liability to infection of the peritoneum. It was believed that their continual pressure would result in the adhesion of the inverted peritoneal surfaces. The woman would thus be left with her ovaries and the lower third of her endometrial cavity. Although childbirth was out of the question this would preserve her other functions intact and at the same time expose her to the least possible danger. The result verified these conclusions. The forceps sloughed off on the fifth day and she had an uneventful convalescence. On discharge, two weeks after operation, the uterus was one and a half inches in length; there was some fixation, the external os was well contracted; there was no tenderness, although some induration was present at the upper part of the uterine stump.

Inversion of the uterus is sufficiently uncommon to receive attention whenever it occurs and there are a number of points in this case which are especially noteworthy.

It is quite certain that complete inversion of the uterus did not occur at the time of confinement for there were none of the symptoms of this condition, and the family physician left the woman as far as he could determine in good condition. There had manifestly, however, been a partial inversion and this, as time went on, became more and more pronounced until three months afterward it gave rise to symptoms.



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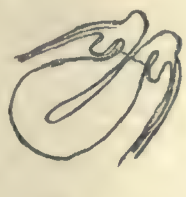

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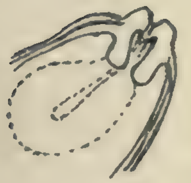

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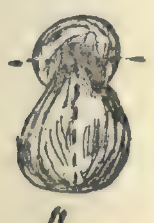

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It is purely theoretic to say when the inversion became complete, but this would seem to have occurred during the usual period required for involution of the uterus.

As there are but two causes for inversion—one the manipulations incident to the third stage of labor, the other the pull upon the uterine wall of a pedunculated intrauterine growth, and as there was no tumor in this case, the inversion must be ascribed to the puerperium.

The length of time elapsing between the occurrence of the inversion and the time when the patient consulted her physician because of hemorrhage seem to indicate that from the very beginning there was serious disturbance in the blood supply of the inverted part.

When inversion of the uterus is not accompanied by necrosis and gangrene, there are two plans of treatment: 1. Reduction by manipulation alone. 2. Reduction after incision of the constricting cervical ring. When for any reason reduction is impossible or unwise, amputation of the inverted part is preferable to hysterectomy: 1. Because there is no danger of infection. 2. Because the operation I have described is really supravaginal hysterectomy without removal of either of the adnexa.

The patient, although she be incapable of bearing children thereafter, will still preserve her other functions intact.

It is better to clamp the pedicle because a suture might carry infection in its track to the peritoneum. The danger of injuring a knuckle of intestine caught in the funnel of the inversion may be avoided by making a longitudinal section (Fig. 4) of the inverted part before cutting it away below the forceps.

VARIATIONS OF RADIOTHERAPEUTIC TECHNIC.

BY
RUSSELL H. BOGGS, M.D.,
of Pittsburg, Pa.

The subject of technic in radiotherapy seems at present to be overlooked to a large extent, but when it receives due consideration the röntgen ray will be given a proper place as a standard curative agent. The object of this paper is for the purpose of classification and to show some of the reasons why opinions differ so greatly in regard to the cases in which the röntgen ray should be used.

In the past three years I have visited a number of röntgen ray laboratories; have spent considerable time with other operators, and find the technic and results vary greatly. It seems that we might classify the physicians who are applying the röntgen ray under three heads: 1. Those who have made a careful study of electricity and physics and are able to duplicate results, either in diagnosis or treatment. 2. Those whose work is chiefly confined to some other specialty and who use the röntgen ray without making any claim of having paid any particular attention to the subject. 3. Those whose work is done by the head nurse or some other inexperienced party. So you can readily see that, although a large number of patients have been treated, the work done by exact methods is comparatively small.

In the past year I have received many letters asking the size of coil, the amount of amperage the apparatus consumes, the degree of the vacuum of the tube, the tube distance, the time of exposure and the number of treatments given per week. Now it seems that at this time every one should learn that all this means very little unless it pertains to the same apparatus and the same disease.

First, the induction coil depends upon its construction. Two amperes going through the primary of one coil will give a larger output at the terminals of the secondary than 10 amperes going through the primary of another coil. This depends upon the coil, number of turns in the primary, the amount and size of wire in the secondary, the insulation of the apparatus and the self-induction. That good work can be done with any size of coil or static machine has been well demonstrated, but it remains for the operator to apply the rays in a scientific manner. The application of the röntgen ray, either in diagnosis or treatment, should be done by mathematic calculations in order to do the most successful work. This means that very many details must be taken into consideration. I have observed the technic used by various operators, and, after studying their work, noticed that good technic always produced results. While in many respects the technic is similar, I am sure that no other therapeutic agent is used in such a careless manner, from which results are expected.

In the past, when a physician reported a class of patients treated by the röntgen ray, in which the results were better than the average, many thought the physician was an enthusiast and unreliable. Now we find it more sensible to learn first something of his cases and give a guarded answer until we have seen whether there is any foundation for such a statement.

In my visits to operators whose reports seemed unreliable, after investigating cases and technic, I usually came home well convinced that the reason I was not having the same results was due to my faulty technic.

Many of the physicians who are applying the röntgen ray have done very little toward its advancement, and oft-times harm, by their rash and unguarded statements, when they are unable to produce the same results reported, the true cause being their faulty technic. To illustrate, it was extremely difficult for me to believe when a few patients with pulmonary tuberculosis were treated by the röntgen ray, and a report given, that any results could be expected in this class of cases. However, after making a trip to the physician's office and spending several days with him, examining his patients, and learning his technic, I was convinced that he had not exaggerated his results. On the other hand, some few have been too enthusiastic, and have reported cases in which the diagnosis was not sufficiently confirmed.

The technic used by most physicians in the past has been effective in the treatment of nearly all superficial skin lesions, but the technic used by certain operators requires certainly much less time to effect a cure. When deeper conditions are to be treated, there is a marked difference in the results produced, and this is certainly due to technic.

I believe the first and most important point which is absolutely necessary is the *tube distance.* Most physicians place the tube entirely too near the surface of the skin when treating deeper lesions. This point has received very little attention, but it has been brought to our attention by the physicists a number of times that the röntgen ray, like the intensity of light, varies inversely as the square of the distance.

Dr. E. J. Williams[1] has given a table which is very simple, and by which the exact tube distance and the exposure can be figured out quickly. In treating deeper lesions, the best results will be produced by using a light which affects the different layers of tissue the most uniformly. Since the law which applies to light is that the intensity varies inversely as the square of the distance, then the intensity at 8 and 16 inches is the inverse of 8^2 and 16^2, and while 16 is twice the distance of 8, the intensity at 8 inches is four times that at 16. Then the greater the distance from the tube, the more uniform is the light in a given space. In other words, the intensity of the rays is more uniform in the different layers of tissue with the tube placed at 16 inches than at 8 inches.

As before stated, the rays are four times as intense at 8 inches as at 16 inches, but there is much less difference between the intensity of the rays at 16 inches and 24 inches. The result is the ratio of 9 to 4, or in other words, the light is two and a fourth times stronger at 16 inches than at 24 inches. Now, for instance, if you had a growth two inches below the surface to treat, and the anode was placed at 4 and 20 inches from the skin, the effect on the tumor and the skin would be as follows:

At 4 inches the relative strength would be as the inverse of 4^2 is to 6^2 or $\frac{6}{4}^2 = 2\frac{1}{4}$. Then the light on the skin at 4 inches is $2\frac{1}{4}$ times stronger than on the growth situated 2 inches below the surface of the skin. At 20 inches the relative strength would be the inverse of 20^2 is to $22^2 = \frac{22}{20}^2 = \frac{11}{10}^2$ or $\frac{121}{100}$. Then the light on the skin is $\frac{21}{100}$ stronger on the skin than on the growth at 22 inches.

Therefore, by comparing the intensity at 4, 8, 16 and 24 inches, it can be easily understood why different results can be expected in deeper tissues. Of course, it must be taken into consideration that there is a loss of intensity due to penetrating the tissues. The practical results of tube distance was brought to my attention while treating a patient with carcinoma of the breast a year and a half ago. Previous to this, I had been placing the tube at from 6 to 8 inches from the surface of the skin, but as this patient was so extremely nervous and said she could feel the electricity, I was compelled to place the tube at a distance of 16 inches.

The patient was given 20-minute exposures daily for three weeks. When a dermatitis of the second degree was produced, the treatment was discontinued and two weeks later when the surgeon, Dr. Ferree, operated upon the patient, he remarked how deeply and uniformly the tissues had been affected. The case was of a severe type and when Dr. Jennings, her family physician, referred the patient for röntgen ray treatment, it was on account of the severity of the disease. The mass in the breast had begun to break down and there was considerable glandular involvement. The patient had a few post röntgen ray treatments and made good recovery. So far there has been no sign of recurrence. A microscopic examination confirmed the diagnosis.

By studying the tube distance of each operator I have observed that this meant a great deal. For skin lesions there is no occasion to place the tube more than four to six inches from the skin, and one operator even suggested that the röntgen ray is like the radium rays, in that the different rays had different chemic action, and on this account he placed the tube close to the surface. This may be true and is effective in skin lesions, but with this technic could deeply-seated glands be treated most successfully?

I have noticed that some treat deep-seated conditions with a tube only three or four inches from the surface of the skin, and it is natural that they should attain very little effects in the disease tissues before the skin is injured. Very likely this is the reason that many who are using the röntgen ray are successful in the treatment of superficial lesions, but whenever an attempt is made to go deeper into the tissues their reports show that there is little or no effect produced in the diseased area.

Another very important point is, that the röntgen ray should be of large volume when deep lesions are to be treated; otherwise, with a tube at a distance of 15 or 16 inches from the skin, one will practically be unable to produce results unless very long exposures are given. A low vacuum tube will give a greater chemic action than a high tube, and if placed at a distance of from 12 to 16 inches from the patient's chest will penetrate the tissues effectively.

It has been the continual cry that in order to secure penetration we must have an extremely high tube. With an efficient apparatus, a radiograph of considerable size can be taken of a patient's chest when the tube is so low in vacuum that it will only back up from 1 to $1\frac{1}{2}$ inches. Now, it is reasonable to expect that it is not necessary to use a high tube for the purpose of penetration in treatment when you can place the tube at a distance of 16 inches from the patient's chest, and are able to make a radiograph in a much shorter time by using a low vacuum tube than by using a high one. I have observed that in the treatment of cancer of the breast, not only in my own practice, but in many others, the tube distance and vacuum are very important. The patients who were treated with the tube close to the skin were burned rather quickly, so very little results had been produced in the deeper tissues, and not much curative effect could be expected.

The curative and inhibitory action of the röntgen ray upon cancerous tissues has been well demonstrated; and in this connection I want to mention a case of carcinoma of the breast, in which the patient had been operated upon three times before coming for röntgen ray treatment.

When the patient came to the office she had glandular involvement and some toxemia. The muscles were affected to such an extent that it was with much difficulty that she was able to walk. On account of the severity of the disease, we decided to give her exposures of 30 to 40 minutes, shifting the tube in different positions and producing dermatitis as quickly as possible. In three weeks the patient received eight treatments, and there was considerable dermatitis produced, but only to such an extent that the skin raised up in small blisters. After this, I heard nothing from her for six months, and believing her case to be hopeless, naturally expected that she was dead, when she sent word that all the visible signs of the disease had disappeared and that the dermatitis was rather slow in disappearing, but when it did disappear, all signs of the cancerous mass and nodules were gone. But, of course, there was so much internal involvement before any röntgen ray treatments were given that only temporary relief could be expected. Her physician, Dr. Clark, stated that the treatment had made her very comfortable, that she had not been compelled to take any morphin and that she was very grateful for the few treatments which she had received.

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[1] Medical News, March 26, 1904.

I have other patients who were not cured, but in whom the inhibitory action of the rays was well shown. The explanation of such cases will probably be discovered in the future with improved technic.

The treatment of cancerous tissues might be classed under four heads: (1) Cases of small epithelioma, which are situated on the face. These patients can usually be cured in from six to eight weeks, depending upon their vitality. The röntgen ray usually gives good cosmetic results. (2) Cases in which the disease appears to be localized. In these cases the mass should be removed at once, followed by a few röntgen ray treatments. (3) Cases with considerable glandular involvement. I believe these patients should be treated a short time by the röntgen ray, in this way curing as much of the disease in the glands as possible, then removing the mass and treating again with the röntgen ray. Usually, 20 treatments before and 20 after operation are all that are required. By this method I have had results which could not be accomplished either by surgery or by the röntgen ray. I have had patients operated upon and then given the röntgen ray treatment when there was glandular involvement, but with these patients I have not been nearly so successful. (4) Inoperable cases of cancer. The patient should be treated by the röntgen ray for inhibitory action on the disease and to make life more comfortable.

In connection with radiotherapy, we should not overlook the medicinal, hygienic, and dietetic treatment. It is important for us to employ every adjunct to assist in keeping the system in perfect condition. Routine treatment is bound to fail more or less in practice, even if based on sound principles. It has been said that therapeutics involve two principal considerations—the end to be attained by treatment, and the means of attaining this end. Personal experience and judgment is necessary in each case in selecting the means by which these ends may be accomplished.

In many cases of carcinoma, toxemia is present when the patient comes for treatment, and if this is handled carefully the patient will make decided improvement. For this purpose, I have found nothing equal to electric light baths. They can be given without much inconvenience to the patient, as the temperature of the cabinet need not exceed 110° F. I always give my patients from .26 gm. to .39 gm. (4 gr. to 6 gr.) of quinin a day; not for the fluorescent properties, but for the tonic effect. I frequently use a pill of quinin, iron, arsenic and strychnin, but as before stated, do not adopt a routine treatment, but make each case an individual study. The diet is very important. A large amount of liquids should be taken. Many people scarcely taste water, and with some of these it takes considerable urging in order to get them to take the proper amount of liquids.

Alcoholic, syphilitic or very anemic patients, as a rule, do not improve rapidly, and these patients often burn easily. This shows the necessity for constitutional treatment in conjunction with the röntgen ray. I burned a syphilitic patient in two treatments of rather short duration.

CONCLUSIONS.

1. Technic is the watchword of success.
2. Usually the combination of surgery and the röntgen ray will produce the best results.
3. Tube distance is important when treating deep-seated glands.
4. In the treatment of superficial lesions a low tube placed near to the surface of the skin eliminates the danger of injuring the deeper tissues. Periostitis has been caused by a high tube placed at a distance.
5. Each case should be an individual study.
6. Adjunct treatment should not be overlooked.

SPECIAL ARTICLES

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.

Proceedings Reported by the Secretary.
WILLIAM J. GIES, Ph.D.,
of New York.

The eighth regular meeting of the Society for Experimental Biology and Medicine was held on Wednesday evening, October 19, in the demonstration room of the Department of Physiology of Columbia University, at the College of Physicians and Surgeons. Dr. S. J. Meltzer presided.

Members Present.—Burton-Opitz, Calkins, Davenport,[1] Ewing, Flexner, Gies, Hiss, Lee, Levene, Levin, Lusk, Mandel, Meltzer, Park, Richards, Salant, Wadsworth, Wallace, Yatsu.

Members Elected.—J. G. Adami, R. A. Hatcher, Yandell Henderson, G. N. Stewart, C. G. L. Wolf.

ABSTRACTS[2] OF REPORTS OF ORIGINAL INVESTIGATIONS.

"*The accommodation of the eye:*" with demonstrations. **Professor Theodor Beer**, of the University of Vienna.

Two principles are realized in the accommodation of an eye that is constructed as a "camera obscura": (1) Change of curvature of refracting surfaces, principally the lens; (2) change of distance between refracting mediums and image screen, principally distance between lens and retina.

1. There is only *increase* of curvature, principally of the anterior surface of the lens, during active accommodation. We observe it in mammals, birds, and reptiles (lizards, crocodiles, turtles, very few snakes). Experiments were made before the Society to show the increase of curvature of the lens in the eye of the water turtle—proof of Helmholtz's theory of accommodation.

2. Accommodation by change of the distance between lens and retina is possible in two directions: (*a*) In cephalopods and fishes, which are normally shortsighted, accommodation for objects at a distance is effected by a movement of the lens toward the retina. In the eye of the fish there is a muscle, *Musculus retractor lentis* (**Beer**), which draws the lens toward the retina; (*b*) in amphibia and most of the snakes, the lens is moved toward the cornea, away from the retina, by changes of the intraocular pressure.

"*Preliminary communication on the composition of the liver after subcutaneous injections of liver extracts:*" **P. A. Levene** and **L. B. Stookey**.

About two years ago the authors observed that it was possible to increase the resistance of rabbit blood against trypsin by treating the animal to subcutaneous injections of pancreatic extract. It seemed probable that the resistance of organs against other proteolytic enzymes than trypsin could be increased in an analogous manner.

Rabbits were treated with saline liver extracts. The autolytic powers of the livers of such animals were compared with the autolytic powers of the livers of normal animals. It was found that the autolytic power of the organ was not diminished. It was also noted that the organs of the treated animals contained smaller proportions of nitrogen than the livers of the control animals, and further, that the proportion of noncoagulable proteids and that of nonbasic nitrogen was higher than in the controls.

In order to accurately interpret the findings, the composition of the organs was compared. (See the appended table.) It was noted that the amounts of water and carbohydrates were not affected by the treatment, while the proportion of ethereal extract was higher in the organs of the treated animals than in those of the control animals.

"*Retransformation of negatively heliotropic animals (Gammarus pulex) into positively heliotropic animals by chemic means.*" **Jacques Loeb** (*Presented by Simon Flexner*).

After it had been proved that the heliotropism of animals and plants is identical, it seemed desirable to find means by which positively heliotropic animals could be transformed into negatively heliotropic ones, and vice versa. Groom and Loeb found that such a transformation was possible in the nauplii of *Balanus perforatus* at Naples by the influence of light, inasmuch as these animals were postively heliotropic in very weak light and negatively heliotropic in strong light.[1] Later Loeb found that the marine *Copepods* and young larvas of *Polygordius* became positively heliotropic by the lowering of the temperature as well as by an increase in the concentration of the seawater, while they became negatively heliotropic under the opposite influences.[2] Moreover Loeb observed that negatively heliotropic *Copepods* can be made positively heliotropic by mechanical agitation,[2] and Miss Towle showed that the sign of heliotropism in *Cypridopsis* can be reversed through contact with solid bodies.[3] Holmes made the discovery that the positively heliotropic terrestrial *Amphipods*, e. g., *Orchestia agilis*, become negatively heliotropic when thrown into water.[4]

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[1] Nonresident member.

[2] The abstracts here given have been prepared by the authors themselves. The secretary has made only a few abbreviations and minor changes.

The author had tried in vain to change the sense of heliotropism in animals by chemic means, and this gap was felt the more keenly, inasmuch as he was led to believe that chemic changes might ultimately determine changes in the sense of heliotropism. Recently, however, the author succeeded in finding an instance where specific chemic substances are capable of transforming the sense of heliotropism in animals.

The experiments were made with a fresh water gammarus (*Gammarus pulex*), which can be obtained at any time in large quantities at Berkeley. If one puts a large number of these animals suddenly into distilled water or into common tap water, they all become at first very negatively heliotropic. It is possible that this is caused by the mechanical agitation, connected with the transferring of the animals from one vessel to another, but this has not yet been ascertained with certainty. Half an hour or an hour later, the negative gathering of the animals becomes less dense, and the animals are scattered in the vessel.

These negatively heliotropic animals can be transformed instantly into positively heliotropic animals by the following substances: 1. Many of the anesthetics of the fatty series. 2. Many acids, except very weak ones, like boric acid. 3. Certain salts, like ammonium salts. Alkalies, like NaOH or Ba $(OH)_2$, and the neutral salts, like NaCl or $CaCl_2$, bring about a scattering of the negatively heliotropic animals, but do not make these animals instantly and without exception positively heliotropic, as do the anesthetics or the acids. A few quantitative data may be mentioned here by way of illustration. Ethyl acetate and similar esters instantly make all the *Gammarus* positively heliotropic in a concentration of about $\frac{m}{50}$. Ether requires a higher concentration, namely, $\frac{m}{8}$. Ethyl alcohol brings about an equally rapid transformation of the negatively heliotropic animals into positively heliotropic in a much higher concentration, namely, $\frac{5}{2}$/m solution. Paraldehyd requires a concentration of about $\frac{m}{10}$. So far as the acids are concerned, HCl, oxalic acid and acetic acid make the animals instantly and without exception positively heliotropic in a concentration of about $\frac{m}{500}$. In boric acid, the animals remain negative even at as high a concentration as $\frac{m}{10}$. NH_4Cl instantly makes the negatively heliotropic *Gammarus* positively heliotropic in a concentration of $\frac{m}{25}$. NH_4OH acts similarly in the same concentration. So far as neutral salts are concerned, they usually do not make the negatively heliotropic *Gammarus* positively heliotropic until the concentration is over $\frac{m}{4}$ or $\frac{m}{2}$, and even then, as a rule, no instantaneous and complete gathering of the animals at the positive side of the vessel can be produced, but only a slow and partial gathering.

As the concentration at which the transformation of negatively heliotropic *Gammarus* into a positively heliotropic animal is produced differs for different substances and inasmuch as the transformation is brought about most promptly by such substances as diffuse most rapidly into the tissues, *we must conclude that we are not dealing here with an osmotic, but with a chemic effect.*

No. of experiment.	Weight of rabbit grams.	Weight of liver grams.	Gram ethereal extract per gram of liver.	Gram carbohydrate as sugar per gram of liver.	% of water in liver.	Nitrogen as $\frac{n}{10}$ NH_4OH per gram of liver. cc.	Liver before digestion. % of total nitrogen as cc. $\frac{n}{10}$ NH_4OH.		Period of digestion. Hours.	Liver after digestion. % of total nitrogen as cc. $\frac{n}{10}$ NH_4OH.		Rabbit.
							Zinc sulfate filtrate.	Phosphotungstic filtrate.		Zinc sulfate filtrate.	Phosphotungstic filtrate.	
I	....	....	....	....	......	20.0	13.5	9.9	24	18.0	12.3	Normal
II	....	....	....	....	......	18.0	10 0	8.5	24	24.0	19.5	"
III	....	....	....	....	......	19.0	10.1	8.7	24	18.9	13.2	"
IV	....	....	....	....	......	19.0	12.6	10.4	24	18.9	15.4	"
V	2050	75	0.026	0 078	72.0	....	....	....	......	....	....	"
VI	2250	87	0.023	0.107	69.2	19.8	....	....	......	....	....	"
VII	....	....	....	....	......	16.0	19.5	16.8	24	28.5	22.5	Treated
VIII	1710	66	0.048	0.055	71.5	16.8	21.5	19 7	24	30.7	26.7	"
IX	2800	76	0.056	0.071	70.8	17.3	20 7	15.6	24	29.6	23.2	"

"*Trypanosomes and bird malaria:*" F. G. NOVY and W. J. MACNEAL. (Presented by GARY N. CALKINS.)

The studies made heretofore upon the malarial parasites of birds have shown the existence of four species or types. These are:

Proteosoma.
Halteridium.
Hæmamœba majoris, Lav.
" Ziemanni, Lav.

In the course of an extended study of the parasites of birds, the authors have encountered several new species, and, since the number is likely to be still further increased, it seems desirable to attempt a classification. This the authors have tried to do, basing it largely upon the type of multiplication and the habitat of the parasite. Two genera will be given; one, *Plasmodium*, characterized by formation of segmenting forms in the peripheral blood and invasion of fully developed red blood cells. The injection of blood having these parasites results in an infection. For the other genus we use the priority name of Kruse, *Hæmoproteus*. This is characterized by an entire absence of segmentation forms in the peripheral blood, and, with the exception of two species which form a transition as it were between the two genera, invasion of young erythroblasts is the rule. The injection of the blood having these parasites does not lead to infection.

With this division, the species are arranged as follows:

A. *Plasmodium*, including parasites of man, some of birds, and very probably some of cold-blooded animals.
  1.—*Plasmodium relictum*, syn. *Hæmamœba relicta*, Proteosoma.
  2.—*Plasmodium vaughani*, n. sp.
B. *Hæmoproteus*, including chiefly parasites of birds, and probably offering transitional forms to the hemogregarines of cold-blooded animals.
  1.—*Hæmoproteus danilewskyi*, syn. Halteridium.
  2.— " *MacCallumi*, n. sp.
  3.— " *sacharovi*, n. sp.
  4.— " *majoris*, Lav.
  5.— " *ziemanni*, Lav.
  6.— " *rouxii*, n. sp.

Plasmodium vaughani, n. sp., is common in robins and resembles proteosoma, and may be easily mistaken for the latter. The hyaline body is smaller than that of proteosoma, does not displace the nucleus, contains one large pigment

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[1] Groom and Loeb: Biologisches Centralblatt, 1890, p. 160.
[2] Loeb: Pflüger's Archiv., 1893, liv, p. 81.
[3] Towle: American Journal of Physiology, 1900, iii, p. 345.
[4] Holmes: American Journal of Physiology, 1901, v, p. 211.

granule, and is readily recognizable by the presence of a large, bright, refractile, colorless globule. It segments and usually forms four cells. Canaries may be infected; apparently nonfatal.

Hæmoproteus MacCallumi, n. sp., found in mourning dove. Like Halteridium, which it resembles, it infects erythrocytes. Grows on one side, or may completely surround the nucleus. The fully developed sexual forms fill and somewhat distend the blood cells. Microgamete formation observed. The infection cannot be transferred by blood injection.

Hæmoproteus sacharovi, n. sp. This species, probably first observed by Sacharoff, who regarded it as a "leucocytozoon," is related to that of Danilewsky. Found in young mourning doves and elsewhere. Invasion begins with an infection of very young erythroblasts. As the parasite grows it pushes the nucleus to the periphery, where it is seen in the adult form on the outer edge as a cap, which is but a trifle larger than the nucleus of a red blood cell. The parasite is spherical, male and female forms common, latter predominate; blepharoplast distinct, adjoining or over the nucleus. Microgamete formation common. Infection not transferable by the blood.

Hæmoproteus majoris, Lav. This was found once by Laveran in a titmouse. This species is extremely common in robins and other birds. As with preceding, invasion at early stage shows infection of very young erythroblasts, the small parasite lying next to the large round nucleus. As the parasite grows it pushes into the nucleus, which becomes crescentic and may almost wholly surround the parasite. The adult sexual forms are large, about 10 to 12 microns in diameter, and are readily recognizable by the peripheral ring of the nucleus of the host cell. This cap may extend, and usually does, around two-thirds of the cell, and even more. The blepharoplast is easily seen in female cells; microgamete formation common. No infection of other birds by injection of blood swarming with these forms.

Hæmoproteus ziemanni, Lav., has been studied by Danilewsky, Ziemann, Laveran, Schaudinn, and others. Forms long spindle-shaped bodies, which are 30 to 50 microns in length. The authors have found this species, or one closely related to it, in the blood of a hawk. Sexual forms easily recognized.

Hæmoproteus rouxii, n. sp., is very common in sparrows, and represents the very earliest possible infection of young erythroblasts, so much so that it is not feasible to exclude the possibility of their being leucocytes. As the parasite grows it pushes into the nucleus, which assumes the form of a thick crescent. The parasite measures from 4 to 6 microns. Its plasma does not stain readily, and sexual forms have not as yet been recognized. Apparently always associated with this cytozoon are minute crescentic free hemogregarines. These are but 4 microns long, and are motile, crawling over the red blood cells in characteristic manner. Larger motile crescents, about 10 microns long, at times are present. Both large and small crescents are free and motile, and it is important to note are present in the fresh blood at the moment when drawn. They cannot, therefore, be considered as ookinetes. They are hemogregarines, and presumably constitute the extracellular stage of *H. rouxii*.

It is to be noted that the last four mentioned forms all exert pressure on the nucleus of the erythroblasts, and, as a result, give rise to very peculiar types. They are all *leucocytozoa* of which, thus far, there has been but one recognized type, that of *H. ziemanni*. The view of Schaudinn that the latter is a trypanosome which ingests an entire erythroblast by attaching itself to such by one end becomes untenable inasmuch as all stages of infection from the earliest to the latest can be readily observed in the case of *H. sacharovi* and *H. majoris*. The authors regard the large spindle-shaped *H. ziemanni* as an infection of an erythroblast and the elongated form as consequent upon an alteration of the wall of the host cell leading to increased osmotic pressure which acting on the poles gives rise to the spindle-shaped forms.

In addition to the parasites mentioned, birds harbor very frequently *filaria* and *trypanosomes*. In the case of the filaria while the peripheral blood may contain but a few, the heart blood may contain large numbers.

Trypanosomatic infection of birds is far more common than has been supposed. The largest number of infected birds seen by any one observer was eight, which were found by Dutton and Todd in Senegambia. The reason why they have not been found more commonly is because they are present in very small numbers, usually not more than one or two flagellates in a drop of blood. By microscopic and cultural methods the authors have been able to detect trypanosomes in the blood of 33 birds. Of this number, 18 were detected by direct blood-examination (of the 18 birds, 10 were tested culturally and gave growths); and 15 by means of their cultivation method—that is to say, in 15 cases where the microscope failed to show trypansosomes, the culture method showed them to be present. This shows that, as in the case of the bacteria, the cultural method is a more delicate means of detection of small numbers of parasites than is the microscope.

The occurrence of these trypanosomes with reference to the cytozoa mentioned is of special interest. Thus 13 out of the 33 trypanosomes were unaccompanied by any intracellular parasite, while 20 were associated with one or more kinds of cytozoa. It was not an uncommon thing to find multiple infections, that is the same blood harboring, at one time, in addition to trypanosomes two or three different species of intracellular parasites.

Again, in addition to the fact that trypanosomes may be present without another parasite, is the interesting fact that when thus associated there is no constant relation between the two. In other words, the same trypanosome may be found at one time with a *proteosoma*, at another time with a *halteridium*, or with *H. sacharovi*, or with *H. majoris*, etc.

In 25 out of the 33 cases mentioned, cultures were obtained. Nearly all of these have been carried through a series of subcultures or new generations. Here another important fact was brought out. The cultural method is not only the best means of detecting trypanosomes in the blood, but it is the best means of differentiating them into species. A study of the 25 cultures obtained shows that they represent three, if not four, and possibly more distinct species. The cultural characteristics are extremely well marked, and offer an admirable means of differentiation. [The detailed account of these forms must be left to the full paper by the authors on this subject.]

One species, however, more common than any of the others, must be considered at this point. Its cultures present an extremely interesting appearance and are unusually luxuriant. They show two types of cells. One of these is round or in short spindles, which always occur in rosets, with the flagella directed centrally, as in the case of *Trypanosoma lewisi*. The other type is long and very slender, almost a mere line, and is extremely motile, traveling forward and backward, with great rapidity. Very often two cells unite by their posterior ends; at times agglutinations are found and in these the whips are found situated on the outside of the mass. This long, slender type corresponds exactly to the *Spirochæte* described by Schaudinn, while the other type agrees with his *Trypanosoma*.

It is noteworthy that inoculation of the trypanosome cultures, even in large amounts, into birds failed to produce any cytozoa. In one case a canary infected with such a culture showed trypanosomes in its blood for three months without any sign of an intracellular parasite.

These facts are of importance, because of their bearing on the recent views of Schaudinn regarding the relation of trypanosomes to the intracellular parasites. As is well known, this distinguished protozoologist believes that in the case of *Halteridium* the sexual forms unite in the stomach of the mosquito to form ookinetes, which then develop into indifferent, male, and female trypanosomes. This type agglutinates with the flagella directed toward the center. In the case of *H. ziemanni*, he holds that a similar change occurs in the mosquito, giving rise to long, slender spirochæte, which agglutinate with the flagella directed outward. The injections of suspensions of such infected mosquitos produced the characteristic infection with the hemocytozoa.

It will be seen that the results obtained by the authors do not bear out Schaudinn's conclusion. The authors have shown that birds may harbor trypanosomes, even for months, without showing any intracellular parasites. On the other hand, birds rich in such cytozoa may contain no trypanosomes. Thus, cultures attempted from 26 of such heavily infected birds failed to show any growth. Again, the presence of trypanosomes is not associated with any one form of intracellular parasite. Furthermore, the cultural method shows the existence of several distinct species of trypanosomes, and among these is one which presents at the same time both types described by Schaudinn as stages on the one hand for halteridium and on the other hand for the leucocytozoon of Danilewsky.

The authors therefore conclude that trypanosomes in birds may be met with as several distinct species wholly unrelated to the intracellular parasites. The greatly diverging conclusions reached by Schaudinn and the authors must be ascribed to the fact that Schaudinn worked with *mixed cultures* as developed in the body of the mosquito, whereas the authors have employed strictly *pure cultures* of these flagellates.

[The authors hope to publish the full details of this investigation in the January number of the *Journal of Infectious Diseases.*]

"*The gradual decrease in bacteria of the production of agglutinable substance:*" WILLIAM H. PARK.

At the last meeting of the Society of American Pathologists and Bacteriologists an informal statement of this fact was made by Dr. Welch for Drs. Marshall and Knox. The experiments of Dr. Collins and the author are recorded because they were undertaken in a slightly different way and also because a certain number of confirmatory observations are of value.

The maltose fermenting paradysentery bacillus of Flexner was grown for 24 hours on each of 11 consecutive days in fresh bouillon solutions of the serum from a horse immunized through oft-repeated injections of the bacillus. The serum strength in the solutions used was 1.5%, 4%, and 15%. The serum agglutinated the culture before its growth in the solutions in dilutions up to 1 in 800, and was strongly bactericidal in animals. After 11 transfers the culture grown in the 15% solution ceased to be distinctly agglutinated by the serum in any dilution and ceased to absorb from the serum any appreciable amount of the agglutinins acting upon the original culture. The cultures grown in the 1.5% and 4% solutions were changed to a less degree and agglutinated in dilutions up to 1 in 100 and 1 in 60 respectively, and continued to absorb agglutinins. The recovery of the capacity to be agglutinated was very slow in the culture grown in the strongest serum solution, when it was from time to time transplanted in fresh nutrient agar. The other cultures recovered this characteristic more rapidly.

The first culture, after growth for 16 weeks, during which it was transplanted 43 times, agglutinated in dilutions up to 1 in 200, and after 20 weeks in dilutions up to 1 in 400. The culture grown in 4% solution of serum agglutinated after 16 weeks in dilutions up to 1 in 500, and one in 1.5% agglutinated in dilutions up to 1 in 800. This diminution and final almost complete lack of development of agglutinable substance in bacteria grown in a serum rich in agglutinin and immune bodies is interesting, both as showing a rapid variation in bacteria of essential characteristics, and as possibly indicating one means of adapting themselves to resist destruction in the living body, since the bacteria which ceased to produce agglutinable substance and probably, also, less substance with affinity for other antibodies, might be considered less vulnerable to these substances.

It is not certain that the agglutinin in the serum causes the change in the bacteria, for solutions may agglutinate and still not produce this effect. The fact has been noted that the horse serum of animals not immunized has much the same effect on the cultures as the immune serum. Although this suggests that the change is not due to antibodies, it does not prove this, since the serum of a horse before injections is rich in antibodies, for the typhoid-colon groups, due possibly to the passage of bacteria from the intestines into the circulation.

The author's explanation of the process is that there are substances in the serum which attack certain parts of the bacteria such as the agglutinable substance. In the increase of bacteria in the serum those which produce the least of these substances are least inhibited and therefore develop most rapidly. When cultures are made from serum solution to serum solution daily, a gradual differentiation takes place until finally bacilli producing almost no agglutinable substance develop.

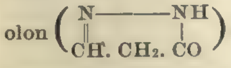
"*Some Mendelian results in animal breeding:*" C. B. DAVENPORT.

The essence of Mendelism in inheritance is its alternative character. In this it is opposed to blending inheritance (as in human skin color) which had been regarded as the typic sort of inheritance. At the station for experimental evolution of the Carnegie Institution certain new cases of nonblending inheritance have already been found. Among sheep it appears from Dr. Alexander Graham Bell's records that the offspring of two black sheep are (probably always) black, although one or more of the grandparents were white. It looks as if black color (like albinism) might be recessive. Among canary birds it is found that of the offspring of crested and of plain headed birds, some are crested and some are not. Poultry have been studied because of the numerous characters they exhibit. When a Japanese long-tailed, clean-legged cock was crossed on a white bantam hen, the two surviving offspring were highly colored like the father and had abundant feathers on the legs like the mother. The crested characteristic of poultry is peculiar, being sometimes dominant and sometimes (apparently) blending with the crested condition when the cross is made.

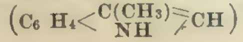
"*On the decomposition products of epinephrin:*" JOHN J. ABEL and R. DE M. TAVEAN. (Presented by WILLIAM J. GIES.)

The empiric formula, $C_{10}H_{13}NO_3.\frac{1}{2}H_2O$, adopted by Abel for that member of the epinephrin series which he has called epinephrin hydrate (the adrenalin of Takamine) is, at present, the subject of an acute controversy. The authors are now engaged in a repetition of the analytic work on which Abel based the above formula for epinephrin hydrate. In view of the suggestion of Abderhalden and Bergell that this substance should be prepared in a way that avoids oxidation by the air, the authors have undertaken the laborious task of preparing and purifying it in an atmosphere of hydrogen. The results of their work in this direction will soon be published.

The authors wish to remark here that the $\frac{1}{2}H_2O$ of their empiric formula has always been regarded by them to be water of constitution, and not water of crystallization as their opponents have taken for granted. The assumption that this $\frac{1}{2}H_2O$, so easily removable by high heat and by various acids, is water of constitution necessitates doubling the present empiric formula, a procedure which is at variance with the molecular weight determinations of v. Fürth and Jowett. These determinations are, however, open to serious objections, as will be shown at length elsewhere.

Work on the decomposition products of both alkaloidal epinephrin and epinephrin hydrate has been continued. The basic substance, $C_3H_4N_2O$, which is obtainable equally from both forms of epinephrin, has been decomposed by treatment with caustic potash into ammonia (NH_3), methylamine ($CH_3.NH_2$), and methylhydrazine ($CH_3.NH.NH_2$). Of these decomposition products, methylamine is also obtained from both modifications of epinephrin. Methylhydrazine has thus far not been obtained either from epinephrin or its hydrate. This degradation product is of great importance in throwing light on the chemic constitution of the new base, $C_3H_4N_2O$, for its appearance, under the circumstances referred to, proves that the two nitrogen atoms of this base are directly combined one with the other, and suggests, among other things, for this base a ring structure, such as is found in bodies of the pyrazolon  $\left(\begin{array}{ccc} N & \text{———} & NH \\ \| & & | \\ CH. & CH_2. & CO \end{array}\right)$ series. It may here be noted that pyrazolin carboxylic acids can easily be made to yield hydrazine.

A full discussion of the bearing of the above results on the constitution of epinephrin must be deferred until it has been determined whether the oxidation product, $C_3H_4N_2O$, is of a primary or of a secondary character. In any case, an adequate constitutional formula for epinephin must be able to account for all the decomposition products that have been named.

In conclusion, it may be mentioned that the authors have repeatedly obtained in their recent work small quantities of skatol  $\left(C_6H_4<\begin{matrix} C(CH_3) \\ NH \end{matrix}\!\!\!>CH\right)$ on fusing epinephrin hydrate with caustic alkalies—a product which has been erroneously supposed to be obtainable only from the monobenzoyl series of epinephrin compounds.

ETHICAL PHARMACY.[1]

BY

A. L. BENEDICT, A.M., M.D.,

of Buffalo, N. Y.

The typical city drug store represents a bizarre combination of businesses. It is usually a public telephone station, often a branch postoffice, express office, place to pay gas bills, sometimes a branch circulating library, and laundry. One can buy candy, hair brushes, tooth brushes, soap, valentines, knives, and various other articles of merchandise, tobacco, soda water and other soft drinks, and occasionally strong liquors as beverages. At some stores, one can even obtain a light lunch, at others, pet animals, gold fish, etc. In short, if you want anything and do not know exactly where to seek it, it is a good rule to ask at the drug store. There is no particular ethical objection to the drug store serving as a miscellaneous caterer to the wants of the public, although the physician, who is wont to take his medical equipment rather seriously and exclusively, never quite recovers from the incongruity of such signs as "prescription counter in the rear," "prescriptions a specialty," etc. It certainly would surprise the public if, after our name on a sign, we displayed some such notice as this: "A specialty made of attending to patients."

However, the public is not allowed to forget that the drug store exists for the purpose of selling remedial agents. More or less startling and often life-size display cards remind us of the virtues of plasters "which feel good on the back," and which serve partially to hide the charms of ladies and gentlemen in undress. Menstrual pads make an attractive window dressing, especially if flanked with an illustrated reminder of tablets which work while we sleep and break the monotony of a night's rest in a sleeping car. Gigantic green frogs amuse the children and remind adults of the frog in their throats, while vaginal syringes are instructive to the young and afford a subject for thought on the part of the statistician who is interested in our falling birthrate. A pasteboard trained nurse can be made to advertise pretty nearly anything, and, if she can do some automatic feats with an atomizer or a sprinkler, she is doubly charming.

On entering the store, we find that the front shelves and, indeed, sometimes all that are visible, between the soda fountain and the prescription department, are devoted to an object lesson in the uselessness of our own profession. It even seems strange that there should be a prescription department at all, when all the ills to which humanity is heir can be relieved by the purchase of the appropriate remedy, neatly and not very expensively compounded, and with explicit directions for the guidance of patients, either on the label or included with valuable information as to the sun, moon, and stars, or a complete joke book or collection of popular songs.

However, the patient who runs this gauntlet of proprietary medicines and who escapes the druggist's own advice as to headaches, rheumatism, bronchitis, etc., is welcome to present his prescription at the desk, and, if we have been careful to avoid the metric system and have limited ourselves to codliver oil, calomel, and tincture of opium and similar staples, he can get it filled with slight risk of error and with reasonable promptness. If, however, we have written for some such troublesome preparation as oil of phosphorus, or bromin, or for some new drug not yet in constant demand, the patient may have to wait till it is sent for and, unless one practises in New York, Philadelphia, Chicago, and a very few other centers of trade, several days may elapse before the order is filled. Why, as a profession, do we endure all this from a profession which is avowedly, a specialization of our own, for the purpose of supplying medicines and medical appliances? Because, in the first place, we cannot help ourselves, and because, in the second place, in the majority of instances, the druggist is, at heart, not only a good fellow, but an intelligent and conscientious man, who cannot help himself either, but is hampered by all sorts of customs, who is under the screws of wholesale dealers of all shades of respectability, and who is subject to the same, if not greater, competition in an overcrowded profession, which we realize in our own experience.

If the druggist did not sell stamps, soda water, hair brushes, and act as agent for the gas company, the express companies, the telephone company, the laundry, and even for Uncle Sam's postoffice, his store would fail in popularity. We can have no reasonable objection to the sale of soap and tooth powder. It is only a step to porous plasters and antiseptics, and only another step to headache powders, liniments, cough syrups, and cathartics. The patient will not, under existing conditions, take our prescriptions to a man who will not sell him his own selection of drugs and aid him in that selection. Many druggists are courteous enough to look embarrassed when we happen to be in the store to see if he can fill a prescription for something a little out of the ordinary, and a man comes in and announces that he wants something for his liver or for his little boy with croup. Some have become so accustomed to such occurrences that they overlook even this deference to our suppositious function and privilege.

I am convinced that the druggist cannot help himself out of his present predicament, without the initiative of the medical profession. Some druggists want this assistance, some do not. Some openly declare that they do not care to bother with prescriptions. One man, of whom I know personally, issues cards of this form with every prescription: This prescription is a valuable formula for . . . Yourself or any of your friends can get it on payment of . . . Thus, every physician whose prescription reaches this store, becomes the originator of a quack medicine, without any of the emoluments of quackery. On the other hand, there are pharmacists of good standing, who are not adapted to teaching positions, who cannot write textbooks or secure official appointments of one kind or another, who love their chosen profession and who are practically debarred from practice unless they submit not only to an irksome commercialism, but to methods that they recognize as unethical and, potentially, at least, as dishonorable and murderous.

The solution of the whole problem is perfectly simple in theory, and it has been carried into practice with some degree of success in occasional instances. Find a pharmacist who is qualified in his profession, who wishes not only to make a specialty of prescription compounding, but who will limit himself to such work. Having found one such man in a city, apply exactly the same rule to him and his competitors that should be applied to the genuine and the fake specialist in any other line of medical subdivision. If the ophthalmologist, laryngologist, or neurologist is posing as a specialist and, at the same time competing with the general practitioner in his own legitimate field, while some other specialist is doing honest work in his specialty, the responsibility rests with the general profession, for no specialist can succeed with a double-barreled gun if the general practitioners refuse to start the game for him. In the case of the druggist, the offense against the ordinary laws of specialism is even more flagrant, for the druggist is neither competent nor legally qualified to compete with the medical profession.

A study of the directory of any city will show that there is one drug store to every five to ten physicians. Many of these stores have a force of five or more pharmacists, few have less than two, including advanced students. It is absurd to suppose that the legitimate profits on prescriptions, even including the earnings and profits on agencies, soda water, etc., can support any such ratio of pharmacists. The bulk of the support of the socalled pharmacal profession is the patent medicine business and the illegal practice of medicine. Curiously enough, my personal experience has been that the very men who are interested in pharmacal education; who are officially represented with our own profession in the codification of drugs, and who make the best speeches as to the dignity of the profession of pharmacy, have been the most flagrant violators of the principles of ethics, and have made the most glaring mistakes in the practice of their profession. Understand me, however, to refer merely to isolated examples, and to make no general charge against either the profession of pharmacy in general or its most representative portion.

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[1] Read before the American Academy of Medicine, Atlantic City, N. J., June 4, 1904.

The solution of the problem proposed must, if successfully carried out, involve a marked diminution in the numbers of pharmacists in good standing and a practical separation of the pharmacist as a professional man from the soda water, agency-conducting, retail quack and counter-dispensing business man. Such separations are always wholesome. We can fight or ignore quackery and illegal practice. In the long run it makes more work for the regular profession than it removes by competition, and while it is our obvious duty to combat it in the interests of the community, we are not called upon to place ourselves in a false light and reduce our influence for good, by unwise attempts at interfering with a too powerful influence.

While there is no particular objection to the various, extramedical side lines carried on in the average drug store, it is obvious that, unless some druggist already in business, were willing to eliminate from his store the entire middle portion and the show window, it would be practically impossible to continue them. The only ethical pharmacy on a practical working basis that I have ever actually seen, consisted of a comparatively small room in a medical office building. There was no pretense at catching custom by attractive displays, and the drug stock itself was not imposing, but I was assured that it contained almost everything prescribable by a man in regular practice, including most of the newer chemicals and the really valuable, ethical proprietary preparations. It was supported by about twenty physicians, and prescriptions were filled not only well, but comparatively cheaply, and to the satisfaction of the intelligent laity. Presumably, other druggists did not like it, but if not, they had every freedom of competing on the same basis.

Some question may be asked as to the business relations of physicians to such a pharmacy. My own idea is that there should be none, further than the informal understanding that the physicians should, so far as possible, send their prescriptions to the man who refrains from extraprofessional and unprofessional drug business and also, so far as possible, keep them from passing into the hands of druggists competing on present methods. It may be objected that such a course will lead to the suspicion of interested motives. Undoubtedly, this suspicion will arise as it does under existing circumstances, and I am informed, with ample basis of truth in some instances. Druggists, on whose word I can rely, have stated that they have been practically forced to pay commissions although one cannot respect the stamina of a druggist who would yield to such a demand much more than the integrity of the physician who would make it. However, the charge of dishonorable motives is readily met in any particular case, and as the language appropriate in such an emergency would not be appropriate to this occasion, it is unnecessary to enter into details.

Antidote to Snake Venom.—Nearly 40 years ago Fayrer discovered that cobra venom which had been treated with potassium permanganate was harmless. This fact suggested to him the possibility of warding off the effects of the bites of venomous snakes by the subcutaneous injections of potassium permanganate into the tissue around the bite; his experiments, however, failed to fulfil his hopes in this direction. Within a very short time Sir Lauder Brunton has devised an inexpensive instrument which may be readily carried in one's pocket, and which has none of the disadvantages of the hypodermic syringe. The instrument consists of a small sharp-pointed blade set into a hollow wooden handle and provided with a wooden cap. In the hollow handle is placed a small quantity of the crystals of potassium permanganate and the cavity closed with a wooden cap. The method of treatment is to tie a loose band around the limb between the wound and the trunk, and insert a stick and twist the ligature up tight, thereby slackening or stopping the circulation in the wounded member. The region of the bite is then cut open with the knife-blade and the crystals of permanganate rubbed in. Dr. Rogers has tested the efficacy of this method of treatment. In the first place it was discovered that potassium permanganate not only destroyed the toxicity of cobra venom, but also that of the rattlesnake, the colubrine snake, two of the true vipers, and one of the poisonous water snakes of India. Thus every venom tried was rendered harmless by being mixed with the permanganate, and the assumption seems justified that this substance destroys the poisonous property of all snake venoms.—[*Collier's Weekly.*]

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

November 19, 1904. [Vol. XLIII, No. 21.]

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2. Esophagoscopy and Bronchoscopy. E. FLETCHER INGALS.
3. A New Material for Sutures and Ligatures: Tendons from the Leg of the Crane. CHARLES F. KIEFFER and D. A. RUSSELL.
4. Retarded Eruption of the Teeth: Their Liberation or Extraction. M. H. CRYER.
5. Multiple Abscess of the Omentum: Report of Two Cases. HUGO O. PANTZER.
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9. The New Ophthalmology and Its Relation to General Medicine, Biology and Sociology. (Continued.) GEORGE M. GOULD.
10. Differential Diagnosis between Pseudomembranous Angina of Syphilis and Diphtheric Angina. R. R. CAMPBELL.

1.—See *American Medicine*, Vol. VIII, No. 3, p. 95.

2.—Esophagoscopy and Bronchoscopy.—E. F. Ingals considers bronchoscopy infinitely superior to transthoracic bronchotomy in removing foreign bodies. Bougies may pass foreign bodies in the esophagus without touching them, and sometimes they are hidden by the shadow of the vertebras in a radiograph. If, however, the body is large, with sharp points and more than 26 cm. (10½ in.) from the incisors, esophagotomy is indicated. In bronchoscopy, the author uses a small lamp introduced to near the distal end of the bronchoscope and by this means the operation can be done in a light room, which is a great advantage to the anesthetist and is more convenient in the handling of instruments. The operator can move his head at will without interfering with the illumination, and can show the foreign body in position to other physicians present. In examining branches too small for the bronchoscope, one of these tiny lamps on a longer carrier may be passed directly into the bronchus. With Kirsten's lamp the moving of the head and the instruments themselves cut off the illumination and the forceps must be closed in the dark. In some cases of esophagoscopy a local anesthetic with a hypodermic of atropin to stop secretion is all that is necessary. To protect the operator's eye from the irritating exhalations of chloroform, a pane of glass may be held between it and the bronchoscope. [H.M.]

3.—Sutures and Ligatures from the Leg of the Crane.—C. F. Kieffer and D. A. Russell find that the leg tendons of large grallatorial birds make excellent suture material; strong enough for all practical purposes, readily made aseptic, slowly absorbable, and easily prepared. The source of supply is practically world-wide, and it is a comfort to the civil or military surgeon in isolated places to know there is reliable suture material at the end of his shot gun.

4.—Retarded Eruption of the Teeth: Their Liberation or Extraction.—M. H. Cryer presents illustrations of normal and pathologic conditions. He also gives the order of frequency of impaction. When impacted teeth can be brought into useful position the necessary steps should be taken, for if left they interfere with the nourishment of other teeth and surrounding tissues, and may cause neuralgia, cellulitis, etc. Canine teeth, when missing, are generally impacted; lateral incisors, third molars, and premolars may be absent through nondevelopment. After a longitudinal incision over the crown a spiral osteotome may be passed around the latter, thus enabling the insertion of a universal elevator between the tooth and bone, forcing the tooth outward. Sometimes a spiral osteotome must be used to remove the surrounding bone nearly to the apex of the tooth. The anterior cusps of a tooth are often interlocked against the concave distal portion of the second molar. In order to extract it, it is often necessary to cut these cusps away with either a carborundum disc or an osteotome. Cancellated tissue near a lower premolar (deciduous tissue) solidified and attached to the cortical bone, prevents the first and second molars from advancing; this tends to cause impaction and malocclusion of the third molar. The primary cause is that the upper anterior teeth have not moved forward enough. They should be forced forward. [H.M.]

5.—See *American Medicine*, Vol. VII, No. 25, p. 970.

6.—See *American Medicine*, Vol. VIII, No. 3, p. 95.

7.—See *American Medicine*, Vol. VII, No. 25, p. 975.

8.—See *American Medicine*, Vol. VII, No. 26, p. 1012.

9.—See *American Medicine*, Vol. VIII, No. 18, p. 750.

10.—Pseudomembranous Angina of Syphilis and Diphtheria.—R. R. Campbell refers to the pseudomembranous appearance which chancre of the tonsil may assume accompanied by well-pronounced general phenomena. As a rule the onset is slow accompanied by a temperature of 100° F. to 102° F., rapid pulse, anorexia, dysphagia, foul breath, anemia, and marked depression; both tonsils, pharynx and uvula may be involved. Removal leaves a bleeding surface. The glands are enlarged. Diagnosis should be based on culture tests as both syphilitic and diphtheric infection may be present. Syphilitic anginas are not rare, but if there is a suspicion of diphtheria, antitoxin should be used while awaiting the maturity of the culture test. [H.M.]

Boston Medical and Surgical Journal.

November 17, 1904. [Vol. CLI, No. 20.]

1. The Differential Diagnosis and Treatment of the Socalled Rheumatoid Diseases. JOEL E. GOLDTHWAIT.
2. Arthritis Deformans. E. H. BRADFORD.
3. Chronic Joint Disease. HENRY JACKSON.
4. Chronic Joint Disease at the Massachusetts General Hospital. H. F. VICKERY.
5. Rheumatoid Disease in Children. JOHN LOVETT MORSE.
6. Types of Rheumatoid Disease. C. F. PAINTER.

1.—Differential Diagnosis and Treatment of Socalled Rheumatoid Diseases.—Joel E. Goldthwait gives a summary of the experience gained by himself and others, chiefly at the orthopedic department of the Carney Hospital during the past 12 years. From the general class of rheumatoid disease five types have been separated. 1. *Chronic, villous arthritis*, or "dry joint," is common, and not a general disease, but represents a local process with a tendency to progression. The chief characteristics are the crepitation on motion and varying degrees of pain and tenderness. It is most commonly seen in the knee, and is apt to be associated with flat-foot, and with lack of muscular tone in the thigh and calf muscles. Treatment consists in improving the tone of all the joint structures, by massage, baths, etc. 2. *Atrophic arthritis*. This is commonly called rheumatoid arthritis, and is a progressive disease, resulting in marked distortion and crippling with the pathologic feature of atrophy, in which the joint membranes, cartilage, bones and even the skin show the change. There is first swelling about the joint, increase in synovial fluid and infiltrations of the membranes and periarticular structures. The joint structures show signs of atrophy, the cartilages soon beginning to disappear, as seen by the radiograph. The disease progresses for years. Tonics, fresh air, alkaline drinks, stimulating baths, forced feeding and massage are indicated. Small doses of the salicylates early in the disease may do good. 3. *Hypertrophic arthritis*, commonly called osteoarthritis, may be a general or a local process, and is characterized by thickening at the edges of the articular cartilages or at the attachments of ligaments, forming ridges or nodes which become ossified and interfere with joint motion. The essential feature is hypertrophy of the cartilage and bone. In the finger joints Heberden's nodes are the type. Etiology is unknown, and treatment consists in fixation or at least protection of the affected parts during the active or painful stage. Ankylosis may proceed so far that operative interference may be necessary. 4. *Infectious arthritis* includes cases commonly called acute or chronic rheumatism as well as many cases formerly spoken of as arthritis deformans and is the most common of the joint affections. The condition is the result of infection either local or general, and the infecting agent is apparently any one or more of several germs. Treatment is directed to the local condition and also to the systemic condition. The salicylates frequently do no good, and if they afford relief at all it is quickly noted after their administration. 5. *Chronic gout* is less understood than the other types because much less common. The chief characteristics are the deposit of sodium urate in the soft structures about the joints, with some bone absorption adjacent to the deposits. The disease is usually slowly progressive. [A.B.C.]

2.—Arthritis Deformans.—E. H. Bradford says the need of a thorough investigation of the chronic nontuberculous joint affections is evident. It is questionable in the present state of our knowledge whether a generally accepted terminology is possible. During the past year about 100 cases had come under observation at the Long Island Hospital in Boston, and great difficulty had been experienced in classifying them sharply, in the subdivisions of atrophic and hypertrophic. A few postmortems had been thoroughly made at the hospital; in some, all the joints being examined, showed various stages of progress. A full report of these findings will be made later. [A.B.C.]

3.—Chronic Joint Disease.—Henry Jackson says in many cases it is difficult or impossible even by röntgen ray examination to determine the exact pathologic condition in a given case. The investigations of Nichols prove that several essentially different pathologic processes may be the cause of chronic joint diseases that present identical clinical conditions. For the present, Jackson favors the retention of the old name, "arthritis deformans," as it at least suggests a marked clinical feature, whereas osteoarthritis is descriptive of a pathologic condition that is with difficulty recognized. We must still preserve the term "chronic rheumatism," since there are cases that are acute or subacute in onset, yet last sufficiently long to merit the term "chronic." Recent years have seen marked advance in two directions in the study of joint affections: (1) In nomenclature, in that we are inclined to drop the term rheumatism; and (2) in treatment by means of fixation apparatus, and in recognizing that we are combating an ailment somewhat similar in chronicity to tuberculosis. [A.B.C.]

4.—Chronic Joint Disease in the Massachusetts General Hospital.—H. F. Vickery gives a general review of the work accomplished in classifying and treating chronic joint affections. Patients with chronic joint disease show a growing tendency to apply to the surgeons for treatment. An encouraging feature of work at the above mentioned hospital is the greater precision in diagnosis, as evidenced in examining the records of cases in recent years. In the 10 years from 1893 to 1903 there were treated 871 cases of joint disease, classified as follows: Acute rheumatism, 591 cases; subacute rheumatism, 193 cases; and chronic rheumatism, 87 cases. [A.B.C.]

5.—Rheumatoid Disease in Children.—J. L. Morse states that there is the same confusion in terminology as in adults. All forms are met, but the disease is less common than in adults. One type supposedly peculiar to childhood was described by Still, and has since born his name, but it corresponds with Goldthwait's infectious arthritis, and the name of Still's disease should be dropped. The treatment is the same as in adults. Salicylates may do much harm. The prognosis is better than in similar conditions in adult life. It is probable that this type of infectious arthritis may be caused by many different bacteria, among which the tubercle bacillus may possibly be included. [H.M.]

6.—Types of Rheumatoid Disease.—C. F. Painter regrets the failure of investigators to subject pathologic observations to careful clinical scrutiny and to check clinical inferences by pathologic findings. So far as we have data to work with, it is better to rely on the clinical course and physical signs with röntgen ray evidence than upon any purely pathologic classification. The external seem to correspond with the internal appearances, so far as our pathologic knowledge extends. The atrophic joint is spindle-shaped, showing often a constriction above the line of the joint, with deformity frequently due to luxation or hyperextension. Inside the swelling is villous in the synovial capsule, with various metaplasias, no excess of fluid, the cartilage thinned and the bone atrophic. In hypertrophic arthritis from the outside, the joint is most swollen at the line of junction between the bones, or just to one or the other side. If other deformity than the swelling occurs, it is generally lateral. Inside there is often excess of fluid and very little villous arthritis; osteophytes are seen. The bone is not atrophic, but is usually dense, and the cartilage is thicker than normal. The infectious joint from the outside is more spindle-shaped than the atrophic without its constriction at the joint line, and is congested, while the latter is usually abnormally white. There are not commonly other deformities than the swelling. Inside the fibrous, as well as the synovial capsule, is infiltrated. Adhesions form easily, and fibrous ankylosis is commoner than in other types; the villi are smaller and more vascular, there is considerable fluid, pannous formation along the cartilage is common. The latter is not thinned nor the bone notably altered. [H.M.]

Medical Record.

November 19, 1904. [Vol. 66, No. 21.]

1. The Rational Reduction and Fixation of Maxillary Fractures. W. J. LEDERER.
2. The Bacteria of the Stomach. E. PALIER.
3. Experiments to Determine the Value of Oxygen in Combination with the Different General Anesthesias. J. T. GWATHMEY.
4. Are There Other Carriers of Malaria Than the Mosquitos? J. POWELL.
5. Congenital Absence of the Vagina: Operation. A. E. ISAACS.
6. The Study of Sprain and Its Treatment by Massage. G. NORSTRÖM.

1.—The Rational Reduction and Fixation of Maxillary Fractures.—W. J. Lederer says that the most satisfactory form of apparatus for the fixation of fractures of the lower jaw is the double interdental splint. He describes the technic of taking an impression of the teeth of both jaws in the modelling compound, and of producing the finished splint from the molds so obtained. The results secured by this plan of fixation are always good, and the author illustrates the modifications sometimes necessary by describing the details of an unusually difficult case.

2.—The Bacteria of the Stomach.—E. Palier gives the results of a bacteriologic study of the gastric juice, partly conducted under the direction of Professor Ficker, of the Hygienisches Institut der Kgl. Universität, Berlin. Gastric juice from 13 patients was studied, comprising cases of carcinoma, hypochlorhydria, and hyperchlorhydria. The author's conclusions are: Carcinoma ventriculi is bacteriologically characterized by the following trio: (1) The presence of *Vibrio geniculatus ventriculi;* (2) the presence of numerous staphylococci, and (3) the absence of the fungi, that is, mycelia. In none of the other cases was this combination met with. In simple hypochlorhydria *Vibrio geniculatus ventriculi* may be found, but any other microorganism may also be met with, either alone or in combination with it. In hyperchlorhydria, or chlorhydria, yeast and fungi, or rather, mycelia, are met with and also occasionally sarcinas, and a small bacillus which is Gram negative, and in cultures discharges an ammoniacal odor. For clinical purposes one needs to make cultures only in a test-tube of sugared agar by stab, and on slant agar by smear, leave them at 39° C. for 48 hours, or in summer in the room temperature. Ordinary neutral culture mediums are satisfactory, no acid mediums being necessary or advisable. The bacteriologic examination of the stomach contents should become as much routine work in clinical medicine as that of the sputum.

3.—Experiments to Determine the Value of Oxygen in Combination with the Different General Anesthetics.—J. T. Gwathmey publishes the results of an extensive series of observations made to determine the value of oxygen as an addition to general anesthetics. The conclusion reached is that oxygen increases the value of anesthetics as regards safety to life, without decreasing their anesthetic effect. The author's investigations were made upon a series of 100 cats, chosen so as to present as little variation in size, etc., as possible. The animals were killed by means of the various anesthetics in common use, administered by means of a closed mask, and with the admixture of either air or oxygen, the time required being noted in each case. The figures show that, regardless of the anesthetic used, animals lived twice as long with oxygen as when air was used. They usually die quietly with oxygen, and in convulsions with air. With oxygen the heart also continued to beat longer after respiration ceased. Efforts at resuscitation are more likely to be successful when oxygen has been used, and the after-effects of the anesthetic are reduced by this means. The experiments show that a mixture of chloroform and oxygen is more than twice as safe as chloroform and air, and is also safer than any of the other general anesthetics with air. This means that instead of having a very high mortality, chloroform given with oxygen is now as safe as ether. But all of the other general anesthetics are also increased in value by oxygen, and the use of this method of administration practically eliminates the percentage of danger which has hitherto been recognized as inseparable from the practice of anesthesia.

4.—Are there Other Carriers of Malaria than Mosquitos?—J. Powell agrees with several other recent writers who believe that mosquitos do not form the only medium of transmission of malaria. From May 28 to September 1, 1904, 10 cases of tertian intermittent fever were observed among the enlisted men in the command at Fort Hamilton, N. Y. All but three of these cases occurred in the same company organization, which last year also furnished more than its quota of cases. The barracks for this company are located on the highest elevation in the Post, overlooking the Dyker Meadows, a more or less salt marsh, and are situated but a short distance from the Post dumping grounds. They are also near the battery stables. With the exception of a single anopheles killed in Powell's own quarters, careful examination of the stagnant water in this vicinity, as well as search throughout the entire Post failed to reveal any mosquitos that differed from *Culex sollicitans* or *Culex pungens.* The author therefore concludes that there is some other unknown factor concerned in the transmission of malaria.

5.—Congenital Absence of Vagina: Operation.—A. E. Isaacs operated as follows on a patient with complete absence of the vagina, and apparently of the uterus and ovaries also: A circular incision was made through the mucous membrane, beginning just below the urethra in front, crossing over to and including almost the whole labium minus on either side, and from there well outside the vaginal orifice and on to and across the perineum. This gave quite a large circle of skin that, when loosened and pushed up into place, sufficed not only for the top of the cavity, but for a small distance down on the sides as well. Its attachments were loosened up freely whenever they were found to interfere with its being pushed up into place, until the whole length of the glass dilator, fully three inches, entered the newly-made canal. Now, while holding the dilator in, under tension against the vault, by tilting it to one side and retracting the margin of the orifice in the opposite direction, the gap of raw surface, one part at a time, was approachable for placing Thiersch grafts. These were taken from the patient's thigh and immediately placed in position. The dilator was removed for cleansing at the end of the sixth day, and then replaced for three days more, after which it was removed daily until the eighteenth day, when no further dressing was applied. Three months after operation, examination showed a canal of sufficient caliber to admit two fingers for two and a half inches. The patient stated that coitus was natural and conditions satisfactory.

6.—The Study of Sprain and Its Treatment by Massage.—G. Norström warmly advocates early massage and active and passive motion in cases of sprain. If physicians paid more attention to this method of treatment they would keep many patients out of the hands of "bone setters" and other quacks. Properly applied massage often cures in one or two days, cases that under the old treatment by immobilization would consume weeks. The massage first applied should be very gentle, so as not to cause irritation or too much pain, and then gradually be increased as the tension of the tissues subsides. Not until the inflammation has become less intense is it advisable to introduce real frictions. At first the sittings should be protracted, of at least 20 minutes' duration, and should, when possible, be repeated several times a day. The treatment may be summed up as follows: 1. At the initial stage, in the presence of classic phenomena, including a great deal of pain, effleurage. 2. When the pain has decreased a great deal, frictions and passive movements; later, active movements. Walking at the beginning ought not to be permitted. 3. In all sprains of the lower extremities, after every seance, application of a gauze bandage, a precaution all the more indicated when the patients are allowed to use their legs and walk. 4. In order to prevent real relapses, as well as to prevent the inflammation taking on a chronic character, the treatment ought to be kept up until complete restitution has taken place.

New York Medical Journal.

November 12, 1904. [Vol. LXXX, No. 20.]

1. A Case of Hodgkin's Disease. JOHN V. SHOEMAKER.
2. An Incomplete Report of Two Cases of Chronic Malarial Cachexia. LIONEL A. B. STREET.
3. Observations Drawn from an Experience of 11,000 Anesthesias. ALICE MAGAW.

4. Delirium Tremens. Thomas N. Vincent.
5. Primary Nasal Diphtheria: A Plea for Its Early Recognition and a Report of Three Cases. (Continued.) Anna S. Wilner.
6. Observations on a Series of Ten Cases of Disability of the Shoulder-joint. Harold W. Jones and Nathaniel Allison.

1.—Hodgkin's Disease.—J. V. Shoemaker reports the case of a man of 52 in whom there had been progressive enlargement of lymphatic glands in various parts of the body for about two years. He was emaciated, extremely weak, unable to walk without assistance, and was very anemic. In both groins and in the right axilla were glandular tumors as large as an apple, and there was a general enlargement of lymphatic glands. The liver and spleen were much enlarged. An examination of the blood showed hemoglobin 58%, erythrocytes 2,440,000 leukocytes 5,200. The patient was given daily exposures to the röntgen rays. A high vacuum tube was used and the entire body exposed. The glands began to diminish in size at the end of a week and at the time of death, which was 16 days from the commencement of the treatment they were only about a third their original volume. [C.A.O.]

3.—Experience with Anesthetics.—Alice Magaw gives some observations drawn from an experience of 11,000 anesthesias. The writer has never had a death directly from the anesthetic. Ether, administered by the drop method, was the anesthetic of choice. The patients in all cases were anesthetized in the operating-room while they were being prepared for the surgeon. By so doing a more rapid surgical narcosis with less of the anesthetic is claimed. Deep respiration, regular breathing, accompanied often by snoring; a relaxed jaw as well as relaxed muscles, are the signs to rely upon for complete surgical narcosis. In ether anesthesia the pupil does not possess the important significance that it does in chloroform. The general method of giving chloroform is quite like that of ether, giving it in less quantity and with more air, and with the regular drop. The author states that she has tried all the methods and anesthetics that have seemed reasonable, such as nitrous oxid gas as a preliminary to ether, or chloroform and ether, and in all cases she has found that these combinations, like all mixed anesthetics, are either unnecessary or harmful. [C.A.O.]

4.—Delirium Tremens.—T. N. Vincent believes that these unfortunates should have greater care and more sympathy than they generally receive. In regard to treatment, the patient should have, as far as possible, absolute rest of mind and body, and should be in a room divested of everything that could assist in the stirring up of delusions, illusions, and hallucinations. A very careful attendant is almost always necessary. Light nutritious food should be pushed to the limit of tolerance and kept up day and night. Vincent urges the administration of capsicum in large doses, and the administration of cathartics, calomel, followed by salines. As to the general and nervous systems, there is nothing to take the place of, or to equal strychnin, administered hypodermically. It is, by reason of the congestion always present, a corrective agent to the venous and arterial stagnation. The writer also mentions the extreme utility of digitalis, which is a physiologic corrective of the pathologic condition so marked in delirium tremens, and this agent should be pushed with the end to produce, as far as possible, its physiologic effect. He is strongly opposed to the administration of opium or its derivative alkaloids, to the coal-tar hypnotics and their secondary derivatives, and to the administration of hypnotic agents in general, among them potassium bromid. He is opposed to the administration of whiskey, except in rare cases. If the heart can stand it, and the patient's physical condition warrants it, the writer has found chloral an exceedingly effective agent. [C.A.O.]

6.—Disability of Shoulder-joint.—H. W. Jones and N. Allison report a series of 10 cases of disability of the shoulder. There is a history of injury in all the cases, but in two or three it does not seem to be a definite causative factor. Pain, slight at first, but gradually increasing in severity, accompanied by a restriction of motion, has been the prominent symptom. The pain has been localized almost invariably at the point of the shoulder, radiating down the inner side of the arm and, occasionally, across the scapula. In the chronic cases the patient has complained more on account of the stiffness and disability than on account of the pain. Sleeplessness and irritability, with loss of flesh have been noted in most instances. Swelling was observed in but one case in the acute stage. In subacute cases some atrophy was observed; in the great majority of instances, while in all those of long standing, a marked degree of atrophy was noticeable. The atrophy involved the muscles forming the shoulder girdle. Motion in the acute cases was limited by the muscular rigidity, while in the chronic ones it was either absent or very much limited by the contractions and fibrous adhesions about or possibly within the joint. The skiagraph showed no joint changes. The authors believe the lesion to be circumarticular rather than intraarticular. The affection runs a definite course and, untreated, as a rule, results in permanent disability. In the acute stage, fixation affords complete relief from pain, and in the majority of instances, freedom from subsequent disability. In the chronic stage the disability due to the fibrous ankylosis may be relieved by manipulation under an anesthetic. Much depends upon the patient's willingness and ability to follow out the exercises which constitute the after-treatment. About 10 weeks' time is required for complete relief from the disability. [C.A.O.]

Medical News.

November 19, 1904. [Vol. 85, No. 21.]

1. A Case of Enteric Fever Complicated by Polyuria. J. C. Wilson.
2. Report of the Medical Director of St. Joseph's Sanatorium to the Advisory Board. E. S. Bullock.
3. Feigned Insanity: Malingery Revealed by the Use of Ether. Charles G. Wagner.
4. A New Case of Chloroma with Leukemia, with a Study of Cases Reported Since 1893. George Dock and Aldred Scott Warthin.
5. Complications of Diphtheria; with Suggestions for the Feeding, Medicinal and Hygienic Treatment. Louis Fischer.
6. Uncinariasis as Seen in North Carolina: Its Frequency, Etiology, Pathologic Significance, Symptoms and Treatment. J. L. Nicholson and Watson S. Rankin.
7. A Case of Pneumomelanosis. Frank I. Given.

1.—Enteric Fever, with Polyuria.—J. C. Wilson reports a case with prolonged and peculiar delirium, in a male adult, complicated by massive polyuria developing in the midcourse of the attack and subsiding with the fall of temperature. The highest amount of urine voided was 215 oz. Polydipsia was as marked as polyuria. The delirium abated only after the plunge baths, when the mind remained clear for a short time. The writer has not found an analogous case in literature. [H.M.]

2.—St. Joseph's Sanatorium.—E. S. Bullock reviews the work done in this institution for tuberculosis, situated where the climate is ideal. He believes in only sufficient exercise to maintain appetite and digestion. To prevent infection of new areas he disinfects the air passages daily by inhalations of trikresol and methylendiamin. The general treatment is physiologic, as long as things are going well. If fever persists, he finds streptolytic serum valuable, and when there are cavities and extensive fibrosis, and the sputum is difficult to raise, coccillana is useful. Calcium chlorid is potent in chronic blood spitting. Guaiacol, creosote, and benzosol are indicated in febrile cases when the serum is insufficient to remove all the mixed infection. Ichthyol prevents undue loss of proteids. The simple change to the New Mexico climate often causes chills and sweats to disappear and the temperature to drop several degrees. Hemorrhage is rare. The time for cure in incipient cases is longer than is generally supposed. Anemia is the only blood finding of importance in tuberculosis, and the appearance of the patient indicates this better than any instruments of precision. Prognosis depends on the extent and gravity of the mixed infection. The size and character of the lesion is of relative insignificance. There is nothing specific in climate, but there is something inhibitory to progress of the disease. The change stimulates metabolism and the patient can be kept out of doors without urging. [H.M.]

3.—Feigned Insanity Revealed by Ether.—C. G. Wagner describes a criminal condemned to death, who for 18 months adopted the expression and manner of imbecility, appeared unable to walk without assistance or to stand erect, and the muscles of whose legs were affected with a coarse tremor whenever he used them. After being profoundly etherized, as consciousness returned he walked across the room without difficulty, and became talkative and profane and coherent, and finding that malingering was now useless, he confessed to the deceit and was duly executed. [H.M.]

5.—Complications of Diphtheria.—L. Fischer states that the toxemia seems to inhibit the production of HCl, while antitoxin stimulates the glands; 5,000 units are not sufficient in severe cases; 10,000 may be injected in 24 hours. Dilute HCl may be given after feedings or the food may be predigested. When food is refused, gavage should be remembered. When vomiting is obstinate, rectal feedings should be given by a trained nurse or the physician. In nasal cases irrigation with saline solution is important. By producing liquid stools we eliminate the toxin. Calomel is the best drug. The heart may be sustained by alcohol and strychnin, musk, camphor, or hypodermoclysis. The kidneys must be watched and stimulated if necessary. [H.M.]

6.—Uncinariasis.—J. L. Nicholson and W. S. Rankin find contrary to the general opinion, but in accordance with other special investigators, that this disease is common in the United States. They review its history from ancient times, describe the anatomy of the worm and discuss the possible routes of infection: 1. Taking food contaminated with fecal matter, in other words dirt eating. 2. Through drinking water. 3. Through the skin in the lesions of ground itch. To produce ground itch the five factors are bare skin, soil, feces, moisture, and a certain temperature. Ground itch is an infectious dermatitis due to the entrance of the larva carrying certain bacteria. Loose's experiments demonstrate this. The negro is partially immune. The worm flourishes in a moist soil, dryness causing its depth. Dirt eating and infected water may account for scattered cases, but of 147 of the writer's cases etiologic records were obtained in 118 and all but one of these gave a history of ground itch. The severity and number of attacks of the latter bear a definite relation to the severity of the uncinariasis. The disease is associated with a period when the child goes barefooted. The authors have observed what may be termed acute uncinariasis and when the patient ceases to be troubled with ground itch it is the rule for improvement to begin. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Diagnosis and Therapeutic Value of Lumbar Puncture in Meningitis.—After reviewing the value of lumbar puncture from a diagnostic and therapeutic standpoint, T. Wertheimer[1] relates the case of a boy, who had meningitis following pneumonia. As the pneumonic symptoms decreased, the meningeal symptoms increased and the child became daily weaker; at last the child could neither see nor hear and lay absolutely unconscious; the ophthalmoscope showed double choked disc and the corneas were desquamating. After a lumbar puncture, during which 15 cc. of cerebrospinal fluid was removed, the condition of the child improved visibly. The punctures were repeated every few days, and amounts varying from 15 cc. to 80 cc. were removed, in all 560 cc. Bacteriologically, the fluid was sterile. The child recovered within two months. Another similar recovery after 18 days is also recorded. These two instances lead him to proclaim that lumbar puncture has relieved the prognosis of meningitis in children to a certain extent, and he considers it particularly valuable in meningitis following pneumonia or any other acute infectious disease, when we have reason for assuming the presence of a nonbacterial, serous meningitis. The puncture should be repeated not only to evacuate the cerebrospinal sac when exploratory puncture discloses a high pressure, but also whenever there are general symptoms, especially eye findings, which indicate pressure on the brain. By so doing we may sometimes succeed in saving an otherwise doomed child, and also restore the already affected brain functions, the sight in particular. [E.L.]

Diagnosis of Uncinaria Infection by Blood-examination.—A. E. Boycott[2] presents a further contribution to the subject of uncinariasis, dwelling particularly on the condition of the blood. His results in a large series of cases show that 94% had eosinophilia of more than 8%, with an average of 18%. The statistics are quoted to show that there are comparatively few affections which give rise to eosinophilia comparable to this either in magnitude or frequency. As to the practical value, Boycott says there are two serious objections to the method: 1. It is of uncertain value in ascertaining whether an infected subject has been freed from the worms by treatment. 2. It cannot yield evidence of uncinaria of a character so positive as would justify the immediate administration of proper treatment. In every case an absolute diagnosis can be made only by finding eggs in the stools. The method, however, is proposed as a simple and accurate way of investigating a large number of men easily and quickly to see if suspicion of sufficient strength is aroused thereby to justify the troublesome process of obtaining specimens of stools from a number of men. If specimens of blood from 10% or 20% of the men in a mine fail to reveal eosinophilia, it may be assumed that the mine is free from any extensive infection. [A.G.E.]

Chronic Carbon Bisulfid Poisoning.—The fact that some authors have in the past few years thrown some doubt on the specific toxic influence on the nervous system by carbon bisulfid, has led Köster[1] to report the details of four cases of chronic poisoning with this gas. They occur very frequently in and about Leipzig, where large numbers of people are employed in rubber factories manufacturing articles from rubber Most of the employed are girls. The cases vary in intensity, the lighter ones being associated with dizziness, and depression leading the patient to shed tears very readily. Very often, and also at the outset of the condition, the disease is characterized by a transient intoxication, putting the individual into an abnormally hilarious mood, and followed by a weariness in the limbs, which in cases continuing under the deleterious influences of the poison soon leads to flabbiness of the muscles affected, and later to paralysis and atrophy of distinct groups of muscles, especially the peroneal group. The psychic disturbances are very variable, melancholia existing in some, others passing through into a state of mania. Köster does not consider the disease to be exclusively a peripheral neuritis; a polyneuritis would not explain the pupillary disturbances, the psychic phenomena, and the tremor. The poison enters the system through the respiratory tract, and circulating through the blood, makes its pernicious activity felt throughout the entire nervous system. [E.L.]

Treatment of Pulmonary Tuberculosis.—Albert Abrams[2] says that, owing to the different vitality of individuals, prognosis varies, the presence of cavities in the lung even being no index of unfavorable prognosis. The tuberculin test as an early evidence of tuberculosis is condemned. Abrams' experience leads him to the conclusion that if he can exercise full control of the tuberculous individual by carrying out home treatment of the disease he can obtain better and more permanent results than can be secured in a sanatorium. These institutions exert a depressing influence on many patients. The tuberculous prefer the comforts of home life to that of a hospital. The method of treatment employed by Abrams is briefly outlined, the essential feature being a tent in some open air space, usually a garden. An intelligent nurse during the rest-cure period, while essential, is not absolutely necessary. The results achieved during a period of 18 years have been almost phenomenal. Emphasis is placed upon the necessity in breathing exercises for those movements which promote the expiratory phase of respiration. An aphorism of Humphrey's should be brought home to the cured tuberculous patient to guide him to the pathway of correct living as the only adequate safeguard against a relapse, the aphorism being "nothing ever gets quite well." [A.G.E.]

Common Forms of Headache.—A. B. Frazee[3] classifies headaches as: 1. Toxic headache, met with in the course of fever, uremia, constipation, gout, and rheumatism. 2. Headache occasioned by disturbances of blood-pressure in the brain, either congestion or anemia. 3. Headache produced by irritation or disease of the organs of special sense, as the eye, nose and ear. 4. Neurotic headaches from hysteria, neurasthenia and allied disorders. 5. Headache produced by brain disease and lesions, such as tumors and meningitis. These forms are considered at length, the statement being made that the diagnosis of ocular headache does not, as a rule, demand special training in diseases of the eye. First in importance here is the occupation of the patient in determining whether the eyes are put to excessive use. Headache, occurring soon after an attack of exhausting disease, should lead one to suspect the eyes as a cause. Quite often persons are met who suffer from two kinds of headache, the two being manifested at the same time or alternately. Especially are we apt to find the combined symptoms of eyestrain and congestion. Frazee does not class migraine as one of the frequent forms of headache, these cases becoming less in number as their similarity to cases of eyestrain is being recognized. [A.G.E.]

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[1] Münchener medicinische Wochenschrift, 1904, li, 1004, No. 23.
[2] Journal of Hygiene, October, 1904.

[1] Deutsche Zeitschrift für Nervenheilkunde, 1904, xxvi, 1.
[2] Medicine, October, 1904.
[3] Buffalo Medical Journal, November, 1904.

Cardiac Disturbances during Scarlet Fever.—Schmalz[1] has made a clinical study of 191 cases of scarlet fever, and has observed that in 35% of these abnormal conditions of the circulatory system made their appearance. The greater number of these complications did not occur in grave instances, associated with high fever, and extensive pseudomembranes, but rather in light scarlatina. The disturbances varied from a slight arythmia to a marked valvulitis. A beginning or existing cardiac disturbance was often indicated by a pulse, which remained high in spite of the temperature having reached normal, or one showing irregular variations of from 20 to 40 beats during the day; a bradycardia existing for some days and changing to tachycardia, indicates almost invariably cardiac disease. Febrile murmurs heard during the course of the disease may be transient, as may also be an accentuated second pulmonic sound, but often are they the precursors of permanent lesions. In 14% of the patients was cardiac enlargement and displaced apex beat observed. Arythmia is common, but subjective disturbances are not. Of 23 cases, in which a preceding rheumatic affection had been noted, 10 had cardiac lesions, while 70 others with such lesions had no history of rheumatism. The author believes the two conditions to be independent of each other. Preexisting cardiac lesions, of which 26 were observed, were not unfavorably influenced. No case unaccompanied by sepsis or nephritis terminated fatally, but in 29 did the cardiac symptoms persist at the time the patient was dismissed. Fifteen had mitral insufficiency, 9 a systolic murmur, and in 2 marked dilation without murmurs was noted as late as the sixtieth day after the disease. Reexaminations of 24 of these patients were made at a later period (6 months to 5 years after); in 16, permanent mitral insufficiency was observed, while 2 had only a mitral murmur; in 6 the heart had returned to normal. In 5 of the patients the symptoms at the time of discharge were but insignificant, to become aggravated later. Very few postmortem observations were made by him, and of those but 9% had recent valvular changes; the disease seems to be almost exclusively a myocardial process. He concludes from these observations that a greater amount of care should be accorded the cardiac activity of scarlet fever patients and convalescents. A number of clinical histories are quoted to illustrate the various results of his observations. [E.L.]

Unusual Effect of Hypodermic Injection of Morphin.—W. B. Ely[2] records the effect upon himself of a hypodermic of morphin, taken during the course of an attack of sciatica, this medication having been employed occasionally during many years. At the time mentioned, a third of a grain was injected into the thigh, and was followed in 20 seconds by an intense tingling, burning sensation over the outer aspect of the thigh, through the popliteal space and over the calf of the leg, also into the perineal region; a few seconds later the same sensation appeared in the right side of the face and extended to the nose, where it gave rise to an attack of sneezing, violent in character and rapidly as he could draw his breath. The sensations over the body were much like those which accompany hives, but none appeared. The attack was over in less than two minutes, but while it lasted, was severe enough to become alarming. The interesting point is, why the fifth cranial nerve should have shared irritation with those near the point of injection. One of the points brought up is the nature of urticaria and the possible relief by the administration of strychnin and other nerve stimulants, this being suggested by the fact that morphin may bring it on by partially paralyzing the nerves, a frank attack of urticaria having followed an injection of morphin three years before. [A.G.E.]

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[1] Münchener medicinische Wochenschrift, 1904, li, 1418, No. 32.

[2] Western Medical Review, October, 1904.

The Fight against Ankylostomiasis in Rhenish Westphalia.—H. Bruns[1] reports the diminution that has occurred in the number of cases of ankylostomiasis; they had fallen from 13,621 to 3,663 in the course of nine months. The only drug employed by him was felix mas, which expelled the parasites in about 75% of the cases in one treatment. In only a few cases could evil results be traced to the drug. Reinfection is prevented by education of the masses regarding the nature of the disease, and supplying to them numerous sanitary baths and lavatories above and below ground. Disinfection of the mines has been abandoned. He expresses the hope that in a short time this disease will be a thing of the past. [E.L.]

The Rachitic Hand.—Henry Koplik[2] describes a peculiar manifestation of rachitis which he says may easily be taken for syphilitic disease of the bones if the history is not carefully sifted and considered. The symptom or sign is that the middle of the diaphyses of the phalanges of both hands are bowed and thickened; there is also kyphosis of the lower dorsal region of the spine, which is quite flexible. The radiograph shows that the soft parts are really bowed by the thickening of the bones of the phalanges and are not the causation of the peculiar form of the disease; in other words, the appearance of the hand is not caused by any fatty tissue which may be present in the fingers. The fingers are usually longer and more tapering than is common with the hand of an infant of the same age. This seems to be due to a laxity of the ligamentous structure of the joints of the phalanges. The question is one that may always be cleared by the röntgen ray. [A.G.E.]

The Tuberculin Diagnosis in the Sanatoriums for Lung Diseases.—Bandelier[3] injected 500 patients, who were known to be tuberculous, with tuberculin, and no fewer than 92.6% of them reacted positively; the other 37, who presented either a distinct tuberculous history or had slight objective signs, remained, as far as could be determined, perfectly well. Of 114 clinically cured at the time of discharge, 43 (38%) had ceased to react, and of 22 of these, which were examined at variable periods (12 to 20 months) afterward, 20 were still without recurrence. He makes the following statements: 1. In the present state of our knowledge, tuberculin is the most trustworthy agent at our hands, to produce an early and correct diagnosis of tuberculosis. 2. The general employment of tuberculin is therefore to be enforced not only in sanatoriums and examination stations, but also in hospitals, and among practising physicians. 3. Koch's method of injection should be adhered to very strictly, as only thus can we get uniform results. 4. The tuberculin diagnosis is the best method to establish the diagnosis "cure." He emphasizes the absence of danger with the tuberculin method, stating that he had not a single untoward result. [E.L.]

Classification of Hydrocephalus with Report of a Case.—William C. Krauss[4] says that various authors describe different types of this condition and from these he has formed his own classification which is largely a pathologic one. He divides hydrocephalus into the acute or inflammatory and the chronic or noninflammatory; the acute is subdivided into the external type, tuberculous meningitis in essentially every instance, and the internal, which is almost always a serous meningitis. Under the chronic type there are the congenital or developmental varieties and the acquired or obstructive variety. A case of pseudotabes associated with acute internal hydrocephalus is detailed. Death was due to intracranial serous meningitis which produced the hydrocephalus. [A.G.E.]

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[1] Münchener medicinische Wochenschrift, 1904, Nos. 15 and 16, 645 and 715.

[2] Archives of Pediatrics, October, 1904.

[3] Beiträge zur Klinik der Tuberculose, 1904, ii, 138.

[4] Medicine, October, 1904.

Rest Cure in the Treatment of Chronic Constipation.—Ismar Boas[1] says that each of the different curative methods for chronic constipation is frequently attended with little or no success. Mineral waters often are found of but little value, and massage is overrated quite as much as is the first named treatment. In some cases massage is beneficial, but in the great majority, no matter how long it is employed, it does not lead to the desired result. What is true of mineral waters and massage is equally true of electrotherapy, hydrotherapy, and dietetics. In case of spasmodic constipation, treatment by dietetics or the socalled anticonstipation diet, is of little value, whereas treatment with enemas, particularly of oil, although not attended with lasting results, is the best palliative treatment at our command. In the treatment of cases which he calls emotional constipation, Boas has obtained excellent results from the rest cure. A patient is absolutely isolated for 14 days, and is not allowed to leave his bed. None of the measures mentioned are employed in this treatment, even purgatives and enemas being withdrawn. The nourishment of the patient must be regulated for each day and each meal. No effort is made to secure increase in the patient's weight, though great importance is attached to the patient's taking his food regularly. The treatment is kept up for from four to six weeks. The effect of this treatment has led to the conclusion that the prescribing of physical exercise in cases of chronic constipation due to defects in nourishment, is most improper, even in persons of sedentary habits. But few good results have been obtained from long walks, mountain climbing, bicycle riding, and like exercises. [A.G.E.]

Primary Pulmonary Actinomycosis, Proceeding from the Left Apex.—Ermin Von Graff[2] describes a case to which he attaches importance on account of its supposed rarity. In spite of statistics to the contrary, he believes these cases are of more frequent occurrence than is generally supposed for the simple reason that they are not recognized as actinomycoses on account of the difficulty of making a prognosis, the lungs being available only for purposes of percussion and auscultation, and sputum examination yielding in many cases negative results. The typic, clinical picture of the disease and the symptoms which permit of a correct diagnosis, have been divided by Israel in three stages: 1. Limitation of attack to the lung itself. 2. Pleural metastasis and pleural contraction with rétrécissement of the involved parts of the chest and pleuritic exudations. 3. Pleural metastasis and tumorous swellings of the epidermis with fistulous eruptions. Israel adds as an important point for differential diagnosis, especially in regard to tuberculosis, the immunity of the apex in the first two stages, the favorite seat of the actinomyces being the medial and inferior lobes. While admitting that this is the typic picture, the author of the paper lays stress upon the importance of not losing sight of deviating cases, especially as to localization and involvement of the thoracic wall. The author proceeds to describe one of his own cases in a female of 31, which ended fatally 13 days after admission to the clinic. Anamnesis (hydrocephalus at birth, which took place in six and a half months after pregnancy, measles, black pox, scarlet fever, diphtheria, typhus, dysmenorrhea) and the general condition at time of admission, warranted the diagnosis of pulmonary tuberculosis, whereas the postmortem and microscopic examination of stained pus preparations revealed primary localization of actinomyces in the superior lobe and more particularly in the apex, while there was no pleural metastasis, much less a fistulous eruption. The cause of death was therefore recognized as chronic left pulmonary and pleural actinomycosis, and actinomycotic superficial caries of vertebral column. The author holds that in the present state of knowledge, which renders a correct diagnosis impossible except at the postmortem table, primary pulmonary actinomycosis may be of more frequemt occurrence than statistics bear out, and advises pathologicoanatomic examinations in each case of chronic tuberculosis, especially if the sputum examination during patient's lifetime has given insufficient results. [H.R.]

Diet in Nephritis.—Koster[3] has made a series of careful observations on a number of patients clinically, with exact chemic methods, and draws therefrom the following conclusions: In acute nephritis, uremia and the acute exacerbations of chronic nephritis a pure milk diet should be observed, and it should not be discontinued until all the acuter symptoms have disappeared. Milk alone or milk and vegetable diet ought always be used at the commencement of the treatment of a case of chronic nephritis, but when the albumin and sediment have reached a constant level then a mixed diet may be gradually introduced. Lardaceous disease is, however, a strong contraindication against mixed food. In edema and ascites, a mixed diet may be continued if the patient specially desires it, although its administration must always be accompanied by daily examination of the urine for urea and albumin. If many red corpuscles are found in the sediment, then flesh food should only be taken in small quantities. There is no difference in the effect of white or red meats. Between the meat periods milk diet should be interpolated and the urinary constituents estimated. The albumin contents of the food do not materially alter the amount of the urinary albumin. The urine passed immediately on rising contains the least amount of urine albumin; that passed after breakfast has the largest percentage, although individual variations are not infrequent. [E.L.]

Influence of Laboratory Feeding on Infants.—Maynard Ladd[1] reports the result of laboratory feeding on 216 infants with disease of the gastroenteric tract, the disease being classed under the headings of the various acute and chronic gastric and intestinal indigestions. Ladd considers at length the weight index as determining the progress of the child under treatment. The weight index is found by dividing the weight of the infant by the weight of the average infant of the same age. It enables one to express in definite percentages the relative progress made by infants of different degrees of development. The cases reported are placed under four groups: 1. Patients which maintained or increased their weight index while on laboratory milk and entirely recovered from the acute gastric and intestinal symptoms for which they were brought to the clinic; of these there were 109 cases. 2. Patients which showed a loss in the weight index and yet recovered from acute, gastric, and intestinal symptoms, and showed material gain in weight. This group included 58 cases. 3. Patients which mostly recovered from acute symptoms, but whose weight was not materially increased. Of these there were 37 cases. 4. The fatal cases, which were 12 in number, making a mortality of 5.6% in the series of 216 cases. [A.G.E.]

Progressive Lacunar Cerebral Sclerosis of Arterial Origin.—J. Grasset[2] gives this title to certain cases of progressive cerebral disease, characterized by a series of very mild apoplectic strokes, caused by a condition of arteriosclerosis. The latter may be local or generalized. The principal cerebral lesions consist of areas in which there is an atrophy and disintegration of the nervous elements surrounding the diseased arteries; the lumen of the latter is diminished, but seldom entirely obliterated. These lacunar foci frequently heal, forming a scar or rarely a cyst. The causes of this condition are naturally those of arteriosclerosis, among which are mentioned senility, arthritism, alcohol, tobacco, uremia, etc. The symptoms are always referable to the seat of the lesions, never to their nature. The onset of the cerebral sclerosis is usually sharply defined, often by a mild stroke. Hemiplegia is a frequent consequence, but is always incomplete and more or less transitory; it is apt to recur. Motility never returns completely to the normal state; among the permanent results are the hemiplegic gait, an awkwardness of movement, defects in speech, and partial facial paralysis. The tendinous reflexes may be exaggerated. There may be various forms of paresthesia. Among the psychic symptoms manifested are changes in the character and disposition, inability to fix the attention, defects of memory, violent emotions, and intellectual decline. This form of cerebral sclerosis may simulate true cerebral softening, pseudobulbar paralysis, general paralysis of the insane, an ordinary hemiplegia, chronic uremia, epilepsy, or labioglossopharyngeal paralysis. Regarding treatment, the author considers the iodids useless and strychnin dangerous. He advocates mercurial treatment, together with the phosphates, and a carefully regulated diet and mode of living. He also employs the actual cautery, applied to the back of the neck. [B.K.]

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[1] International Clinics, Vol. iii, Fourteenth Series, 1904.
[2] Zeit. für Heilkunde, October, 1904.
[3] Nordiskt Mediciniskt Arkiv, 1904, xxxvi, No. 14.

[1] Archives of Pediatrics, October, 1904.
[2] La Semaine médicale, October 19, 1904.

Cerebrospinal Fever, with Special Reference to Treatment with Ergot.—C. Chase[1] reports eight cases of cerebrospinal fever which came under his observation during the Brooklyn epidemic of last year. The occurrence of acute rhinitis preceding every case inclines him toward the theory of infection through the nasal sinuses. From this is derived a suggestion that the only possible preventive treatment would be the hygienic treatment of acute rhinitis during an epidemic of the disease. Chase doubts if this would be sufficient, but believes it worth trying. After considering the treatment in general, Chase speaks particularly of the value of ergot, which he has been using more freely of late than formerly, and with quite satisfactory results. Ergotin is given internally in all cases, except when hypodermic use is necessary because of vomiting. Moderate doses produce no effect; the usual dose given was 0.195 gm. (3 gr.) of ergotin, equivalent to about 2 gm. (30 gr.) of ergot, per hour, double this amount being given on certain occasions. These doses gave no evidence of poisoning, but the drug was never given for long periods without intermission. The effect was usually seen in from 24 to 48 hours, and consisted in a gradual remission of all the symptoms, and especially those due directly to intracranial and spinal congestion. The absence of complications in these cases was noticeable. [A.G.E.]

Remarks on von Behring's Opinion Concerning the Origin of Pulmonary Tuberculosis.—N. Ph. Tendeloo[2] brings forth some strong arguments against Behring's view, that pulmonary tuberculosis has its origin usually in the migration during early childhood of tubercle bacilli through the mucous membranes of the digestive tract, and that the milk taken by nurslings is the chief source of pulmonary tuberculosis. If the infection were enterogenic the first and at first exclusive glands to be affected would have to be the mesenteric, and no intrathoracic infection should be considered of enterogenic origin unless the mesenteric glands and the intestines are also tuberculous. His own experience and that of most pathologists, however, has been that enterogenic lymphogenic tuberculosis is very rare in general. There are but two statistics in literature showing a comparative frequency of intestinal tuberculosis and he discredits them. Behring's view is built up of hypotheses almost altogether; he found that young guineapigs are easier infected through the intestinal tract than adults, and at once concluded the same to be the case in man. He believes, and according to the author, without reason, that all the milk taken by nurslings, even that which has been cooked, contains a sufficiently large number of living tubercle bacilli as to produce an enterogenic infection, and that these bacilli set up a focus at once in either one of the abdominal organs, the lung or the bronchial gland. Tenedeloo believes that the dust pigment to be found in the lungs and bronchial glands finds its way there not through the inhaled air, but is swallowed with the saliva, reaching these organs through the lymph and blood stream. [E.L.]

Mucomembranous Enteritis of Traumatic Origin.—C. Vinay[3] reports three cases, in which a trauma seemed to give rise to attacks of mucomembranous enteritis, or mucous colitis, as it is termed in this country. The trauma was never very violent, but the intestinal symptoms were always associated with a neurasthenic condition. Their severity had no relation to that of the contusion, and they consisted principally of crises of diarrhea with colicky pains. The stools were glairy, and contained pseudomembranes, made up of mucus. The treatment employed by the author consisted of tonics, intestinal irrigation, regulated diet, change of air and scene, light massage, etc. [B.K.]

Pneumococcic Endocarditis.—H. B. Preble[4] furnishes a review of this subject, which he says has not been considered at length since 1885, and reports three cases. In all, 132, with clinical details, have been published. These are fully analyzed and tabulated; 92 were males, and 40 females. A point emphasized is that the pneumococcus can excite an endocarditis in the absence of inflammation of the lungs. Endocarditis complicates pneumonia in about 1% of all cases. Endocarditis due to the pneumococcus forms about 25% of all cases of bacterial endocarditis. This organism may cause endocarditis of any degree of intensity, but in more than three-fourths of the cases it is of the severe or socalled malignant type. The exudate is usually massive, but there is less disposition to ulceration and perforation of the valves than in endocarditis due to the streptococcus or staphylococcus. The pneumococcus attacks the aortic valve more often than the mitral, and relatively twice as often as the other organisms commonly causing endocarditis. It attacks the mitral valve relatively only half as often as other organisms, while it attacks the tricuspid about 20 times as often. Infarcts occur in about half the cases. Prognosis is extremely grave, largely due to the fact that 60% of the cases have a complicating meningitis. The treatment consists merely in rest, absolute, with good supporting food and stimulation as required. [A.G.E.]

Ankylosing Tuberculous Rheumatism.—According to A. Poncet and R. Leriche,[1] tuberculous rheumatism may present itself in the form of a plastic arthritis, which almost invariably leads to ankylosis of the affected joints. One or more, sometimes all the articulations may be affected, those of the vertebras being the most frequently involved. This form of tuberculous joint disease is distinguished from white swelling, from tuberculous osteoarthritis, and from chronic deforming tuberculous rheumatism by the presence of exclusively inflammatory lesions and by the absence of true granulations, fungous growths, caseous infiltration, etc. It is probably the result of a toxemia of bacillary origin, the tuberculous poison arising either from distant foci of disease or from a bacillemia. It is always an indication of an infection that can become more virulent when it strikes certain other viscera. The prognosis as regards function of the affected joints is always bad. [B.K.]

Preventive Treatment of Scarlet Fever.—H. E. J. Biss[2] defines a fever hospital as an institution where patients are segregated from their fellows and aggregated together, and it is this want of isolation which is responsible for much of the mischief of the system. The type of the disease changed in 1874, not only in Great Britain, but also in countries in which the aggregation principle has not been adhered to as in the first named. This change is as mysterious as is the original habitat of scarlet fever. Neither temperature, moisture, nor hygiene seem to exercise any influence, and it is hardly rational to hope, with so little information, to successfully prevent it. Many cases are undiagnosable, and ephemeral attacks are disastrous to any "isolation" system. The disease is so benign it is a question whether it warrants a large expenditure of money to combat it. Measles and whoopingcough are far more dangerous. A greater relief would be accorded humanity were the fever hospitals devoted to the treatment of tuberculosis. A fever hospital has been described as "a place where you go in with one disease and catch all the others." Another danger is that of wrong primary diagnosis. Inflammatory lesions of the pharynx persist much longer than after diphtheria, and a quiescent otitis, or rhinitis allows many a patient to be sent home in a potentially infectious state. No one can tell which of 100 discharged cases will prove infectious afterward. [H.M.]

Hospital Isolation and Scarlet Fever.—C. K. Millard[3] reminds his readers that everywhere the mortality from scarlet fever has been on the decline, owing to the change which has taken place in its type from severe to mild, the change setting in about 1860 to 1870, 10 years before hospital isolation was thought of, being quite as marked in districts which have never practised hospital isolation. There is no evidence of appreciable diminution from compulsory notification. Results based on statistics covering short periods or limited districts, are misleading. [H.M.]

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[1] Brooklyn Medical Journal, November, 1904.
[2] Beiträge zur Klinik der Tuberculose, 1904, ii, 190.
[3] Lyon médical, October 30, 1904.
[4] American Journal of the Medical Sciences, November, 1904.

[1] Lyon médical, October 23, 1904.
[2] Medical Press and Circular, August 31 and September 7, 1904.
[3] Medical Press and Circular, August 31, 1904.

GENERAL SURGERY

Martin B. Tinker
A. B. Craig C. A. Orr

REVIEW OF LITERATURE

Further Differentiation of Gangrene foudroyante.—Kropac[1] says this condition occurs most frequently upon the extremities after trauma from fractures and gunshot wounds. The disease sets in within 24 hours of the accident, with swelling and necrosis or gangrene of the edges of the wound. The patient feels a burning in the wound, is stupid, exhausted and has a dull headache; the temperature rises, the pulse becomes rapid, upon the diseased extremity the veins stand out prominently as bluish-gray streaks, the part upon palpation presents parchment-like creaking. The wound oozes a sanguinous fluid mixed with gas bubbles. The patient remains conscious until the fourth or fifth day when delirium ushers in death. This condition, Kropac says, is differentiated from malignant edema by the prominence of the emphysema in the former and the edema in the latter, and from gas-phlegmon by the presence of inflammation and pus in this condition and the absence of them in gangrene foudroyante. The mortality is high since of the five cases observed only one recovered. Therapeutics are applicable only when the affected part is accessible. When possible, amputation should be performed. When this is not possible and the part is accessible many deep incisions should be made so as to expose the tissue as much as possible to the air, then oxygen should be insufflated since the presence of the oxygen is said to be detrimental to the growth of Fränkel's gas bacillus, the cause of the disease. [J.F.]

Recurrence of Retroperitoneal Lipoma.—Henricius[1] reports two such cases. In his first case the tumor reappeared twice after operation, each time arising from the same site. The first growth was found to extend as high as the right costal margins, and at the operation the cecum with appendix were found pushed forward and to the left. The neoplasm weighed 6,000 gm. Upon microscopic examination it was proved to be made up almost entirely of fat. The second tumor was removed two years later, and very soon after the patient first noticed it. It arose from the same place, and weighed 1,800 gm. The third growth was taken out two years after the second. At the postmortem, yellowish, fatty, firm, retroperitoneal new formations were found in the right iliac fossa. In his second case the recurrence became manifest two years after the operation; the growth arose each time in the right iliac fossa. In no instance was the tumor ever adherent to neighboring organs, and always freely movable. The first patient died as a result of the operation. Henricius determined that the tumors are retroperitoneal by the fact that if the growths were drawn forward toward the anterior abdominal wall and then let go, they fall back suddenly with a force very much like that of a spring. Because of the absence of cachexia in a patient with so large a tumor, he ruled out retroperitoneal carcinoma or sarcoma; it was too firm for a cyst of the mesentery; its regularity, its size, and the age of the patient spoke against tuberculosis. [J.F.]

Cyst of the Spleen and Treatment, Especially Splenectomy.—Henricius[1] reports a case in a girl of 14 years. The tumor was easily palpable, extended from a point just above the umbilicus to within a finger's breadth of the os pubis and within three fingers' breadth of the anterior superior spine of the ilium, was easily moved and had a smooth surface. Upon opening the abdomen at the operation the tumor was found to arise from the dislocated spleen. The organ was removed and then the tumor was found to be a cyst, which contained 800 cc. of flocculent tenacious fluid. Henricius believes the cyst arose from a lymph vessel. The day after the operation the red blood cells numbered 4,860,000 and the whites 19,800; a year and four months after the operation the blood count was as follows: Erythrocytes, 5,050,000; leukocytes, 12,000; hemoglobin, 95%. The patient at the time of the last count was perfectly well; she was also in good health three years after the operation. There was no glandular swelling. [J.F.]

TREATMENT

Solomon Solis Cohen
L. F. Appleman E. Lindauer

REVIEW OF LITERATURE

Acute Quinin Poisoning.—A case of acute quinin poisoning is reported by A. Schmidt.[1] The patient, an alcoholic, took during an intoxication 10 grams (2½ drams) of quinin sulfate. He very soon went into a state of coma, which later changed into active delirium, some of which no doubt had to be placed to the account of the alcohol. Nephritis with hemoglobinuria developed, and later frequent vomiting, complete deafness and blindness governed the field of symptoms. He recovered very slowly, all the symptoms disappearing however completely except those of vision. The papillas are still pale, the arteries narrow and the visual field contracted; vision has improved to the stage of amblyopia. The ophthalmoscopic picture was characteristic for quinin poisoning. [E.L.]

Treatment of Juvenile Acne.—Gillet[2] treats juvenile acne in the following manner: He forbids coffee, pork, fish, pies, cheese, spiced dishes and wine. He gives specific orders as to the amount to be eaten, the manner of its preparation and the seasonings. Before each meal one of the following powders is ordered:

Sodium bicarbonate	0.2 gm. (3 gr.)
Calcined magnesia . . . . Powdered cascara sagrada	āā 0.1 gm. (1½ gr.)

Every night the following processes are gone through: The face is washed with hot alkaline solution, containing bran and sodium biborate; the cleansing is continued with naphtha soap and camphor water, the following ointment is then put on for the night:

Beta camphor naphtol	0.3 gm. (4½ gr.)
Resorcin	0.2 gm. (3 gr.)
Soft soap	0.2 gm. (3 gr.)
Prepared chalk	0.5 gm. (7½ gr.)
Precipitated sulfur	1.5 gm. (22 gr.)
Pure vaselin	20.0 gm. (5 dr.)

The vaselin may be diminished or increased in amount according to the effect produced. In the morning after the toilet is made he orders the following mixture to be applied to the face:

Sodium borate	10 gm. (2½ dr.)
Camphorated ether	40 gm. (10 dr.)
Distilled rose water	100 gm. (3⅓ oz.)
Distilled water	150 gm. (5 oz.)

[E.L.]

FORMULAS, ORIGINAL AND SELECTED.

Creasote.—Gilbert,[3] of Paris, recommends the following preparation of creasote to be administered by the mouth:

Creasote Iodoform } of each	5. gm. (75 gr.)
Powdered licorice, enough to make 80 pills.	

Sig.—Eight pills a day; 2 in the morning, 3 after dinner, and 3 after supper.

Bouchard uses the following formula:

Creasote	13.5 gm. (3½ dr.)
Tinct. of gentian	20. gm. (5 dr.)
Alcohol	250. gm. (8 oz.)
Malaga wine, to make	1 liter.

Sig.—One tablespoonful toward the end of the meal.

Sometimes he combines creasote with codliver oil in the proportion of 10 gm. to 50 gm. to the liter (2½ dr. to 12½ dr. to the quart); rum or syrup of gentian may also be used to dilute creosote. From one to eight tablespoonsful are given daily, depending upon strength of solution and age of patient. When given rectally he combines 16 gm. (4 dr.) of creasote with 250 gm. (8 oz.) of oil of sweet almonds, and gives a tablespoonful beaten up with a yellow of an egg and a cup of milk. For hypodermic use he combines 16 gm. (4 dr.) of creasote with 224 gm. (7 oz.) of sterilized olive oil, and injects from 10 cm. to 30 cm. [E.L.]

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[1] Arch. für klin. Chirurg., 1903, Bd. lxxii, Heft 1.

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[1] Münchener medicinische Wochenschrift, 1904, li, 1034, No. 23.
[2] Journal des Praticiens, 1904, xviii, 504, No. 32.
[3] Paris letter of Therapeutic Gazette, 1904, xxviii, 359.

American Medicine

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A Medical Experiment in Socialism.—We learn that the canton of Zurich, in Switzerland, has taken steps to establish an annual poll tax of 86 cents, to be called the Zurich medical tax, and that from the fund thus produced, some half a hundred physicians are to be maintained, whose services are to be at the disposal of any member of the commune, free of any remuneration, whenever he may choose to call for them. This is not a poor law provision, but a strictly socialistic procedure that puts all members of the community on the same footing with regard to their claims to the attendance of the medical man. We have grave doubts as to the possibility of success for such a scheme (1) because of the wellknown tendency of certain classes to run to the doctor for the most trivial ailment, conditioned only by the necessity of, and capacity for paying his fees, in which tendency, if the restraint of any reciprocal obligation on their part were removed, would speedily place an intolerable burden on the medical corps; and (2) because it is highly improbable that the work would be at all evenly distributed, some doctors being sought to such an extent as to place them on the noneffective list from overwork, while others would be practically idle. On the other hand, if any measures are taken to allot prospective patients willy nilly to particular physicians, it is probable that popular antagonism will soon be aroused. In either case dissatisfaction seems certain. Some relief from this dilemma might possibly be attained by allotting patients by districts to particular physicians, allowing those who are not satisfied with their official physician to employ any other of the corps on payment of his fees. But if this plan is adopted, we may soon expect an outcry on the part of those resorting to their official medical attendant as such, of neglect of themselves, and favoritism toward paying patients. Whatever way we look at it, the scheme appears theoretically to be beset with difficulties; its practical working will be well worthy of careful observation.

The Tangled Harness of Civil Service.—In our clumsy efforts to keep evil spirits out, we sometimes set up such barriers that angels cannot enter nor devils be expelled. Souls and cities, States and nations are sometimes thus armored. New York, the greatest of American cities, believing that her pneumonia mortality ought to be abridged, has called together a distinguished group of consultants, and these advisers, having made a most admirable plan of action, are brought suddenly to a standstill by the requirement of the Municipal Civil Service Commission, that every person employed on this work must pass the civil service examination. The men who are thus obliged to make a new, and inevitably a narrower plan, are Osler, Janeway, Holt, Biggs, Musser, Prudden and Welch. The fatal defect of their plan consisted in the idea of making an intensive study of the pneumonia problem, with the aid of half a dozen experts of the highest type, and utilizing more material than New York City can possibly furnish. If the pneumonia problem had already been adequately investigated, there would have been no need of such a commission. A study of the subject, from the standpoint of prevention, if it is to meet a need so urgent as New York's recent mortality experience seems to indicate, cannot be made upon the past mortality. Current morbidity and current mortality must furnish the needful data. Twenty thousand cases will probably supply the required material, but New York City will not have 20,000 cases in the present season, and the Pneumonia Commission, under the terms of its organization, must report in the next six months. The pneumonia experience of Boston, Philadelphia, Baltimore and New York can, however, be combined to furnish the necessary information, and this is what the Pneumonia Commission proposed. But the Civil Service Commission decides that the expert investigators, selected by the Pneumonia Commission to do this work in Boston, Philadelphia, and Baltimore, must first pass the civil service examination in New York. Probably the Municipal Civil Service Commission is right, but the situation is as if New York, being in danger of obliteration by fire, and crying for help, should round up the Jersey City fire laddies at the City Hall until the qualifications of the men and their machines could be determined.

The Teaching of Physiology and Hygiene in Pennsylvania Schools.—The recent report to the Medical Society of the State of Pennsylvania of its committee to examine school textbooks is in many ways a most satisfactory document. If the conclusions reached by the committee be carried to their logical fruition, a radical change in the existing methods of teaching physiology and hygiene in the public schools of the State must necessarily result. And a radical change is desirable. A canvass of two counties to determine the textbooks and methods of instruction employed, shows a startling number of books, and, on the part of the teachers, a general dissatisfaction with all of them. The 66 public school boards of a rural county report the use of 18 different textbooks on physiology and hygiene: the other county, exclusive of three large municipalities therein situated, has in its 112 schools 17 different books. The general opinion of the teachers is, that essentially all the books contain too little practical hygiene, too technical language, and too much regarding alcohol. Added to this is the information from one of the largest high schools in the State that it is necessary to teach physiology and hygiene to pupils coming from ward schools as though they had received no previous instruction in those branches. The conclusions of the committee may be well judged from the first: "The present method of teaching physiology and hygiene in many of the public schools of Pennsylvania does not educate the growing generation in these branches sufficiently to impress upon them even the ordinary laws of health and hygiene." A question of extreme importance is raised by the statement that teachers who have had no special training cannot be expected to make clear to young children so difficult a subject as physiology or toxicology. From personal experience and observation, we are sure the majority of teachers in the lower city grades and in the country are not so qualified. To eliminate this difficulty, the committee suggests either the employment of a specialist (going from school to school) or reducing the teaching to the capacity of both teacher and pupil by limiting it chiefly to simple rules of cleanliness and health. The committee as appointed possessed no power to demand, or even recommend changes in the existing methods, and asked in their report that the name be changed to the "Committee on the Teaching of Physiology and Hygiene in the Public Schools;" this the society promptly granted. Their expressed purpose is to formulate a model system for such teaching. The committee has avoided all useless academic discussions and confined its work to determining the exact condition of affairs in the State; it now proposes to offer something better. In this task it should receive the active support of every physician, every school board, and every medical and lay journal in the State. Let all join in sweeping the multiplicity of fad-stuffed textbooks out of our schools and in instituting elementary courses of instruction that will furnish enough of physiology on which to base common-sense principles of personal and public hygiene.

The Sanitary Aspects of the New York Subway.—From the date of its opening for traffic, the subway has been a popular topic in New York City. Its sanitary relations have been discussed at length in the newspapers and in the medical press, and every hygienic disadvantage that subterranean travel can involve has been enlarged upon, as if the New York subway were a crude first experiment in transportation. The economic value of such a method of rapid transit is, in New York especially, so enormous that its success must be secured as a practical and urgent necessity. Certain dangers of rapid transit are almost wholly eliminated by carrying passengers under the city. The risks of accident are minimized, questions of noise, dust and temperature are simplified, and even the bacterial bugaboo is less alarming in the Subway. In the discussions, great stress has been laid upon the necessary exclusion of sunlight. The germicidal power of sunshine, never before sufficiently praised in New York, is now overlauded. The critics insist that the beneficent energy, so sparingly admitted into living quarters where it is needed, ought to be poured in infinite floods into the subway where it is not needed. It can safely be assumed that the bacterial quality of the air in the subway is at present better than that of the streets, and it is not probable that increased traffic within the capacity of the roads will give the air of the tunnels anything like as high a degree of bacterial pollution. The air of the subway is the air of the streets, favorably modified by comparative quiet. The bacteria, entering with the human throng at the stations, and distributed by the trains, are distributed under conditions less favorable, if not indeed, distinctly hostile to their pernicious activities. Fears concerning the chemic qualities of the air are no better justified by theoretic considerations. Several observers are said to have found low oxygen contents, but Professor Chandler, examining 53 samples of air at the stations, found the average oxygen content to be about 20.55%. It is unlikely that any serious deficiency of oxygen or poisonous amounts of carbon dioxid, or carbon monoxid, will be found anywhere in the tunnels. The never-failing tide of poisonous gas which underlies all cities, may have access at some points to the New York subway. Dwellings are liable to considerable danger from this source, and public health probably suffers greater damage from leakage into houses than is likely to result from subway travel. A cheap and satisfactory means of testing the air will be to expose small animals. These, in general, are more susceptible to gaseous poisons. On this account, perhaps, the soulful antis may prefer to have tunnel laborers exposed. Among the possible causes of altered chemic composition, the influence of human travel may be considered of minor importance. Even the contingency of a tie-up for an hour or two, will involve no serious danger of crowd poisoning, and no prospect whatever of the ghastly horror which some have forboded. In short, it seems probable that these subterranean thoroughfares will improve the hygienic conditions of rapid transit in New York.

On the other hand it is certainly in the power of the Interborough Rapid Transit Company to furnish safer, more comfortable and cleaner transportation than New York has had heretofore, but there are indications that the company will not forego certain immediate profits for the sake of scoring high in transportation hygiene. The company bases large claims upon the socalled "piston action" of the trains. The pretty phrase is nonsensical, and the claims of ventilating efficiency are absurd. The air at the stations is disturbed by hurrying people more than by moving trains, and the really offensive phase of subway hygiene is kicked up by tramping feet. This is the core of the problem, and at this point the company defaults. The stations, though most attractive, lack a few sanitary details, such as cuspidors and prohibitory signs about smoking and expectoration. In their construction, the stairways, walls, ceilings, and pavements satisfy the most exacting requirements, but the company has sold to an advertising concern concessions worth $1,000,000 yearly, and has thereby sacrificed those great advantages which the architects provided for the sole consideration of cleanliness. The unsightly array of advertising placards has excited a storm of protest, and the fight against them should be pushed on to success. The Subway Commission has decided against them, but the transit company, having parted with its control by making a contract for five years, will not order the removal of the signs. The next move belongs apparently to the Subway Commission. It must have occurred to the company, before the stations were built, that they would attract advertisers, and suitable provisions could easily have been made, conformable alike to hygienic requirements and to the needs of advertisers. The rudely framed signs leaning against the station walls are about as offensive as the same number of spitting loafers, and they should be hustled out with as little ceremony.

Unknown to Fame.—There is a large class of intelligent and active practitioners who carry on their work so silently that they may be almost unknown to their fellows in the same city. Their existence is at least not suspected by the profession at large. They do not attend or speak at the meetings of medical or other societies; textbooks they do not write, nor articles for the journals; they are never interviewed; their goings and comings are not recorded in the newspapers. They may not hold any positions as visiting or consulting physicians to hospitals, homes, asylums, or retreats, and they would run frightened at the suggestion of a professorship. Nevertheless, those men for a score or two of years may do a large amount of clinical work, may be as original, as valuable to the profession, and to the world, as any of the famous ones. "Who is he?" "I never heard of him," are questions wholly without significance as to a man's service to the science and art of medicine. There are not a few of this class who carry to an extreme their ideals of modesty and silence, and who seem almost morbid in their desire to escape publicity. Even these, all would say, are preferable to the ridiculous egotists who are on the sharp lookout for every method of attracting public attention to themselves. "Do the deed and say naught" is an old proverb which in medicine cannot be advised, at least in any rigid sense. The reason is that in our practice every mind with any originality whatever must have unique experiences, and learn truths about disease and its treatment of value to all other practitioners. However strenuous in self-effacement, such a physician has no right, surely no duty, to let his valuable experience die with him. We have an obligation to our fellow workers that outweighs private feeling, and there is also a duty to patients whom we may treat indirectly when we ourselves shall have joined "the silent majority."

The Cure of Quackery was the title of an essay by Dr. A. T. Schofield, of London, England, read before the recent British Medical Association, Section of Psychology. It was a serious and laudable attempt to grapple with the evil, which, as he says, is a growing one, growing even with the educated and leisure classes more than with the ignorant. That *laissez-faire* will not cure, we are glad to find emphasized by so good an authority, because it is the view that a few sensible men have been preaching, in season and out, for many years. After discussing the methods proposed to meet the evil, Dr. Schofield settles down to a reliance upon and acceptance of the fundamental method of eddyism and occultism—the power, ignored by the medical profession, of the unconscious mind over the body. The *British Medical Journal* says this truth is "not learnt at hospitals," and the *Lancet* adds, that "in disease the therapeutic value of faith and hope, though not in our textbooks, is often enough to turn the scale in favor of recovery." The quacks, however, have learned the truth and have made it the basis of their fortunes and vogue. The paper is therefore in earnest and enthusiastic advocacy of the teaching and practice of psychotherapeutics, which is to rehabilitate the reputation of the medical man and his profession and "lay the foundation (*sic*) for the downfall of quackery." The good textbook has yet to be written, the good medical college is still to take up the teaching of the subject, the good hospital has not so far illustrated the effectiveness of this method of therapeutics. Dr. Schofield quotes the following from a letter of Sir H. Acland written in 1866:

> What unsatisfactory cases these are! This clever, charming, and widely-known lady will some day disgrace us all by being juggled out of her maladies by some bold quack, who by mere force of assertion, will give her the will to bear, or forget, or suppress all the turbulences of her nervous system.

This testimony as to the nature of the diseases in which psychotherapeutics is to be used, and the confession of our inability to cure them, is illuminating. It is thus admitted that this disease consists largely or entirely in a mental attitude; that physical methods are unavailing; that the cure must come by a method allied to, if not identical, with trickery, etc.

The unknown cause of hysteria, or the morbid mental attitude, in all this discussion of the foregoing question is, as usual, too much ignored, or slurred to one side. One speaker in the discussion said that it was the incurable cases that went to the quack. These people, he said, had tried every specialist and legitimate source without relief, and then in despair went to the quack or used quack remedies, and in so going were a great relief to the physician, who had hitherto sent them to foreign spas and cures. The other point was that the regretable mystery and false secrecy which often masked ignorance in their profession drove many people to quacks. It was always advisable that such people should be taken into their confidence. In reply, Dr. Schofield said that the position of the second and other speakers did not seem materially altered with regard to quackery from its position in 1866, in the days of Sir James Paget. There was the same pessimism, the same voting these patients as a nuisance, the same recommendation to send them abroad to travel, not so much with a hope of benefiting them as to get rid of them. Could it be wondered that, in the face of such confessed impotence, quackery should flourish? And then Dr. Schofield came closer to the heart of the matter when he urged that the scope of the section of psychology should be enlarged, and no longer limited to the discussion of the mind when insane, but extended to include the study of the mind when sane in relation to its powers on producing and curing disease. "Practitioners must give more attention to the treatment of disease, and particularly to the treatment of minor ills." And still none came to the downright question of the origin of hysteria, and none suggested that the common way of looking at the disease needs to be changed. For the last century it has been the custom to disbelieve in the reality of what Acland called "the turbulences of the nervous system," and certainly not to inquire into their cause. But if a disease, if a fact, it must have a cause. If not a fact, have we a right to make a trade out of its treatment, or money out of its incurability and insubstantiality? For more than the last century when the hysterics, supposed or real, troubled the practitioner too much, and when he could not guess what could be the matter, much less cure them, then, as all admit, they were bundled off to spas, hydropathists, dietists—anywhere to be rid of them! Was it either humane, or professional? Is it in the least scientific?

An Antiquackery Exposition.—In Germany, the home of scientific medicine, quackery is so rampant that it threatens to beat the regular profession in power and numbers. In 1902, there were in Berlin, including Charlottenburg, Schöneberg, and Rixdorf, 937 quacks, a proportion of 4.34 per 10,000 inhabitants. The number of legally qualified practitioners of medicine in the same area was 3,260. At Frankfort on the Oder there were nearly as many quacks as physicians; to speak by the card, there were 251 of the former to 294 of the latter. In the same year, there were in the whole of Prussia 15,400 doctors and 4,104 quacks. To counteract the alarming increase in the number of quacks, a society organized an exhibition of quackery, which was held at Breslau at the time of the meeting of the German Association of Scientists and Physicians. In that exhibition was displayed the whole of the apparatus of quackery, grouped in a number of sections—advertisements of all kinds of panaceas and specifics; illustrations of various methods of treatment "without poison" and "without operation," quack institutes, "Nature healing," faith healing, etc. The advertisements were subdivided into classes—those of the type familiar to all readers of newspapers, circulars, prospectuses, pamphlets, testimonies of cure. One of the most interesting sections was that of secret remedies. There was to be seen the specific of a shepherd who diagnosed the disease from a lock of the sufferer's hair, and in this way made a large fortune; there, too, were an oil which was said to restore hearing to the deaf, a universal gastric juice, water impregnated with negative electricity, and countless other panaceas. In another section were an "invisible audiphone," an "antiepidemic mask," chains said to afford protection against gout, and all kinds of bogus electric apparatus. A section of the exhibition was devoted to means of repression employed by the German Antiquack Society. These so far have consisted chiefly in efforts to secure the cooperation of medical practitioners in the exposure of quacks, and in the publication of analyses of advertised specifics and records of convictions. In democratic America the suppression of quackery by law should be more difficult than in imperial Germany; it seems, in fact, to be more easy.

County and City Responsibility for Infectious Disease of the Poor.—There is considerable indefiniteness and misunderstanding of the relative responsibility for the care of the poor with infectious disease, on the part both of the public and the profession. According to a circular of the Illinois State Board of Health, aiming to instruct all concerned as regards the Illinois law, a county is liable for the necessary expense of medical attendance, nursing, provisions, fuel, etc., of a patient who is unable to provide for himself. But a county is not liable for services rendered by a physician to an indigent patient—except in case of emergency when prompt and immediate action is required—or for supplies furnished to such patient by a physician or any other person, or a municipality, unless express authority to render service or furnish supplies has been given by an authorized county official, the Overseer of the Poor; unless, perchance, the authorized county official should neglect or refuse to give or cause to be given to the patient such assistance as may be necessary, after the necessity therefor has been brought to his attention. During the last few years, physicians have undertaken the care of smallpox patients without authority from the county and have sought in vain for payment for their services. A few of these physicians had received authority from city and village officials to care for the patients in question. Since the municipal officials had not consulted the county officers in these cases, the county was not liable for the services rendered, and it is very questionable whether action against the city or village would hold. Moreover, the expense of enforcing health laws and quarantine regulations always falls upon the city, village or township concerned, and not on the county. In counties not under township organization, the expense falls upon the county in territory outside incorporated cities and villages. A township is not liable for expense incurred within the corporate limits of a city or village, nor is the city or village responsible for expenses incurred within the township outside of the corporate limits of the city or village. A county is not liable for the expense of the care, medical attention and supplies of a patient quarantined in his home, who has sufficient means to procure such care for himself. If a physician attends such a patient, he must look to him for payment for his services.

Influence on the Tissues of Borated Food.—In a recent address before the New York Academy of Medicine, Dr. H. W. Wiley, chief of the Bureau of Chemistry of the U. S. Department of Agriculture, briefly outlined the results of his famous "poison squad" experiments with food preserved by boric acid and borax. His deductions seem logically to follow the facts observed, and the entire series of studies is to be accepted as authoritative far beyond the hurried experiments and hasty conclusions of many modern investigations. An early change noted in the persons eating food preserved by boron products, was diminished nitrogen elimination, evidencing lessened metabolism and consequent retention in the body of effete material. An associated increase in the excretion of phosphoric acid indicated retrograde changes in the bones. In men known to be the subjects of physiologic albuminuria, the albumin was sensibly increased by ingestion of the preservatives in question. This is significant when coupled with the fact that at least 80% of the amount of those substances taken into the body is eliminated by the kidneys. While the nature of the experiments precluded microscopic study of the kidneys, the clinical results appear to us as favoring the probability that the renal lesions produced by feeding borated food to cats may be duplicated, or at least approximated in man; Harrington[1] found the lesions in those animals, though not conforming to any definite type, to be analogous to those found in subacute and chronic nephritis in human beings. This possibility of inducing lesions of the kidney is a most serious charge against the boron preservatives. The effect of long-continued irritation, however slight, upon those organs is well known, and readily explains how small quantities of the preservatives, ingested during a long period, might produce important lesions, while the temporary use of much larger amounts would be essentially harmless. Dr. Wiley's conclusions are temperate and correspondingly weighty. Boron products must be considered harmful when taken during lengthy periods; all the individuals in the experiment lost weight. Temporarily, with but little risk, preserved foods may wisely be preferred to deteriorated nonpreserved products, but the consumer should by labels be informed what he is eating, and thus be permitted to make his own choice.

Malingering in the Navy.—The naval surgeons report some disposition in the service to feign illness, although the extent of this shamming is not nearly as great as one would suspect. The choice of disability appeared to be confined to the three companies of nostalgia (which may not have been feigned in any case), partial blindness, and melancholia. The surgeons say that the latter offered the best means of deception, although nostalgia, or home-sickness, was easily pretended. There were 18 of the latter cases against 9 of the former during the past year. The surgeons do not have much difficulty in recognizing the feigned disease, although now and then there is a persistent case, such as that considered worthy of a special report, which will shortly be printed for the benefit of the members of the naval medical corps. This was the case of an electrician at Mare Island, who had been dishonorably discharged by a court and who hoped by pretending illness to get out of the service in a less discreditable way and to obtain a pension probably as well. He insisted that he saw people who wished to poison him and he acted so violently that he had to be restrained with ropes, which he broke. He was placed in irons and carried on at a high rate, winding up one of his paroxysms with a demand for a live snake as food. A tame reptile was borrowed with the idea of proving that he was a malingerer, but he evinced such a desire to eat the snake that its owner finally asked that the test proceed no further. About ten days afterward other radical treatment was administered, and finally the "patient" called in the doctor and said: "I give it up. You win, doctor. The bread and water and salts done the work."—[*Army and Navy Register.*]

AMERICAN NEWS AND NOTES

GENERAL.

National Society for the Prevention of Dust.—A number of prominent physicians in the United States is advocating the organization of a national society for the prevention of dust. It is believed the matter can be gotten under way by the time of the next meeting of the American Medical Association, when it is probable organization will be effected.

Hospital Staff Not to be Placed under Civil Service Rule.—In *American Medicine* of November 26, editorial mention was made of the fact that the officers of Cook county, Ill., had decided to hold medical examinations for appointments to hospital vacancies. More recent news from Chicago, however, states that the county board on November 25, rescinded its action, and it appears at the present time that the affair is in a very unsettled state with a probable defeat of the civil service examination as a result.

New Officers Epilepsy Association.—At the fourth annual meeting of the National Association for the Study of Epilepsy, held in Boston, November 22, the following officers were elected for the coming year: President, Dr. W. P. Spratling, of Sonyea, N. Y.; first vice-president, Hon. W. P. Letchworth, LL.D., of Portage, N. Y.; second vice-president, Dr. Max Mailhouse, of New Haven, Conn.; secretary and treasurer, Dr. Everett Flood, of Palmer, Mass.; chairman of the executive committee, Dr. Wm. N. Bullard, of Boston. The next meeting will be held in New York City in November, 1905.

Sanitation in Cuba.—President Palma has definitely announced that he is not willing to undertake the street cleaning of the Eastern cities of Cuba without the authority of Congress and without funds for that purpose, but he is urging the matter on the leaders of Congress, and early action is expected. The newspapers unanimously urge that Congress take action in the matter and not furnish a reason for intervention on the part of the United States. The Health Department does not belittle the neglected condition of the streets in some towns, but points out that the deathrate is decreasing throughout the island.

Fourth Pan-American Medical Congress.—Dr. Rudolph Matas, of New Orleans, secretary of Section of General Surgery for the United States, informs us that an arrangement with the United Fruit Company has been perfected by which a steamer of this line will leave New Orleans for Colon on Wednesday, December 28, 1904, at 10 a.m. (instead of Friday, December 30, at 11 a.m., as previously announced), which will reach Colon (Panama) on Monday, January 2, 1905, the opening day of the Congress. In view of the facilities offered to reach Panama via New Orleans, it is expected that many will choose this route, and those who intend to do so will please forward their names to Dr. R. Matas, secretary of Section of General Surgery, No. 2255 St. Charles avenue, New Orleans, La., not later than December 22, 1904.

To Benefit Epileptics.—To promote the general welfare of sufferers from epilepsy is the prime purpose of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, which held its fourth annual meeting recently in Boston. Through giving wide publicity to its excellent objects the association aims to stimulate the study of the causes and the methods of cure of this disease, of which there are between 140,000 and 150,000 cases in this country, the ratio being 1 in every 500; also to advocate the care of epileptics in institutions where they may (1) receive a common school education, (2) acquire trades, (3) be treated by the best medical skill for their malady; to assist, too, the various States in America in making proper provisions for epileptics. At the present time only five States, Massachusetts, New York, New Jersey, Ohio, and Texas have made suitable provision for the care of those suffering from this disease. In four of these States, hospitals have been provided: but in New York there is a colony where the patients are under no especial restraint, although under constant medical supervision. This is an experiment which is being watched with great interest and it has appealed to medical authorities as one that possesses features of a distinct advantage to the patients and which is destined to meet the peculiar needs of epileptics better than other means.

Miscellaneous.—Chicago: Dr. Albert Woelfel has resigned his position in the Memorial Institute for Infectious Diseases, Chicago, to accept an appointment in the department of physiology of the University of Chicago. **Philadelphia: Dr. A. D. Whiting** has been elected attending surgeon to the Germantown Hospital.—**Dr. Charles H. Frazier** has been elected attending surgeon to the Episcopal Hospital, Philadelphia, vice Dr. Richard Harte, resigned.—**Dr. Thomas G. Ashton**, it is rumored, may be elected adjunct professor of medicine at the University of Pennsylvania. **Pennsylvania**: It is reported that striking miners are quarantined in a hall at Morris Run, Pa., on account of smallpox, and it is asserted that there are 150 cases of the disease in the town. **New York**: At a recent meeting of the trustees of **Columbia University** gifts aggregating $46,850 were announced by the trustees. Among these was the sum of $15,000 from Gen. Horace W. Carpentier, of the class of 1848, to be added to the fund for the endowment of the chair of pediatrics, established at the College of Physicians and Surgeons by General Carpentier. Two other gifts were of $10,000, from the family of the late Dr. Guy B. Miller, M.S., '98, for the Medical School, and of $20,000 from an anonymous donor for a large plaster model of the university buildings and grounds, for permanent exhibition.

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[1] American Journal of the Medical Sciences, September, 1904

EASTERN STATES.

Expenses of Massachusetts Charities.—According to the report of the Massachusetts State Board having in charge the charities, the amount of money expended in our State for the care of the dependent, defective, and delinquent classes cannot be definitely ascertained, as a large sum is given directly through strictly private channels beside the large amount given by churches and beneficent orders. The cost of maintenance of the defectives of the State is $1,974,066, of delinquents is $1,016,500, and of dependents is $2,718,142, making a total of $5,708,708. Adding the amount expended by the charitable corporations, $5,320,623, makes a grand total of $11,029,331. Assuming our population to be 2,800,000, this makes a per capita annual payment for all our population of $3.93. Is this too much? Probably not under existing conditions, but it is so much subtracted from the fund that would otherwise go for education, culture, and the higher things of life.

NEW YORK.

No More Six-Day Bicycle Races.—There will be no more of those nerve-racking and heart-breaking six-day bicycle contests in Madison Square Garden. By a vote of 44 to 9 the Board of Aldermen recently passed an ordinance which prohibits speed contests in which any one person shall compete for more than 3 hours in 24.

Fight for Pure Milk.—Recently in a single forenoon 40 cases of retail dealers charged with the sale of impure milk were called in the Court of Special Sessions in the borough of Brooklyn. In some of the cases fines were imposed, with the additional penalties of brief terms in the Kings County jail. The heaviest fine imposed was $100. The other fines ranged from $25 down to $10. Suspension of sentence was granted in many of the cases, and this led C. H. Kilburn, food inspector, who was present as the representative of the Health Board, to remark that less leniency on the part of the justices in Brooklyn, and a stronger inclination to impose appropriate fines, would be much more in the line of direct cooperation with the health authorities to relieve the borough of the danger of impure milk.

Pneumonia's Steady Increase.—According to the *Albany Argus*, in New York City, pneumonia alone during the first half of this year claimed 8,360 victims, as compared with 5,763 deaths for the first 6 months of 1903. The increased fatality of this scourge alone, therefore, in a single year numbered 2,597, or more than double the number of lives sacrificed in the General Slocum steamboat disaster. Such astounding figures as these, not only in New York, but in other large cities, showing a steady yearly increase in the prevalence and fatality of pneumonia, have forced the subject to the front as one demanding immediate study by the most eminent experts. In Chicago the deathrate from pneumonia has increased from 10.9% of the total number of deaths in 1888 to 20.6% in 1903; in Philadelphia from 10.4% to 20.6% in 1898 to 12.2% in 1903; and in Boston from 10.7% in 1898 to 12% in 1902.

No Ads in the Subway.—The much-discussed question whether advertisements should be placed in the Subway stations was decided in the negative November 22 by the Rapid Transit Commission. Advertising posters are permitted in the stations of London and Paris underground roads, but from the day our subway was opened vehement protest has been made against the placards that had been placed on the tiled walls of the stations. Indeed, public feeling was aroused to such an extent that many of the posters have been mutilated by persons who thought, doubtless, that they were promoting civic art thereby and thus doing the municipality a service. The resolutions adopted by the Transit Board direct that no advertising signs shall be displayed along the side walls and station platforms that front the track and below the frieze of such side walls, and that no signs be affixed in any part of the stations except under the direction of the chief engineer. The board also declared that the slot machines which have been placed in the stations are obstructions to the public and should be removed. [*Public Ledger*.]

The Late Dr. William Rice Pryor.—The faculty of the New York Polyclinic Medical School and Hospital, through its committee, appointed at the annual meeting, held November 10, 1904, hereby resolves: That the death of Dr. William Rice Pryor, professor of gynecology in the New York Polyclinic Medical School and Hospital, which occurred on August 25, 1904, was a great loss and sorrow to the faculty of the Polyclinic and to his many friends. Graduated from Princeton College in 1878, from the College of Physicians and Surgeons in New York in 1881, and from the Bellevue Hospital in 1882, Dr. Pryor was particularly well equipped for his life work and the eminent position he attained in the special branch of medicine to which he gave his attention was due in no small degree to this thorough preparation. His ability, perseverance, originality, and thoroughness were recognized by all who knew him, and will always serve as a stimulus to his fellow workers. Throughout his entire career he was in the highest sense the friend of the needy and afflicted. The amount of time he devoted to charity work was enormous, and in many instances, where those under treatment could not afford to pay for little delicacies needed, he supplied them from his own purse, beside giving his services free. His attention to details and his personal supervision and care of those he treated were painstaking. His services to the Polyclinic were most valuable. Appointed as clinical assistant to the chair of gynecology in 1886, he filled all the intermediate positions most creditably until in 1895 he was made full professor of gynecology. His clinics drew students from all over the country, and his writings attracted marked attention both at home and abroad. He was a frequent contributor to medical literature and shortly before his death had completed a "Textbook of Gynecology." We assure his bereaved family of our deepest sympathy, and do hereby resolve that this record be inscribed at length upon the minutes of the faculty, that it be published in the medical journals, and that a copy, suitably engrossed, be sent to the family of our late colleague. W. R. Townsend, chairman; J. Riddle Goffe, Brooks H. Wells, committee.

PHILADELPHIA, PENNSYLVANIA, ETC.

War on Smallpox.—Dr. Benjamin Lee, secretary of the State Board of Health, in his annual report to the board, declares the recent smallpox epidemic has demonstrated the necessity of a State law making vaccination compulsory. As opposed to 5,172 cases of smallpox and 521 deaths, which occurred in this State in the year ending November 1 last, he says the experience of the German army in this respect cannot be disregarded or explained away, not a single death having occurred from smallpox in that body since vaccination and revaccination were made compulsory 30 years ago.

The Philadelphia Medical Examiners' Association.—A stated meeting of the Association will be held on Tuesday evening, December 6, 1904, in the lower hall, College of Physicians, Thirteenth and Locust streets, at 8.30 o'clock. Program: Discussion of the following subjects in their relation to life examinations: 1. "The Indications of an Intermittent or an Irregular Pulse," by Dr. A. B. Hirsh. 2. "The Importance of Accentuation of the Second Pulmonic Sound," by Dr. Howard S. Anders. 3. "The Significance of the Cardispulmonic Murmur," by Dr. George D. Morton. Members of the profession are invited.

War Against Liquor Adulterations.—The State Dairy and Food Commission, through Charles L. Brown, its counsel, has announced that from now on there would be no halt in the prosecutions of venders of beers, wines and liquors who violate the pure food laws. The commission has been holding back for the decision of the Superior Court, which has held the pure food act of 1895 to be constitutional. Samples of beer, wine and whisky have been taken by agents of the commission, and the chemists have reported on most of the cases. These affect dealers all over the State, and numerous arrests are to be made in a short time.

To Aid Tuberculous Poor.—A comprehensive exhibition of the system and equipment at the White Haven Sanatorium of the Free Hospital for Poor Consumptives was opened recently at 1604 Chestnut street. The society, through donations, is trying to pay off an indebtedness of $25,000. The exhibition consists of photographic illustrations of White Haven, a tent outfit, a properly equipped room for tuberculous patients, and the various articles used in the practical prevention of tuberculosis. The White Haven Sanatorium is in no way supported by the Henry Phipps Institute, and for maintenance it depends upon State appropriation, which must be supplemented by private contributions. It is open to all victims of incipient tuberculosis who are unable to pay for treatment, without regard to sex, creed, or color.

SOUTHERN STATES.

Home for Incurables at New Orleans.—The corner-stone of the central building of the Home for Incurables was laid November 26 with imposing ceremonies. The building is the second of three it is planned to erect, and will be used for the children's department and the administration offices. The woman's building has been standing a few years. The three buildings, when completed, will provide shelter for hopelessly incurable men, women and children. The building now being erected represents the united contributions of the King's Daughters, who gave $10,000; the friends of the Board of Managers, who helped them to raise nearly that much; and Henry O. Seixas, formerly of New Orleans, but now of New York City, who sent his check recently for $5,000. Mr. Seixas and Isidore Newman have given generously on several previous occasions. George A. Wiegand made a present of $500 toward the furnishing of the house.

FOREIGN NEWS AND NOTES

GENERAL.

Memorial to Mr. Cadge.—It has been arranged that the unveiling of the memorial window to the late Mr. Cadge, in Norwich Cathedral, England, shall take place on Tuesday, December 6 at 3 p. m. The Dean of Norwich proposes to conduct a short service on the occasion. The president of the Royal College of Surgeons, Mr. Tweedy, has consented to unveil the memorial, and it is hoped that as many subscribers as possible will be present.

Miscellaneous.—**Mr. Francis Galton**, F.R.S., has founded in London University a fellowship for the promotion of the study of "National Eugenics," the study of the agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally.—**Professor Bertram C. A. Windle**, F.R.S., dean of the medical faculty and professor of anatomy in Birmingham University, has been appointed president of Queen's College, Cork, in succession to Sir Rowland Blennerhasset.

A Long-lived Family.—The following particulars, showing a somewhat wonderful record of longevity in a family of five brothers and three sisters, may be of interest, writes a Westminster *Gazette* correspondent. The family were born and brought up members of the Society of Friends, and continued members through life, with one exception. The two eldest sons were the heads of a wellknown banking house in Lombard street. The three daughters all survive, and the oldest, at 101 years of age, moves about the house freely and is able to go out in a bath-chair, and her sight and hearing are but little impaired:

	Born.	Died.	Age.
1	1802	1890	88
2	1803	Still living	101
3	1805	1887	82
4	1808	1899	91
5	1809	1884	75
6	1811	1893	82
7	1813	Still living	91
8	1817	"	87
			8 | 697
Present average age			87

Dangers to Food Supplies.—In an address recently made in Philadelphia, Dr. W. H. Wiley, Chief of the Bureau of Chemistry of the United States Department of Agriculture, who has experimented extensively with various food adulterants, said with reference to his recent work: "In these experiments borax and boric acid were added to food, beginning with small and gradually increasing to large doses each day. These experiments were carried on during a period of about nine months. Boric acid and borax in gradually increasing doses with maximum of three to five grams a day," said he, "cause disturbance of digestion and health, manifested in loss of appetite, loss of weight, a feeling of uneasiness, and sometimes illness in the stomach, fulness in the head, which often developed into dull and persistent headache, and general disturbance of the metabolic functions of digestion and other disturbances. When borax and boric acid are administered in small doses—namely: one-half gm. (seven and a half gr.) a day over a long period of time similar symptoms in less acute form developed in the majority of cases. Borax and boric acid are regarded by experts as the least harmful of antiseptics employed. Miscellaneous and premeditated use of these antiseptics in food is reprehensible. It is evident that eating small quantities of borax in food occasionally would not prove of any lasting injury to the ordinary citizen in good health, but the weak and feeble must be protected, and it is entirely within the grounds of reason that even a small quantity of antiseptic of this kind would prove harmful to a disordered stomach. The safest rule to follow, therefore, it to exclude these from food except when their use is imperative."

OBITUARIES.

Henry M. Lyman, aged 68, November 21, at the home of his daughter in Evanston, Ill., cause of death being angina pectoris. He began the study of medicine at Harvard Medical College in 1858, and was graduated from the College of Physicians and Surgeons of New York City in 1861. He served as surgeon in the Federal army in 1862 and 1863, locating in Chicago in the latter year. From 1871 to 1876 he was professor of chemistry in Rush Medical College; in 1877 to 1879 he was professor of physiology and of nervous diseases, and from 1889 professor emeritus for theory and practice of medicine in the same institution. He was also professor of medicine in the Northwestern University Woman's Medical College from 1880 to 1888. He held many other positions of prominence in the City of Chicago and State of Illinois, and was a widely known and recognized authority in medicine.

W. L. Coleman, aged 77, November 27, at his home in Houston, Texas. Dr. Coleman, while eminent as a general practitioner, was particularly an authority on yellow fever, having served through several epidemics and won a Howard medal, given in appreciation of his services with this disease. During the Spanish-American war he was sent by the United States Government as an expert to make an examination of the yellow fever condition of Cuba. He was the author of a book on yellow fever, which is considered an authority among the medical profession.

Duncan Campbell McCallum, aged 80, November 13, at his home in Montreal. He was a graduate of McGill University, Montreal, in 1850; demonstrator of anatomy at McGill University from 1854 to 1856; professor of clinical surgery from 1856 to 1860; professor of clinical medicine and medical jurisprudence from 1860 to 1868; professor of midwifery and diseases of women and children from 1868 to 1883, and emeritus thereafter. He was a frequent contributor to medical literature, and one of the founders of the *Medical Chronicle*.

William B. Gray, aged 71, November 24, at his home in Richmond, Va. He was a graduate of Jefferson Medical College, and a surgeon in the Confederate service during the Civil war. He was a member of the Medical Society of Virginia, of which he was vice-president in 1881, of the Richmond Academy of Medicine and Surgery, of the Richmond Medical and Surgical Society, and of the Richmond Microscopical Society.

Robert G. Wiley, aged 97, November 22, at his home in Bethel, Me. He was one of the oldest, if not the oldest, physician in New England. He was graduated from Dartmouth Medical College in 1836, and soon after began practice on Bethel Hill, where he continued in regular practice for more than sixty-seven years. It is stated that during that time he never took one day's vacation.

Francis M. Casal, one of the oldest and most loved physicians in California, recently, at his home in Santa Barbara; a graduate of Rush Medical College in 1864; member of the American Medical Association; formerly a resident of Pittsfield, Ill.; Santa Barbara County Medical Society, at a meeting held November 9, passed appropriate resolutions of sorrow concerning his death.

William L. Newell, November 27, at his home in Millville, N. J., where he had practised medicine for nearly half a century. He was graduated from Jefferson Medical College in 1859, and was a surgeon in the Federal service during the Civil war. He had been surgeon for the Pennsylvania Railroad for many years.

William R. Gibson, aged 49, November 7, at the State Hospital for Insane, Warren, Pa., where he had been a patient for about eight months; a graduate of the University of Edinburgh, Scotland, and for fifteen years a practitioner of medicine at Bradford, Pa.

Alexis I. DuPont, aged 62, November 26, at his home in Wilmington, Del. He graduated from the medical department of the University of Pennsylvania. He early retired from the practice of medicine, devoting his attention to railway interests.

G. S. Mostellar, aged 82, November 11, at the home of his son in Pittsburg, Kan.; a graduate of the Medical Department of Illinois College, Jacksonville. He was a surgeon in the Mexican war.

John Hensley, aged 68, November 14, from paralysis, at his home in Peoria, Ill.; a graduate of Rush Medical College, Chicago, in 1867, and formerly secretary of the Illinois State Medical Society.

Corbin F. Hargis, aged 43, November 18, at his home in Baltimore, He was one of the most successful physicians in the State; the interment took place at Pokomoke City, Md.

James P. Burchfield, of Clearfield, at Williamsport, Pa., November 8; a graduate of the University of Michigan, Department of Medicine and surgery, Ann Arbor, in 1862.

Louis Washington Knight, aged 88, November 2, at his home in Nashville, Tenn.; a graduate of the University of Pennsylvania, Medical Department, in 1847.

W. H. Carter, aged 60, November 13, at his home near Cottonwood Falls, Kan., from Bright's disease; a graduate of the College of Physicians, New York City.

Benjamin Franklin Keith, aged 70, November 2, at his home in Como, West Feliciana Parish, La.; a graduate of New Orleans School of Medicine in 1857.

James Healy, aged 56, November 11, at his home in Newburyport, Mass.; a graduate of the College of Physicians and Surgeons, New York City, in 1872.

Isaac F. Cowan, aged 80, November 10, at his home near Metuchen, N. J.; a graduate of the Department of Medicine, University of Pennsylvania, in 1860.

Mell. R. Hackedorn, aged 58, at his home in Galion, Ohio, November 16; a graduate of Bellevue Hospital Medical College, New York City, in 1870.

Marion L. Amick, aged 61, November 15, at his home in Cincinnati; a graduate of Cincinnati College of Medicine and Surgery, in 1869.

Alicia Jane Howard Koch, November 12, at her home in Indianapolis, after an illness of six months. She began practising in Ohio in 1865.

William A. Huddleston, November 8, at his home in Wetumpka, Ala.; a graduate of the Atlanta (Georgia) Medical College, in 1880.

William F. VanKirk, November 12, at his home in Grafton, W. Va.; a graduate of Jefferson Medical College, Philadelphia, in 1868.

George Henry Jefferson, aged 73, November 2, at the home of his son in Linton, Trigg Co., Ky.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended November 25, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
California:	Los Angeles	Nov. 6-12	1	
Illinois:	Chicago	Nov. 13-19	21	2
	Danville	Nov. 13-19	1	
	Springfield	Nov. 13-19	1	
	Imported from East St. Louis, Ill.			
Louisiana:	New Orleans	Nov. 6-19	4	
Michigan:	At 48 places	Nov. 13-19	Present	
Missouri:	St. Louis	Nov. 13-19	10	
New York:	New York	Nov. 13-19	4	
Ohio:	Toledo	Nov. 13-19	1	
Pennsylvania;	Philadelphia	Nov. 13-19	2	
South Carolina:	Georgetown	Nov. 16	2	
	Greenville	Nov. 13-19	2	
South Dakota:	Sioux Falls	Nov. 13-19	2	
Washington:	Tacoma	Nov. 6-12	2	
Wisconsin:	Milwaukee	Nov. 6-19	42	
	SMALLPOX—INSULAR.			
Philippine Islands:	Manila	Sept. 19-24	2	2
	SMALLPOX—FOREIGN.			
Brazil:	Bahia	Oct. 15-29	43	2
	Rio de Janeiro	Oct. 9-23	578	183
China:	Chefoo	Oct. 8-15	1	
	Shanghai	Oct. 15		3
France:	Paris	Oct. 30-Nov. 5	12	
Great Britain:	Bristol	Oct. 30-Nov. 5	7	
	Manchester	Oct. 30-Nov. 5	1	
	Newcastle-on-Tyne	Oct. 30-Nov. 5	5	
	Nottingham	Oct. 30-Nov. 5	2	
Italy:	Palermo	Oct. 30-Nov. 5	16	2
Netherlands:	Rotterdam	Oct. 30-Nov. 5	1	
Spain:	Barcelona	Oct. 21-31		15
	YELLOW FEVER.			
Brazil:	Para	Sept. 1-Oct. 20		16
	Rio de Janeiro	Oct. 9-23	2	
Ecuador:	Guayaquil	Oct. 26		1
Mexico:	Merida	Nov. 6-12	1	
	Texistepec	Nov. 6-12	21	4
Panama:	Colon	Nov. 7	1	
	From Panama			
	CHOLERA.			
Egypt:	Suez	Nov. 4	2	
	From B. B. S. S. Coulsdon from Java			
India:	Calcutta	Oct. 8-22		22
Russian Empire:	Baku	Oct. 11-18	60	24
	Merv	Oct. 1-7	1	
	PLAGUE.			
Africa:	Cape Colony, Port Elizabeth	Oct. 13-19	1	
Brazil:	Bahia	Oct. 15-Nov. 4		18
	Rio de Janeiro	Oct. 9-23	72	25
Chile:	Iquique	Oct. 1-15	Present.	
India:	Bombay	Oct. 19-25		63
	Calcutta.	Oct. 8-22		5
	Karachi	Oct. 17-23	9	8
Peru:	Callao	Oct. 1-15	3	
	Lima	Oct. 1-15	5	
Straits Settlements:	Singapore	Oct. 26-Nov. 8	1	1

Changes in the Medical Corps of the U. S. Army for the week ended November 26, 1904:

RICHARD, Major CHARLES, surgeon, returned from sick leave, will report to the chief surgeon of the division for duty as his assistant, relieving Major Robert J. Gibson, surgeon, who will report to the commanding general, department of Luzon, for assignment to duty.

WELLS, FRANCIS M., contract surgeon, is relieved from duty in the department of the Visayas, and will proceed to Zamboanga, Mindanao, reporting to the commanding general, department of Mindanao, for assignment to duty.

PURNELL, JULIUS M., contract surgeon, is relieved from duty in the department of Luzon, and will proceed to Iloilo, Panay, for duty.

GUNCKEL, GEORGE I., contract dental surgeon, recently arrived on the transport Thomas, will proceed to Zamboanga, Mindanao, and will report to the commanding general, department of Mindanao, for assignment to duty.

BREWER, ISAAC W., contract surgeon, is granted leave for one month, from about November 11, with permission to apply for an extension of fifteen days.

SWEAZEY, Captain VERGE E., assistant surgeon, is granted leave for two months.

RIETZ, HUGO C., contract dental surgeon, is granted leave for one month, from about December 9, with permission to apply for an extension of seven days.

GILCHRIST, First Lieutenant HARRY L., assistant surgeon, will proceed to Schuylkill Arsenal, Philadelphia, Pa., for conference with the officer in charge of the quartermaster's depot at that place on official business pertaining to the manufacture of ward tents for field hospital purposes, and upon the completion of this duty will return to his proper station.

COOKE, ROBERT P., contract surgeon, will proceed to his home for annulment of contract.

COOKE, ROBERT P., contract surgeon, is granted leave for twenty days, to take effect when he is relieved from duty at Fort Wood.

JOHNSON, Major RICHARD W., surgeon, is granted leave for two months, to take effect when he is relieved from duty in connection with the Louisiana Purchase Exposition.

A board of officers to consist of Major William C. Borden, Major W. D. McGraw, surgeons; Captain C. R. Darnall, assistant surgeon, is appointed to meet at the Army Medical Museum Building, Washington, D. C., November 29, for the examination of officers of the medical department for promotion.

The following-named officers will report to Major William C. Borden, surgeon, president of the examining board, at the Army Medical Museum Building, Washington, D. C., November 29, for examination for advancement: First Lieutenants Walter Cox, Charles E. Marrow, assistant surgeons.

BRANCH, FREDERICK D., contract surgeon, is relieved from duty at Fort Ethan Allen and will proceed to Fort Wood for duty.

MAUS, Lieutenant-Colonel LOUIS M., deputy surgeon-general, extension of leave granted October 20 is further extended twenty days.

MACDONALD, CHARLES E., contract surgeon, is relieved from duty in the Philippine Islands and will proceed to his home for annulment of contract.

ASHFORD, Captain BAILEY K., assistant surgeon, is granted leave for one month, to take effect not later than December 20.

Changes in the Medical Corps of the U. S. Navy for the week ended November 26, 1904.

LANDO, M. E., assistant surgeon, ordered to the Naval Hospital, Mare Island, Cal.—November 18.

WINN, C. K., acting assistant surgeon, ordered to the Naval Hospital, Norfolk, Va.—November 18.

NELSON, H. T., JR., assistant surgeon, appointed assistant surgeon, with rank of lieutenant (junior grade) from November 14, 1904—November 21.

BERRYHILL, T. A., surgeon, detached from the Baltimore and ordered to the Oregon—November 23.

DIEHL, C., surgeon, detached from the New Orleans and ordered to the Baltimore—November 23.

CRANDALL, R. P., surgeon, detached from the Oregon and ordered to the New Orleans—November 23.

NELSON, H. T., JR., assistant surgeon, ordered to the Naval Hospital, Washington, D. C.—November 23.

Changes in the Public Health and Marine-Hospital Service for the week ended November 22, 1904:

CARMICHAEL, D. A., surgeon, bureau letter of September 21, 1904, granting Surgeon Carmichael leave of absence for one month from October 18, 1904, amended so that said leave shall be for twenty-eight days only—November 19, 1904.

WHITE, J. H., surgeon, granted leave of absence for eight days from November 20—November 18, 1904.

GREENE, J. B., passed assistant surgeon, granted leave of absence for four days from November 11, 1904, under paragraph 191 of the regulations.

LUMSDEN, L. L., passed assistant surgeon, granted leave of absence for one month and ten days from November 20—November 17, 1904.

GOLDBERGER, JOSEPH, passed assistant surgeon, granted leave of absence for five days from November 10, 1904, under paragraph 191 of the regulations.

AMESSE, J. W., assistant surgeon, granted leave of absence for fourteen days from January 2, 1905—November 22, 1904.

EBERSOLE, R. E., assistant surgeon, granted leave of absence for fifteen days—November 19, 1904.

DUKE, B. F., acting assistant surgeon, granted leave of absence for twenty-five days from November 15—November 18, 1904.

FRICK, JOHN, acting assistant surgeon, granted leave of absence for thirty days from December 1—November 17, 1904.

FRISSELL, C. M., acting assistant surgeon, granted leave of absence for fifteen days from November 9—November 18, 1904.

GOLDSBOROUGH, B. W., acting assistant surgeon, granted leave of absence for three days from November 26—November 18, 1904.

HUME, LEA, acting assistant surgeon, granted leave of absence for thirty days from November 7—November 21, 1904.

KIMMET, W. A., acting assistant surgeon, granted leave of absence for fifteen days from November 16—November 17, 1904.

SIBREE, H. C., acting assistant surgeon, granted leave of absence for seven days from November 18—November 17, 1904.

TOWNSEND, W., acting assistant surgeon, granted leave of absence for thirty days from December 15—November 22, 1904.

MILLER, CHARLES, pharmacist, department letter of November 7, 1904, granting Pharmacist Miller leave of absence for fourteen days from November 10, 1904, amended to read fourteen days from November 15—November 17, 1904.

HANRATH, F. R., pharmacist, to report to medical officer in command at Cleveland, Ohio, for temporary duty and assignment to quarters—November 22, 1904.

SOUTHARD, F. A., pharmacist, granted leave of absence for twenty-six days from November 20—November 12, 1904.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

A NEW METHOD OF MAKING THE RING TEST FOR ALBUMIN.

BY

WILLIAM H. BENNETT, M.D.,

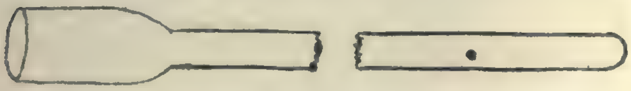
of Philadelphia.

I have found that the method of making the ring test, usually employed by the young men fresh from the medical laboratories, who come to me as resident physicians, is to draw up the acid or urine into a pipet by suction with the mouth. This method is unsanitary, especially in a laboratory where the same pipet is liable to be used by more than one person, and it is dangerous when the acid is thus drawn up. Moreover, it has the minor disadvantage of a constant risk of dropping the acid on the laboratory tables and floors, or on the physician's clothes.

I have devised the following very simple plan as an improvement on this method:

An ordinary test-tube, from a half to three-quarters of an inch in diameter and six or seven inches long, is perforated one and a half inches from the bottom, with an opening not more than a sixteenth of an inch in diameter: Holding this tube in a slanting position, with the perforation looking upward, it is filled to the depth of a half inch with nitric acid. This is very conveniently done by pouring the acid from an ordinary dropping bottle.

After taking the specific gravity of the urine, the perforated tube containing the acid is slowly submerged in the urine in the specific gravity jar, in such a way as to allow the urine to flow slowly through the perforation over the acid. This it will do without any mixing, if the perforation is sufficiently small.



The inflow of the urine can be controlled by placing the dry thumb over the mouth of the test-tube, but it is better to use a smaller perforation, if there is any mixing of acid and urine. Temporarily, the size can be reduced by a piece of adhesive plaster or a gum band placed around the tube over a portion of the opening. This is a poor makeshift.

If the urine in the specific gravity jar is needed for other tests, another test-tube a little larger than the perforated one can be filled to the depth of an inch or two with urine, and the acid-containing tube lowered into it. This requires an additional minute, an unnecessary sacrifice of time, when there is plenty of urine.

For busy office work, when it is important to find out quickly if a specimen of urine contains albumin, I have devised another tube. It is of glass nine inches in length. Its upper portion for the distance of an inch is five-eighths of an inch in diameter. It then narrows quickly to a tube five-sixteenths of an inch in diameter, with a rounded lower end which is sealed. A distance of one and a quarter inches from the lower end there is a perforation not more than a sixteenth of an inch in diameter. The axis of the tube is a straight line.

To use this tube, five or ten drops of nitric acid poured into it from a dropping bottle, as in the case of the test-tube described, and it is then slowly lowered into the bottle of urine brought by the patient. If the perforation is not too large, the ring formed by urine containing albumin is very clearly defined, and there is no risk of the acid escaping into the bottle and spoiling the urine for further testing, unless the tube is allowed to remain far longer than necessary. I found no escape of acid in 10 minutes.

A few practical points are of value. Success depends upon a *very small perforation.* A dropping bottle, with a stopper set for use, is a great convenience. Always be sure that the tube is slanting, with the perforation pointing *upward*, when the acid is put into it. Do not clumsily get the acid on the inner side of the tube near the top, where it might get on the thumb if control should be used. In cleansing a tube at a faucet, beware of the spouting through the perforation. *Do not put a perforated test-tube with others until it is distinctively marked.* Its upper end can be flattened in the flame.

To those to whom the old method has by many years' practice become second nature, no change will at first seem an improvement; but I am sure a little experience with the one I have described, will show its superiority over the old.

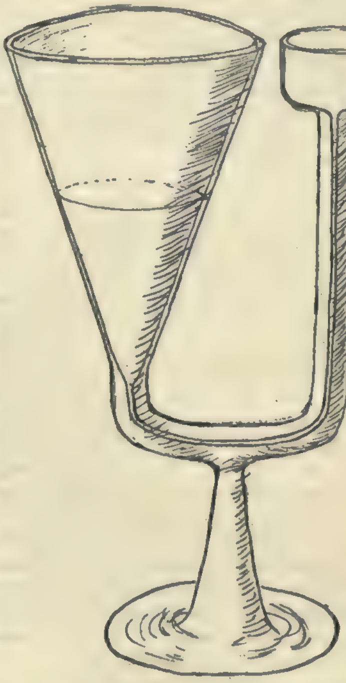
AN IMPROVED DEVICE FOR THE NITRIC ACID TEST OF URINE.

BY

E. G. BALLENGER, M.D.,

of Atlanta, Ga.

Many suggestions have been brought forward to facilitate the performance of this test, only to prove unsatisfactory, as for instance the "albumoscope," "uroscope," etc., which have been shown under several other names. They afford the sole advantage of easily making the test, as the information gained is far less than that determined by the conical glasses so warmly advocated by Simon in his book on "Clinical Diagnosis." The value of this method does not seem to be fully realized by the profession at large. In discussing the ordinary test-tube (Heller's test). Simon says: "The picture thus obtained cannot be compared with those seen when the apparently trivial change is made of using a conical glass of about two ounces, capacity, instead of the test-tube." The small tube connecting the bottom of the cone with the cup containing the nitric acid, allows it to displace the urine with very little admixture, and gives a clear cut and distinct zone between the two. As it is well to use about the same amount of urine in all the tests, a ring is marked on the cone as is shown in cut. A white ring at the junction of the fluids shows the presence of serum-albumin, globulin, or albumoses. If due to serum-albumin, a portion of this precipitate does not clear up, but becomes more distinct; while if due to albumoses it will clear up, but reappears on cooling, and gives to the urine a yellow color. In addition to this ring, an excess of uric acid is shown by another which is seen from within one to ten minutes, in the clear urine 1 cm. or 2 cm. above the zone of contact. This disappears on heating, and does not reappear. Bile in the urine is shown by the usual play of colors seen when nitric acid is brought in contact with it. Urea may be estimated by the hoar-frost appearance on the side of the vessel which occurs when more than 25 gm. of urea per liter are present, due to the formation of urea nitrate. Spangles of the same substance appear in the presence of at least 45 gm. per liter; 50 gr. or more of urea per liter gives a dense mass of urea nitrate. Resinous bodies give the same kind of a ring at the zone of contact as albumin, but clear up on being shaken with alcohol.



In conclusion I will quote again from Simon from whom many points of the foregoing tests were obtained. "From what has been said it is manifest that the employment of the nitric acid test in the manner indicated (here he means the simple conical glass with nitric acid introduced by a pipet) furnishes much valuable information, and the adoption of this method as described, not only by hospital students, but by general practitioners as well, cannot be too strongly urged."

LEGALIZATION OF "OPTOMETRY."

BY
FRANK VAN FLEET, M.D.,
of New York.
Chairman of the Committee on Legislation of the Medical Society of the State of New York.

To the Medical Profession of the State of New York:

During the legislative session of 1904, a society of opticians known as The Optical Society of the State of New York, petitioned the Legislature to enact a law creating a State board of examiners in optometry. Before this board would appear, all persons who desire to practise optometry, which practice was defined in the act, to be enacted as "the employment of any means other than the use of drugs for the measurement of the powers of vision and the adaptation of lenses for the aid thereof." The Medical Society of the State of New York opposed this bill, and with the aid of other organizations, especially the county medical societies and the Optical League (an organization of opticians doing a legitimate business), secured its defeat.

Since the last election, this optical society has been forwarding to physicians in all parts of the State, as well as to the members-elect of the next Legislature, a document, giving reasons why a law of this kind should be enacted, and asking their endorsement.

At the time of the hearing on the Optometry Bill before the legislative committees of last year, the opticians presented a long list of names of physicians who had endorsed their efforts. I then communicated with every name on that list, and learned that where reputable physicians had endorsed the measure, it was through a misapprehension of the real purpose of the bill; and when its true character was pointed out to them, they not only withdrew their endorsements, but in many cases wrote vigorous letters in opposition to it. Many of the names were fictitious, the communications forwarded to the addresses given being returned as not found. A large number were the names of irregular practitioners, as osteopaths, spiritualists, and so on. There is no doubt that the object of the opticians in presenting the present arguments is to obtain the endorsements of physicians, so that at the next legislative session these signatures can be used to offset the opposition which will be presented by the regularly organized medical bodies of the State. I, therefore, address the profession of the State, urging its members not only to refuse to endorse this and similar measures, but to make an effort to present to their representatives, both in the Assembly and the Senate, the true merits of the case, and urge their opposition to it.

The arguments presented by the opticians are very misleading. Their claim, of course, is that they desire to protect the community from incompetent people, but the fact is (as every well-informed physician must know) that they are all incompetent. They seek to create a separate profession. This they deny, but in their remarks before the legislative committees, they continually used the expression, "our profession." They seek the legal right not only to apply lenses for the correction of defective vision, which may or may not be due to errors of refraction, but they also seek to treat headaches, dizziness, and the various other reflex phenomena which may be due to affections of the eye itself or to affections of organs remote from the eye. They pose as being competent to make a differential diagnosis. To prepare physicians to do this work, the law requires that a four-year course in a medical college shall be taken, after which a medical examination, conducted by the State, must be passed. Physicians themselves find that after this preparation it is often difficult to be sure of one's ground; and, if this is so, there seems to be no good reason why opticians should be allowed to undertake the same work with any less preparation.

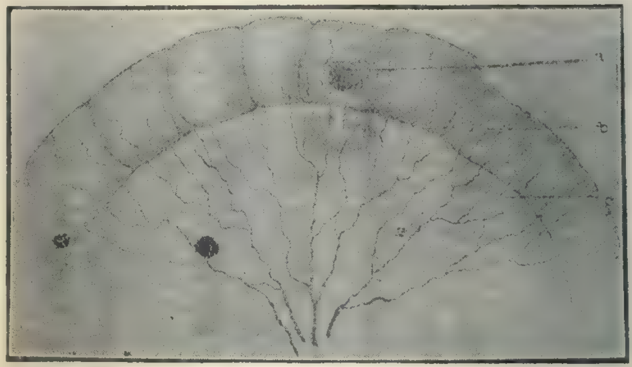
It seems unnecessary at this time to go into an extended argument in opposition to this bill. The effort to secure its enactment is not an honest one. Opticians know that they are violating the law in following the occupation which they are now engaged in, and they say that if their bill is enacted, it will not give them any more powers than they now possess, while the fact is, that the enactment of the bill will give them the legal right to do what they are now doing in violation of the law. They really desire to use the Legislature as a tool, to put them beyond the grasp of the law; and if this is once clearly brought to the attention of our assemblymen and senators, there is no doubt what the outcome will be. We have met this and similar efforts more than once in the past, and there is no doubt that we shall meet many more in years to come; but, from our experience, we feel justified in making the assertion that if the medical profession will present a united opposition to measures of this kind, they will never be enacted into law in the State of New York.

GUNSHOT WOUND OF THE ABDOMEN: OPERATION, RECOVERY.[1]

BY
MAJOR CHARLES F. KIEFFER,
of Fort D. A. Russell, Wyoming.
Surgeon United States Army.

This case is reported on account of several interesting conditions found at operation, and particularly on account of the prolonged stercoraceous vomiting after operation.

W. F. J., private, Company "E," Eleventh United States Infantry, aged 22. This man was shot during a brawl at 1 o'clock on the morning of July 2, 1904. The ball entered about three inches above the posterior superior iliac spine on the right side. There was no wound of exit. The exact weapon with which he was wounded is not known. It is believed, however, that the shot was fired from a .32 caliber Colt revolver, in which high power, .32 caliber rifle cartridges had been fitted. The man was immediately removed to St. John's Hospital in Cheyenne. Here, at 2.30, some attempt was made to explore the wound, but the probe could not be introduced more than an inch or an inch and a half. A consequent diagnosis of nonpenetration was made. I saw him first at 9.30 a.m. At that time his temperature was normal, his pulse was rather full and strong at 70. He complained of severe pain in the region of the umbilicus. The wound in the flank had bled freely. The belly was slightly tumid and generally tender. The liver dulness was diminished, particularly laterally. On these symptoms a diagnosis of penetration was made, and I determined to open the abdomen. No attempt was made to explore or follow up the external wound for the following reasons: In the first place, I do not believe that the exploration of these wounds with probe or finger is ever justifiable. It almost always results in pushing infected material into the wound, and in the end gives no information on the most vital question, the penetration or nonpenetration of the hollow abdominal viscera. In this case particularly, no good was to be gained, because, in



a, Perforation from pistolshot wound; b, collapsed section of bowel; c, anomalous mesenteric attachment.

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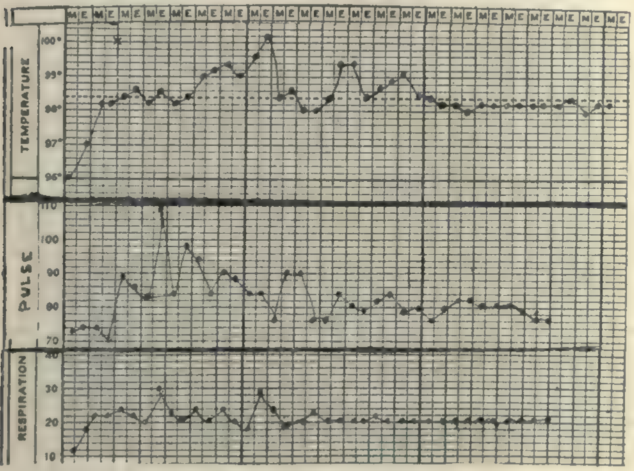
[1] Published by authority of the Surgeon-General, United States Army.

any event, the operation could not have been carried through the thick pad of lumbar muscles.

After thorough preparation at 10.30 a.m., 9½ hours after receipt of the injury, I opened the abdomen in front in the middle line. The incision was begun immediately below the umbilicus and carried down nearly to the pubis, through the edge of the right rectus muscle. On opening the peritoneum a quantity of free blood was found in the peritoneal cavity. The cecum and ascending colon was first examined because on account of the location of the wound, it was thought that this was the viscus most likely to suffer an injury. No perforation was found. Beginning at the ileocecum the small intestine was examined loop by loop. Fully two-thirds of its length had been gone over, from below upward when the first perforations were found. These were through a loop of gut. From both of the holes spinach-green bowel contents were oozing and soiling the peritoneum. There was a great deal of engorgement of the surrounding structures and a free deposit of flaky lymph on the bowel and mesentery adjoining the perforations. The bowel was clamped above and below the wounds; all visible intestinal contents as well as the flaky lymph were mopped off. The eroded peritoneal coats and the edges of the perforation were then wiped with pure carbolic acid, followed instantly by alcohol. The wounds were closed in the usual manner by means of linear Lembert sutures of fine silk, about eight stitches to the inch. Within the next 18 inches three more such perforations of loops of bowel were found with six orifices. These were treated in the same manner and a rent in the mesentery was sutured. The last orifices were close up to the duodenum. The bullet was not found and no special effort was made to locate it. All visible contamination, lymph flakes and blood were then mopped out of the cavity. No further hemorrhage was found. The abdominal cavity was flushed with hot sterile saline solution and a quantity left in the cavity. The abdomen was closed in layers with catgut in the peritoneal, fascial and muscular sutures. Silkwormgut tension sutures were used. Anesthetic ether; time of operation 45 minutes.



Star indicates operation.

Two curious conditions of the small intestine were observed at the operation. The intestine in lengths of from one to two feet was collapsed and contracted like a thick hard ribbon. Alternating with this there would be a foot or two, presenting the usual tubular appearance and again a collapsed section. Nearly half of the small intestine was in this condition. It was noticed that none of the perforations were in the collapsed sections. I believe the condition was due to shock, was paralytic in its nature and was largely responsible for the serious symptoms which followed. The second noteworthy condition was the anomalous form of the mesenteric attachment. Throughout the entire small intestine the mesenteric attachment consisted of a vast number of tiny lunets. (See drawing). The vessels from the mesentery to the bowel passed through the point-like attachments of the lunets and at many places they were so thin and delicate that I handled the bowel with a great deal of trepidation lest they should tear away. I believe this fragility was more apparent than real.

Eight hours after operation vomiting began which had a trace of fecal odor. It increased in frequency and severity and by midnight had a horribly stercoraceous odor. This symptom persisted 84 hours in spite of all efforts to control it. A small movement of the bowels was obtained on the fourth day and on the morning of the fifth day the fecal vomiting stopped with a full bowel movement. From noon of that day until six o'clock in the evening the nurse described the bowel movement as being almost continuous and extremely fetid. There was a slight recurrence of vomiting on the evenings of the next two days but it had only a trace of fecal odor and was copiously stained with bile. The measures taken to relieve the fecal vomiting were principally directed toward relieving the paralytic condition of the intestine, as I considered all of the trouble was due to the collapsed state of the intestine encountered at the operation. Gastric lavage gave no relief. Large irrigations of hot saline solution were given with the idea of stimulating intestinal activity while at the same time encouraging elimination. Anodynes were withheld as far as possible although severe abdominal pain compelled the use of a little morphin in the first few days.

After the vomiting was stopped the further progress to recovery was uneventful. The drain was removed on the third day and the open stitch tied. Primary healing was obtained throughout the wound excepting in one stitch which gave little trouble after it was removed and the little cavity cleaned out. At the operation no attention was paid to the entrance wound beyond cleaning it and covering it with an antiseptic pad. It healed promptly leaving a small pigmented scar. A temperature chart is appended.

NEW WORDS.

BY

HENRY RICHTER, Ph.D.,

of New York City.

To the Editor of American Medicine:—In making a medical translation I was, much to my astonishment, struck with the fact that I was unable to translate the German word "Scheintod" into English, except by circumphrasing it. "Apparent death," with its attendant derivative, "apparently dead," do not even cover the meaning in each instance. Take the sentence: "After the accident the man was taken from the debris, apparently dead." This man was only "scheinbar todt," but not "scheintodt"; he would not have been buried on the assumption that he was really dead, while "Scheintodte" might be, and are supposed to have been so buried. Surely, here is a fundamental distinction which the language ought to be able to express. Even "suspended animation" (which again requires two words) conveys the meaning that, although the person appears to be dead, the physician knows perfectly well that he is not.

I therefore suggest the following series of words which also include the state of persons who feign death, who in our present vocabulary, are likewise included in the category of those "apparently dead":

Mortisemblance or mortisemblancy, mortisemblant; mortisimulance, mortisimulant.

For the last two words even the German language has no ready translation.

FINSEN AND HIS WORK.

BY

GEORGE G. HOPKINS, M.A., M.D.,

of Brooklyn, N. Y.

With the honors due a great benefactor of the human race, Professor Niels R. Finsen was laid to rest in Copenhagen, the city of his triumphs. At his bier were the representatives of three emperors and three kings, beside many royal personages.

These are honors rarely accorded to men of our profession, and they attest the honor in which he was held by the unprofessional, titled, and learned men of the Old World.

If the government of this country gave support to such experiments as Finsen undertook some 20 years ago, America would probably have had the honor of introducing to the world the science of phototherapy. It was the thesis of Dr. Picton, of Louisiana, that gave to Dr. Finsen his first inspiration in the study of decomposed light.

Many of the great advances in all avenues of usefulness have been accomplished by people of the "shut in class," those who have been unable to go out into the world and fight their way to fame.

Finsen was always an invalid, his feeble health prevented him from doing anything but laboratory work. Indeed, when I last saw him, he was in a condition which would confine most men to their beds. I could hear the regurgitation of his heart two feet from him, he was carrying in his abdomen several gallons of fluid. He told me that he had been tapped several times, and expected to be tapped very shortly again. How he was able to keep about and direct the work of his "Institute" in such a physical condition was an enigma to me, yet he spent two hours or more one day with me, without even sitting down, explaining his methods and showing his cases, giving directions to his manufacturers, so as to be sure that I should have a proper apparatus to bring back to this country.

The profession in this country is doing very little to carry on the work of this great man. It is but natural that there should be an effort to construct less expensive apparatus to accomplish the same results, as it is almost impossible to secure the necessary materials for its construction in this country. In the substitutes an effort has been made to do away with the expensive quartz lenses, that are necessary for the construction of the Finsen tube, also to lessen the light power and reduce the cost of operation.

Thus far nothing that I have seen by our instrument makers (and I have investigated all those of which I have heard) can be compared in their effects, to the tubes made in Copenhagen devised by Finsen.

There are comparatively few of these tubes in this country, yet there is incontrovertible evidence that no treatment for lupus yet devised has anything to offer, in successful treatment, of this disease, in comparison with the hundreds of cures effected with the original Finsen apparatus.

Six years' experience with this treatment has entirely convinced me of its great utility.

In lupus, in rodent ulcer, in carcinoma, especially cervical, in birth marks, in eczema, and in the treatment of cicatrices after amputation for malignant disease, it has no equal.

A CASE OF ACUTE POLIOMYELITIS OCCURRING IN AN ADULT.

BY
JOHN W. FLATLEY, M.D.,
of Philadelphia.
Resident Physician Philadelphia General Hospital.
(Service of Charles S. Potts, M.D.)

Acute poliomyelitis occurring in an adult is rare. The combined statistics of Seeligmüller, Galbraith, Sinkler, Gowers, and Starr show that the greatest number of cases occurs in the second year of life; from that period there is a gradual decrease until the age of 10, when five cases are given; after this period no statistics are stated. Of the 214 cases collected by Gowers, the number in each successive year is as follows:

First year, 54; second year, 58; third year, 39; fourth year, 17; fifth year, 23; sixth year, 8; seventh year, 4; eighth year, 6; ninth year, 5.

For this reason the following case is deemed worthy of report:

A. S., female, aged 23, married, occupation housework, was admitted to the Philadelphia Hospital, September 3, 1904. Her past medical history was negative, except that she had had two miscarriages, induced by herself. Her present illness dates back to May 16, 1904, when she was suddenly taken with high fever, pains in back, headache, and anorexia. A week later she suddenly lost power in both her lower limbs. Shortly after severe pains in both legs were experienced, followed by contraction of the legs on the thighs, and thighs on the abdomen; the skin was also hyperesthetic, so that the bedclothes increased her pain. On admission to the Philadelphia Hospital the following conditions were noted:

Sensation.—No areas of tenderness, excepting slight hyperesthesia of calves.

Reflexes.—Knee-jerks, achilles jerks, and Babinski reflex are absent. The patient lies with her feet in the position of equinus, and markedly everted. Marked hypotonia of the muscles, especially those about the hip-joints, is present.

Paralysis.—No paralysis of the rectal and bladder sphincters. Muscles very flaccid; the quadriceps and tibialis anticus especially are atrophied. No fibrillary tremors are present. The muscles of the legs and thighs do not respond to a strong faradic current. The feet are cold to the touch.

The diagnosis of acute poliomyelitis as against multiple neuritis was made for the following reasons: The sudden onset and development of the paralysis, preceded by fever, backache, headache, and anorexia, is not the history of the beginning of acute poliomyelitis and not of multiple neuritis, which is progressive in its development. The marked pain and hyperesthesia which existed in the early stages of the attack would seem to point toward neuritis, but it must also be remembered that pain and hyperesthesia may occur in the early stages of acute poliomyelitis. The contractures which also occurred at this time can be best explained by nerve-root irritation, due to congestion of the meninges, a condition more or less present during the early stages of acute poliomyelitis.

FOREIGN BODY IN THE HEART.

BY
C. R. CLARK, M.D.,
of Youngstown, Ohio.
Attending Physician Youngstown Hospital.

In connection with Dr. Jordan's report in *American Medicine* of September 10, 1904, this report of a similar case in an infant may be of interest. I have delayed reporting until six weeks elapsed, because Dr. Jordan's patient died on the twenty-fourth day after the operation, of pericarditis.

September 8, 1904.—Baby Z., aged eight months, male. The child has had good health ever since birth, has been well nourished and active, breast fed. He was apparently perfectly well when bathed yesterday. During the morning he was playing on the floor on a bed quilt. He became very peevish and irritable, and cried a great deal all afternoon and night, but no sudden beginning of the distress had been noted. The parents thought the crying was due to teething, but noticed that it seemed to hurt him to pick him up or handle him. At the bath today the mother noticed near the left nipple a small swelling, that had not been there before, in appearance like an insect bite. I was called in on account of the continued and apparently causeless crying.

Examination was entirely negative, except the presence of a small swelling below and outside the left nipple. It was about a fourth inch in diameter, and there was a small black spot near the center. There was a distinct increase in the prominence of the mass when baby strained in crying, and it contained a fixed hard point that transmitted the cardiac pulsations definitely, and as a thrust rather than as a sideways movement.

The diagnosis of a foreign body imbedded in the chest wall was confirmed by fluoroscopic examination at the hospital and its removal was promptly undertaken. Under anesthesia a small incision was made over the swelling and a blackened needle was removed by means of forceps by my colleague, Dr. J. A. Sherbondy. It was 1⅜ inches long, broken through the eye but complete from eye to point, and was directed upward, inward and backward. The base was under the subcutaneous fascia between the fourth and fifth ribs and the point must have been imbedded in the heart muscle, both on account of the relative position of that organ and the needle, and because of the character of the pulsation transmitted by the needle, the thrust noted by the palpating finger and the peculiar tugging sensation when the needle was grasped by the forceps in its removal. The small incision was left open and dry aseptic dressing applied.

Baby was nursed about three hours after the operation, having fully reacted from the ether, and from that time there has not been a symptom of any sort referable to the entrance of the needle or its removal. No increase of temperature or pulse-rate, heart sounds perfectly clear, and no distress or discomfort in any way. The wound healed promptly and now six weeks afterward a very slight scar is the only sign remaining of such a dangerous accident.

No one can account for the entrance of the needle as no one knows just when it occurred, but the most probable explanation is that this needle was broken and left in the quilt when it was being made, and that in some way it had assumed just the right position to be thrust into baby's chest during his play on the floor.

Improvement in Dairying.—Great progress has been made during the last 10 years in curing and preventing diseases of cattle. The most serious disease of all throughout the world is tuberculosis, save in China. The tuberculin test, invented before the Chicago Fair, revealed such an astonishing prevalence of tuberculosis among cattle where its presence was never suspected that every one shrank from the idea of killing all these cows. Within the last 10 years it has been definitely proved that tuberculosis among cattle is not hereditary. If the calves are taken away from their mothers as soon as they are born, so that they never have their mothers' milk, they will grow up to be perfectly healthy, even if the sire also was tuberculous. It is not necessary to destroy high-bred bulls if they are tuberculous, provided they are kept in a pasture by themselves. Milk fever is a most painful disease, which seems to craze a cow soon after her calf is born, and it has carried off an alarming number of cows that have big records for milk production. The newly discovered remedy is so simple that a veterinarian is not necessary. A bicycle pump is used to force oxygen into the udder, and the poor creature's sufferings are instantly relieved. [*Country Life in America.*]

ORIGINAL ARTICLES

THE PRESENCE OF TUBERCLE BACILLI IN THE URINE OF PATIENTS SUFFERING WITH PULMONARY TUBERCULOSIS.

BY

RANDLE C. ROSENBERGER, M.D.,

of Philadelphia.

Assistant Professor of Bacteriology, Jefferson Medical College; Director of the Clinical Laboratory of the Philadelphia General Hospital; Pathologist to the Henry Phipps Institute for the Study, Prevention and Treatment of Tuberculosis.

(From the Clinical Laboratory of the Philadelphia General Hospital.)

In examination of the urine for tubercle bacilli in 25 cases, the residual urine was obtained by means of a sterile catheter. In no case was tuberculosis of the genitourinary tract diagnosed or suspected, and as can be seen in the accompanying table, only pulmonary tuberculosis was present, the sputum always showing tubercle bacilli. Generally, the urine was perfectly clear in color, light, or of a dark amber color. Upon standing a long time a deposit formed in a few, and this was mostly made up of urates. The technic employed was as follows: The urine was centrifugalized and a sediment obtained. The supernatant fluid was poured off, the tube filled with water, shaken and again centrifugalized. This method was first proposed by Trevithick,[1] who claims that it is attended with the best results. The urinary salts prevent the bacilli and even pus cells from adhering to the cover slip, and by washing with water, this process is facilitated.

Spreads were then made from the sediment and dried carefully over the flame, taking great care not to burn or scorch the preparation. Carbol fuchsin was next applied, and allowed to remain 5 to 15 minutes. This was washed off with water, and a mixture of sweet spirits of niter (two parts) and a saturated alcoholic solution of malachite green (one part) was next applied for one or two minutes. This mixture was washed off with water, and if the preparation was green in color, it was dried and mounted in balsam. If not green, the solution was again applied and reapplied until this color was obtained.

After a very careful examination, few isolated tubercle bacilli were found in three cases. No clumps or groups of bacilli were observed, as are usually seen in cases of tuberculous cystitis, nephritis, etc.

Intraperitoneal inoculations were made into guineapigs, and 2 cc. of the sedimented urine was used. As a result of the inoculations three animals died, and in one of these (No. 17) no tubercle bacilli had been found in the urine of the individual. The surviving animals were kept under observation for three months, then killed, and in not one of them was there any evidence of a tuberculous process.

Herewith is a table of the patients examined.

Marmorek[2] recommends for the detection of tubercle bacilli in fluids, injecting the fluid into a guineapig and then inoculating with a small dose of tuberculin, 3 cc., in from 15 to 20 minutes. The temperature rises immediately, and by five hours reaches 40° C. or higher. The interval between the administration of the bacilli and tuberculin should be not less than 15 minutes nor more than 90 minutes. He claims that the reaction is due to the action between the tubercle bacilli and the tuberculin. The latter, as it comes in contact with the bacilli, causes them to secrete a toxin which gives rise to the fever and other symptoms which make up the tuberculin reaction.

Nattan-Larrier[3] obtained the best results by allowing four to six days to elapse between the injection of the suspected fluid and tuberculin. He used pregnant guineapigs and injected into the fibrous tissue around the mammary gland.

Name.	Sex.	Lesion.	Sputum.	Urine.	Inoculation results in guineapigs.
1 J. McQ..	M.	Dulness at left apex, cough, night sweats.	Positive	Positive	At end of two months the animal died with tuberculosis of the lungs, liver and peritoneum.*
2 M. R......	F.	Dulness at right apex, expectoration profuse.	"	Negative	Survived.
3 A. H.......	M.	Dulness both apices, night sweats and expectoration.	"	"	Survived.
4 M. S.......	F.	Decreased resonance on right side, pains in chest.	"	Positive	Survived.
5 M. L.....	F.	Decreased resonance at apices, emaciation.	"	Negative	Survived.
6 M. M......	F.	Impaired resonance of left apex and upper lobe of right lung	"	"	Survived.
7 M. C.......	F.	Dulness over left chest, resonance increased and emaciation.	"	"	Survived.
8 M. McC..	M.	Dulness of both apices to middle of scapulae	"	"	Survived.
9 Z............	M.	Dulness on left side down to fourth rib.	"	Positive	Emaciation and death in four weeks. Tubercles in peritoneum, spleen, liver, lungs and upon posterior aspect of sternum.
10 J. Eb......	M.	Dulness of entire left side and right apex.	"	"	Survived.
11 J. S........	M.	Dulness of right upperlobe and left apex.	"	"	Survived.
12 S. D.......	F.	Dulness of entire right lung and left apex. Emaciation.	"	Negative	Survived.
13 M.	M.	Scattered areas over both lungs, cavity in left infraclavicular region.	"	"	Survived.
14 C............	M.	Dulness of left base. Over entire area moist rales can be heard.	"	"	Survived.
15 C............	M.	Dulness of entire right lung. Rales over area.	"	"	Survived.
16 G. J........	M.	Consolidation of both apices, anteriorly and posteriorly.	"	"	Survived.
17 P. K.......	M.	Impaired resonance of right side, rales.	"	"	Death in two months. Caseous nodule in abdominal wall. Tubercles in spleen liver and peritoneum.
18 H. T.......	M.	Diminished resonance over entire left side.	"	"	Survived.
19 J. L........	M.	Consolidation of right apex over right scapula, numerous rales.	"	"	Survived.
20 F...........	M.	Dulness of apices anteriorly and posteriorly.	"	"	Survived.
21 Mc N......	M.	Impairment of left apex and upper lobe of left lung.	"	"	Survived.
22 D. J........	M.	Dulness of left chest above fourth rib, hemorrhages.	"	"	Survived.
23 H. K......	M.	Dulness over both lungs to the third rib.	"	"	Survived.
24 L.............	M.	Dulness of lungs to fourth rib.	"	"	Survived
25 M. A......	F.	Dulness over entire left lung. large cavity at left base.	"	"	Survived.

Fournier and Beaume[4] claim that the tubercle bacillus was present in the urine in all cases of acute tuberculosis that they examined. They urge that finding the organism in the urine possesses diagnostic value and that the kidney need not be tuberculous.

Flick and Walsh,[5] in considering the presence of tubercle bacilli in the urine, in 60 cases of clinical tuberculosis taken more or less at random, found that 44 showed the presence of this organism. Forty of these were undoubted cases of at least pulmonary tuberculosis, and 4 were suspected on account of general clinical symptoms and close contact with the contagion. Of the 40 cases of undoubted tuberculosis, 35 showed tubercle bacilli in the sputum and 5 did not.

Their technic was as follows: "Six or more ounces of urine were centrifugalized in a water-motor centrifuge and the sediment poured on one or two coverglasses and allowed to dry thoroughly for 24 to 48 hours. When the crystalline sediment is large in amount it complicates the process and sometimes renders it impossible to find the bacilli. In these cases we always endeavored to dissolve the sediment with water, a weak solution of caustic potash, a weak solution of acetic acid, or with all three in succession, or even several repetitions of the three. After drying and fixing, the sediment is then stained with carbol fuchsin for five minutes, the stain washed off, the specimen decolorized with 95% alcohol (or 95% alcohol in a weak mineral acid) for one or two minutes, then with absolute alcohol for one or two minutes, then further decolorized and counterstained by Gabbet's solution."

Mouillin considers that the secret of finding tubercle bacilli in urine lies in rapid sedimentation by the centrifuge, and immediate staining. He further observes that urine standing sufficiently long to deposit sediment, in the ordinary conical glass, commonly fails to show the organisms, and that examinations under such conditions are of no value.

Boston[6] claims that of over 1,000 specimens of urine examined for tubercle bacilli he has found the organism but three times, "though other acid-fast bacilli have been common findings."

Maragliano,[7] in 12 cases of tuberculosis, as regards the presence of the tubercle bacillus in the urine, concludes with the statement that tubercle bacilli are not found in the urine of persons in whom the infection is localized exclusively in the respiratory organs.

He employed large amounts of urine, which were centrifugalized, repeatedly decanted, and again centrifugalized after the addition of more urine. Slides were next smeared with the sediment, mixed with Meyer's albumin, fixed with heat, and alcohol, and ether, to remove fat and to prevent the staining of smegma bacilli. The specimens were then stained with Ehrlich's solution and decolorized with hydrochloric acid. In none of the 12 cases were any tubercle bacilli found. He then had recourse to the method recommended by Jousset, which consisted in adding to the diluted urine some blood plasma and heating to 100° C., so as to promote coagulation. The coagulum was then separated and redissolved in artificial gastric juice. The last solution was centrifugalized and the sediment examined for tubercle bacilli. Even with this method he was unable to show any tubercle bacilli in the urine of these patients. The injection into guineapigs gave negative results.

Remarks.—This small number of cases scarcely seems to warrant a positive assertion. However, it is safe to say that in pulmonary tuberculosis the tubercle bacillus in the urine is found in only a very small percentage of cases.

If the smegma bacillus was present it would be completely decolorized by using the sweet spirits of niter mixture after the carbol fuchsin. If the urine is carefully obtained with a sterile catheter, the smegma bacillus as a contaminant will be obviated. Personally the reputed frequent presence of this organism in urine is, I think, exceedingly exaggerated.

I wish to extend my thanks to Dr. Georgiana Walter for very valuable assistance.

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THE RÖNTGEN TREATMENT OF MALIGNANT DISEASE OF THE BREAST.[1]

BY

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A careful consideration of the fundamental facts that underlie all treatment of malignant disease is essential to a clear understanding of the value and place of röntgen therapy.

The study of pathologists and clinicians has so far resulted in no definite knowledge of the etiology and pathology of malignant disease. Scientific opinion generally agrees that malignant tissue is made up of normal cells out of place, possessing an inherent tendency to destructive growth and the development of metastases. The reason why it possesses these peculiar properties is unknown. The problem seems as far from solution as ever; nothing is known of the etiology of malignant disease.

The same is true of the pathologic histology or course of its development. Tumors apparently identical in macroscopic and microscopic appearances differ widely in their malignancy and clinical manifestations. Similar tumors differ greatly in the rapidity and malignancy of their growth and destructive tendencies. These characteristics vary in similar tumors and in the same tumor at different periods of its growth. This is so true that it is impossible to make a definite prognosis in any case.

In a recent article Dr. Andrew J. McCosh has said: "From the statistics that follow, it will be seen that this difference in the rapidity and morbidity is to a considerable extent dependent on the variety of sarcoma to which the tumor belongs. It is not always, however, for we find that tumors whose structures seem to our pathologists to be practically similar, will vary greatly in both respects."

In addition to these changes, metaplasia is a clinical fact that is yet unexplained. This change of healthy tissue into malignant may be due in reality to an undetected focus of malignant disease in the apparently normal tissue.

The possibility of this is shown by 28 cases of apparently benign breast tumors, in which Dr. W. S. Halstead, of Johns Hopkins Hospital, told the author, foci of malignant disease had been found, after systematic cutting of the entire tumor and careful microscopic study.

A similar change is frequently seen in recurrent tumors after operation. They are often more malignant and rapid in growth, while distinct changes in the type have frequently been noted. Such a change has been noted in two of the author's cases. One of these (Case V) will be reported more fully later.

The varying reactions seen in apparently similar malignant tumors under röntgen treatment, or in the same tumor at different periods of treatment, may be accounted for by these differences.

They may, on the other hand, be due to the individual reaction of the patient, or to varying states of vitality and resistance. The general condition of each patient must, therefore, receive careful attention during röntgen treatment.

In spite of the lack of exact knowledge in etiology, pathology and pathologic histology, certain definite principles have been established in the treatment of malignant diseases as the result of clinical study.

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[1] Read before the American Röntgen Ray Society, St. Louis, September 12, 1904, in the symposium on malignant disease

A patient's chances for recovery or, at least, for the longest freedom from recurrence, has been shown to follow early radical surgical removal of the diseased tissues. The essential factor of any successful treatment of malignant disease is, that it be early and radical; its severity to be limited only by the patient's general vitality and that of the normal tissues that surround the area involved.

Thorough surgical removal, wherever it is consistent with the preservation of the functional life of the area involved, must be advocated as the primary treatment.

It is indicated in all breast tumors, except a class to be defined, because it has been proved to produce more cures and a longer freedom from recurrence than any other method of treatment. Further, the surgical removal of the greater masses of malignant tissue, must be advocated as a primary procedure in cases incurable by operation and in massive recurrences, because it relieves the patient from the absorption of toxins, that would otherwise follow röntgen treatment, and facilitates the röntgen treatment by reducing the mass and lowering the vitality of the growth.

The cardinal principle of all treatment, that it must be early and radical, applies with as great force to röntgen treatment as it does to surgery. The surgeon must learn that if he hopes for any aid from röntgen treatment, it must be commenced immediately after operation. Success can be expected only when the patient is sent early, and carries out the treatment thoroughly.

There is no need to delay the treatment. It should be commenced, if possible, before the patient is out of bed. The healing of wounds, the closing of sinuses, the healing of ulcers and granulating areas is hastened under röntgen treatment. A remarkable result of postoperative treatment has been the rapidity with which the stiffness in the shoulder disappeared.

The length of this postoperative course of treatment cannot be determined except by the indications of the individual case. At least 20 treatments of standard dose should be given after all granulating areas are healed and all indurations have disappeared.

The postoperative treatment of every case of malignant disease is as necessary and valuable as primary operation and must be insisted on as emphatically. It has been shown to be as important in increasing the patient's chances of cure and more important as a prophylactic in preventing recurrence and retarding the development of those recurrences it does not destroy, and thus increasing the length of life.

To be effective, it must be given early and radically, with as great severity as the patient's normal tissues will stand. It covers a much larger area and reaches far beyond operation.

A careful study of the results obtained by röntgen treatment in malignant disease of the breast shows that it has been most effective where it supplements rather than supplants operation—that is, where the focus of disease has been removed.

The röntgen treatment has the advantage of being conservative and reconstructive rather than destructive. It possesses prophylactic and palliative properties that make its postoperative application of the utmost importance. It helps to reconstruct normal tissue, hastening the healing of wounds, while it destroys incipient foci of disease. It can be applied immediately after operation in all cases without doing harm, and with the assurance that much benefit will be derived.

It is the most potent, palliative, and prophylactic agent known in the therapeutics of this disease. In inoperable and hopeless cases, seen in the late stages of the disease, it affords relief from intolerable symptoms, lengthens life, and is the greatest chance that offers to the patient.

That this chance is often very great, is shown by many remarkable cases. Patients given up as inoperable and hopeless, have been restored to comparative health, comfort, and activity.

Two such cases, reported to this society at its last meeting, are still living, active, and free from distressing symptoms. One has lived 21 months in comparative health, and distinct comfort, after having a complete dysphagia for two weeks before the first treatment. The other, a sarcoma of the tonsil, has been actively engaged in his insurance business for 14 months.

The palliative effects of röntgen treatment should not be denied to any case, no matter how desperate. It will at least relieve much suffering and confine the disease to its visceral metastases, healing external ulcerations and rendering the remaining days more tolerable. There is always a possibility that careful study of the case may lead to unexpected good results.

Although röntgen treatment can be applied primarily in certain forms of superficial malignant disease, such a course cannot be justified, except in one class of malignant tumors of the breast, and here operation is contraindicated.

The teaching of the older school of surgeons, that cases of atrophic scirrhus of the breast were to be left alone, and that operation shortened the patient's life, has been recently justified by pathologic research. It has been shown that the recurring tumor after operation is of a more malignant type, and that recurrence is the general rule.

Case V in the series appended is an illustration of growth of this type. The author removed the entire right breast with a small, apparently benign tumor, in November, 1900. The pathologic examination by Dr. Simon Flexner showed it to be a cystic adenoma, with suspicious hyperplasia of the lining epithelium. It was considered a benign tumor. It returned within a year as an epithelioma buried in the pectoralis major muscle. There was no involvement of the axillary or supraclavicular lymphatics, though all the axillary tissues were carefully examined under the microscope. The entire group of pectoral muscles was removed, but it recurred with great rapidity, springing from the clavicle, and in spite of vigorous röntgen treatment, ended fatally.

Recent pathologic studies have shown that many, and probably the majority of scirrhous growths have their origin in adenocarcinoma, and that the scirrhous type is only a later stage of the disease. The slowness of their growth and slight malignancy is due to the natural process, which converts the adenomatous tissue into fibrous or cicatricial tissue, with the inclusion of the malignant cells in it, reducing their activity and forming the characteristic scirrhous picture.

A critical study of the process by which the röntgen rays act favorably on malignant disease shows a marked similarity to the natural process seen in atrophic scirrhus. Recent pathologic studies have determined that fatty and cystic degeneration take place with a final conversion into scar or fibrous tissue. The resulting tissue is very similar to that of scirrhus, the remaining cancer cells are found surrounded by fibrous tissue. In the later stages of scirrhus the type changes, the growth becomes more rapid and hemorrhages are frequent.

To these growths primary röntgen treatment can be applied without detriment to the patient's chances or any acceleration of the disease, and with the expectation of producing good results. It is in fact in this class of breast tumors that the best results, and one might say the only favorable results have been obtained from primary treatment.

In many cases of small recurrent or secondary growths röntgen treatment is successful and justifiable. Wherever possible operation should precede treatment by this method.

Four cases of those reported belong to this class. Two were inoperable, in one (Case X) the growth involved the axillary plexus of nerves in its first portion; in the second (Case XX), the recurrent nodule was deep in the supraclavicular fossa, the third (Case XXI) had had a sluggish malignant ulcer that remained open 18 months after operation, and the fourth (Case XVII) had two large recurrent masses removed before treatment was commenced. All of these patients are apparently cured. All trace of malignant disease has been absent for periods ranging from 6 to 22 months.

These effects on small deep-seated masses of malignant tissue demonstrate the power of this therapeutic agent. The case already mentioned that had complete dysphagia, had a tumor metastasis from an atrophic scirrhus of the breast. The metastatic tumor showed above the clavicle at the base of the neck, and extended into the mediastinum. Undoubtedly it involved or pressed upon the esophagus and produced the dysphagia. It disappeared entirely from sight and palpation under treatment. There is still slight dysphagia and stenosis of the esophagus, and the patient has lived in comparative comfort for 21 months.

This shows that at least in cases of atrophic scirrhus that have not been operated upon, the metastases can be influenced and held in check by the röntgen treatment.

In two patients who would not consent to immediate operation for primary growths, a short course of preparatory treatment was employed. They have been remarkably well since the operation. The results reported by others in similar cases lead to the belief that a short course of preparatory treatment will be valuable. The danger in such a course lies in the tendency to delay all operation till too late.

The indications for early thorough surgical removal of the malignant tissue and the adjoining lymphatics have not been changed by the advent of the rontgen method of treatment. A decrease in the severity and extent of the operative intervention will probably be the first advance noted after the combined employment of both methods has demonstrated the efficiency of the röntgen rays in destroying deep-seated infection. No more radical change in treatment can be advocated until this has been proved by longer experience.

Röntgen treatment in malignant disease of the breast can as yet point to only one class of cases where its use is indicated primarily. In this class of cases surgical intervention is contraindicated by modern pathology and clinical experience.

In all other cases, surgical removal of the breast with the tumor and the adjacent lymphatic areas is always indicated. Wherever it is possible an attempt should be made to remove the greater part of the malignant tissue, even though the operation can be only palliative. With the aid of röntgen treatment even large ulcerating areas can be healed, while the toxemia is lessened, and the röntgen treatment facilitated.

While surgical intervention is indicated primarily in the majority of cases, the use of the röntgen rays is as strongly indicated in every case. The postoperative treatment cannot be omitted without materially lessening the patient's chances. It undoubtedly retards, if it does not entirely prevent recurrence, while in many cases it will entirely destroy small secondary growths. In addition to the increased expectation of life, it forms the most valuable prophylactic and palliative remedy. If for no other reason it should be employed in inoperable cases to relieve them of much of their pain and to hold in check superficial growths and ulcerations. Its relief of pain is marked, except where a nerve trunk is involved in the disease and is being destroyed. It lessens the amount of morphin, and hence the disturbance of secretions.

A discussion of the technic employed would be incomplete without a reference to the varying capacities of operators and the standard by which results in malignant disease should be judged. The best results cannot be expected from those deficient in general medical education. Many have bought apparatus and commenced its use since röntgen rays demonstrated their therapeutic power. They have had no previous experience in diagnostic work, and often cannot make a difficult diagnosis or judge when their apparatus is producing an efficient volume of röntgen rays. The apparatus in many of our hospitals is inefficient, or its employment is entrusted to inexperienced operators.

The method should not be judged by the results of the average operator. The profession must learn that experience is as essential in the employment of this therapeutic agent as it is with the more powerful drugs. The results obtained by careful, conscientious, experienced men must not be judged or condemned by failures under other conditions.

The best effort in the treatment of malignant disease in none too much, and one apparent cure should offset many failures. Anything which holds such disease in check must be considered a remarkable and valuable addition to therapeutics, worthy of the study and consideration of those possessing the highest medical education.

Successful treatment of malignant disease of the breast by the röntgen method cannot be based upon a fixed technic. A careful study of the effects of treatment must be made in each case, and adaptations made, based upon the principle that treatment must be as severe as the normal tissues will stand.

The superficial normal tissues must be accustomed, by a careful course of tanning, to severe treatment before the deeper foci can be effectively treated.

Any statement of technic can, therefore, give only the average, as the variations adapting it to the individual case depend upon that inexpressible judgment that is founded upon experience.

A closer approximation to the actual technic is now possible, because new devices have been invented for measuring the efficiency of apparatus, and the amount of energy passing through the tube while in operation.

This instrument is a milliamperemeter that can be placed in the circuit with the tube.

The development of an instrument that will measure the volume of current energizing a röntgen tube has been the endeavor of many. It has been accomplished in this country by Mr. H. C. Snook, of Philadelphia, a member of this society, and in Paris, by the firm of Gaiffe.

These instruments are constructed on entirely different principles. The American has the advantage. It is not a hot-wire instrument, and measures the inductive energy instead of the heat equivalent.

The hot-wire instrument has the disadvantage of measuring the direct and inverse discharge as one. It cannot detect the inverse discharge or measure the direct discharge alone.

The American instrument measures the volume by measuring its power of induction. With it in circuit with the tube, with constant primary circuit conditions, any variation in the vacuum of the tube is indicated by a gradual movement of the index to the right or left.

This is because the lower vacuum has less resistance and permits more current to pass through the tube, while a rise in vacuum increases the resistance and decreases the amount of current flowing. A rapid return movement indicates inverse discharge, and detects it immediately.

If the principle of the conversion of energy is adhered to, the volume of röntgen discharge from a Crookes vacuum must be commensurate with the amount of energy passing through it.

The milliamperemeter measures the volume of electric energy passing through the tube and hence the proportionate volume of röntgen ray energy given out. The increased volume which is shown to pass through low tubes corresponds with their greater photochemic activity, and also with their effect in therapeutic work.

Not only does this instrument measure the volume of energy utilized in producing röntgen rays in a tube, but it also measures the efficiency of various electric generators, by determining how much current they can force through a tube of known resistance. In other words, it determines how much energy they can send through the secondary circuit with a given load.

In conformity with this more accurate method of dose measurement, the author employs the following formula in expressing his standard dose in the treatment of malignant disease: 10 m., 8″, 2″ g, 2 ma. This apparent algebraic formula means 10 minutes' treatment, with the platinum eight inches from the skin, the tube having an equivalent air resistance of two inches, and energized by a current of two milliamperes.

Like any other algebraic formula, an alteration in any of its terms alters its value. The strength and quality of the dose can be changed by altering any of its factors. Thus for deep treatment at 12 inches the time must be increased as the light decreases, in inverse ratio as the squares of the distances and the formula reads 23 m., 12″, 2″ g, 2 ma. In addition, the frequency of such treatments must be recorded. My rule has been to give three such treatments a week.

To determine this dose by the older method, even with comparative accuracy for the same coil, it was necessary to measure the amperage of the primary. This instrument has already taught the error of depending on that factor. It has shown that an increase from 4 to 10 amperes in the primary only pushes four-tenths of a milliampere more through the tube. The impossibility of increasing the dose by raising this factor is therefore evident. In fact, experiments made with this instrument show that no tube will stand four to five milliamperes of current long enough for therapeutic purposes, even with a resistance equivalent to a three-inch air gap. Again, this instrument shows that a tube having a resistance of about two inches equivalent air gap is best for therapeutic purposes, because a greater volume of röntgen rays is discharged from such a tube, as more energy passes through it.

Thus, if coils of small spark length produce sufficient energy to force two milliamperes of current through a tube of two-inch resistance, they are practically as valuable for therapeutic purposes as larger coil.

The author has always employed coils of short spark length, even in the diagnosis of renal calculi. The standard dose is produced by four amperes of 16-volt storage cell current, and a 7-inch portable coil. This coil is capable of producing sufficient energy to be dangerous to patients and tubes, in therapeutic work.

Tubes will, however, sustain more current for the short periods necessary in rapid radiographic work, but in such work it is not the length of the spark that counts, but the amount of energy the coil can force through a tube.

The milliamperes of current forced across an air gap in the secondary do not accurately measure the power of a coil, or is this resistance equal to that of a tube running in parallel with the air gap. The ionization of the air, by the first spark that crosses, or by the brush discharge, lowers the resistance of the air gap and a much larger volume of spark can cross. For instance, a tube having a resistance equal to three inches of air gap, will allow only one milliampere of current to pass. Remove the tube from the circuit and six milliamperes will flow across the three-inch air gap, without any change in the induction conditions.

The value of this instrument, as a basis for comparing technic in radiotherapy, cannot be overestimated. Its invention makes a marked advance in treatment possible. The results obtained in favorable cases can be measured by this standard, and similar conditions can be produced in other cases, not only by the operator himself who produced them, but by any one possessing the requisite technic and apparatus. It will simply be necessary to know the dose employed in terms of standard dosage.

Variations in the make of coil, source of energy, wattage of primary and kind of interrupter, will not need to be noted. The volume of energy passing through the tube will be accurately measured. With the other data of the formula carefully noted and the number of treatments given, the dose required will be definitely stated. It will be in such terms that those having enough experience and knowledge can adapt it to the needs of individual cases.

With the factors influencing treatment narrowed down to the secondary circuit, a great improvement in results is to be expected. There are, however, elements in the secondary circuit that are variable factors in influencing treatment. Most prominent among these is the tube, its method of regulation, the residual gas it contains, the metal of which its anode is made, etc. A series of experiments now in progress shows that the capacity of tubes, or their resistance to the flow of current varies with the degree of vacuum, but that the size of tube, of the anode, of the cathode, and the make of tube has apparently little influence in aiding or hindering the flow of secondary discharge, or in altering the capacity of the tube.

In treating malignant disease of the breast the standard dose, given above, has been employed in superficial and deep treatments. These deep treatments have advantages that will be discussed by Dr. Boggs in his paper. The tube when placed at a greater distance produces the same rays, but when they reach the skin their ratio of variation in intensity is decreased and the intensity of the light on the surface and throughout the thickness of the growth is thus more uniform. Since the light decreases in a ratio inversely as the squares of the distances of the tube in its two positions, the variation in the intensity of the light, in the thickness of the tissues to be penetrated, will also be in a ratio inversely as the squares of the distances.

The advantage derived from the greater uniformity in the character of the rays, is that the greater depth of the growth can be effected as severely as the superficial, without injury to the skin surface.

The standard dose is not given to patients until the skin has been bronzed and hardened by treatment. The length, strength or frequency of the treatment is reduced till the individual reaction has been tested.

In treating malignant disease as much of the patient's body as possible is placed under the rays with the tube over the principal seat of involvement, or varied to suit the needs of the case. Protection is afforded by the author's lead screen that surrounds the tube over a pasteboard box. This affords absolute protection to patient and operator, when a moderately low vacuum is employed.

Local and constitutional treatment, upon sound medical and surgical principles, is absolutely essential to success. Strict aseptic or rigorous antiseptic precautions are necessary to prevent mixed infection, which would produce serious complications in tissues whose vitality is so greatly lowered.

The toxemia so common in malignant disease manifests itself in rheumatic pains, biliousness and gastric attacks, with a general increase of nervous symptoms. In some instances in the early stages it can be combatted by vapor baths, provided the vitality of the patient will permit. Tonics and sedatives are of value. Quinin is of special value for its tonic and antitoxic properties. The benefit derived from it in malignant disease is due to these, rather than to any other properties attributed to it. Interruptions of a week or more in the course of treatment are often necessary and valuable in combatting this toxemia.

Visceral thoracic involvement is marked by coughing and later by hydrothorax. Thoracentesis affords great relief to respiration. In one of the cases, four quarts of fluid were removed at different times with much benefit.

The compound stearate zinc powder, with 10% of ichthyol is very valuable in hardening the skin and relieving irritation from röntgen rays. All ointments should be avoided, as they soften the skin.

Of the 26 cases of malignant diseases of the breast reported in this paper, that have been under treatment since 1900, twelve are dead and two cases not heard from, are probably dead.

Of the eleven cases living, two (VIII and XI) had preparatory röntgen treatment only, they have lived 18 and 16 months. One (VII) had a primary scirrhus that was inoperable; she has lived two years since treatment was commenced but receives occasional treatment.

Four had recurrences (X, XX, XXI, XXVI). In three the recurrence has disappeared entirely and they have been free for 21, 10 and 4 months respectively. In one (XXVI) a massive recurrence followed immediately after operation last March. It was ulcerated and brawny when first seen, the ulcers had healed and the tumor mass softened when she stopped treatment a month ago, returning to her home. A fatal termination is shortly expected.

Of the postoperative treatments four (XIV, XVII, XIX, and XXIV) are living and free from recurrence, 19, 14, 12, and 7 months after operation. Case XVII had had a previous operation with rapid recurrence and a second operation before the röntgen treatment was given. She had lived 12 months free from recurrence since her last operation.

Of the patients that died, 12 were inoperable when first seen; either primary growths that had not been operated upon or massive recurrences in which delay had rendered further operation impossible. All, except three hospital cases, the first treated, were benefited to a remarkable degree by the treatment. The palliation of symptoms, the decrease in the size of the superficial tumor masses, and an increased length of life were noticeable as effects of the treatment. One of these patients died without an ulcer on her body from a cancer *en cuirasse* that extended from one scapulary margin around the body to the other. She had an increase of at least a year in her life, which had been rendered comfortable and enjoyable by the aid of the röntgen rays.

The other two patients that died (XV, XVI) had postoperative treatment, but died within 18 months after their operations. One was a desperate operative case of round-cell carcinoma, from which little was expected. The other was a carcinoma in a lady about 30 years old. Both were unmarried. In the latter case recurrence took place in the posterior cervical lymphatics and extended to the spinal cord.

Thus, nearly half the patients are living today. One, however, cannot expect to live more than six months. One has lived two years, and yet disease is certainly present. Nine remain apparently cured.

Seven patients, or a large proportion, considering the condition of the patients when first seen, have lived over a year after their operations. This is not long enough to determine the permanence of the cure, though those completely relieved of recurrences have little chance of relapse.

These results are encouraging, they are better than those of the average operator, and the results obtained in some of these cases, even if the cure is not permanent, are enough to justify the employment of this method and to attest its value.

They show that there is a power in the energy given out by the röntgen tube more potent in its influence upon the nutrition and development of malignant disease of the breast than anything which has previously been employed. There is an agent developed that checks the destructive growth of the malignant cells, destroys them and their metastases. Nothing has been able to accomplish these results before this. Eradication by surgical operation has been the only hope of relief. This treatment cannot supplant operation, but it should always supplement it. The best interests of every patient demand that she receive the benefits of both courses of treatment. The results obtained justify the assertion that thorough postoperative röntgen treatment must be given every patient operated on for malignant disease.

The benefits to be derived must be extended to every case of recurrence and every hopelessly inoperable patient. The power of palliation is greater than that of any other treatment.

These conclusions are based upon experience gained in treating the following 26 patients. For the sake of completeness, three patients are included that were treated before radiotherapy had been developed, and were purely experimental. All but two of the cases were inoperable. They were subsequently operated upon.

CASES REPORTED.

I AND II.—March 18, 1899. A short series of experimental treatments upon inoperable cases, with no result.

III.—June, 1900. Miss M. G., aged 45. Referred by Dr. B. James. A large ulcerating carcinoma of right breast. Slight improvement in short course of treatment with very mild dose.

IV.—February, 1902. Mrs. B. F. G., aged 48. Referred by Dr. L. Jurist. A case of cancer *en cuirasse* previously reported. There was marked decrease in tumor masses. Large ulcers were healed and there was much palliation of very distressing symptoms. She died October 7, 1903.

V.—May, 1902. Mrs. S. B. C., aged 47. Author's case in which adenocarcinoma returned as epithelioma in pectoralis major. Two operations, followed by röntgen ray treatment for five months. She died, entirely free from pain, November 6, 1902.

VI.—May 24, 1902. Mrs. J. F. H., aged 73. Referred by Dr. H. Fussell. This was a case of scirrhus. It decreased under treatment, which was later abandoned. She died December, 1902.

VII.—August, 1902. Mrs. M. C. J., aged 74. Referred by Dr. Guthrie Wendell. This is a case previously mentioned of atrophic scirrhus. When first seen there was an atrophic ulcer extending into the axillar, which had existed for many years. It healed under treatment, which was interrupted by an accident that confined the patient to bed. A mediastinal metastasis appeared the following January. The tumor showed above the clavicle and produced an occlusion of the esophagus. She was completely dysphagic for two weeks and was unable to swallow water. She was on rectal feeding for three weeks. She is in comparative comfort at the present time, though there is some slight dysphagia. She comes 40 miles by rail for treatment when it is necessary. There is undoubtedly disease still present, which makes occasional treatment necessary.

VIII.—October, 1902. Mrs. McG., aged 45. This patient refused operation until after a few röntgen treatments had been given. The tumor increased in size and became cystic. Spindle cells were found in fluid removed from the cyst. She consented to operation, but refused postoperative treatment. She has reported no recurrence, but has not been heard from lately.

IX.—October, 1902. Mrs. L. B. G., aged 42, referred by Dr. Orville Horwitz. She had a massive recurrence involving the left shoulder and cervical lymphatics. The arm was edematous and much swollen as the result of interference with the circulation. The glands of the neck softened under treatment, as did the surface of the shoulder. The visceral lesions increased and death ensued a little over a year after treatment was commenced.

X.—November 25, 1902. Miss M. K. W., aged 43, referred by Dr. George E. Shoemaker. Her right breast had been removed by operation a year previously. A slight recurrence made its appearance below the clavicle. Operation showed that it involved the nerves of the brachial plexus which would have to be severed if it was removed. A section removed and examined under the microscope showed it to be a scirrhous carcinoma. When first seen it was about an inch and a half long and three-fourths of an inch thick. It disappeared after two months' treatment, and she has remained free from all symptoms since that time, reporting regularly for examination.

XI.—April 6, 1903. Mrs. J. G., Aged 48, referred by Dr. J. D. Maun, of Bridgeport. This is a patient that had preparatory treatment, but did not return to the city for postoperative. She remains free from recurrence.

XII.—January, 1903, Mrs. N. H., aged 60, referred by Dr. Thomas F. Branson, of Rosemont. She was very stout, and had a large scirrhous carcinoma of the left breast. The growth decreased in size externally, but the deep involvement increased. She died February, 1904.

XIII.—January, 1903. Mrs. P., aged 50, referred by Dr. W. S. Halstead, of Baltimore, came from Georgia. She had a recurrent growth, but became homesick and returned home after a few treatments. Has not been heard from since.

XIV.—February, 1903. Mrs. C. L., aged 48, referred by Dr. J. S. Sharp, of Camden, N. J., had a carcinoma removed. She received postoperative treatment and is reported free from recurrence.

XIV.—February, 1903. Miss E. R., aged 47, referred by Dr. J. M. Baldy. This patient received postoperative treatment after a severe operation for an old carcinoma. She had a recurrence within three months and failed to report for two months more when she refused to take further treatment. She died March 28, 1904.

XVI.—March, 1903. Miss E. E., aged 30, referred by Dr. J. M. Baldy. This patient had had a small round-celled carcinoma removed at an early stage. Postoperative treatment. Recurrence in posterior cervical lymphatics which did not come under immediate treatment owing to an accident. She developed marked toxemia and nervous symptoms. The scar which had been involved and the glands of the neck softened under vigorous treatment. The disease had invaded the spinal canal and she died August, 1904, with edema of right side.

XVII.—May, 1903. Mrs. H. G. B., aged 47, referred by Dr. J. M. Baldy for postoperative treatment. She failed to come till large recurrence had taken place. This was removed by a second operation which was immediately followed by postoperative treatment. She has been seen frequently since and is free from recurrence, and in the best of health.

XVIII.—June, 1903. Mrs. L. D. H., referred by Dr. John Shober. She had had a previous röntgen treatment, but was an inoperable case with marked edema of shoulder and arm. There was slight improvement in local conditions, but her general health failed, she stopped treatment and probably died.

XIX.—July, 1903. Mrs. F. A. B., aged 32. The author removed the breast and cleared the axilla in this case. The breast contained a small scirrhous carcinoma. Röntgen treatment was commenced immediately. She remains free from recurrence. A skiagraph shows no mediastinal shadow.

XX.—October 1903. Mrs. J. F., aged 52, referred by Dr. Jas. L. Hornbeck of Catasaqua. A scirrhous carcinoma had been removed 18 months before. She presents a recurrence an inch in diameter above the clavicle. There were three smaller growths in the skin of the thoracic wall. All the growths disappeared in 20 treatments, but treatment was continued, and she is seen now occasionally. There is no evidence of recurrence and she is gaining in health and body-weight. She is apparently cured.

XXI.—January 1904. Mrs. F. L., aged 48, referred by Dr. ——. The breast had been removed by Dr. John B. Deaver 18 months before. An ulcer in the scar had refused to heal under careful aseptic and antiseptic treatment. It healed under röntgen treatment and remains healed with no other sign of recurrence.

XXII.—February 15, 1904. Mrs. L. H., aged 60, referred by Dr. D. W. Jefferis of Chester. Scirrhus removed three years ago. The recurrence was nine months old when seen, it was brawny with ulceration and edema of the arm. She failed rapidly and became too weak to come for treatment and died.

XXIII.—March 23, 1904. Mrs. M. H., aged 83, referred by Dr. Charles W. Dulles, had an atrophic scirrhus upon which a rapidly growing carcinoma had developed. The palliative treatment checked the bleeding and decreased the tumor in size. She died from weakness and the excessive heat in June, 1904.

XXIV.—March 1904. Mrs. F. N. The author removed a large carcinoma with enlarged axillary and supraclavicular glands. The operation was followed by a course of röntgen treatment. The metastases were so numerous and deep-seated that a visceral recurrence is to be expected, though none is yet present.

XXV.—May 17, 1904. Mrs. C., aged 54, referred by Dr. W. L. T. Forrester. The patient had a multiple carcinomatosis of skin following an operation. She came for a few treatments only, her condition was too frail to permit more.

XXVI.—June, 1904. Mrs. C. A. M., aged 50, referred by Dr. Edward Kerr, of Downingtown. This patient had been operated upon in March, 1904, the recurrence had been so rapid that a large mass involved the shoulder, and there was edema of the arm when she came for treatment. A series of treatments checked the disease and healed the numerous ulcers. The future course of the disease will be rapid, as the treatments when applied retarded the superficial development only, and treatment has been discontinued.

A review of these cases shows how true it is that only when the disease is taken early is the present technic of röntgen therapy able to cope with it and prevent its rapid progress.

Germany Discourages Medical Students.—A pamphlet has been published by the sanitary league of German medical societies for the purpose of dissuading youths from entering the medical career. It has been sent to the head ministers of 482 gymnasien and 131 real-gymnasien with request that they be distributed among the pupils about to go up for their matriculation examinations. The pamphlet calls attention to the straitened and even distressed condition of a great number of German physicians and to the relatively slight pecuniary advantages in medicine. Since 1876 the number of physicians in Germany has more than doubled.

REVIEW OF OTHER MALIGNANT CASES.[1]

BY

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of Philadelphia.

The following private cases of malignant disease have been treated in the past two and a half years in addition to the 26 cases of mammary carcinoma reported in my paper, published herewith, and read in the symposium. As accurate records of hospital cases are wanting, they are not included.

These cases, arranged in groups, show that of seven cases of epithelioma, all inoperable and most all in the last stages, four have died. One, an epithelioma of the eyelid, has lived over 18 months. One other is living, a year after treatment was commenced. Her age, 85, is against her and although there is no progress being made in any way, death will ensue within six months. The other patient is still under treatment, progressing favorably, with a good prognosis.

One case of rodent ulcer, that was of 12 years' standing, has remained healed for two years.

One case of carcinoma of the sublingual space and jaw died after an operation subsequent to treatment.

Of four cases of carcinoma uteri, all but one were inoperable and far advanced. One that had a slight recurrence in the scar following a hysterectomy is living with no further sign of recurrence 18 months after treatment. One has recently come under treatment, but has made remarkable progress.

Three sarcomas have been treated. A lymphosarcoma of the neck, a recurrence following operation, ended fatally. A sarcoma of the thigh, following two operations, failed to yield appreciably and treatment was discontinued. The third, a sarcoma of the tonsil, is apparently well and has been attending to his business daily for the past year.

There are some modifications of the standard dose and certain technical points in its application that are worthy of mention.

In the case of sarcoma of the tonsil, two treatments were given, one external, behind the angle of the jaw, the other directly upon the tumor through the mouth. A gag is inserted between the teeth, the face is covered by a mask of röntgen ray lead foil. An opening is made in the foil over the mouth, the lips and tongue being protected. In this way the tube can be approached, so that the platinum is within eight inches of the growth, and the standard dose can be given. Two treatments a week are given, with a high vacuum, and no injury has been done to either skin or mucous membrane.

In treating carcinoma uteri, two treatments are also employed. One externally, with the platinum 8 inches or 12 inches above the abdomen. The other per vaginam, but not by special tubes. I believe they are of doubtful efficiency in producing röntgen rays. I prefer to give the standard dose through special speculums which permit the platinum to approach within eight inches of the cervix uteri. The efficiency of the dose is known in other conditions, and it can be applied here with appropriate technic.

I have devised an adjustment of two bivalve speculums, so that they interlock and protect the vaginal wall when in position. The blades are short, allowing the cervix to drop down close to the orifice. The tube in a modified lead-covered box, to protect the thighs, is placed so that a small diaphragm, corresponding to the opening in the speculums permits the cone of rays from the tube to enter and cover an area two inches in diameter, including the cervix.

A shield of light lead foil surrounds the speculums to protect the skin from divergent rays. The platinum can approach within eight inches of the surface to be treated, and acts effectively.

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[1] Read before the American Röntgen Ray Society, St. Louis, September 12, 1904, in symposium on malignant disease.

In other treatments, the lead box is employed to shield the operator and the patient. Where small areas are to be treated a suitable opening is cut in a mask, that covers the area immediately about the point under treatment.

There follows a brief history of each case:

Epithelioma.—May, 1902. M. A. R, aged 45, referred by Dr. S. M. Wilson, had an epithelioma, which had invaded the whole cheek, holding the jaws firmly together. The pain was relieved by treatment, but sloughing set in, the patient became toxic and died during the following winter.

CASE II.—January, 1903. Mrs. G. W. M., aged 42, referred by Dr. Edward Kerr, of Downingtown, had an epithelioma of the upper eyelid, that had destroyed the hair follicles, and part of the palpebral cartilage. Amputation of the eyelid had been advised and refused. Mixed infection was present; it ceased after the first treatment, the induration gradually disappeared, and was gone after a month. The entire tumor disappeared after 28 treatments, leaving an inappreciable scar. There was no injury to the eye, nor was it protected. She has remained free from all recurrence to date.

CASE III.—June, 1903. Mr. S. R. O., aged 47, referred by Dr. Woods, of Camden, had a far-advanced epithelioma of the lip and right cheek. It involved the whole thickness of the cheek. It did not yield rapidly to treatment, and the patient became too weak to come for treatment, and died. There was a lessening of pain, odor, and discharge, but no apparent curative action.

CASE IV.—January 17, 1903. Miss H., aged 48, referred by Dr. J. S. Sharp, of Camden. This patient had an epithelioma of the labia minora vestibule and anterior vaginal wall. There was pelvic involvement, which could be felt along the round ligaments, while the inguinal glands were also involved. There was marked improvement in the external parts, and the lymphatic involvement subsided, but the deep involvement increased, treatment was stopped, and she died.

CASE V.—December, 1903. Mr. D. A. P., aged 75, had an epithelioma of the nose, half an inch in diameter; it was yielding rapidly to treatment, when he died of an intercurrent pneumonia.

CASE VI.—July, 1903. Mrs. C., aged 85, referred by Dr. Frank Bellville, of Delaware, had an epithelioma that involved the whole thickness of the right side of the nose and extended up to the nasal bones where a growth had been removed by operation seven years before. There was an offensive ulcer. Under treatment the entire mass gradually sloughed and healing had taken place except in the upper margin when treatment was interrupted for two months. She returned with a large growth at this point. This yielded to treatment while it was continued. Since she ceased to come, the growth has remained stationary, about two months, but extension and recurrence are to be expected.

CASE VII.—June, 1904. Mr. J. S., aged 60, had had an epithelioma removed from the angle of the jaw 20 years ago, and two superficial growths partially removed by plasters since that time. He presented a superficial epithelioma an inch in diameter just below the ear. It, however, involved a large mass of tissue and extended deeply to the angle of the jaw and beneath two old scars, the result of caustic treatment. The deep involvement made it impractical to remove it by operation. It is apparently yielding favorably to röntgen treatment.

Rodent Ulcer.—May, 1902. Mr. R. K., aged 55, had had a rodent ulcer of the face for 12 years. It had destroyed the right side of the nose, with the adjoining half of the upper lip and a large part of the cheek. It yielded rapidly to treatment, after the breaking down of the diseased tissue. and healed over completely. There has been an occasional slight relapse at a point where the bone was denuded which yielded to one or two treatments and remains healed over two years since coming under treatment.

Carcinoma of Mouth.—October, 1902. J. A., aged 48, referred by Dr. Louis H. Alder, had a carcinoma of the sublingual space involving the gum and alveolar margin. It was level with the teeth and had been the seat of frequent hemorrhage. It yielded somewhat to treatment. The patient decided to have operation and died after it in the Pennsylvania Hospital.

Carcinoma Uteri.—January, 1903. Dr. F. E. W., aged 56, had a recurrent carcinoma uteri. She had been operated upon and a complete hysterectomy done, but all the involved tissue could not be removed. There was a large ulcerating mass in the vault of the vagina. The odor and hemorrhage were controlled for a time by the treatment. It was discontinued after three months. She died in December, 1903.

CASE II.—January, 1903. Miss S., aged 45, referred by Dr. J. S. Sharp, of Camden, N. J., had had a hysterectomy for an epithelioma of the cervix. There was a slight thickening in the scar at the vault of the vagina. It yielded to treatment, and she has remained free from all signs of recurrence up to the present time.

CASE III.—February, 1903. Mrs. S. H., aged 47, was referred by Dr. Henry Beates. She had a hysterectomy a year previously. The cancer had recurred in the vaginal vault and involved the bladder anteriorly. There was a decided improvement while under treatment; a decrease in the recurrent mass and an increase in freedom of movement. She has not been heard from since she stopped treatment, but is probably dead.

CASE IV.—July, 1904. Mrs. J. R. is still under treatment with marked improvement. She has an inoperable carcinoma uteri and was referred by Dr. B. C. Hirst.

Sarcoma.—May, 1902. Mr. B. F., aged 60, referred by Dr. J. Leopold, had been operated upon for a lymphosarcoma of the neck. The recurrence had been rapid and was massive when seen. It did not yield to treatment, which was soon discontinued on account of weakness. He died from an abscess, which formed in the lung.

June, 1903. Mr. William McM., aged 45, was referred by Dr. John B. Deaver for an inoperable sarcoma of the left tonsil. He had been seen by a number of surgeons, who had refused to operate. The tumor sprang from the right tonsil and pushed the soft palate well forward. It extended beyond the median line and its lower border could not be seen. It had been incised and was discharging a saneous fluid. Externally there was a tumor that filled the neck beyond the angle of the jaw. Treatment was given externally, and internally through the mouth. A gag was inserted; the face, lips, and tongue were covered by lead foil, and the platinum of the tube brought to within eight inches of the growth. The discharge ceased after the fourth treatment and the tumor gradually decreased in size. At the end of four months it had receded behind the soft palate. It was finally reduced to a hard, apparently fibrous mass the size of an English walnut. The patient has been attending to his business for over a year, but comes three or four times a month for treatment. There is no sign of recurrence or metastasis.

THE STATUS OF OUR KNOWLEDGE OF SEROTHERAPEUTICS.[1]

BY
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Under the term serotherapeutics I shall include only the serums of specially immunized animals. In the strict sense of the term such substances as tuberculin and the host of other bacterial products employed for purposes of immunization must be excluded from consideration in this paper. My object is to present a brief summary of opinions and results of the therapeutic application of the different immune serums, along with the consideration of the various methods employed in the production of the immune serums.

In the light of Ehrlich's teaching the immune serums must be divided into at least two distinct classes: (1) The antitoxins; and (2) the bactericidal immune serums. Recent investigations appear to indicate, however, that a third class of immune serums must be formed which possess properties that are entirely different from either of the former, in that they are neither antitoxic nor bactericidal in their action. For convenience of consideration, therefore, I shall divide the immune serums into the three classes named.

1. *The Antitoxic Serums.*—The antitoxic serums are produced through the immunization of animals with bacterial toxins. There are only two antitoxic serums in general use today, diphtheria and tetanus antitoxin, as *Bacillus diphtheriæ* and *Bacillus tetani* are the only bacteria that are such distinct toxin producers. These organisms, when cultivated in artificial mediums, produce a toxin soluble in the culture fluid and permit the separation of the toxin from the bacteria by merely passing through filter paper. All the other disease-producing bacteria form toxins which are more or less intimately associated with the mycoprotein so that they are not readily separated from the organisms. Diphtheria and tetanus are typical toxic diseases, in that the organisms are localized at or near the point of infection, while the toxin produced by the bacteria passes into the blood stream.

The treatment of animals with repeated doses of the filtered cultures of *Bacillus diphtheriæ* or *Bacillus tetani* leads to the formation of antitoxin by the tissues of the treated animal. The serum of such a treated animal when used for therapeutic purposes will have no marked influence upon the bacteria themselves, but serves merely to neutralize the toxins in the patient's system.

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[1] Read before the West Philadelphia Branch of the Philadelphia County Medical Society, October 15, 1904.

In the case of infection by *Bacillus diphtheriæ* the neutralization of the toxin is readily accomplished because the toxin appears to have a greater affinity for the antitoxin injected than for the receptors of the body cells. In infection by *Bacillus tetani* the conditions appear to be just the opposite to those in diphtheria. The tetanus toxin has an especial affinity for nerve cells, and when once combined with these cells it is not readily liberated by the antitoxin. It is probable that the apparent inefficiency of tetanus antitoxin is traceable to this fact, and that in order to obtain the best results with this antitoxin it is necessary to administer it at the earliest possible moment, and in large doses. Moreover the clinical and experimental evidence in favor of the subdural injection of the tetanus antitoxin is increasing constantly. This method of administration places the antitoxin in closest possible relation with the toxin laden nerve cells.

Although the diphtheria antitoxin appears to have a greater affinity for the toxin molecule than have the receptors of the body cells, it is necessary to administer the antitoxin early and in sufficient dose to combine promptly with the toxin in the patient's system. The antitoxin cannot repair the damage to the body cells produced by the toxin before the administration of the antitoxin, or that may result from the effect of toxin that may remain unneutralized because of insufficient amounts of antitoxin administered during the course of the disease. The postdiphtheric paralysis so frequently seen results from one of two causes: The tardy administration of antitoxin, or the employment of antitoxin in insufficient dose to neutralize all the toxin in the system.

II. *The Bactericidal Immune Serums.*—Under this heading I shall consider the typhoid, dysentery, tuberculosis, and cholera serums. Experience in the laboratory has shown that the toxins produced by these bacteria are intimately associated with the bacterial protoplasm, and hence that the lesions produced by these bacteria are always seen to predominate at such points of the body where the largest number of bacteria are found. In order to overcome the influence of these organisms it is necessary, therefore, to produce an immune serum that has direct bactericidal properties. The production of such serums has not been found exceptionally difficult, as the larger animals are readily immunized with either dead or living organisms, and when the treatment is continued for some time the blood of the treated animal possesses definite bactericidal action against the organism with which it had been treated.

When we come to employ such a bactericidal immune serum experimentally we find that unsuspected difficulties arise. According to Ehrlich's teaching, a bactericidal immune serum contains two factors both of which are essential to the destruction of bacteria; the amboceptor, or immune body, and the complement. Since the process of immunization brings about the formation of large quantities of amboceptors in the treated animal, and experimentation has shown that the complement is present in normal blood in great amount, it was to be expected that the bactericidal properties of the serum of a treated animal could be readily demonstrated. The studies of Wechsberg have shown that so long as the relative proportions of bacteria, amboceptor, and complement are equal, prompt destruction of the bacteria takes place. A reduction in the amount of amboceptor, the other two factors remaining the same, resulted, as was to be expected, in the destruction of only a portion of the bacteria, thus allowing the remainder to multiply and continue the disease process. On the other hand an excess of amboceptor, the other two factors remaining the same, also resulted in the destruction of only a portion of the organisms.

Wechsberg explained the failure of the serum through the excess of amboceptor present on the basis of the relatively greater affinity of the complement for the free amboceptor than for that combined with the bacteria. In the light of this explanation an excessive dose of a bactericidal immune serum may prove harmful through the deviation of complement which it induces.

The fact that complement soon disappears from any serum and that bactericidal immune serum would therefore be devoid of complement, necessitates the immunization of such species of animals as will yield amboceptors that can find appropriate complement in the human system. Moreover, the fact that during the course of an infectious disease complement is being constantly used up in combating the disease process, has led to the simultaneous injection of normal serum, in order to supply complement. This phase of the subject has been studied experimentally recently by Wassermann, and by Sobernheim and Jacobitz. The latter experimenters found, as the result of their experiments with a cholera serum, that aside from the difficulties in properly adjusting the relative proportions of amboceptor and complement so as to prevent the deviation of complement, as pointed out by Wechsberg, they also had to contend with toxic poisoning of the animals as the result of the disintegration of the dead bodies of the bacteria. The experiments of Pfeiffer with the same organisms as early as 1895, had shown similar results. The immune serum sufficed to kill the bacteria, but the animals died of intoxication. Still another contingency may arise from the administration of normal serum, in that the contained complement may possess a greater affinity for the receptors of the body cells than for the amboceptor, and thus lead to the formation of anticomplement.

The experiments with the typhoid immune serums have shown that they possess definite bactericidal powers, but usually the amounts of serum required for curative purposes in human beings are very great, and hence the use of such serums has been impracticable on account of the enormous doses required and the great expense attending their manufacture.

The studies of McFadyen and Rowland[1] with the intracellular toxins of the typhoid bacillus show that the immunization of animals (rabbits, monkeys, and goats) with the toxin gives rise to an antitoxic and bactericidal serum. Whether an immune serum which is both antitoxic and bactericidal will prove of greater value than one that is merely bactericidal remains to be seen, but general experience favors the opinion that it will prove of signal benefit in the treatment of typhoid fever.

The use of antidysenteric serum has thus far proved more or less disappointing. Dr. L. Emmett Holt[2] states that the conditions of success in the use of the serum in the treatment of children suffering from diarrheal diseases are, "first, that it must be used early, before serious lesions have developed or before the patient's general nutrition has been too profoundly impaired. The latter refers particularly to cases in young infants. The second point is that experience shows that the serum must be used in repeated doses, one or two doses given each day and continued for several days if the attack is severe." In a number of the cases in which the serum was employed, direct beneficial results were obtained. In other cases no beneficial effects were noted, neither were any objectionable or harmful effects noted in the patients treated. In several of the cases in which the serum was used, the child apparently recovered from the disease, but died some time later of "marasmus." The latter may possibly be cases in which death resulted from the intoxication produced by the toxins liberated from the disintegrated bacilli, as in the case of Pfeiffer's and of Sobernheim's experiments in cholera infections.

The studies of Rosenthal[3] with a new form of dysentery immune serum seem to give very strong support to the foregoing opinion with regard to the causes for the inefficiency of the dysentery serum used in America. Rosenthal immunized dogs with both the toxin of the dysentery bacillus, and with the bacilli themselves, and thus obtained an immune serum that was bactericidal as well as antitoxic in its action. A dose of 0.1 cc. to 0.25 cc. of the serum protected guineapigs and rabbits against the fatal dose of the dysentery bacillus, while 0.5 cc. administered 24 hours after infection saved the animal. When employed in the treatment of dysentery in human beings, the effect of the serum became manifest 18 to 20 hours after the injection, and when administered on the first day of the disease, the influence was quite beneficial. The serum diminished the mortality to 4.5% (157 cases with 8 deaths) while during the 10 previous years the mortality in Moscow had ranged from 12.0% to 17.5%, and in the present epidemic was attended with a mortality of 10.0% to 11.7% in the other hospitals.

Todd[4] claims that the serum of animals immunized with the dysentery bacillus possesses powerful antitoxic properties, a fact which has not been emphasized by any other investigator. Both Shiga and Kruse have all along attributed the protective action of their immune serums to the bactericidal action.

The studies of Maragliano[5] upon the immunization of the organism against tuberculosis appear to merit careful consideration. He points out that the tubercle bacillus produces poison of a twofold nature; the one form of poison is given off by the bacilli into the surrounding mediums in their biologic activity, while the other form of poison is intimately associated with the bodies of the bacilli. The poison contained in the protoplasm of the bacilli is of especial importance because the dead bacilli have the property of producing the same disturbances in the tissues as have the living organisms. These poisons may be removed from the bodies of the bacilli by long-continued abstraction in water, and have a necrotizing action on the tissues with which they are brought in contact. Maragliano is convinced that it is possible to immunize animals by means of these bacterial products, and thus avoid the detrimental influence of the other constituents of the bacterial cells, as well as of the vital activities of the organisms when employed in the living state. The blood of treated animals shows increase in its agglutinating, antitoxic, and bactericidal properties against the tubercle bacillus.

III. *The Immune Serums which are not Bactericidal.*—Of the immune serums which are neither bactericidal nor markedly antitoxic in their action those best known are the pneumococcus, the staphylococcus, and the streptococcus serums. As at present produced, neither of these serums has any definite antitoxic or bactericidal powers, they have protective and curative properties as shown by laboratory tests and clinical application.

Petersen[6] was able to demonstrate protective substances in the blood of three patients as long as four weeks after recovery from severe staphylomycosis. With the serum of these patients he was able to protect rabbits against staphylococci derived from pus in human beings as well as against such organisms as had been markedly increased in their virulence by passage through animals. The degree of protection, however, never exceeded twice the fatal dose. An interesting fact is that the protective substances disappeared very rapidly from the blood serum after convalescence. In the three patients examined no protective substances were encountered in the blood after the lapse of a quarter of a year. For the immunization of experimental animals and the preparation of the staphylococcus serum he employed dead and living cultures. With this method of immunization he was able to attain a degree of immunity equal to twice the fatal dose of fully virulent cultures. Consequently the production of protective substances was not very marked. It was impossible to obtain a high degree of immunity even by treatment continued over months. With the serum of treated rabbits and goats Petersen was able to protect mice not only against the fatal dose of fully virulent staphylococcus cultures, but he was also able to save the animals when the serum was injected from 6 to 12 hours after infection. Even with large serum doses he was unable to protect against more than twice the fatal dose. He calculates that for a person of from 60 kilograms to 70 kilograms in weight from 350 cc. to 700 cc. of the serum would be required. The content in protective substances in the immunized animals diminished rapidly after the last injections, and after three months the serum had lost its protective properties. Although the staphylococcus serum shows no bactericidal properties in the test-tube, Peterson believes, however, that he was dealing with a serum having a bactericidal and not an antitoxic action. He believes the antitoxic action is excluded because the serum protected only from two to four and a half times the fatal dose of the staphylococcus filtrate, and this effect was not transmitted to other animals injected with the serum.

The experiments of Paltchikowsky[7] showed that the results with the staphylococcus immune serum were contradictory. He found that the serum had no bactericidal properties, nor was he able to determine any antihemolytic effects.

Pröscher[8] was able to demonstrate protective influence in the staphylococcus serum, in that it protected rabbits against fatal staphylococcus infection, and also that it was protective against the staphylolysin.

The recent experiments of Panichi[9] on the serum therapy of pneumonia are of great interest. In order to obtain a high grade of antipneumonic serum, he first perfected a special culture medium (a special bouillon) in which the organisms produced their specific toxin outside the body. Cultures grown in this special medium killed rabbits acutely with moderate toxic action, while ordinary blood cultures killed by inducing septicemia.

In testing the curative properties of his antipneumonic serum, Panichi injected rabbits subcutaneously with 0.2 cc. of his virulent culture, and subsequently a dose of serum was injected into the ear veins in proportion to the body-weight of the animal. A dose of 0.25% of the body-weight sufficed to save the animal if administered not later than the elapse of five-sixths of the duration of the disease, while the control animals died in 20 to 56 hours. If the curative dose of serum is delayed longer, 2% of the body-weight is required instead of only 0.25%. Panichi concludes that the serum does not possess any bactericidal power, but that it acts through its antitoxic properties.

Panichi employed his serum in the treatment of seven cases of pneumonia. The serum was injected intravenously and was followed by lysis, that is, there was a reduction of the temperature, of the pulse, and of the respiration, as well as improvement in the general appearance of the patient. The bright red exudate became rusty and later catarrhal in character. Diminished crepitation was noticed when a sufficient dose had been reached (15 cc. to 30 cc.). Of the seven cases, six experienced a helpful action. In one the result was negative. In the latter the treatment was undertaken at five-sevenths of the total duration of the disease. The treatment of human beings corresponded entirely with the results of the experimental study of the serum in animals, in the quantity of serum required for treatment as well as in the time period within which the injection was of value.

A great deal of work has been done during the past decade on the perfection of an antistreptococcus serum. The antistreptococcus serums on the market differ somewhat as to the mode of preparation and the source of the organisms employed for purposes of immunization. Marmorek employs a special method of cultivation to increase the toxin formation in his cultures. Aronson renders his cultures of streptococcus highly virulent by repeated passage through experimental animals. Tavel employs only cultures that are highly pathogenic for human beings. Moser believes that the streptococci found in cases of scarlet fever are specific, and hence employs cultures derived from the heart blood of fatal cases in preparing a serum for the treatment of that disease.

Studies made with the different antistreptococcus serums as to their agglutinating properties on different races of streptococci have yielded contradictory results, but the general trend of opinion today is that, so far as the agglutination test sheds any light on the subject, the different races of streptococci are not equally susceptible of agglutination, though their original agglutinability is readily influenced by artificial cultivation as well as by passage through susceptible animals. The agglutination test, therefore, affords no definite means of differentiating between streptococci derived from different sources. The antistreptococcus serums possess no bactericidal properties, therefore the bacteriolytic test cannot be employed to shed light on the disputed point of identity or nonidentity of different races of streptococci. Even animal experiments have thus far failed to elucidate the problem.

Slight antitoxic properties have been noted in antistreptococcus serums,[10] but this property appears to be of minor importance.

The principal influence of the antistreptococcus serums, as probably also of the staphylococcus and pneumococcus serums, appears to be a stimulation of the proliferation of cells in the marrow of the long bones, as well as of the phagocytic properties of the leukocytes. Aside from the experimental evidence in support of these assumptions, we have the knowledge of the high leukocytosis present in these infections, accompanied by an absence of antitoxic or bactericidal properties of the blood of convalescents.

In the light of the experimental and clinical evidence so far gained with regard to the action of the staphylococcus, pneumococcus and streptococcus serums, one should not expect too much from the therapeutic application of these serums. It is evident that we have a great deal to learn as to the best method of preparation of these serums, as well as to the character of the serums themselves and the manner in which they bring about curative effects.

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CONCERNING THE SUPPRESSION OF THE ACETONE BODIES IN DIABETICS.*

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In the following I shall not dwell upon the coma of the diabetic, nor do I wish to consider the still mooted causative relationship of the acetone bodies in the former. I shall strictly confine myself to the question—indisputably practical I hope—of how to cope successfully with diabetic acetonuria without aggravating the diabetic condition.

In diabetes the acetone substances are invariably expressive of a state of under-nutrition. This may be occasioned by the one-sided diet which, of necessity, must be pursued in grave cases of diabetes; however, it will also ensue, although probably somewhat later, when the regimen exhibits abundant albuminous substances and moderate amounts of carbohydrates.

Modus operandi of the production of acetone bodies in the diabetic when fat preponderates in diet: Yielding of acetone bodies by the fats, especially by those containing fatty acids of low molecular weight, production of intestinal acetone, thereby loss of fat aliment. Inability of organism to utilize more than a well-defined amount of fat. Under-alimentation. Loss of body substance. Disintegration of body fat. Production of katabolic acetone bodies.

Modus operandi of the production of acetone bodies in the diabetic when diet contains abundant proteids and some carbohydrates: Yielding of glucose by nutrients. Tissue starvation. Disintegration of body fat. Production of katabolic acetone bodies.

In whatever manner the substances of the acetone group arise, they are a symptom of inanition indicating decline of the diabetic organism. Acetonuria in the diabetic occurs independently of the degree of the glycosuria—that is, its intensity is not reflected by a corresponding intensity of the latter. On the other hand, the degree of acetonuria—when all circumstances are duly considered—may afford a fair insight as to the extent of tissue waste. Furthermore, the presence of an excess of the acetone bodies may point to either an inability of certain organs to convey the introduced alkalies to the structures in need of it, or else, to the insufficient diffusion and ionization of the salts in the body liquids.

The formation of the acetone bodies will not ensue as long as one can manage that the diabetic remains in a fair state of nutrition; if this proves impossible in the course of time—an inevitable occurrence supervening sooner or later—the general deterioration should be retarded by all possible means. The waste of the diabetic organism—in fact, may be so gradual, that urinary acetone may not appear in excess of 0.25 gm. in the 24 hours.

If acetonuria and diaceturia occur in a pronounced degree, attempts should be made, repeatedly if necessary, to suppress the further production of the acetone bodies, or, if these fail, to keep their formation at a minimum. By adding carbohydrates to the nourishment the acidosis may decrease for the time being. V. Noorden[1] highly recommends his "oatmeal cure" for this purpose, which is carried out in the following manner: Patient ingests every day for a period of from one to two weeks, to the exclusion of everything else, a soup composed of oatmeal 250 gm., butter 250 gm. to 300 gm., and some vegetable albumin 100 gm. A portion of this soup is partaken of, every two hours.

There is no doubt that the degree of acidosis is, as a general rule, temporarily reduced when carbohydrates are admitted to the diet. However, they should not be partaken of for longer than three or, at the utmost, four days, as otherwise the inevitably increased glucose output will make itself felt in a manner not to be misunderstood. A short time after the carbohydrates are discontinued, the acetone bodies are again excreted in similar amounts as before the admittance of the starchy matters to the nourishment. Thus, although carbohydrates may alternately be permitted and withdrawn for some weeks, nothing has been gained in the end. It is true, a fatal issue might have been averted, but whether this was imminent is a matter of mere speculation. On the other hand, the ingestion of carbohydrates, irrespective of the form in which they are taken, whether of oatmeal, or of potatoes, as suggested by Mossé,[2] or of milk, may occasion vastly more injurious results than would have ensued had they not been added to the food.

Furthermore, the oatmeal cure is not only disgusting to the patient, but it does not uphold the claims of its author. Oatmeal, in my experience, is not any better tolerated by the diabetic exhibiting acetonuria, than other amyloid substances, as buckwheat, or rice, for instance. Again, the very large amount of butter, 250 gm. to 300 gm. daily, which is to be incorporated into the oatmeal gruel, contradicts the rationale of acidosis therapy. Half a pound of butter, or more, ingested daily, is certainly apt to yield large quantities of acetone bodies in the diabetic; as a matter of fact, I have seen a case, after restriction to the oatmeal-fat-albumin compound for some days, in which the intensity of the acetonuria had not only not diminished, but had been appreciably augmented.

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* Read at the annual meeting of the New York State Medical Association, October 18, 1904.

In his oatmeal cure, v. Noorden (who himself has shown that the ingestion of more than 150 gm. of unwashed, and of more than 180 gm. or 200 gm. of washed butter—by the washing process butter loses its low fatty acids—is liable to be followed by an increased production of acetone bodies) orders the addition of from 250 gm. to 300 gm. of butter. Does he really think that the 250 gm. of oat flour suppresses the already existing acidosis and prevents the yielding of acetone bodies by the over-supply of butter?

If we wish to cope successfully with acidosis without aggravating the diabetic condition we can neither add carbohydrates to the nourishment for any length of time nor can we in most cases increase the amount of proteid substances.* Therefore, nothing remains but to turn again to the fats, that is to such fatty ingesta, which, if at all, contain but small amounts of fatty acids of low molecular weight. According to the investigations of Leo Schwarz,[3] the fatty acids which may be considered mother substances of acetone bodies are valerianic, butyric and caproic acids; fatty acids of high molecular weight, like palmitic, stearic and especially oleic acids, yield comparatively little acetone. Hence, butter and cream, are productive of largely increased acidosis, while lard, suet and particularly olive oil do not cause a very marked augmentation of the acetone bodies.

The clinician who is attending a case of grave diabetes complicated by pronounced acidosis, finds himself in a dilemma. Were he to prescribe a diet consisting of nothing else but small amounts of proteids and large quantities of lard, suet or olive oil, the patient would soon be tired of this regimen and his nutrition would not only be not improved but his digestive organs might become seriously disordered. Beside, and this should not be forgotten, the vegetable oils are as a rule not well tolerated if they are used in larger than the ordinary amounts, and lard (frequently not well borne in even moderate quantities) and beef suet can neither be relied upon for suppressing an already existing acidosis nor to improve the nutrition of the diabetic organism.†

There is only one fatty article of food which I found well adapted to the needs of the diabetic organism during acidosis—this is the yolk of the hen's egg; I have never seen it produce or increase the acetone substances, or call forth digestive or assimilative disturbances in advanced diabetes.‡ Partaken of in the raw or semiraw condition, fresh yolks may be consumed in almost any quantity without calling forth satiation or fulness.

The rationale of the "yolk cure," which will be described in detail, I attribute, among others to the following four main factors:

1. Palmitin, stearin, and olein, the fat substances of the yolk, occasion but small amounts of acetone bodies; in combination in which these fats exist in the yolk, they yield no butyric acid, or hardly any.
2. The large amount of lecithin, supplied to the organism by the yolk, tends to the restoration of nerve force and the amelioration of the cachectic condition.
3. The occurrence in the yolk of a diastatic ferment assisting in the conversion of amyloid substances introduced by proteids and allowed vegetables.
4. The digestive secretions stimulating functions of the yolk.

The first and second factors are too well understood to be again exploited on this occasion. Concerning the third, Mueller and Masuyama[4] found in the hen's egg, more particularly in the yolk, a diastatic ferment which has the ability of forming erythrodextrin, then achroodextrin, and finally isomaltose. The converting power of the ferment is less pronounced and less acute than that of the salivary and pancreatic ferment, but it can diastatize as much as 45% of the food during the day.

As regards the fourth factor, I wish to state that Ssoborow, a pupil of Pawlow, some years ago demonstrated the marked stimulating influence of the yolk of the hen's egg upon the gastric glands; he found that the amount of gastric juice, obtained after feeding yolks to dogs whose stomachs had been isolated, was greater than after ingestion of any other articles of food. Obesersky[5] confirming these observations from the clinical standpoint, concludes that the yolk of the hen's egg exerts a pronounced influence upon the hydrochloric acid glands of the gastric mucosa and that the yolk not only stimulates the stomach to greatly increased secretory activity, but that its frequent ingestion activitates the acid glands to such a degree that yolks may be employed as digestants in affections characterized by lack of hydrochloric acid. My own observations upon the stimulating influence of yolks on the digestive secretions, which extend over a period of almost two years, substantiating all the contentions of the Russian investigators, will be published shortly.

The "yolk cure" consists in the ingestion of from 10 to 40 yolks a day, together with a small amount of proteids and the nonavoidable carbohydrates furnished by the latter and certain allowed quantities of green vegetables. As each yolk contains about 5 gm. of fat representing more than 46 calories, it takes about 21 yolks to furnish 1,000 and about 32 yolks to make up 1,500 calories. A diabetic weighing 60 kilos, ingesting 21 yolks a day, would, therefore, obtain in fat alone 16.6 calories per day and kilos of body-weight; taking 32 yolks a day the average for each kilogram of his absolute weight would be 25 calories. Yolks sufficient to yield from 10 to 15 calories per day and kilogram of body-weight, however, are all that are necessary to be ingested in grave cases of diabetes complicated by acidosis.

The "yolk cure," besides suppressing the acetone bodies, causes systemic and nutritive improvement, and increase of body-weight, vigor, and resistance. It also stimulates body-growth in the diabetic child or adolescent.

The "yolk cure" supplies but very small amounts of nitrogen. However, it is body-albumin saving in a much higher degree than any other dietary regimen. Of course, the excreted nitrogen, while the patient is under the strict "yolk cure" exceeds that which has been ingested; the deficit, however, is so trifling that, practically, it does not need to be taken into account. This is especially the case when the yolk days alternate with "proteid fat (yolk) days." Again, when the glycosuria is moderate, so that larger quantities of albumin, together with yolks, instead of suet or butter, may be partaken of, a nitrogen deficit may be averted altogether.

The technic of the "yolk cure" is quite simple. The diet on which the patient had been, is at once discontinued; this is best done by omitting the next meal. In the meantime the patient's intestinal tract is evacuated, after which a high saline enema should be administered. When the decline of the patient has been very rapid, and when the glycosuria and acetonuria are of a high degree of intensity, the exclusive "yolk cure" must be continued until general improvement has ensued. In other, less pronounced cases, it may suffice to have a "yolk day" twice or three times a week, while the regular proteid-fat (yolk) regimen is pursued on the other days. In a small percentage of the cases larger amounts of carbohydrates may be permitted when the improvement has continued for some time. The additional carbohydrates should be given in the form of green vegetables, and not in that of flour, beans, rice, or potatoes. In whatever manner the yolk diet is altered, the yolks should continue to displace all other kinds of fat, and a strict "yolk day" should be pursued at least once or twice a week for a protracted period.

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*The albuminous ingesta in grave cases of diabetes do not only augment the glucose output but are liable to putrefy in the alimentary canal whereby butyric and valerianic acids, the precursors of the acetone bodies, are formed.

†The suggestion of Schwarz to ascertain in the individual instances, analogous to the tolerance for carbohydrates, that for fatty ingesta, *i. e.*, the amount of the latter which may be partaken of in order that acetone bodies are not produced, is rational enough when severe nutritive changes have as yet not occurred. In advanced cases, however, determination of the tolerance of the commonly used fats would almost be synonymous with their interdiction.

‡The "idiosyncrasy" for eggs not infrequently met in even healthy persons seems to be evoked in the first instance by the white of the egg. None of the diabetics whom I had under my "yolk cure," nor a number of other under-nourished persons in whose diet yolks preponderated, developed an idiosyncrasy for the latter.

The administration of alkalies, although the influence of the latter upon diabetic acidosis, as pointed out by me,[6] seems to be a mere local and limited one, is an innocent procedure, and may be pursued as an adjuvant to the antiacetone diet. It is possible that alkalitherapy for a time averts the enterogenous production of acetone substances, but it is a mooted question whether alkalies alone, that is, when the diet under which acetone has been formed is continued, will bring about cessation of an already active acetone production.

A sample of a yolk menu is given in the following:

	Number of yolks.	Calories yielded by yolks, approximately.	Total calories, approximately.
Breakfast:			
Cup of coffee, with two yolks	2	92	92
Three boiled yolks	3	138	138
Early lunch:			
Egg nog (three yolks, 30 cc. whisky)	3	138	270
Dinner:			
Celery soup (five yolks)	5	230	230
Spinach, 250 gm., eight yolks	8	368	443
Cup of coffee, with two yolks	2	92	92
Four o'clock:			
180 cc. sugar-free red wine, one yolk	1	46	125
Supper:			
One plate soup (soup stock), five yolks	5	230	250
String beans, 90 gm., three yolks	3	138	150
Total	32	1,472	1,790

In order to avoid monotony, variety in soups, vegetables, flavoring, and seasoning substances should be planned. The following cooking recipes for yolk dishes will be found of service:

PLAIN YOLKS.

Boil, shirr or poach the whole egg—only the yolks should be consumed.

COFFEE.

Stir the yolks of two eggs in a cup, then add one cup of hot coffee stirring constantly.

WINE SOUP.

Let 150 cc. of red (sugar free) wine and the same amount of water, a little cinnamon and one clove come to a boil. Remove from the fire and stir in the yolks of two or three eggs stirring constantly. Add saccharin, if desired.

SPINACH AND ALL GREEN VEGETABLES.

Boil in salted water until very tender—drain—add pepper and mash to pulp or press through colander. Then add to each ounce of pulp one raw yolk and mix well.

SALAD DRESSING.

Mix the yolks of six eggs (well beaten) with salt, pepper, one teaspoonful of onion juice and mustard. Add juice of half a lemon.

CELERY AND CAULIFLOWER SOUP.

Boil a stalk of celery (cut fine) in 250 cc. of salted water until very tender—strain and add to the boiling liquid the well-beaten yolks of five eggs. Season to taste.

Cauliflower which has been scalded is put on to boil with 250 cc. of salted water, when very tender the whole mixture is passed through a colander and returned to the fire, then the well-beaten yolks of five eggs are added. Season to taste.

SOUP STOCK.

For each plate of soup a quarter pound of shin meat, a quarter pound bone, some celery, parsley, one onion and half of a leek are required. Set on the fire with cold water and boil slowly for five hours. Strain, pressing meat to a pulp so as to extract all the juice. Then add five yolks, well beaten.

EGG NOG.

Mix 30 cc. whisky with 90 cc. water and shake or stir briskly with the yolks of two eggs—add nutmeg, cinnamon, or lemon.

All yolk dishes must contain salt in sufficient amount; salt not only aids in the assimilation of the yolk constituents, but is absolutely essential for the proper conduct of the metabolic and osmotic processes. The patient, as a rule, takes readily to the "yolk cure." I have some patients who, although not eliminating acetone bodies any longer, continue of their own volition two or three "yolk days" in the week, and substitute, as much as possible, yolks for other fatty ingesta on the proteid-fat days.

Generally, obstipation does not supervene while the patient subsists on the "yolk cure." However, if it ensues, high enemas, to be followed by some saline cathartic or a good dose of castor-oil, to be followed by enteroclysis with sodium chlorid solution, should be at once administered.

Following are the histories of some cases of diabetes, complicated by acetonuria and diaceturia, which had been under the strict and modified yolk diet:

Case I.—This case I have already published in the *Medical Standard*, May, 1904. J. R., aged 45, is a diabetic since his thirty-ninth year. Between March and May, 1903, his affection, which had been of a comparatively mild type for five years, began to assume a grave character. On February 22, 1903, while under the diet which he pursued for the past three years, and which contained 150 gm. of carbohydrates per day, he weighed 147½ pounds, and his urine exhibited neither glucose, acetone nor diacetic acid. On May 10, his weight had declined to 146¾ pounds, and his urine (the amount of which had not been ascertained) contained 1.5% glucose, but the tests for acetone and diacetic acid showed neither. On May 25, while under a rigid meat-fat regime, he excreted 4%, or 90 gm. of glucose, but no acetone or diacetic acid. On June 8 the diurnal amount of excreted glucose had diminished somewhat, but there were traces of acetone, and the ferric chlorid reaction was fairly pronounced. His weight was 145¼ pounds. About June 25, he consulted Prof. v. Noorden, at Frankfort, who informed me that he had found 2.3%, or 56 gm. glucose, and 1.5 gm. acetone in the 24 hours' urine, and that the ferric chlorid reaction, although faint, had occurred.

Upon his return, on September 13, he weighed 144 pounds; his urine contained large amounts of glucose and some acetone, but no diacetic acid. On September 23, he excreted 181.6 gm. glucose, a small amount of acetone, but no diacetic acid. On September 25, after two days of a green vegetable and fat (butter) diet, as advised by v. Noorden, he excreted but 83.4 gm. glucose, but over 2 gm. acetone, and also some diacetic acid. On September 29, his weight had declined to 143¼ pounds, the glucose output to 54.97 gm., the amount of acetone had not materially changed, the ferric chlorid reaction was positive. Keeping the patient upon a very rigid diet (complete exclusion of carbohydrates, diminished amount of albumin, no egg albumen, only the yolks), he weighed 145¼ pounds on October 5, and had excreted during the previous 24 hours about 43 gm. glucose, and traces of acetone; diacetic acid was not detected. Withdrawing all fatty substances except the yolks of eggs, he weighed, on October 12, 148¾ pounds. The glucose output had diminished to 38.18 gm.; acetone had entirely disappeared. Diacetic acid was not present.

Olive oil, added to the diet at a later day, was followed by a slight output of acetone; addition of butter, tried on various occasions, caused pronounced acetonuria. Beef fat, in the amounts ordinarily employed, remained without influence upon the acetone excretion. The patient weighed 152½ pounds on November 30, and passed as little as 10 gm. glucose on January 10, 1904. His urine remained entirely free from acetone until the end of February. Since this time, small amounts of acetone, as well as of diacetic acid, are found occasionally. His present weight is 149½ pounds. Since the middle of October, 1903, his diet consists of meat and fish and their natural fat substances, of gelatin, green vegetables, almond cake, coffee, and some brandy. The daily caloric deficit is made up by the yolks of hen's eggs, of which he had as many as 14 per day. These are incorporated into gravies and vegetables, and added to the coffee and brandy.

Case II.—Mrs. J. D., aged 44, who gave birth four times, three times to stillborn children, consulted me first on April 16, 1903. The patient has been affected with diabetes for about two years, and had exhibited all the initiatory symptoms of the diabetic state. She has lost about 20 pounds in body-weight. Her present weight amounts to 103¼ pounds. The quantity of urine voided in the 24 hours was 2,800 cc. It possessed the following features: Specific gravity, 1,033; reaction, 0.45° acid; glucose, 8.35% = 233.8 gm. in 24 hours, acetone, 2.25 gm.; ferric chlorid reaction very pronounced. Albumin and evidence of renal lesion could not be detected. Patient was put on the rigid "yolk cure" for three days, after which the "yolk days" were to alternate with "proteid-fat (yolk) days" for about two weeks, after this two "yolk days" a week for a protracted period. On May 7, the diurnal urine amounted to not quite 2,000 cc., and the glucose output to 71 gm. *The excretion of acetone bodies had ceased.* Patient felt strong, and weighed 104½ pounds. On May 21, the 24 hours' urine amounted to 1,850 cc. and the glucose to 67.155 gm. The acetone substances had not reappeared.

Case III.—M. F., aged 40, born in Russia, butcher. Symptoms of diabetes first noticed in December, 1902. Highest weight, 155 pounds. Weight on May 2, 1903, 123½ pounds. Urine on the latter day amounted to 5,400 cc. and contained 336.96 gm. glucose and large quantities of acetone and diacetic acid. Rigid proteid-fat (butter) diet reduced the diurnal urine to 3,200 cc., and the glucose to 85.12 gm. after two weeks. The reactions for acetone and diacetic acid had become more intense. Patient was put on the rigid "yolk cure" for two days, and on alternating "yolk days" and "proteid-yolk days" for two weeks longer, with the result that the daily glucose output had diminished to less than 25 gm., and that the *acetone substances had entirely vanished.*

Case IV.—W. S., aged 25, merchant, first consulted me on June 4, 1904. The diabetic phenomena were recognized about two and a half years ago. His highest weight had been 155 pounds; present weight 109 pounds. Patient is also affected with advanced pulmonary tuberculosis. The saliva contains considerable amounts of glucose. Urine, quantity voided at my office at one time 900 cc., specific gravity 1,021.75, glucose 5%, acetone considerable, diacetic acid ferric chlorid reaction positive. No evidence of kidney affection.

Antidiabetic regimen, in addition thereto about 500 cc. of sweet cream daily. On June 11 the glucose had been reduced to 2.4%; acetone and diacetic acid occurred in rather larger quantities. On June 19 patient who had not adhered to the prescribed diet excreted again 5% glucose, but somewhat less acetone and diacetic acid. His weight had been reduced to 107½ pounds. Proteid-yolk diet and every third day a vegetable-yolk regimen were ordered. June 25 the patient feels improved. Urine on last vegetable day about 3,000 cc.; on last proteid day 4,000 cc. Glucose, vegetable day, 3.12%; proteid day, 5.55%. Specific gravity, vegetable day, 1,020.5; proteid day, 1,021.5. Acetone, vegetable day, none; proteid day, traces. Ferric chlorid reaction, vegetable day, negative; proteid day, faint.

Case V.—Mrs. B. C., aged 72, mother of 9 children. The patient was first seen by me on June 18, 1904. Diabetic condition dates back for some years. In addition thereto she has all the evidences of contracted kidney. Her highest weight was 140 pounds; present weight amounts to 108¾ pounds. Twenty-four hours' urine, 2,000 cc.; contains large quantities of albumin and renal debris, 0.83% glucose, acetone, and diacetic acid. Vegetable yolk-milk diet (from 12 to 22 yolks a day) was ordered, with the result that on June 25, *glucose, acetone, and diacetic acid had completely disappeared*, and the amount of serum albumin was materially reduced. After addition of 100 gm. of bread to the diet she was still free from glucose, acetone, and diacetic acid on September 1, when she weighed 110 pounds. She still subsists on the same diet, taking little meat, but about 12 or 15 yolks a day. The amount of serum albumin eliminated by the urine is less than half since treatment was started.

Case VI. (This case was presented to the association.) G. H., aged 15½, was referred to me on March 29, 1904. Eight months ago he began to waste away. About three months ago the family physician recognized diabetes. The diurnal urine amounted to 6,772 cc.; the specific gravity was 1,032.5; glucose 5.5%, that is, 372.46 gm; it also exhibited large amounts of acetone and diacetic acid. He weighed 99 pounds. A moderately rigid diet with 100 gm. wheaten toast was prescribed. On April 9 the 24 hours' urine amounted to 3,500 cc.; specific gravity, 1,029; glucose, 10% (350 gm.). Acetone and diacetic acid continued to be excreted in undiminished quantities. The patient's weight had declined to 98½ pounds. Rigid proteid fat (butter) diet was ordered. On April 15 the diurnal urine amounted to 3,000 cc.; specific gravity, 1,024; glucose, 7.5% (225 gm.). *The amount of acetone and diacetic acid was enormously increased.* A proteid yolk diet, and twice a week a vegetable yolk day, were ordered (23 yolks on the latter days).

On April 29, the urine, vegetable day, amounted to 1,750 cc.; on the previous proteid day it had amounted to 2,500 cc. The urine from the vegetable day exhibited 2.5%, that from the proteid day, 3.33% glucose. Acetone and diacetic acid, although eliminated in decidedly smaller quantities, still occurred to the amount of 1.75 gm. on the last vegetable day, and to that of 2.25 gm. on the last proteid day. The patient's weight had risen to 107 pounds. The "yolk cure" was ordered to be continued.

On May 12, a vegetable day, the urine amounted to 1,500 cc.; on the previous proteid day its amount was 2,250 cc. The urine of the vegetable day had a specific gravity of 1,020.5, contained 2.5% glucose, gave a faint ferric chlorid reaction, but did not exhibit acetone in more than the normal amounts.

The urine of the proteid day possessed a density of 1,027.5, and contained 6.25% glucose. Acetone was present in considerable quantities and the ferric chlorid reaction was very pronounced. The patient weighed 111 pounds.

On May 26 the urine (vegetable day—28 yolks) amounted to 1,750 cc.; had a specific gravity of 1,016, and contained *neither glucose, acetone, nor diacetic acid.*

The urine of the last proteid-yolk day (7 days) was the same in amount, had a specific gravity of 1,018, and contained 0.25% glucose *but no acetone or diacetic acid.* The weight had increased to 113 pounds. Diet continued as heretofore.

On June 13, a vegetable day on which 23 yolks were consumed, the urine amounted to 1,250 cc. It had a specific gravity of 1,012, a general acidity of 0.3°, and contained neither glucose, acetone, nor diacetic acid.

The urine of the last proteid day amounted to 2,600 cc., had a specific gravity of 1,017, a general acidity of 0.3°, and contained neither glucose, acetone, nor diacetic acid. The body-weight had been raised to 116¾ pounds. On the last few vegetable days patient consumed only parsley which had been cooked in ham or beef water. The yolks were incorporated with the parsley. Treatment continued as heretofore.

On July 6, a proteid day, urine was excreted to the amount of 4,250 cc. It exhibited a specific gravity of 1,019.25, but no glucose, acetone, nor diacetic acid.

The urine of the last vegetable-yolk day amounted to 2,125 cc., with a specific gravity of 1,014. It contained no glocuse, acetone, nor diacetic acid. The weight had declined to 115 pounds. Treatment as heretofore.

On July 27, a vegetable-yolk day, on which patient had consumed 30 yolks, the renal secretion amounted to 2,000 cc., had a specific gravity of 1,015.75, and contained no abnormal substance of any kind.

The urine of the last proteid-yolk day amounted to 2,900 cc., had a specific gravity of 1,019.25, and showed neither glucose, nor any of the acetone bodies. The body-weight had declined to 113½ pounds.

On August 17, a vegetable-yolk day (17 yolks), patient voided 1,100 cc. urine, the density of which was 1,010.75. It exhibited no anomalous constituents.

On the last proteid day the urine amounted to 2,600 cc., possessed a specific gravity of 1,020.5, and contained no abnormal substances, nor normal constituents in excess. The discrepancy in discharged solids is very pronounced, viz., 22 gm. on the vegetable day, 116.5 gm. on the proteid day. Patient yawns incessantly, and weighs 116½ pounds.

On September 14, a vegetable day, the urine amounted to 1,500 cc., and had a density of 1,018; it contained no abnormal substances.

The urine of the last proteid-yolk day amounted to 2,500 cc. It exhibited a specific gravity of 1,019, but no glucose or acetone bodies. The patient is growing fast, feels very well and strong and consumes from 20 to 25 yolks on the vegetable days and from 9 to 12 yolks on the proteid days. His weight amounted to 118 pounds.

On October 15, a proteid day, the urine was excreted to the amount of 2,250 cc.; its density was 1,021. No glucose or any of the acetone substances were contained in it.

The amount of the urine of the last vegetable-yolk day was 1,500 cc.; its specific gravity 1,020.75. No abnormal substances were detected in it.

The patient feels very well and has been working in a factory for the last two weeks. He consumes from 5 to 9 yolks on the proteid days, and from 22 to 30 yolks on the vegetable days. He continued to grow. His weight amounted to 122½ pounds.

A study of the cases dwelled upon in the foregoing evinces the indisputable value of the "yolk cure" in ameliorating the diabetic condition and in suppressing the production of the acetone substances. While I do not believe in dogmatic dietary rules, I maintain that the principles underlying the "yolk cure" are the only rational ones in combating diabetes complicated with excessive production of the acetone bodies.

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Married Men Live Longest.—The ancient minstrel joke as to why married men live longer than bachelors, and the reply that it only seems longer, was conceived in a spirit of fun, but it is now scientifically asserted that matrimony is conducive to longevity. A certain learned professor has calculated that the mortality among the bachelors from the age of 30 to 45 years is 27%, while among married men of the same age it is 18%. For 41 bachelors who attain the age of 40 years there are 78 married men who reach the same age. The difference is still more striking in persons of advanced age. At 60 years of age there remain but 22 bachelors to 48 married men. At 70, 11 bachelors for 27 married men, and at 80, 3 bachelors for 9 married men.

A NEW REFLEX: PARADOXIC FLEXOR REFLEX. ITS DIAGNOSTIC VALUE.[1]

BY

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According to the generally accepted opinion, Babinski's reflex is considered as a clinical expression of an irritation or of a lesion of the motor tract of the cerebrospinal system. In a number of cases, previous to the discovery of this sign, the diagnosis could not be made for want of a sufficient number of symptoms—now such difficulties are removed; Babinski's sign has come to occupy a permanent place in nervous semeiology. The value of this sign is especially appreciated in those obscure cases, in which the symptom group is so meager that a diagnosis cannot be decided upon. However we meet now and then, cases of apparently undoubted involvement of the motor tracts in which the sign of extension of the toes is absent. In those cases in which other symptoms are not pronounced, the absence of Babinski's phenomenon may make a diagnosis difficult and even impossible; it may, in certain cases change entirely our train of thoughts, so that a functional nervous disease may be made out instead of an organic.

It has been my good fortune to observe a new reflex which I found present in cases, the history of which points to organic diseases of the nervous system, and especially of its motor tracts; I found it always associated with exaggerated knee-jerks; in some cases the Babinski reflex was present, in some not. Curiously enough, in the majority of my cases I find the sign present on the side where the Babinski reflex was either absent or slight, although in a certain number of cases it was present alongside of the Babinski reflex. It was present in those obscure cases in which the Babinski reflex was absent.

The reflex can be elicited in the following manner:

> The patient may either lie on his back or sit on a chair with the feet (not the legs) on a stool. The feet must be slightly rotated externally; in this position complete relaxation of the muscles of the leg is obtained. The examiner must always place himself to the outer side of the leg; the thenar and hypothenar muscles of his right hand must be placed on the inner surface of the tibia of the patient and the fingers press deeply upon the middle or the lower portion of the calf muscles. I say deeply because the pressure must be transmitted to the flexor muscles of the deep layer; sometimes pressure must be combined with lateral movements of the superficial muscles. If the reflex is present, extension of the great toe, or of all the toes, will be noticed. There is evidently no other muscle except the flexors that could be brought into display. The tibialis posticus, the peronei have entirely different function than flexion or extension of toes.

If excitation of the flexors produces an extension of the toes, the reflex is certainly paradoxic, and the fact that it substitutes the Babinski sign in cases in which other evidences of involvement of the motor tracts are present, seems to me to be of some value. It may be of some interest to show its relationship to the Babinski sign in figures. Thirty patients were examined. In 12 the reflex was present, together with Babinski's sign. In 10 cases Babinski's sign was present, but the paradoxic reflex was absent, or vice versa; and, as in 9 cases Babinski's sign was distinct but the paradoxic reflex slight on the same side, we see that in 19 cases, against 12, the two reflexes showed a tendency to replace each other. Only in 6 cases both reflexes were absent at the same time. The cases selected for examination can be classified as follows: Two spastic paraplegia, 3 specific meningomyelitis, 2 traumatic myelitis, 1 ataxic paraplegia, 2 spinal syphilis, 3 transverse myelitis, 1 amyotrophic lateral sclerosis, 3 cerebrospinal syphilis, 12 hemiplegia, 1 case of rigidity of the spine with cord symptoms, 1 case of paresis.

For the purpose of control I examined a great number of patients, showing an involvement of other portions of the nervous system than the motor tract, also a great many normal individuals, with this result, that the reflex was inevitably absent. Finally, in paralysis agitans with increased knee-jerks the reflex was also absent.

The most interesting observation was that of a case of injury to the back:

> A man of 25 fell six months ago; this was followed shortly by a partial incontinence of urine and feces. The knee-jerk was markedly increased on the right, normal on the left. No Babinski sign on either side. The paradoxic reflex was present only on the right. Five months later the sphincter disturbances disappeared entirely, the knee-jerk became normal and equal on both sides. The paradoxic reflex disappeared with the increased patellar reflex.

As to the explanation of the reflex, it is as difficult as Babinski's reflex itself. Although I have no pathologic proofs to offer as yet, it is nevertheless evident that the reflex exists alongside of other reflex phenomena, which had always been considered as those of a pathologic motor tract. I propose to call it the "paradoxic flexor reflex."

In conclusion, I wish to call attention to the following observation: In the 12 cases of hemiplegia the paradoxic reflex was present mostly on the unaffected side. It is a common observation to have an exaggerated knee-jerk on the side opposite the paralysis. According to some writers, it is explained by the existence of the homolateral bundle, which does not decussate and joins the crossed pyramidal tract. In view of the significance of the paradoxic reflex as described, its existence on the side opposite the paralysis is perhaps an additional indication of some involvement of the motor tract of the unaffected side.

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[1] Demonstration before the Philadelphia Neurological Society, October 25, 1904.

OPERATIVE TECHNIC IN STONE IN THE URETER.[1]

BY

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Recent surgery of the ureters has done much to give us a more correct knowledge of the anatomy and physiology of these organs. The ureter extends from the twelfth rib to the floor of the pelvis, corresponding in its general course to a perpendicular line from the inner third of Poupart's ligament to the twelfth rib. It is extraperitoneal, lying just behind the posterior peritoneum in a sheath of loose areolar tissue supported by a muscular bed, and it is considerably longer than the distance between the kidneys and bladder; lying loosely as it does in its connective tissue, it admits the extensive mobility to the extent even of allowing it to be drawn out without harm through an abdominal wound in surgical procedures. As just stated, the ureter is not a straight canal of uniform caliber leading from the kidney to the bladder, but consists of three dilations (reservoirs or spindles), three constrictions (sphincters or isthmuses) and three flexures or curves, all of which have an important relation to the pathology and surgery of these organs.

In the anatomic arrangement of the ureter the calices are like so many pouches attached to the pyramids at the level of the renal substance converging as they carry the secretion into one common pouch or dilation, known as the urethral pelvis or reservoir; next comes a decided constriction called the proximal isthmus, or sphincter; then the lumbar spindle or reservoir, taking its name from its location. The second constriction or sphincter is at the crossing of the iliac artery (the middle isthmus), while in the third or last division, we have the pelvic reservoir or expansion, which narrows into a neck as it passes obliquely through the bladder wall (the distal isthmus or vesical sphincter). Aside from these marked variations in the caliber of the urethral tract, there are also three decided deviations in the form of flexures. The first comes at the distal kidney pole as it bends toward the spinal column, the second at the crossing of the large iliac artery, and the third where the ureter follows the curve of the pelvis.

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[1] Read at the Iowa State Medical Society in the Section on Surgery, May, 1904.

From the foregoing we understand that the dilation or reservoirs of the ureter are the result of the constrictions, and that the flexures, such as the crossing of the iliac artery and the sharp turn in passing through the bladder, produce the constrictions or isthmuses, and these in turn obstruct and detain calculi.

At present the accepted belief is, that the urethral tract is not merely an irregular canal, as described, dependent upon the force of gravity as well as pressure from behind, but that the ureter is an organ endowed with peristaltic activity like many other organs and viscera of the body. One of the latest authorities, especially from the standpoint of surgical research, says that the ureter is not a passive organ, but that the urine is transported from the kidney to the bladder by rhythm or peristalsis, not by force of gravity; it is an active rhythmic viscus dilating and contracting like the heart or lungs; its complete single rhythm, that is, dilation and contraction, extending from the calices to the bladder, occupies about five minutes, and that the ureter fills and empties its contents by a rhythmic wave, regardless of attitude or position of the body.

In observing the interior of the bladder with a reflected light through a suprapubic opening I have seen this intermittent gushing from the mouth of the ureter as if by peristaltic action at regular intervals. The irregular caliber or constrictions of the ureter and its peristaltic force have much to do in determining the passage or detention of calculi in their transit from the kidney to the bladder, both in the normal as well as the pathologic ureter.

The diameter of the healthy ureter is said to be $\frac{1}{7}$ inch at the proximal isthmus, $\frac{1}{10}$ inch at the vesical sphincter, while at the middle constriction, where it crosses the iliac artery, it is $\frac{1}{4}$ inch, the largest dimension, which no doubt accounts for the rarer detention of calculi at this point. We can readily understand that a diseased condition of the ureter, such as inflammation or ulceration, in which the peristaltic function is lowered, thereby favoring residual exudates, that the presence of calculous obstruction is augmented the same as by mechanical kinks.

The following interesting case will illustrate the behavior of a calculus in the lower segment of the ureter which ran the blockade of all the sphincters except the distal isthmus, where it remained for years, gradually increasing to great size without apparent obstruction of the urethral stream or without impairing the function of either kidney or ureter.

Mr. F. C., about seven years ago, felt a strange faint-like sensation referred to the abdomen which he supposed to be in his bowels; it lasted for three days. The micturition of bloody urine for perhaps 30 days followed this experience, the bladder became irritable, sediment was passed constantly. In addition to internal treatment, local flushing was advised and this was continued the greater part of the time until operation last year.

His history shows that throughout this period of about six years, he was never free from more or less straining and tenesmus of the bladder and rectum when micturating as well as sediment in the urine which constantly suggested the presence of vesical stone. He had been sounded by some of the best experts in Kansas City and Chicago with negative results. Before I operated upon this patient I had a skiagraph made which showed clearly the presence of a stone in the region of the bladder, although the most careful sounding could not elicit its presence, suggesting that the calculus was either encysted in the bladder or ensconced in the ureter just behind the bladder. I made a free suprapubic opening into the bladder and found this viscus absolutely free of any foreign body. On having the assistant elevate the floor of the bladder, through the rectum I found the left ureter very slightly patulous, and by insinuating the point of my finger through the meatus, I discovered a stone, of very large size for that location.

I think the technic employed in the extraction of this stone is unique and suggests a new approach to and practical method of invading the distal extremity of the ureter for the release of calculi, not hitherto described.

I did not dilate the meatus by forcible instrumentation, but with the point of the index finger introduced, I pushed to and fro, pulled and teased the tissues constantly, requiring nearly an hour, until there was sufficient dilation of the urethra to deliver a stone about one and three-eighths inches in diameter without lacerating the bladder wall. In this case continued drainage was deemed necessary for some time on account of the residual exudates, with the thickened and contracted viscus, which retarded the suprapubic closure. The patient is now an active business man and is able to go several hours and usually through the night without micturating.

If a calculus passes by the first constriction or proximal isthmus of the urethra, if it is detained at all before emptying into the bladder, it is most likely to be transported into the lower segment next to the bladder wall, as the middle isthmus is the largest in diameter. However, I have in mind a case in which we removed a fair-sized stone, detained at the middle neck, where the ureter crosses the iliac artery.

The usual method of removing calculi from the lower segment of the ureter is by lateral incision in the abdomen, and dissecting down behind the peritoneum, thereby reaching the ureteral obstructions by an extraperitoneal route. But with the method employed in the foregoing case, the röntgen ray having positively established the presence of stone in the bladder area, even with negative searching, we can proceed with a generous suprapubic opening, examine this viscus first, and if desirable directly probe and explore through the meatus and dilate into the terminal spindle of the ureter. It cannot be determined beforehand, in cases like this, just how far one will have to go, for one cannot differentiate in the skiagraph between a stone hid in the bladder folds and one in the ureter just behind the bladder, on account of the distance anteroposteriorly being uncertain in a skiagraph. When it is necessary to dilate the vesical sphincter, at first some difficulty will be met on account of the depth. This maneuver is greatly facilitated, however, by the assistant pressing up the floor of the bladder with two fingers forced high up through the rectum.

It is understood, of course, that this whole procedure is based upon a skiagraph, confirming the presence of stone in the lower pelvic area, in addition to the physical signs. The röntgen ray in the hands of experts of the present day is of much accuracy and value as a diagnostic measure in these particular cases; that we are not justified in proceeding blindly in search of a stone, the location of which may be positively demonstrated by the use of this agency.

It should be borne in mind, however, that in the use of the röntgen ray in all pelvic work, an important prerequisite is the complete emptying of the intestinal canal, the same as for an operation, as the bowel debris is of sufficient density, on account of the earthy material, to interfere with the otherwise more clearly defined shadows in the skiagraph.

Relations of the Thymus Gland and the Essential Sexual Tissue.—Anderson, in 1898, showed that castration of the guineapig arrested the involution of the thymus gland. N. Paton recently published experiments showing that in certain animals the thymus gland continues to develop until the sexual organs gain headway. Animals who have never propagated appear to retain a measurably greater vestige of the thymus gland.

SPECIAL ARTICLES

THE PRESENT STATUS OF PATHOLOGY.[1]

BY
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According to a well-established custom the man whom you have honored with the presidency of the Chicago Pathologic Society is expected to deliver an address when entering upon his new duties. I take great pleasure in following the precedent thus established and have chosen as a topic a short discussion on the present status of pathology.

The selection of this topic was principally due to impressions received at the meetings of the International Congress of Arts and Science, held at St. Louis last month. This congress brought men of all disciplines of learning together. The many great scientists assembled from all countries have been an inspiration to the younger men. Personal contact has taught much which cannot be learned from books, journals or papers, and has, as it was intended, brought about a natural, mutual understanding and appreciation of each other's efforts and a correlation of the many observations in the necessarily overspecialized disciplines of learning.

Within the midst of a new era of progressive and successful scientific research in all branches of the natural sciences, a wealth of new observations, new hypotheses and systems and the ever-increasing tendency to further specializing even in the specialties of modern medicine, let us pause for a moment and assure ourselves that it is no vague dream we are following when we contend that pathology is a science and that by virtue of its achievements modern medicine has been born. The goal of the investigations of medical men has ever been to elevate their profession to the pinnacle of the exact sciences. No class of men, in whatever calling, has brought greater sacrifices and labored more earnestly in the interest of mankind than those who elevated medicine to the proud distinction of a science.

It is well that we, as the beneficiaries of this noble race of medical discoverers in the natural sciences, emphatically resent any attempt on the part of other sciences to speak and write of medicine as a kind of trade, as if it was devoid of all purely scientific aims or ideals.

At the International Congress for Arts and Science, held at St. Louis during the last month, with the object of bringing about an unification of knowledge, medical men must have viewed the program of this great and interesting assemblage of noted men from all parts of the globe and all disciplines of learning, with mixed feelings. Bacteriology was classed with the exact sciences (Division C, Physical Sciences). Pathology with medicine and all its branches, as well as public health and preventive medicine, were included under the utilitarian sciences, together with engineering, agriculture, commerce, money and credit, public finance, transportation and insurance. (Division E, Utilitarian Sciences.)

If bacteriology, together with anatomy and physiology belong to the exact sciences, why should pathology be classed under the utilitarian sciences? If plant pathology be classed with the exact sciences why should human pathology belong to the utilitarian sciences of medicine, technology and economics?

Through all this breathes the spirit of the times and the usual attitude assumed toward medicine on the part of the exact sciences. The great discoveries of medical men, which have gradually elevated many branches of our profession to the level of the more exact natural sciences, have been quietly accepted and assimilated by non-medical, non-utilitarian but more exact sciences as their own, forgetting that the men who made them were medical men. True enough they employed the same methods which have made the natural sciences, exact sciences, recognizing as we have always done, the great aid these sciences have been and always will be in all progress of medicine as a science.

It was interesting to note at this congress the sentiments expressed in the addresses upon past, present and future of the various sciences. We hear how the pathologist has made medicine a science; how the bacteriologist has revolutionized pathology; how the biologist alone can work the salvation of bacteriology and how the physical chemist alone can solve the important questions of biology. We are told that scientific investigations must not be undertaken with any view to useful application and that medical research is utilitarian because its object is ultimate practical application.

Even pathology has been placed under the utilitarian sciences. Is it because many of the investigations, although undertaken for purely scientific purposes, led to important discoveries which happened to be applicable to practical medicine?

It may safely be said that medical discoverers did not always undertake their investigations with any idea of immediate or ultimate practical application but they certainly have not considered their work less truly scientific because it could be applied in a practical, utilitarian manner in the important problems of the preservation and betterment of life and mankind.

It is no wonder that the multiplied and subdivided specialties in science, each of which is trying to work its own salvation, in its own way, without much reference to allied branches, should feel the need for a unification of science, a comparison of claims and results, a fair exchange and recognition of the scientific discoveries of other branches. If this is done, pathology will not be classed with the utilitarian sciences any more but will be given a place so high among the natural sciences, that no medical man need feel himself a pariah in the domain of natural sciences.

The medical man has given the world so much at all times for nothing, without asking award or honor for his achievements or discoveries; he has modestly and complacently stood by and witnessed how others appropriated the best fruits of his discoveries, which should have immortalized him as a scientist and his profession as a science with all classes of humanity for all times; he has put the true stamp of science upon this once most utilitarian profession of medicine by his discoveries, only to witness how others nonchalantly claim all those branches of his profession, which he has raised to the level of the exact sciences, as their own, divorcing them from this purely utilitarian profession of medicine.

One of the nonmedical speakers at this international congress deplored the tendency of medical men to express opinions on questions of public health, and suggested scientific critique or censorship on all statements relative to the subject made by physicians. Who shall be the critic, and who the criticised? The nonmedical sanitarian who has received from the discoveries of medical men the scientific foundation of his specialty, questions the authority of physicians to express opinions on such matters.

This is only another instance of the current tendency on the part of other branches of learning to deprecate medicine as a science, although availing themselves of the scientific achievements of medical men. Even granted that medical men without special training should have no voice in such matters, it would be highly deplorable to have our rights denied or curtailed by nonmedical censorship or authority. Authoritative belief and censorship would be a violation of the most treasured prerogatives of the natural sciences and a death blow to all further progress. Observation and experiment alone must decide what is right and wrong, what is true and false in the natural sciences, and the medical man who follows this flag is on the right path to real science—the truth.

And yet this suggestion of scientific critique or censorship comes from a man who is most sincere in his intentions, and who entertains only the loftiest motives in the furtherance of his specialty, which he considers entitled to a high place among the natural sciences. He would himself be the first to denounce the remedy he suggests if he could see the results of its practical application.

He has touched upon a subject, however, of which we are all painfully aware, and that is the general method of settling controversies in sanitary matters, questions of public health, as well as general medicolegal questions, by expert testimony before a lay jury or judge, with council on both sides bending all their energies toward making expert partisans, and non-expert witnesses, experts. The consequences are only too evident in the low opinion which the legal profession holds scientific testimony. If these controversies were submitted by the court to a committee of representative men whose life study is devoted to the questions in dispute, and their report accepted as final, the ends of justice and the just interests of the individual and State would be properly protected, as well as the reputation of scientific men and science itself. The great questions of public health and forensic medicine cannot be justly decided by a jury when hearing the expert testimony of opposing sides, nor does the present system conduce to harmony among men engaged in the same scientific pursuits. The system tends to make partisans, in spite of the best intentions on the part of the scientific specialist.

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[1] Address read before the Chicago Pathologic Society.

With regard to the status of pathology in our city, the annals of the Chicago Pathological Society bear witness to the steady progress and advancement made in pathology and medical research. Much earnest work has been done by a small circle of men who deserve our sincerest admiration. Thanks to the efforts of this small band of enthusiastic workers the pathologist is no longer looked upon as a kind of servant by the clinician, but is considered as a colleague. This is as it should be. Each one needs the other to advance the best interests of medicine. It is to be regretted that there still exist a few men who expect impossible things from the pathologic laboratory. These are the loudest in denouncing its real possibilities, totally blind to the great help they might derive by judicious requests. The greatest sufferer in this respect is the overworked laboratory attendant in the hospital who begins his work always with great enthusiasm, but usually is driven to desperation ere long and leaves his task in search of greener fields. It should be generally and frankly understood that no hospital can be considered modern and doing full juistice to its patients with an antiquated, poorly-equipped, and poorly-appointed laboratory. It is not just to the clinician, who has a right to demand adequate laboratory facilities to avail himself of modern laboratory aids in diagnosis; nor to the patient who has a right to expect all the advantages of modern medicine; nor to the laboratory attendant, because the clinician holds him responsible for exact, prompt, and faithful work. The laboratory is sometimes as important in the hospital as the operating-room· The laboratory attendant cannot be expected to take care alone of all the work for the different services. The less so, as some clinicians are prone to order excessive and sometimes useless work, so that the really necessary or important work is done poorly or entirely neglected. A man who is forced, on his first morning, to examine 100 specimens of decomposed urine, can not give his differential blood counts, his search for malaria parasites and tubercle bacilli, his Widal reactions and blood cultures and tissue work that prompt and close attention which the exigencies of the case demand. The work and energy spent on these decomposed urines are really worth a better cause. This senseless routine deserves the most severe criticism on the part of clinician and pathologist. It is not only valueless, but leads to erroneous conclusions. Casts which have been present in the fresh voided specimen have been destroyed by saprophytic multiplication and crystals are present which were not in the fresh voided specimen.

Complete blood-examinations are ordered in a routine way without purpose or object. This useless and pernicious practice wastes much time and gives rise to other difficulties. The clinician, who is himself an experienced laboratory worker, naturally expects prompt and faithful execution of his demands on the laboratory of the hospital. He never asks impossible or unreasonable things and his appreciation of the laboratory is a great encouragement for any man, but instead of faithfully and promptly attending to these reasonable wishes, useless work is being done for another man, who denounces all laboratory aids on general principles, although he is the very one who expects the most impossible things of the microscope and the laboratory and will use the most questionable laboratory report for most extensive conclusions in diagnosis.

The best system is undoubtedly that existing already in a few of the larger hospitals of appointing a resident pathologist at a living salary, which will enable him to devote his whole time to the hospital. The laboratory should be equipped with all modern instruments for work in applied pathology, bacteriology, and physiologic chemistry, with tables and locker for each interne who wishes to work up cases.

In the interest of the clinician, the interne as well as the laboratory, it is necessary that a closer relation should exist between the clinical side and the laboratory. For this purpose one or more internes of each service are to be responsible for all the laboratory work of their respective services for a certain number of months, under the guidance and advice of the resident pathologist, who is to determine the manner and scope of all examinations. In questions of controversy as to methods, manner or limitations of examinations between the clinician and resident pathologist, either may appeal to the one or more consulting pathologists on the hospital staff.

And last but not least, each hospital must have its museum, and no money should be saved to preserve specimens well, if at all. A museum with specimens preserved in natural colors should be the pride of every hospital. Virchow calls it the album of the hospital, each clinician entering his name by the specimens he has furnished. This album is the permanent witness of the scientific work done in the hospital and the specimens are the monuments for the physicians on its staff.

An unjustifiable prejudice exists in the minds of most hospital managements and the public against postmortem examinations and the swiftness of the average Chicago undertaker does the rest to rob medical knowledge of the most fruitful source of information. Much missionary work is yet to be done to remove the popular prejudice. The pathologist can do but little. We must depend upon the clinician to educate the people to the necessity of autopsies in all cases if the best interests of the patient as well as scientific medicine are to be advanced. The relations of pathologist and clinician in the determination of the cause of death are simple and well established. The pathologist demonstrates the findings and dictates the protocol. The clinician uses the disease history and the postmortem findings for a combined review. Both combined determine the cause of death.

It is not possible for me, within the limits of this short paper, to discuss in detail many other deprecating expressions and innuendos we hear on the part of other disciplines of learning with regard to the science of medicine. In the maze of new facts, contributed by a diligent army of investigators, who specialize more and more in the already over-specialized branches of medicine, it has become more and more difficult to discern the true from the false. The redeeming feature is that the truth will take care of itself, as the past history of pathology has well illustrated. The medical man should feel as Pasteur did when he said: "Nous avons une passion supérieure, la vérité." Instead of this, he has of late come to look with some apprehension upon pathology. The glories of "omnis cellula e cellula" have faded somewhat, in view of all the glittering array of new observations and hypotheses.

It cannot be denied that the discoveries made in other branches of the natural sciences have opened new fields for investigation and new experimental methods, the application of which in pathology and bacteriology may bring us much nearer to an ultimate understanding of cellular activity. We have learned new biologic truths and have tried, with greater or less success, to apply them. We have had revealed to us discoveries in physiologic chemistry, and have been enraptured over the prospects of applying the new laws and methods of physical chemistry to the solution of pathologic problems. Pasteur's important contributions to biology and medicine were also based upon methods employed in the exact sciences of physics and chemistry, and much is to be expected from the future in applying the methods of the exact sciences also in the further study of cellular pathology, but the tenets of pathology as a biologic science stand as firm today as they did when Virchow, in 1893, demanded the recognition of pathology as a biologic science before the Royal Society in London. In 1897 he wrote that it was his consolation in old age to see that this request had been recognized as fully justified, and that upon the same basis also would investigation progress in the future. If pathology is no longer entitled to the proud distinction of a biologic science; if it is to be classed with the utilitarian sciences and is no longer to illuminate the pathways of medicine; if it is no longer to be named with the natural sciences, it will be well for us reverently to recall, for our consolation and as a stimulus for future effort, the treasured inheritance which Virchow has left us.

Before the Twelfth International Congress of Medicine, Moscow, in 1897, he said: "In questions of the highest problems, the relations of man to the world, of man to his surroundings and of his real being, only science can give an answer. Medicine, as one of the most important sciences of man, is, above all others, responsible for a clear answer. Have we a right to be considered sensible interpreters of nature? Has the present century prepared the roads so well that our successors may stand on firm ground when they follow our steps?" He could answer these questions with an emphatic "Yes." His dearest thought was that we would ever remember that medicine, and, above all, the fundamental science of medicine, pathology, has become a biologic science.

His law of "Omnis cellula e cellula" was based upon a colossal amount of investigation and verification, and we all know the rich harvest it has brought to modern medicine. He says of this law: "Let us hope that it may be honored and preserved also by our successors as a permanent acquisition of mankind that will never perish. Let the value of our deeds be judged from the biologic point of view. New medical systems may be produced, but the quiet thinkers will always recognize anew that it is not our object to think out a world plan, but that we shall only be responsible to observe well what can be observed and faithfully hold to this. That is the method which has become the common property. May it never be forgotten by our successors."

And it never will be forgotten by the physician. What more glowing tribute could be paid the life work of any medical man than that which Welch, the Nestor of American pathology, paid Virchow in his Huxley lecture on recent studies of immunity, with reference to their bearing on pathology. He says: "The researches on immunity which to some of short vision, seemed to threaten the foundation of cellular pathology, have served only to strengthen them. When one considers the full importance of the discovery and establishment by Virchow of the cellular pathology, that this constitutes the secure foundation upon which nearly two generations have built and future generations will continue to build the edifice of scientific medicine, I do not know what greater name there is in the whole history of medicine than that of Rudolf Virchow."

One cannot read the history of pathology without recognizing that it has ever struggled for recognition as an independent and sovereign science. Within a generation, medical knowledge and ability have been advanced by it as never before in the whole history of medicine. With what simplicity and strength of purpose have all the great strides been accomplished which have made it a science. Its methods were observation and experiment. Its work was quiet, diligent, slow, and faithful.

The pathologist today, more than ever before, should be an ardent student of biology and chemistry, particularly physical chemistry, to enable him to undertake profitably new researches in cellular pathology. In pathology we will always have, as in the past, three classes of men. Those who are teachers, those who are investigators, and those who are compilers. To become a master in one of these means usually to be a dilettante in the others. But few men have been so gifted as to excel in more than one capacity. Each one has his important mission and function in pathology. The investigator, after mastering the science of pathology, devotes his whole energies to methodic research, quiet, painstaking, thorough observation and experiment. Fame may seek him even in the simplest environments. Remember the country practitioner Robert Koch and his discovery of the tubercle bacillus.

The compiler brings order into the numerous observations of all investigators, correlates and classifies them. The teacher must inspire the student with the science of pathology so it may live and flame and grow with him.

I will close with Virchow's words as to the relations which should obtain among pathologists, and among all medical men for that matter: "By recognizing and honoring each other's merit, it becomes customary to fight with reasons and not with invectives. We should honor our colleagues and also the men a little. We should show that the profession of medicine ennobles men and brings them nearer to the ideals of humanity."

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

November 26, 1904. [Vol. XLIII, No. 22.]

1. Drugs Irritant to the Kidneys, and Hence to Be Avoided in Impaired Kidney Function. TORALD SOLLMANN.
2. The Etiology and Pathology of Gout. THOMAS B. FUTCHER.
3. The Rational Application and Value of Specific Treatment for Tuberculosis. EDWARD R. BALDWIN.
4. Injuries to the Rectum Caused by Gynecologic Examinations. HOWARD A. KELLY.
5. The Treatment of Otitic Septicemia. B. A. RANDALL.
6. Plastic Operations for the Closure of Postaural Openings following Radical and Mastoid Operations. EDWARD BRADFORD DENCH.
7. The Palliative Treatment of Acute Mastoiditis and Its Limitations. PHILIP HAMMOND
8. A Case of Bilateral Tuberculosis of the Middle-ear in an Infant. DUNBAR ROY.
9. The New Ophthalmology and Its Relation to General Medicine, Biology, and Sociology. (Concluded.) GEORGE M. GOULD.
10. Types of Children. W. S. CHRISTOPHER.
11. Constipation in Infants. J. ROSS SNYDER.
12. Perinephritis in Children. WISNER R. TOWNSEND.

1, 2.—See *American Medicine*, Vol. VII, No. 26, p. 1012.
3.—See *American Medicine*, Vol. VIII, No. 2, p. 51.
4.—See *American Medicine*, Vol. VIII, No. 3, p. 95.
5.—See *American Medicine*, Vol. VIII, No. 1, p. 10.
6.—See *American Medicine*, Vol. VIII, No. 2, p. 51.
7.—See *American Medicine*, Vol. VIII, No. 3, p. 96.
8.—See *American Medicine*, Vol. VIII, No. 3, p. 97.
9.—See *American Medicine*, Vol. VIII, No. 18, p. 760.
11.—See *American Medicine*, Vol. VII, No. 25, p. 970.
12.—See *American Medicine*, Vol. VII, No. 26, p. 1008.

Boston Medical and Surgical Journal.

November 24, 1904. [Vol. CLI, No. 21.]

1. The Ideal of Accuracy in Clinical Work: Its Importance, Its Limitations. RICHARD C. CABOT.
2. Metatarsotarsal Valgus or Humped Foot, and Its Relation to Boots. E. H. BRADFORD.
3. The Pain of Osteoarthritis of the Spine: Its Bearing on the Diagnosis of Urinary Disease. ARTHUR L. CHUTE.
4. Report of a Case of Primary Carcinoma of the Appendix. DANIEL FISKE JONES and CHANNING C. SIMMONS.

2.—Foot Deformity Caused by Shoes.—E. H. Bradford presents several illustrations and discussion illustrating how various deformities of the feet are caused by ill-fitting shoes. These result not only in pain and distress to the individual but also in a permanent weakening of the feet. Shoe deformities result from the pressure of a boot crowded backward upon the standing or walking foot. The boot when the foot is used must find resistance somewhere and it exerts pressure according to its shape. The most common deformities are caused by crowding the toes together as the shoe is always made narrower than the natural spread of the foot. This crowding results most injuriously upon the great toe which is pushed toward the middle of the foot and frequently partially dislocated. The boot is then pressed backward upon the foot, and meeting the resistance of the head of the first metatarsal develops by irritating, irregular bony enlargements as well as thickening and irritation of the skin. This does not necessarily result from a short or a tight boot. It will result also from a loose boot which is narrower than the width of the toes. Other deformities are discussed at length, and education of the public to the wearing of properly fitting shoes is insisted upon. [A.B.C.]

3.—Pain of Osteoarthritis of the Spine and Its Bearing on the Diagnosis of Genitourinary Disease.—Arthur L. Chute has noticed in a number of instances that patients suffering from osteoarthritis of the spine had referred pains in the region of the perineum and the genitourinary organs, and that usually immobilization of the spine gave prompt relief from the pains. Five such cases are reported in detail. Chute points out the importance of bearing in mind the possible explanation that osteoarthritis may afford reason for some instances of pain, which at first would seem to be of urinary origin, but for which one finds no adequate cause. Also the explanation this condition may offer in other cases for the persistence of pain after the disappearance of the urinary lesion on which the pain was supposed to depend. He calls particular attention to the importance of recognizing conditions in which there are present with lumbar pain, due to osteoarthritis, a movable right kidney. He believes it possible that the combination of a more than normally movable kidney and an osteoarthritis may be much more common than has been recognized, and that this combination may account for some of the disappointing results following nephrorrhaphy. [A.B.C.]

4.—Primary Carcinoma of the Appendix.—D. F. Jones and C. C. Simmons refer to the complete articles on this subject, appearing in the *Annals of Surgery* during the present year, including a summary of all previously reported cases. These were written by Elting and Moschcowitz, respectively. In the present article the authors report an additional case occurring in a nurse of 26. She had previously enjoyed fair health, but had suffered from four previous attacks which she called colic, the first occurring 12 years ago. The present attack suggested appendicitis in a mild form. It gradually cleared up, but after two weeks the symptoms returned. At operation the removed appendix was swollen, edematous, and there was a hard nodule at the base, not all of which was removed. The report from the laboratory showed this to be malignant, and two weeks after the first operation a second was performed, in which an oval section of the cecum, including the stump of the appendix, was removed. The patient made a good recovery. [A.B.C.]

Medical Record.

November 26, 1904. [Vol. 66, No. 22.]

1. Diseases of the Skin Connected with Errors of Metabolism. L. DUNCAN BULKLEY.
2. A Case of Conglomerate Tubercle of the Choroid. THOMAS R. POOLEY.
3. The Treatment of Pneumonia. FRANK DE WITT REESE.
4. Three Cases of Primary Malignant Tumor of the Lung. SIEGFRIED WACHSMANN, ALFRED W. POLLAK.
5. Report of a Case of Chronic Cystic Dilation of the Vermiform Appendix. J. C. LANDENBERGER.
6. Natural vs. Scientific Feeding of Infants. D. E. ENGLISH.

1.—Diseases of the Skin Dependent upon Errors of Metabolism.—L. D. Bulkley reviews the underlying principles of metabolism, with the means by which its aberrancies may be recognized, and the relation of such abnormalities to cutaneous disorders. Metabolism represents the changes occurring in the system, whereby nutritive materials and oxygen are transformed into living tissue, and retransformed into waste products, while, during these processes, their potential energy is being given off in living force and heat. Metabolism is principally affected by (1) the kind of nutriment taken; (2) the action of the digestive organs and ductless glands; and (3) the action of the nervous system. Certain skin lesions, or eruptions, have been credibly reported as connected with or dependent upon the generally recognized metabolic conditions of (1) gout; (2) rheumatoid arthritis; (3) diabetes; (4) obesity; (5) scrofulosis. As yet no absolute statements can be made as to the necessary connection of the two, for the same eruptions occur in several of the metabolic affections. The idiosyncrasy of the patient and many causative elements, external or internal, nervous, etc., often determine which form of skin disturbance or alteration shall take place. Errors of diet, disorders of digestion, faulty excretion, and nervous derangement, which have all along been recognized as causative elements in many diseases of the skin, often find their ultimate expression through the faulty metabolism. Metabolic errors are exhibited in the excreta from the lungs, skin, intestines, and kidneys; and of these, the urine best affords a satisfactory indication, as it represents nearly half of the total excreta, and practically all of the nitrogenous and soluble mineral substances, together with about half of the water expelled from the system. Complete and minute urinary analysis is a very great aid in discovering metabolic errors, and in establishing proper therapeutic measures for the cure of many diseases of the skin.

2.—A Case of Conglomerate Tubercle of the Choroid.—T. R. Pooley reports a case of conglomerate tubercle of the choroid, with extension into the sclera and retina, and secondary glaucoma. The patient was a man of 26, all of whose brothers and sisters had died of pulmonary tuberculosis. For a year he had suffered from pain and redness in one eye, and for some time the condition was treated as a possible syphilitic process. When seen by the author the eye presented the usual symptoms of absolute glaucoma and there was no ophthalmoscopic reflex. The other eye was normal. The eye was enucleated the same day and the patient's recovery was uneventful. Microscopic examination showed that the process was well advanced and tubercle bacilli could be demonstrated in stained sections. Now, a year after operation, the patient is in good health and there is no evidence of any pulmonary involvement.

3.—The Treatment of Pneumonia.—F. D. Reese enters a plea against the use of alcohol in pneumonia. Its administration cannot be justified by good scientific reason, and there is no indication for its use that cannot be met by some other remedy. The treatment he employs is eliminative, and comprises a hot foot-bath and calomel as soon as the disease is suspected, together with small doses of sodium salicylate. When the diagnosis is established, potassium acetate is given for its action on the kidneys, together with liquor ammoniæ acetatis to relieve the right heart. If the temperature reaches 105°, cold sponging or cold pack to the chest. Abdominal distention is controlled by the usual measures, and careful attention is directed to the feeding, which should not be too often or too much. The pulse must be closely studied, and it is its quality rather than its rate that should be regarded. A soft pulse should be strengthened with strychnin, digitalis, and rest, and a hard pulse requires Dover's powder and nitroglycerin. Rest is of the greatest importance, and the patient should be disturbed as seldom as possible. The prodromal stage is much longer than is usually supposed, and the disease is commonly ushered in by a more or less protracted period of malaise and indisposition. The author has treated 21 successive cases by this method, with two deaths, both of which were caused by other conditions.

4.—Three Cases of Primary Malignant Tumor of the Lung.—S. Wachsmann and A. W. Pollak give in detail the histories and postmortem notes of three cases of pulmonary malignant disease. From these it appears that pain of great intensity and persistence is one of the early and characteristic symptoms of carcinoma of the lung. Quite often it is, at first, localized by the patient in the shoulder and spine, and is independent of the cough. The clinical history of carcinoma of the lung resembles, mostly, a tuberculous affection, but runs a more rapid course, and is not accompanied by fever. In the beginning, expectoration resembles the frothy sputum of a bronchitis, but soon it assumes the mucopurulent, tenacious, globular nature of tuberculous sputum, and quite often shows streaks of blood, or even at times larger quantities. In the later stages, copious hemorrhages may occur. In one case the sputum showed a very peculiar appearance: In a serous, flesh-water-like fluid were firm masses with ragged outlines, of a beefy color, sometimes mixed with yellowish-white, tenacious mucopus. No elastic fibers were present. The microscopic examination, naturally, is of more decisive importance than the macroscopic aspect. Aside from the absence of the tubercle bacillus, there is very often a positive result obtainable, *i. e.*, the presence of certain cells may be detected. These cells resemble mostly epithelial cells of the mouth, but are smaller, more the size of pus cells. They are not granular, have one or more small nuclei, sharp, angular outlines, and occur singly, or in nests or pearl-like arrangements, and, what is most important, sometimes are intimately mingled with pus cells, thus giving evidence that the mixing took place in regions remote from the mouth.

6.—Natural vs. Scientific Feeding of Infants.—D. E. English contends that infants should be encouraged to take as much food as possible at each feeding, and that the feedings should not be repeated oftener than absolutely necessary. In the intervals the infant should have water, and the effort should be made to keep it contented, so that the interval may be as long as possible. The intervals will not be, and should not be of equal length, and may vary from two to eight hours. This is because it takes different lengths of time to digest the same amount of the same kind of food on different occasions in infants, as in adults. This method obviates the drawbacks of the hard and fast scientific plan of feeding under which the stomach never gets properly stretched, never becomes entirely empty, never is firmly contracted, and never has a normal, irrestible craving for more food. As a result the stomach becomes weak and flabby, the digestive juices scanty and poor, and the innervation of the digestive organs sluggish, and the baby is not so well able to resist disease. The natural method of feeding applies as well to breast nursing as to bottle feeding. It simplifies very much the question of the quality of the baby's food, for under this plan of feeding a stomach is developed that will digest food that would cause indigestion in a baby that has been scientifically fed. For the first three days the author gives nothing but water, and as much of that as the child will swallow. For the preparation of the food to be used after that he gives very simple and easily remembered rules. Both milk and water, if uncontaminated, are better used without previous pasteurization or boiling.

New York Medical Journal.

November 19, 1904. [Vol. LXXX, No. 21.]

1. Internal Secretions. (Continued.) WILLIAM HANNA THOMPSON.
2. Nephrotomy and Ureterotomy for Impacted Ureteral Calculus. WILLY MEYER.
3. Primary Nasal Diphtheria: A Plea for Its Early Recognition, and a Report of Three Cases. (Concluded.) ANNA S. WILNER.
4. Long and Short Methods of Calculating Modified Milk. E. KIRKLAND SHELMERDINE.
5. Ideal Tent Life for the Tuberculous. H. BOYD MASTEN.
6. The Treatment of Diffuse Peritonitis. JOSEPH A. BLAKE.
7. Passage of a Tooth Plate through the Alimentary Tract. M. K. ELMER.
8. An Improvised Method of Operating for Varicocele. LUCIEN LOFTON.

2.—Ureteral Calculus.—Willy Meyer reports an interesting case, in which nephrotomy and later ureterotomy were necessary for the removal of an impacted ureteral calculus. The patient, a woman of 29, had had repeated attacks of pain in the left loin for 15 years. This was followed by three attacks of acute pyelonephritis on the left side, the third attack demanding immediate operation. The kidney was found to be of a deep bluish-red color, much swollen, and extremely brittle; scattered all over its surface were numerous minute miliary abscesses, in which the colon bacillus was found in pure culture. The kidney was incised, and a flexible bougie passed into the ureter, which met with an obstruction about six inches or eight inches below the upper entrance. Drainage was inserted in the renal pelvis, and the wound left open and loosely packed. The patient recovered, but a fistula persisted, through which the greater part of the urine was discharged. Some weeks later the ureters were catheterized, and a stricture found in the left ureter, not very high up. A wax tipped catheter, inserted immediately thereafter, showed a decided mark. A röntgen ray picture showed two calculi in the pelvic part of the ureter, a short distance apart, the upper being somewhat larger than the lower one. Two days later the lower calculus was discharged by the urethra. Vaginal examination showed a hard, painful nodule on the left side, about three inches above the mouth of the ureter. It was assumed that the upper stone also had become loosened and descended somewhat. Finally ureteral lithotomy was performed, and a rough calculus, the size of a large bean, removed. An uninterrupted recovery followed. The patient was again successfully operated upon six months later for a right pyosalpinx and perforated ovarian abscess. Meyer also mentions two patients who died from acute sepsis due to ureteral obstruction by stone. He considers it advisable in all cases where profound septic symptoms, especially a chill and rapid pulse, accompany the always present renal colic, promptly to resort to operative treatment. In the presence of subsiding symptoms he strongly urges the removal of the stone or stones during the interval. [C.A.O.]

3.—Primary Nasal Diphtheria.—Anna S. Wilner discusses the etiology, symptoms, diagnosis and treatment of this condition and enters a plea for its early recognition, together with a report of three cases. The writer believes that many of these cases go unrecognized, the case being lightly dismissed as one of cold in the head. The great and constant danger is that of infecting others. The symptoms of a mild case are a persistent, thin discharge from one or both nostrils, redness of the upper lip, excoriation of the nose, occasional hemorrhage, a false membrane, which is sometimes absent, and very slight or no general symptoms. The main points deciding the diagnosis of nasal diphtheria, are the presence of a discharge and the demonstration of the Klebs-Löffler bacilli. The diagnosis has to be made from ordinary rhinitis, or coryza, from exudative rhinitis caused by the use of cautery snare or strong chemicals, from nasal eczema, and from syphilis. The patient should be isolated, and the nose should be douched with a mild antiseptic or a weak solution of peroxid of hydrogen. The bowels and general condition should be looked after and antitoxin administered. [C.A.O.]

5.—Tent Life for the Tuberculous.—H. B. Masten outlines an ideal tent life for the tuberculous. He believes that the stretch of territory extending across northern New Mexico and southern Colorado is one of the best localities for such an institution. Rather than tents, he believes that tent cottages should be constructed, as they have all the advantages of tents, and at the same time are much more comfortable. These should be placed in groups of 12, facing the south, with a bath house in the center of each group, and all opening on a long veranda. [C.A.O.]

6.—Diffuse Peritonitis.—J. A. Blake says that the main points in treatment that have given the best results in his experience are an early operation; a rapid operation, but not necessarily a large incision; the least possible handling of the intestines (if they escape from the wound and cannot be returned, they should be emptied through a small enterotomy incision); thorough lavage; the omission of drainage when possible; and an after-treatment, in which the main features are absolute rest for the alimentary canal and the exhibition of large quantities of fluids. [C.A.O.]

7.—Passage of Tooth Plate.—M. K. Elmer reports the case of a man of 59, who, while in a faint, swallowed a set of artificial teeth. The symptoms for about 6 months were those of incomplete esophageal obstruction. These symptoms finally cleared up and were followed by attacks of indigestion, loss of appetite, belching of gas and pain in the epigastric region. About three and a half years from the day he fainted the pain and distress left his stomach and his appetite and digestion began to improve. He gradually regained strength, although he complained of severe pain in the bowels, at three different times, which required treatment to relieve him. Finally during a movement of the bowels the plate and teeth were passed. They were four years in making their way through the alimentary canal. The plate was about two inches long and almost the same in width. [C.A.O.]

8.—Operation for Varicocele.—Lucien Lofton offers the following modifications of the ligation method: The patient is permitted to assume a semirecumbent posture, when the scrotum is grasped with the left hand, the index finger and thumb separating the vas and spermatic artery, *i. e.*, placing them upon the anterior border of the testicle, while the pampiniform plexus is brought well up against the anterior and upper walls of the bag and held there firmly. With a surgeon's ordinary curved needle, three inches in length, armed with a double strand of No. 2 fiddle string, the pouch is pierced at the seat of election, and the mass transfixed. The needle, being curved at an angle of 45°, penetrates the opposite inner wall of the scrotum, but does not perforate it. With the point of the left index finger the needle is guided so as to slip along the inner wall of the bag, making a half circuit of the interior lining and over and above the transfixed veins, and is brought out at the original puncture and securely tied to the dangling ends of the external ligature. Caution must be observed in drawing the mass of veins well up against the inside anterior wall of the scrotum. This procedure, if thought necessary, may at the same sitting be repeated from one to three times, at whatever points the surgeon's judgment may dictate. Lofton has operated successfully in this way 17 times without any one of his patients losing a day from his occupation. Recovery follows upon an average of about 25 to 30 days. Complete atrophy generally follows in about six months. [C.A.O.]

Medical News.

November 26, 1904. [Vol. 85, No. 22.]

1. Operative Treatment of Retroversion and Retroflexion of the Uterus. Walter A. Jayne.
2. Stone in the Kidney; Its Diagnosis and Operative Treatment. Joseph Ransohoff.
3. Therapeutic Value of Colorado Climate. F. Gillett Byles.
4. Does Absence of External Injury Legally Demonstrate Fright or Mental Etiology? James G. Kiernan.
5. Compressed Air Illness, or Caisson Disease. Charles J. Aldrich.
6. A New Case of Chloroma with Leukemia, with a Study of Cases Reported since 1893. George Dock and Alfred Scott.

1.—Operative Treatment for Retrodisplacement of the Uterus.—W. A. Jayne says that operations for correction of retrodisplacement of the uterus by the vaginal route are now rarely performed. A general review of the facts bearing on the laparotomy treatment of this condition is given, and the efficacy of the Alexander operation is discussed. He says whatever opinion may ultimately be held regarding the relative value of shortening the round ligaments in the groins and suspension of the uterus for cases of uncomplicated retrodisplacements, the value and efficiency of the fleshy inner portion of the ligament, as utilized in the Alexander operation, appear to be generally recognized. Methods have quite recently been proposed of attaching a loop of the intraabdominal portion of these ligaments to the anterior abdominal wall more firmly than by peritoneal adhesions, by threading a loop through a small wound in the peritoneum, muscle and fascia on either side of the abdominal incision, and fixing it by suture. Experience may show this to be of such value that this operation may replace the Alexander operation, and those which fix the fundus of the uterus to the anterior abdominal wall. [A.B.C.]

2.—Stone in the Kidney: Diagnosis and Treatment.—Joseph Ransohoff reports a case in which he removed a stone weighing over an ounce from the kidney of a man of 21. A large lumbar abscess had formed and opened spontaneously. No pain had ever been experienced by the patient and the sudden discharge of pus from the abscess was the first intimation the patient had that anything was wrong. Following report of the case, Ransohoff discusses renal lithiasis at length. Symptoms of renal stone may be divided in two groups: (1) Those due to the supposed passage of the stone through the ureter; and (2) those due to the pathologic changes in the kidney itself. The author regards with much scepticism the current explanation of renal colic—that is, its being due to pain produced by the stone passing through the ureter. On the other hand, he believes it due to blocking of the urinary outflow, and consequent distention of the kidney pelvis, and the resulting congestion in the kidney itself. In urinary analysis looking to diagnosis of renal stone, the most valuable single feature is the constant finding under the microscope of a small number of red blood-corpuscles. The finding of crystals is of little value, and the passing of gravel is no indication of renal stone. Radiographs show that probably 20% of stones are in the ureter when the symptoms indicate a higher situation. No major operation shows a lower mortality rate than *aseptic* nephrolithotomy. The author has had 1 death in 23 such operations; Morris had 1 death in 34 such cases, while the same surgeon lost 10 out of 43 *septic* nephrotomies and 5 out of 17 nephrectomies. It must be remembered that several other and different pathologic conditions may present symptoms very similar to those of renal calculus. [A.B.C.]

3.—Colorado Climate.—F. G. Byles distinguishes between the sedative and the stimulating climate. Colorado is classed as the latter. Lessened atmospheric pressure quickens the pulse and deepens respiration. Chest measurements increase from one to two inches. The amount of red cells and hemoglobin is increased. Altitude then is indicated when there is a tuberculous tendency or in incipient tuberculosis. It is evident that cases of acute tuberculosis or those far advanced would be made worse. Cool air is stimulating to the nervous system, digestion, and indirectly to appetite and assimilation. Tubercle bacilli thrive best in a warm, moist atmosphere. Excessive nasal and bronchial secretions are checked by constant inhalation of cool, dry air. The sunny days of Colorado enable health-seekers to spend most of their time out of doors. There are no sultry days and no cases of heat prostration. The directness of the sun's rays increases their therapeutic power. The germicidal influence of the actinic rays is increased by elevation and lessened humidity. Other things to be considered are the character of the soil and drinking water, freedom from disagreeable winds, hotel accommodations, and opportunity of earning a living. The writer lists diseases other than respiratory and nervous which Colorado benefits, and cautions the profession against allowing patients to fall into the hands of quacks on their arrival. [H.M.]

5.—Caisson Disease.—C. J. Aldrich has studied more or less over 50 cases of compressed air illness. The symptoms occur only during or after the patient's return to normal atmospheric pressure, and may be delayed several hours. Every grade may be met, from transient twinges to convulsions, coma, and death. Pain is intense, with remissions and exacerbations, particularly severe in the stomach and about the larger joints; the victim is bent double, hence the term "the bends." Neuralgic cases last from a few minutes to five or six days. Some paralytic cases recover quickly, others perish slowly from exhaustion and cystitis. Many are permanently crippled. In lethal cases death is swift. Some brain types may be transient. with headache, giddiness, double vision, incoherence, and sometimes unconsciousness and convulsions. Paralysis may be of one side or of both lower limbs. The bladder and bowels are almost certain to be involved. A member may lose power both to move and feel, and yet be the seat of atrocious pain. Not infrequent perforation of the drum occurs. There are seven excitants to the disease: (1) Degree of pressure; (2) length of sojourn: (3) rapidity of transition to the normal atmosphere; (4) insufficient time between leaving and returning; (5) lack of sufficient ventilation of the areas under pressure; (6) exposure to a damp chilly air after leaving the lock; (7) active muscular exertion after leaving. If sufficient time were allowed for "locking out," the disease would never occur unless exposure to pressure had been prolonged beyond the limits which the writer prescribes for various degrees. [H.M.]

CLINICAL MEDICINE

David Riesman A. O. J. Kelly

REVIEW OF LITERATURE

Dyspeptic Origin of the Minor Symptoms of Bright's Disease.—N. Chryssovergis[1] quotes Dieulafoy as attributing cryesthesia, electric shocks, muscle cramp, and itching, to a slight uremia, while headache, oppression, gastric disturbances and fugitive prostration are due to more marked intoxication. The writer believes these symptoms due to toxins from the digestive tract and gaseous distention. They get worse or improve with modifications of the digestive troubles. Dyspepsia and neurasthenia are closely associated. Dyspnea may be caused by gaseous distention and reflex contraction of the capillaries, or spasm of the bronchioles and asthenia of the inspiratory muscles. The symptoms of cardiac and vascular erethism are also complained of by dyspeptics. The resemblance between prenephritic edema and that of nervous exhaustion, associated with dyspepsia, is striking. The cause is toxic, but independent of the kidneys. When circulatory troubles, with a tendency to renal congestion, predominate in certain dyspeptic subjects, as the result of fatigue or other excess, there is more or less polyuria, lasting as long as the dyspeptic crisis which started it. Cryesthesia occurs in gastrectasis, as the result of toxemia from irregular fermentations in the dilated organ. The above symptoms, instead of proving the existence of nephritis, are signs of an autointoxication, which later may give rise to nephritis. The toxins from the digestive tract are reinforced by those from irregular metabolism, and aggravated by the shortcomings of the antitoxic organs. Nephritis should not be assumed, so long as urinalysis fails to reveal actual disease. [H.M.]

The Toxicity of Normal Urine.—N. W. Werstinin[2] reviews the literature of this subject and finds that most authors believe in the toxicity of normal urine. He then proceeds to describe his own animal experiments, undertaken in the hope of determining the poisonous substances of normal urine. His studies have shown that: 1. Normal human urine has a deleterious effect on the animal organism, particularly on the nervomuscular apparatus of the heart, ending in paralysis of the latter and death. 2. The same effect may be obtained by hypertonic solutions of chemically indifferent salts and organic substances, and by hypertonic solutions of potash salts. The latter are toxic only through their chemic properties, while the former are toxic owing to molecular concentration. 3. Both these factors appear to be active in urine, which is thus toxic by molecular concentration and by chemic properties. 4. Such chemic poisons of normal urine are its potash salts, and a certain organic principle resembling urea and probably representing a suboxidized product of animal metabolism. The other mineral components of normal urine are nontoxic. [L.J.]

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[1] Medical Press and Circular, September 7, 1904.

[2] Dissertation, Tomsk, 1904.

Symptoms of Nephritis.—L. L. Nichols[1] emphasizes the common and distinctive features of acute and chronic nephritis as shown in daily practice. Acute nephritis is characterized by sudden onset, scanty or suppressed urine, extensive edema in the later stages, and runs a short course with a tendency to recovery. Chronic parenchymatous nephritis has a slow, insidious onset, diminished urine of varying specific gravity, high in the early, low in the later stages, heavy deposit, abundant albumin, diminished urea, a waxy complexion, increased arterial tension with cardiac hypertrophy, vomiting, and diarrhea; runs a chronic course with a fatal termination. Chronic interstitial nephritis has a slow and obscure onset, polyuria with low specific gravity, hardening of the arteries, left ventricle hypertrophy, systolic murmur, bronchitis, dyspnea, gastric disturbances, retinal changes, slight edema, eczema, purpura, itching, and numbness of fingers. It runs a slow course, with tendency to improvement. [A.G.E.]

Pneumococcic Parotitis.—Pennato[2] relates the case of a woman of 38, who was suffering from an inflammation of the right upper lobe of her lung, which had been diagnosed on the fifth day of the disease. Five days later, that is on the tenth day of the disease, she suddenly developed a parotitis of the left gland, which remained localized to that side. Fluctuation appearing, it required incision and much blood-stained serum was evacuated; from it diplococci were isolated. The same organism had been isolated some days before from the blood of the patient. Whether the infection took place by way of the blood or Steno's duct is uncertain. He discusses the occurrence of this complication and finds that there is much variance among authors as to its frequency and gravity. Most authors consider it a complication of gravity and one sufficient to give them concern as to the patient's life; it certainly prolongs the illness considerably. Pennato thinks the prognosis is not necessarily grave because of the parotitis, but depends largely upon the patient's general condition. It is even a question whether it is a true complication of pneumonia due to the same organism or merely an accidental occurrence. Cases supporting both views were related by him. [E.L.]

Angioneurotic Edema.—R. S. Morris[3] reports two cases in one of which a portion of gastric mucosa obtained by the stomach-tube was examined histologically, the first on record. The entire tissue presented the picture of extreme edema of the interstitial tissue, the lymph spaces and vessels being enormously dilated. The cells of the stroma were separated by wide spaces or vacuoles and the supporting fibers were in many places separated into their ultimate fibrils. The glands, as a rule, were somewhat loosened or contracted from the basement membrane. The diagnosis of the fragment was given as extreme edema of the gastric mucosa, noninflammatory in origin. This appears to be the first reported case of angioneurotic edema in which it has been demonstrated that edema of the stomach existed synchronously with an attack of nausea, vomiting and pain. That the edema lies at the base of practically all of the gastrointestinal symptoms in angioneurotic edema is greatly strengthened by this report, although it can not as yet be stated positively. [A.G.E.]

Fangs Treatment.—R. Scot Kirving[4] states that the Italian "fangs" correspond to the Scotch "glaur," an adhesive glutinous mud. This is found in Italy and certain health resorts of Germany and Austria, and is probably largely of volcanic origin. Its composition is complex and varied. In some places the patients sit bodily in the mud, but in most the hot mud is applied topically in a suitable room. The beneficial effects are not due to absorption, but to the heat, moisture, and weight, and to the sweatings induced thereby. When the mud is highly sulfurous or contains much formic acid, there may be counterirritant action, but the main effect is that of a poultice. Among troubles benefited by the applications are arthritis due to rheumatism, and gout, neuritis, and nonsuppurative pelvic inflammation. In chronic troubles results are not so encouraging. Mud, either naturally or artificially heated (47° C. to 50° C.), is thickly and quickly applied over the affected area; sheeting is then deftly made to enclose the part and usually further coverings are applied if a profuse general diaphoresis is desired. The pack remains from 20 to 40 minutes, and is repeated daily from three to five days; then a "day off" is allowed, and the sequence is repeated. From 15 to 21 applications constitute a cure. [H.M.]

Circumscribing Gastrodiaphane.—R. C. Kemp[1] describes an instrument devised to explore the pylorus and permit of definite direction in the stomach. The cable is six inches longer than ordinary, and a short distance from the light is more flexible, really forming a joint at that location. At the base of the light is attached a very thin accessory cable which runs parallel with the main cable and increases the diameter only to a slight degree. After the instrument is introduced the main cable is held firmly and the accessory cable drawn upon; by turning the large cable the light can be directed in any desired location. This also avoids the manipulation and consequent gagging made necessary by attempts to change the direction of the older types of instrument. [A.G.E.]

Eucalyptus Oil in Typhoid.—Cuthbert Hall[2] has found in his cases of typhoid a surprising reduction of temperature from 10 m. doses every four hours, suspended in mucilage. If larger doses are used, care must be taken lest nephritis may be caused by the terpene constitutents. Beside the general lowering effect, each dose lessened the temperature by about 0.5° F. There is a slight rise at first, followed by a fall. The heart is stimulated reflexly when the drug enters the stomach, and directly when it enters the circulation. There is dilation of the cutaneous vessels. The diaphoresis is therefore free from any depression. Eucalyptus oil thus seems to reduce temperature through heat loss. This drug does away largely with the need of sponging. In the writer's 14 cases the latter was used only 12 times. Relief of delirium may be due to reduction of temperature or to a sedative effect on the central nervous system. The terpenes are styptic, and only one small hemorrhage was noted. In no patient was there a wellmarked dicrotic pulse, and alcohol was little needed. The oil which the writer employed was that of Eucalyptus smithii, which consists mainly of eucalyptol and pinene, and he had it "ozonized" by exposing it to light and air for a month. The antiseptic effect was seen in the altered appearance and diminished fetor of the stools. [H.M.]

Sodium Bicarbonate in Infant's Food.—G. R. Pisek[3] furnishes some suggestive comparisons in his brief consideration of the above subject. He states that as far as acidity is concerned, there is no necessity to add sodium bicarbonate to cow's milk. It is generally accepted that gastric digestion takes place only in an acid medium. An adult on a milk diet requires two quarts daily, and if sodium bicarbonate were added in the proportion usually recommended for infants, 40 gm. (640 gr.) would be needed; before the milk could be digested the soda would have to be disposed of, and this would require 10 liters (20 pints) of gastric juice. The 1.3 gm. (40 gr.) of sodium bicarbonate added to an infant's food would require 600 cc. (20 oz.) of gastric juice of an adult and a larger quantity from the infant. Pisek believes this method of infant feeding tends systematically to defeat attempts of the stomach to perform its function. The addition of sodium bicarbonate to cow's milk will often temporarily relieve gastric symptoms in an infant, but it seems going too far to make such observations the basis of scientific infant feeding. [A.G.E.]

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[1] Brooklyn Medical Journal, November, 1904.
[2] Riforma Medica, June 1, 1904.
[3] American Journal of the Medical Sciences, November, 1904.
Australasian Medical Gazette, September 20, 1904.

[1] Postgraduate, November, 1904.
[2] Australasian Medical Gazette, September 20, 1904.
[3] Archives of Pediatrics, November, 1904.

Early Diagnosis and Treatment of Pneumonia in Infants.—W. P. Northrup[1] says the three early manifestations of this disease which suffice for diagnosis are: 1. Sudden onset, with fever and dopiness. 2. Disturbance of the respiration-pulse ratio. 3. Rales. Differential diagnosis is considered at length and illustrated by case histories. The respiration-pulse ratio is not sufficiently regarded by physicians; as long as it departs from the normal of 1 to 4 and approximates 1 to 3, do not stop looking for pneumonia. Than this there is no better rule unless it be "never stop looking for pneumonia in a child at any time." In the treatment of pneumonia in infants, or in anybody, fresh, cool, flowing outdoor air is of prime importance. Second, the application of water, internally and externally. Regulate the food to avoid fermentation and gas which interferes with heart and lungs; for flatulence, nothing is better than high, hot saline rectal injections. Quiet and rest are absolutely necessary. Drugs are only for emergencies. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Carcinoma of the Rectum.—P. L. Mummery[2] says the treatment of carcinoma of the rectum is unsatisfactory as compared with the treatment of carcinoma in other parts of the body. Excision is performed in less than 10% of all cases; when it is remembered that the disease is invariably fatal unless excision be performed, the surgeon may well ask if something cannot be done to enable operation in a larger number of cases. The greatest reason for the small number of cases so treated is the advanced condition when seen; this is due to the patient in part but also to the unwillingness of physicians to make rectal examinations of their patients. Another reason is the comparatively unsatisfactory results of the operation itself. The mortality of the operation would be enormously reduced if infection of the wound could be prevented. Cases for excision should be limited to those in which there is reasonable hope of removing the entire growth but a larger percentage of patients than at present should be given the chance. As regards their malignancy, rectal cancers are if anything more favorable for extirpation than are those in other parts of the body. Where obstruction is present or threatening, colotomy is indicated and is of value as a preliminary to excision; as a palliative measure it should cease to have a place in the treatment of cancer of the rectum. Treatment is considered at length under three heads: Cases favorable for operation; unfavorable cases; inoperable cases. [A.G.E.]

Operative Treatment of Appendicitis.—Prof. Riedel[3] considers the statistics of those surgeons who operate only after the subsidence of the attack as of no value, since they do not include those who died at the onset or height of the attack, nor those not operated on. For years he has regarded prompt operation as the only real treatment. A clinic is not responsible for the issue of a case that is brought in too late. In six months 89 patients were admitted to his own clinic, of which 86 recovered or are recovering. Of the 62 with purulent conditions, in 42 the appendix was removed at one sitting; in 20, four to six weeks after opening the abscess. In one case there was evidence that recently produced pus can without ill-effect be removed from the peritoneal cavity, despite the earlier belief that it was permissible to open abscesses only extraperitoneally. In the immediate neighborhood of the inflammation the absorptive power of the peritoneum has been diminished or abolished. The author tries to keep the abdominal wound small, to lessen the danger of infection, and uses the zigzag incision, by which the three muscles are split in the direction of their fibers—that is, almost at right angles to each other. By stretching, openings bigger than the fist can be obtained. The mortality of appendicitis should not exceed 1% or 2%. [H.M.]

Congenital Hypertrophic Stenosis of the Pylorus.—H. S. Clogg[1] furnishes the best consideration of this subject that has recently appeared and reports a typic case. The essential points in diagnosis are: A healthy child at birth; early vomiting, which depends on the quantity and not the quality of the ingested food, and finally occurs after nearly every feeding; absence of bile in the vomit and absence of any sign of gastric catarrh; the vomit is forcibly ejected; painful cramps occur in the abdomen; there is great eagerness for food; peristaltic waves and an epigastric tumor are discoverable; rapid wasting occurs; often there is temporary improvement after change of diet and medicinal treatment. Clogg believes the disease due to nervous incoordination of the stomach, producing spasm of the sphincter muscle. Severe cases of simple cramp go to recovery without operation, but if the high mortality is to be lessened surgical measures must be depended upon. Clogg has collected 33 cases operated upon by either pylorectomy, Loreta's operation, pyloroplasty, or gastroenterostomy. Pylorectomy is too severe and should not be employed. Pyloroplasty has been performed 6 times with 4 recoveries; Loreta's operation 10 times with 6 recoveries; gastroenterostomy 17 times with 7 recoveries. In spite of these figures, Clogg stoutly maintains that gastroenterostomy is the operation of choice and presents very convincing arguments in its favor; many of the deaths reported may be explained with no discredit to the operation. The anterior or posterior method may be used; the union should be by simple suture. [A.G.E.]

Disarticulation at Knee and Elbow by Circular Incision.—A. G. Miller[2] redescribes his operation with two modifications. The limb being held out quite straight, a circular incision is made below the condyles (1½ inches in the arm, 2½ inches in the leg) down to the deep fascia. The skin on the flexor aspect at once retracts, making the line of incision oblique. The extensor flap is dissected to the head of the tibia or above the olecranon, care being taken to cut on the deep fascia, thus reflecting the cellular tissue and its bloodvessels with the skin. Disarticulation should be done from the front, the patella being saved. After the bloodvessels are secured and the nerves drawn out and cut short this single extensor flap folds nicely over the condyles, being indeed in its natural place and is easily secured by stitches. Special dissections made by Whitaker show that the vascular supply of these flaps is remarkably good. In this modified circular amputation the cicatrix is well up on the flexor aspect and there is no chance of its becoming adherent to the bone. The extensor flap is accustomed to pressure and to the situation in which it is ultimately placed over the condyles. It is possible to complete the operation in about five minutes, perhaps even including the dressing. [H.M.]

Success of Conservative Surgery in a Case of Crushed Foot in a Child.—Desjardin[3] reports the case of a boy who had his left foot badly crushed by a wagon wheel. The skin was broken and the bones crushed. Seeing no signs of infection the author resolved to try to save the foot. The wound was thoroughly washed with hot water and soap, then with normal saline solution. Healing was slow owing to considerable necrosis. The necrosed tissue was carefully removed and the wound was kept thoroughly aseptic. At the end of about six months the wound had healed and the patient was able to walk very well. The author believes that his success was due to the large amount of reserve force in children which is often impaired in adults. He also believes that the avoidance of antiseptics contributed to the successful healing in this case, while the use of carbolic acid, corrosive sublimate or iodoform, although destructive to microorganisms, diminishes the vital resistance of the tissues. [L.F.A.]

Thyroid Grafting in Human Beings.—H. Christiani[4] formulates the following rules for grafting: 1. The graft must be homothyroid. 2. Only normal living tissue must be transplanted. 3. Small multiple grafts should be made, taking care to implant them in very vascular regions. By following these rules he has been uniformly successful. When transplanting from a different species the graft invariably disappeared. If the graft is too large necrosis occurs at the center. After total thyroidectomy small grafts if few in number are subjected to excessive strain and sclerosis and atrophy may occur. Disturbances of general nutrition may render the tissues unsuitable as graft beds. Thyroid tissue which is distinctly not normal, but does not present grave structural changes may, when grafted, not only give birth to neothyroids capable of persistent vitality but its structure tends to become normal. Results are negative when obviously diseased gland is used. In idiopathic myxedematous hypothyroidea grafts are apt to develop and persist if the tissues employed have not undergone too marked changes. Researches tend to show that thyroid tissue may be preserved for transplantation in artificial serum and in the blood-serum of certain animals. Thyroid tissue reduced to very small fragments by the aid of a sharp knife and with every precaution to avoid crushing, which would destroy its vitality, may be emulsified in the preservative liquid and injected through a trocar or hollow needle. [H.M.]

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[1] Chicago Medical Recorder, November, 1904.
[2] The Practitioner, November, 1904.
[3] Glasgow Medical Journal, September, 1904.

[1] The Practitioner, November, 1904.
[2] Scottish Medical and Surgical Journal, September, 1904.
[3] Bulletin Général de Thérapeutique, Vol. cxlvii, No. 24, 1904, p. 936.
[4] Medical Press and Circular, August 17, 1904.

Vagus Nerves and Peritonitis.—By severing the vagi in one set of animals and allowing them to remain intact in another, Friedländer[1] found after inducing peritonitis in each set, that those animals with the severed vagi seemed to suffer less and show less evidence of peritonitis, although they died within about the same time as did those animals with the intact vagi; collapse occurred earlier in the latter; the peritoneum, however, was in most instances less highly inflamed in the animals with the severed vagi. Death, Friedländer maintains, resulted in both sets of animals from intoxication and intestinal paralysis. He believes section of the vagi is a secondary matter, and in concluding his article, says tearing of these nerves does not endanger life, for in several of the animals in which he sectioned the nerves only, death did not occur. [J.F.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Bionomics in Relation to the Diminishing Birthrate.—W. R. MacDermott[2] states that the practices to which Taylor ascribes the fall in birthrate are unknown in Irish rural districts where the rate is the lowest, and believes the same holds true for wide areas in Great Britain, France and America. If the number of persons under 20 or over 45 increase in greater proportion than those between these limits, this will mean a falling birthrate. Taylor's position, to be either weakened or strengthened, needs the variation in the relative number of childbearing women to be taken into account. In general the rural is below the urban rate, and as these populations mutually fluctuate, the rate may seem to rise while the relative number of children borne by women between 20 and 40 may be stationary or falling. The rate should be computed from large numbers. Recent changes in the British birthrate may be due to the Boer war. In an area specially studied by the writer the only practices used to prevent childbearing are protracted lactation and absolute continence. Ill-health, abnormal states of the uterus and ovaries short of pronounced disease, sexual indifference and personal indifference, amounting often to positive dislike, are by no means negligible factors and increase with age of marriage. Wide and careful observation of the personnel of family life is the essential base of human bionomics, and this is peculiarly within the province of the practising physician. [H.M.]

Information as to Whether Albumin Passes through the Placenta from Mother to Child.—Hofbauer[3] begins his experiments by determining that neither the child's nor the mother's blood contains albumoses. The object of his experiments is to determine whether albumin passes through the placenta. By a very complicated series of tests he is able to demonstrate albumoses in the placental tissue of 11 cases. His tests were conducted in a way to rule out the possibility of producing the albumoses by overheating and to rule out the possibility that albumoses were formed from the placental tissue itself by means of a proteolytic enzyme. By the absence of the amido acids he proved to his satisfaction that the presence of albumoses in the placenta is not an evidence of dissimilation of the albumins in this organ. [J.F.]

The Relations of Streptococci to Puerperal Fever.—E. Bumm and Sigwart[1] examined the secretions of 103 women during the last few months of their pregnancies. In dry preparations they found but few isolated diplococci. In 76 women they made one culture each, and found streptococci in the bouillon of 38.16%. By increasing and repeating the inoculations they found streptococci present in a much greater percentage. Thus in 18 primiparas 83%, in 9 multiparas 55% had streptococci. Of the women thus examined, 16, or 15.5% had fever postpartum. Of the women having streptococci, 20.4% had fever; of the women without, 11%; in the latter the fever was never very marked. The examinations during labor and the puerperium resulted in establishing the fact that aerobic streptococci are to be found in the secretions of at least 75% of all of them. [E.L.]

Cervical Fibroid of the Uterus Obstructing Labor: Cesarean Section: Supravaginal Hysterectomy.—H. T. D. Acland[2] reports that a woman of 39 came to term in her third pregnancy. In the first labor, forceps was used; in the second, 32 months before the third, delivery was normal. In the early months of the third pregnancy, gestation proceeded normally, and during the last six weeks she suffered much from bearing-down pains. Labor began normally, but when examination was made by a physician some five hours later, it was found that a fleshy mass filled the pelvis. The patient was at once ordered to a hospital. She was taken a distance of 12 miles, resting on her knees, in a dog-cart, labor pains keeping up during the journey. Arriving at the hospital, preparation followed at once, and operation was begun 20½ hours after the beginning of labor. Cesarean section was performed, a living child weighing nine pounds was delivered, the placenta and membranes were removed, and further examination showed the diagnosis of fibroid on the posterior wall of the cervix to be correct. The entire uterus, tumor, tubes, and ovaries were removed through the abdominal wound, and the latter was closed in the usual way. The child lived, and the mother made a good recovery. The fibroid measured 8 inches in length and 5 inches in breadth, and projected downward, springing from the posterior wall of the cervical canal and the uterus. [A.B.C.]

Menstruatio Præcox and Ovarian Sarcoma.—Riedl[3] reports a case of a girl of 6 who since her fourth year has been having periodic bloody discharges from the genital canal about every 3 months. With the discharges the child suffered with such pain that she was confined to bed for 3 to 4 days which was the usual duration of the flow. Four months before her appearance at the hospital she began to complain of pain in the left inguinal region and it was noticed that this portion of the abdomen protruded, and that the protrusion was becoming greater as time passed. The child's breasts and external genitals were well developed, the mons veneris was covered with hair. During the examination a large tumor of the abdomen was detected. The growth was removed and found to be partly cystic and partly solid structure. It took its origin from the left ovary. Upon microscopic examination the growth proved to be sarcoma. The uterus was the size of that organ in a 17-year-old girl. [J.F.]

Treatment of Complete Rupture of the Uterus.—O. Kuestner[4] reports in detail seven cases of complete rupture of the uterus; two of the patients were moribund when he operated on them. Of the other five patients two recovered, and of the three deaths, one was the result of preexisting infection, the other of pneumonia. His treatment of complete rupture in all cases, and not only in those where a profuse hemorrhage makes it absolutely necessary, is extensive laparotomy, a careful wiping out of all accumulations of blood, meconium, amniotic fluid, etc., from the peritoneal cavity, but especially from the more hidden parts of it; he forbids the cleansing of the peritoneal cavity with either salt solution, soda solution or sterile water; careful ligation of all bleeding points in the region of the tear, suture of the uterus and if necessary of the bladder. The necessity of extirpation of the uterus exists in only exceptional cases. If the rupture is posteriorly situated, and extend into the vagina, it sometimes is good policy to leave the tear open and drain from the vagina. But at all times, whether the uterus is sutured or not, or whether it is extirpated, the laparotomy wound must be kept open and tamponed from uterus to wound. He advises the subcutaneous injection of nucleinic acid for the purpose of arousing leukocytosis, considering this an important factor in the production of a cure of the fresh infection. The sooner after the rupture the operation takes place the better the prognosis. [E.L.]

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[1] Arch. f. klin. Chirg., 1903, Bd. lxxii, Heft 1.
[2] Medical Press and Circular, August 17, 1904.
[3] Wiener klin. Woch., 1904, No. 35.

[1] Hegar's Beiträge zur Geburtsh. und Gynäkologie, 1904, viii, No. 3.
[2] The Lancet, October 1, 1904.
[3] Wiener klin. Woch., 1904, No. 35.
[4] Deutsche medicinische Wochenschrift, 1904, xxx, 1417, No. 39.

NERVOUS AND MENTAL DISEASES

J. H. W. RHEIN. ALFRED GORDON.

EDITORIAL COMMENT

Organic Nervous Diseases from a Medicolegal Standpoint.—In a recent case tried in one of our courts a physician was called to give expert testimony for the plaintiff. An injury to the circumflex and musculospiral nerves (the latter in the groove of the same name) produced besides pain, also a diminution of function of the muscles supplied by these nerves, finally distinct atrophy with diminished faradic irritability. The wrist-drop was not marked, but distinctly present. During the cross-examination the attorney for the defendant, prompted by his physician, endeavored to quash the evidence of an organic lesion of the nerve trunks. When that physician was called to the stand and was asked by the attorney for the plaintiff what was the distinction between an organic and functional nervous disease, the reply was that no such distinction exists in reality, that all "nervous explosions" (to use his expression) are the result of some disturbance of the blood, and that in the present case the patient feigned a wrist-drop, feigned a weakness of the deltoid (circumflex nerve), that reflexes do not mean anything, that electric reactions are without any significance whatever. He was on the point of saying that muscular atrophy can also be feigned. A test question was asked what his opinion was in regard to localizations in the brain. The reply was: "There is no such a thing in existence, and anyone who dares operate upon such a delicate organ is a criminal." Whether the ignorance displayed was genuine or only intentional is not known. At all events the verdict was in favor of the defendant. It is not an infrequent occurrence to find general practitioners whose even elementary knowledge of neurology is altogether wanting. There are some who do not believe or rather cannot conceive that an exaggerated or a lost knee-jerk is of a very great value, that a disturbed function of the sphincters (apart from local conditions) is often a preliminary symptom of a threatening organic disease of the nervous system, that a rapidly coming on strabismus or a ptosis in an otherwise healthy individual is of great significance. We can recall a very busy practitioner who was called to court by the defendant to prove that the plaintiff's sharp pains were nothing but rheumatism, while in reality it was a case of preataxic lancinating pain of tabes. Examples of this nature can be multiplied. Of course, a jury composed of nonmedical men cannot fully appreciate those vague and not pronounced symptoms of the early stages of gradually developing organic diseases. When a neurologist attempts to explain these phenomena and show the probabilities and certainties of a given case, it is comparatively an easy matter for a grayheaded physician, 30 or 40 years in active practice, to affirm that those "little" symptoms are of no value and that the plaintiff will get well. Such a man may be honestly convinced of his assertions; but, alas! how can a jury or the judge form an opinion, "when doctors disagree?" The law appeals to the profession for an opinion and we are morally obliged to enlighten the court on the symptomatology of nervous diseases. Why should a divergence of opinions exist as to the meaning of a knee-jerk, an ankle-clonus, a Babinski sign, an Argyll-Robertson pupil, an optic neuritis, a focal epilepsy, a monoplegia or paraplegia, etc.? When a clear conception of these symptoms is present in the mind of a physician it is comparatively easy for him to give a prognosis, a point of great medicolegal importance. If through neglect of one party another sustained a permanent injury of the nervous system, where is the justice when a physician appears before a jury with a statement that the damage is only temporary and insignificant? A knowledge in a general way at least of nervous diseases is absolutely essential for any man who is called upon for a conscientious opinion.

REVIEW OF LITERATURE

The Chemistry of the Cerebrospinal Fluid and Central Nervous System in Various Mental Diseases.—Isador Coriat[1] examined 29 cases, and reports abstracts of the clinical histories and autopsy findings. The amount of fluid varied from 10 cc. to 150 cc. In general paralysis the amount exceeded 50 cc. in 8 cases, and in only 1 case fell below 25 cc. This was explained by the presence of excessive edema of the pia. The amount was small in 2 cases of alcoholic neuritis, and in 1 of chronic alcoholism. In 2 cases of depressive hallucinatory type 70 cc. and 90 cc. were obtained, respectively. In 5 senile cases the amount was 18 cc. to 60 cc. In 2 cases of melancholia it was 33 cc. and 37 cc.; in a traumatic organic case 25 cc. was obtained; in a case of manic-depressive insanity only 10 cc. The cerebrospinal fluid was in all cases clear or slightly yellow tinged, and in only 2 cases was the reaction alkaline and lactic acid absent. The specific gravity in 6 cases studied varied from 1,006 to 1,012. The reaction was negative to Nylander's and Molisch's, and the ferric chlorid reactions. He concluded from his studies that a reducing substance, probably dextrose, was present in 9 cases. Urea varied in some cases from 0.1 gm. to 0.5 gm. per 100 cc. of fluid. The freezing-point was less than that of normal blood-serum in 3 of 15 cases determined. Proteid was found in large amounts in 10 cases of general paralysis, in 1 case of alcoholism, in 1 case of alcoholic senile deterioration, and in a case of organic dementia. Cholin was absent in only 4 cases. It was invariably present in general paralysis. The results tended to show that the largest amounts of cholin ran parallel with the highest percentages of proteid. Cholesterin was absent in all cases, but phosphates and sulfates were found whenever test was made for them. [J.H.W.R.]

The Orbicularis Oculi in Cortical and Subcortical Facial Paralysis.—W. von Bechterew[2] claims that the reason the upper face is not involved in cortical and subcortical facial paralysis is that the upper branches of the facial nerve are innervated bilaterally. These branches have separate centers in the cortex for raising the eyebrows, closing the eyelids, and moving the ears. This is present in the back part of the second frontal gyrus in monkeys. When patients with facial palsy are unable to keep the affected eye open when the sound eye is closed, it is due to a lesion of the upper facial path or center above the nucleus of the seventh. [J.H.W.R.]

The Blood of Inmates of an Insane Asylum.—W. G. Melvin,[3] studied the blood of (1) newly admitted patients; (2) chronics confined to indoor life for a long time; (3) chronics working in the open air; (4) patients living in tents, with the result that in the first class 60% to 70% of hemoglobin was found; in the second class it was 50% to 70%; in the blood of patients working out doors it was 70% to 90%, while the highest percentage was found in the blood of patients living in tents. Fifteen patients of each class were studied.

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[1] American Journal of Insanity, April, 1904.

[2] Archiv f. Psychiatrie und Nervenheilkrank., Vol. xxvii, May, 1904

[3] American Journal of Insanity, July, 1904, p. 109.

The Care of the Insane in Belgium.—Paul Masoin[1] describes the colony system of Gheel. He states that out of 15,400 patients suffering from insanity treated in Belgium, 1,800 are treated in the colony of Gheel. This system was established some ten centuries ago. The colony of Gheel is within the jurisdiction of the Minister of Justice, and inspection and overseeing are done by the "Superior Commissioner." A medical director is at the head of the colony, and has authority over the administration as well as the medical service. The colony is divided into four sections and at the head of each is a physician whose time is devoted entirely to the care of the patients. Each curable patient is visited once a week, while the incurable ones are visited once a month. A report is handed to the medical director once a day. Each physician is assisted by two "section guards," who report every day to the physicians. This system permits any inhabitant in Gheel to take an insane person to board under certain regulations, and no one is permitted to take more than two patients. Each room used by a patient must have at least 15 cm. of air space, and open wells and bars on the windows are prohibited, while screens around the fires in houses occupied by epileptics or the demented are required. All patients, excepting the unclean ones, take their meals at the family table. In certain parts of the colony there are bathhouses where the insane bathe once a week, and where they are weighed. Those who are too sick to be cared for at home are taken to the infirmary. No means of restriction are permitted with the exception of handcuffs, which are only used when the patients tend to harm themselves or to become destructive. Freedom for the patients and gentleness on the part of the nurses are insisted upon. The patients often offer valuable assistance to their nurses, doing household work and caring for the children, while those who have musical talent assist in the orchestra on Sunday mornings and at concerts. The remuneration for the care of the insane is 12½ cents a day for quiet patients; 16 cents a day for noisy or depraved patients, and 21 cents a day for the more difficult ones. Most of the patients at the colony are capable of doing some sort of work. About 35% are composed of imbeciles of all grades. Masoin suggests that the ideal arrangement would be to establish around an asylum a colony similar to that in Gheel, and in addition to this there should be a school for idiots and imbeciles. [J.H.W.R.]

The Status Epilepticus.—L. Pierce Clark and Thomas Prout[2] have studied this condition at considerable length, both from a pathologic and clinical standpoint. In a summary of the pathologic findings in status epilepticus and in epilepsy in general, they state that the nucleus of the brain cell is the first to be involved. The nuclear membrane and the karyoplasmic network disappear, and the karyoplasm becomes finally granular, the nucleus becoming a free body. In many sections the nucleus is found outside of the nerve cell itself, a condition which they term nuclear abstraction. The secondary changes found are: 1. The disappearance of the granules of the chromatic substance, leaving behind a faint framework, while finally the nucleus entirely disappears, leaving nothing but a shapeless mass of vacuolated protoplasm. The neurons disappear, especially from the second and third layers of the cortex. The cortex shows an invasion of leukocytes, the purpose of which is probably to remove the debris of destroyed nerve cells and poisonous products. The leukocyte is a large mononuclear cell, and in most cases possesses marked phagocytic products. There was a proliferation of the neuroglia most marked in the outer cortical layers. It will thus be seen that the epileptic fit is a destructive process, which is further borne out by the fact that dementia is present in the epileptic. The authors assume that the cause of epilepsy is a nuclear poison showing a predilection for certain cells of the cortex, and that the chromatolysis is a nutritional change, the result of the jeopardizing of the nucleus. The presence of the phagocytic leukocyte is of great significance as indicating the action of toxic elements upon the cells. The increase in the neuroglia cells is a result of the action of toxic elements on the neuroglia cells and as a direct result of nerve-cell destruction. They conclude: "If the special involvement of any particular type of cell is an indication of the special sensory or motor character of epilepsy, it would seem that Prus was correct in concluding that epilepsy is essentially a sensory phenomenon, as the cells of the second layer and the third layer, in lesser degree, are essentially involved. 2. The essential lesion of epilepsy pertains to the nucleus of certain of the cortical cells, and is of such nature as to seriously jeopardize the cell for considerable periods, and ultimately cause its destruction. 3. The chromatolysis in epilepsy is a nutritional change brought about by the nuclear toxemia, since the nucleus presides over the process of elimination, absorption, and digestion in the cell unit. 4. The role played by the leukocyte in the cortex after severe epileptic explosions is most probably that of a phagocyte. 5. The neuroglia overgrowth in epilepsy is one of its more remote sequences, and probably occurs in response to toxic irritation." They believe that it is shown from the foregoing that the status epilepticus is the severest type of epilepsy. Epilepsy, in their opinion, is a sensory phenomenon with a motor expression. The action of the bromids upon epilepsy bears out this conclusion. The disappearance of the cortical cells involved explains the permanence of the manifestations of this disease, especially the slowness, awkwardness, and incoordination of movements. The cause of the histopathologic changes in the cells must be decided by physiologic chemistry. In discussing the treatment of this disease they place especial importance upon prophylaxis. When there is gradually increased paroxysmal frequency large doses of bromids are indicated. In those cases in which the attacks have been suppressed for a long time the emergency prescription should be held in readiness for use. This consists of deodorized tincture of opium, 5 m.; potassium bromid, 25 gr.; chloral hydrate, 20 gr.; liquor morphin sulfate, 1 dr., to be given in one dose, and repeated in two hours when necessary. The surgical treatment of status epilepticus is unimportant excepting when the status follows a recent trauma, when it is imperative. Chloroform may be employed for a short time in certain cases before the emergency prescription has had time to act. The authors call especial attention to the fact that medicines indicated during the convulsive period are contraindicated during the subsequent stuporous stage. Venesection may be employed in plethoric epileptics injecting a saline solution afterward. Drastic cathartics may be of some use when given early. Applications of ice to the head are not useful. They highly recommend the subcutaneous use of bromids when coma is profound and when the convulsive state is advanced. Commenting upon the use of chlorodone they state that it is less useful than chloral. The plan that Clark and Prout suggest is to give the emergency prescription after the first six attacks, either by mouth or rectum. Then, if the status persists, use chloroform by inhalations and bromid and chloral by rectum, using only as much sedative as is sufficient to control the convulsions. The treatment of the comatose period consists in overcoming the exhaustion and the sedation of the convulsive stage, and is therefore practically symptomatic. The paper is well illustrated by three plates. [J.H.W.R.]

Distoma of the Brain.—Taniguchi[1] cites the case of a girl of 17, a native of Kiushin, a Japanese island, who was suddenly seized with convulsions which recurred once or twice a month and continued until her death two years later. Headache and dizziness preceded the attacks, and the convulsions were general, beginning on the left side. During the interval there was headache, buzzing in the left ear, weakness of the left side of the body, and uncertain gait. At the autopsy a number of cysts were found in the brain occupying the right frontal lobe and also the temporal, parietal and occipital lobes. The cysts contained principally shells, but in a few instances fresh eggs were found. [J.H.W.R.]

Neuroses of Status Lymphaticus.—A. P. Ohlmacher[2] believes that the status lymphaticus has a close relation with infantile eclampsia, laryngismus stridulus, infantile tetany, and epilepsy. Escherich considers that the latent irritability of the nervous system is characteristic of the status lymphaticus. Ohlmacher claims that a periodic increase of intracranial pressure, which is manifested as a result of a tendency to the production of edema characteristic of status lymphaticus, is a factor in causing spasm of the glottis, tetany, infantile eclampsia, epilepsy, and the sudden death in the lymphatic state. [J.H.W.R.]

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[1] Journal of Nervous and Mental Disease, September, 1904, p. 561.
[2] American Jour. of Insanity, July, 1904, p. 81.

[1] Archiv f. Psychiatrie und Nervenkrank., Vol. xxxviii, 1904.
[2] Bulletin of Ohio Hospital for Epileptics, March, 1904, Vol. ii, No. 1.

Tuberculous Meningitis with Secondary Infection.—S. S. Kneass and Joseph Sailer[1] described such a condition in a man of 20 who complained of headache, nausea, vomiting and diarrhea, and later general anesthesia and irregular pupils. The abdomen was retracted, the pulse full and compressible. Tache cerebrale was present and Kernig's sign was present on both sides. The knee-jerks were absent as well as the Babinski-phenomenon. There was a leukocytosis and the patient died in delirium. Lumbar puncture revealed the presence of a micrococcus resembling *Micrococcus tetragenes*. Smears made and studied for the tubercle bacillus were negative. The autopsy revealed the presence of acute disseminated tuberculosis of the lung, spleen, liver and kidneys, and early acute tuberculous meningitis. Tubercle bacilli were found in large numbers in cover-slips from the meninges. The writers comment upon the rarity of tuberculous meningitis complicated by secondary infection. [J.H.W.R.]

Blood-pressure in the Insane.—William R. Dunton[2] reviews the literature of this subject and records the results of his own studies in 25 cases. He concludes: (1) The findings of other writers are confirmed, namely (*a*) that the blood-pressure in depressive states is increased, and lowered in excited states; (*b*) that the motor condition influences the blood-pressure more than does the mental condition; (2) a moist skin does not influence the blood-pressure, but active perspiration may; (3) there are no constant variations, as has been observed by Schaeffer and others. [J.H.W.R.]

Disease of the Spinal Column in Tabes Dorsalis.—Kurt Frank[3] was only able to find 25 cases of tabes in which the bones of the spine were diseased. He described a case of his own in a man of 55, who, a year after a slight trauma in the sacral region, developed symptoms of tabes. When he examined the patient over a year later there was analgesia of the arms in the district of the ulnar nerves, absence of the patellar and achilles reflexes, incontinence of urine and feces, but no ataxia. The spine was the seat of a kyphoscoliosis in the thoracic and lumbar regions, and a bony tumor of the lumbar spine existed. This was not painful and crepitus was absent. It was to be noted that there was no ataxia and the sensory symptoms were insignificant. There seemed to be little doubt that the bony deformities were tabetic arthropathies. The condition could be differentiated from rickets, congenital deformity, Kümmel's spinal disease, osteitis deformans, spondylosis rhizomelique, aneurysm, tumor, traumatic fractures or dislocations, spondylitis tuberculosis and lues. [J.H.W.R.]

Korsakoff's Disease.—S. Soukhanoff and A. Boutenko[4] assert that the symptom-complex known by the name of Korsakoff's disease is a special disease usually associated with multiple neuritis. It may, however, be only insignificant. It is toxic in origin, the most frequent cause being alcohol. [J.H.W.R.]

The Pathology of Idiopathic Epilepsy.—N. Orloff[5] presents the pathologic findings in three cases studied by the Weigert and Nissl methods. Nothing characteristic was found, although marked thickening of the glia was observed, especially in Ammon's horn. Spider cells were present in all the cases, although it must be remembered that these cells are present in chronic brain disease. Orloff believes that the body and nucleus of the astrocytes are larger in epilepsy, and that the nucleus stains less deeply than in paralysis. [J.H.W.R.]

A Case of Hysteria, with Autopsy.—S. Weir Mitchell and William G. Spiller[6] reported a case of hysteria in a male, which presented some unusual conditions. The patient was a man who had exhibited hysteric tremor of the left hand. This tremor was chiefly of a pendulum type, and appeared to be beyond voluntary control. The patient, by certain maneuvers, however, was able to stop the spasm, which again reappeared when he walked a few steps. This was suddenly replaced some months later by a rotary movement, which persisted until his death, 30 years later. The microscopic examination of the brain and spinal cord by Dr. Spiller failed to explain the involuntary movements, and nothing pathologic was discovered. [J.H.W.R.]

Insanity and Civilization.—Robert Jones[1] calls attention to the influence that the progress of civilization in the last century has had upon the development of insanity. He believes that it is not only on the increase, but that the forms of insanity belong to the less curable types. He shows that the physique of the inhabitants of towns has deteriorated in weight and height. He believes that spiritual influence, such as is illustrated in the life of Father Dolling, the work of the Salvation and Church Armies has an elevating influence upon the mental and moral character of certain classes. He also calls attention to the great necessity for preventing the extension of lowered mental and physical vigor. [J.H.W.R.]

The Location of the Centers for Epileptiform Tonic and Clonic Convulsions.—N. Samaja[2] performed a series of experimental studies to determine the seat for the convulsive centers in different varieties of animals, and comes to the following conclusions: 1. The motor cortex is exclusively the seat of the center for clonic convulsions in the adult dog and cat. The remaining portion of the cerebrospinal axis can only produce tonic convulsions. In mammalia less elevated in the scale of animals (rabbits and guineapigs), in new-born dogs and cats, and in the green frog, the motor cortex is not the seat for any of the convulsive movements. 2. In the guineapig and rabbit the medulla and the cerebral isthmus are the seat for clonic convulsions; in the guineapig and green frog, the medulla isolated from the isthmus, when irritated will still give rise to clonic convulsions. 3. Among all the mammalia the spinal cord throughout its entire extent is the seat for the center for tonic convulsions, but at no time are clonic convulsions provoked from it. In the green frog the cord is the center for clonic convulsions as well. From these conclusions it can be seen that the center for clonic convulsions rises progressively from the spinal cord to the cerebral cortex as we ascend the animal series. In the green frog it is found in the cord and the medulla oblongata; in the guineapig in the medulla only; in the rabbit in the pons; in the dog and adult cat in the cerebral cortex. In man the center for tonic convulsions is found in the pons, the center for clonic convulsions in the cortex. [E.L.]

Deep Burns in a Case of Melancholia, with Analgesia.—Joffroy[3] reports the case of a young woman who, after a family bereavement, showed signs of depression, which lasted for about a year. At the end of this time she became excitable; she had delirious ideas of autoaccusation and hallucinations of hearing and of sight became noticeable. These symptoms became so marked that it was necessary to remove her to an infirmary. In her active hallucinations, she imagined that she heard the voice of her brother commanding her to kneel during her ride in a cab. She did so and knelt on a small stove in the bottom of the vehicle. This stove had become overheated and at the end of a ride of about 20 minutes' duration the patient had sustained deep and extensive burns of the legs. She complained of no pain, and under the influence of her hallucinations she sat up in bed and pulled at the dressings, without the least sign of discomfort. Further examination showed that there was complete analgesia of the surface of the entire body. A few weeks later it was noticed that she began to show signs of pain during the dressing of her wounds. The sensibility gradually became normal and shortly after sensibility to pain was established, her mental and physical condition became better. The author calls attention to two points in particular: 1. The profound degree of analgesia which permitted the patient to remain in contact with a burning body for 20 minutes without experiencing pain. Many similar instances are recalled, however, in the insane. 2. The parallelism between the general psychic and physical state of melancholic patients and their sensibility to pain. The return of the latter must be considered a favorable sign, and it is not rare to see, as in the present case, the mental state improve in proportion to the return of cutaneous sensibility. This seems to be a sign of certain prognostic value. [L.F.A.]

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[1] Journal of Nervous and Mental Disease, October, 1904, p. 660.
[2] American Journal of Insanity, July, 1904, p. 41.
[3] Wiener klin. Woch., 1904, No. 3, p. 919.
[4] Journal de Neurologie, Vol. viii, 1903, No. 22.
[5] Archiv f. Psychiatrie und Nervenkrank., Vol. xxxviii, 1904.
[6] Jour. of Nervous and Mental Disease, October, 1904, p. 625.

[1] American Journal of Insanity, April, 1904.
[2] Revue Mèdicale de la Suisse Romande, 1904, xxiv, 72, 173.
[3] Journal des Praticiens, Vol. xviii, No. 23, 1904, p. 353.

Borax in Epilepsy.—It has frequently been claimed that borax is equal to, if not superior, to the bromids in the treatment of a certain number of cases of epilepsy. To control this statement, J. Hoppe[1] gave borax to a number of individuals suffering from recently acquired epilepsy. The results were absolutely negative. He then treated with it patients suffering from conditions of hyperacidity and gastric fermentation in addition to their convulsions. All of them had gastric oppression, fetid breath, coated tongue, and bad taste in mouth, and many had bromid acnes. Five such patients were given 1 gm. to 3 gm. (15 gr. to 45 gr.) of borax daily, in addition to their bromids, with excellent results; they had fewer attacks, their gastric condition improved, and their acne disappeared and they became more comfortable. But in seven other patients suffering in addition to the gastric disturbance from some skin or kidney insufficiency the drug acted just the opposite; psoriasis, eczema, albuminuria, etc., were noted, and from the standpoint of the epilepsy they deteriorated markedly. He concludes, therefore, that borax is contraindicated whenever the excretory organs are inefficient, but indicated in epilepsy associated with uncomplicated gastric disturbance. [E.L.]

Involuntary Confinement of Alcoholics.—In Pennsylvania, as in some other communities, recent laws permit the enforced seclusion of any drug habitues, among them, of alcoholics—without reference to the establishment of a state of alienation, unless the use of the drug constitutes that. U. Adelwalge,[2] in a critical examination of the issue, refers to the Ninth Memorial Congress in honor of Pirogoff, in which it has been the object to secure more stringent legislation regulating alcoholics. The writer opposes involuntary confinement for such patient unless some distinct alienation in itself gives ground for it. He believes the unfortunate patient will come to dislike the physician, and this ill-will bodes no good for the success of treatment. Apart from purely medical exigencies, the patient has a right to liberty; and the therapeutic end is rarely obtained, for the patient cannot be said to be cured, if involuntarily restrained. Moreover, fear or dislike aroused in such individuals may be directly harmful. When alcoholism can be shown to have produced alienation, or moral degradation which is liable to prove dangerous in the community, as such and only as such, is enforced seclusion of the patient justifiable? It is proper that the exact limits of conduct in these respects should be regulated and brought within the law. [T.H.E.]

Icterus and Diabetes of Nervous Origin.—M. Rheinboldt[3] reports the case of a woman of 50, who was attacked with a combination of acute icterus and acute diabetes simultaneously. For 13 years she had been very nervous, but for the last two years, when a uterine operation was performed, she had been suffering repeatedly, especially after excitement, from attacks of constipation, thirst, epigastric oppression, slight jaundice, clay-colored stools and bile-stained urine. The urine was not examined, however, until a violent itching associated itself with these symptoms, when 1% of sugar was found. Under dietary measures this cleared up, remaining so for a number of months. Suddenly, without other reason except nervousness, she again complained of the gastrointestinal symptoms; on the day she presented herself for examination, her skin was clear, her urine free from sugar. The next day, after some special excitement, she was deeply jaundiced, and had considerable glycosuria, both of which conditions had, however, disappeared again 24 hours later. The liver was somewhat enlarged, but not tender. Rheinboldt is inclined to believe these conditions to be due to a decrease in the blood-pressure of the portal circulation of vasomotor origin, or of a nervous influence of the living cells themselves. The case teaches at least that both bile secretion and glycogen accumulation in the liver are influenced by specific nervous impulses, the alteration of which may lead to an insufficiency of both functions. [E.L.]

A Form of Hysteria in Childhood and Its Relation to the Anatomy of the Linea Alba.—In 1897 Buedinger described a symptom-complex under the title, "Diastases of the Linea Alba in Childhood with Incarceration Phenomena." In the present paper J. K. Friedjung[1] claims that diastasis of the recti muscles is a normal condition in childhood, and produces no phenomena of disease. It may be demonstrated in a majority of cases soon after birth, and is increased by the physiologic meteorism of nursing infants. This peculiarity persists for some time, but gradually disappears, and usually cannot be found at the time of puberty. Friedjung asserts that the incarceration phenomena, described by Buedinger, are of a hysteric nature, and form a distinct type of hysteria that is frequently observed in childhood. The condition has no relation whatever to the diastasis of the recti muscles, as the latter occurs just as frequently in perfectly healthy children. Characteristic symptoms of this form of hysteria are tenderness over the spinous processes of the cervical vertebras and over the ovaries. The symptoms of incarceration disappear rapidly under suggestive treatment, directed at the underlying disease. [B.K.]

The Diagnostic Value of the Plantar Reflex.—S. Barnes'[2] conclusions concerning the plantar reflex are based upon the examination of 2,500 patients, 50% of whom were suffering from organic nervous disease, 20% from functional nervous condition, and the rest from general diseases unassociated with nervous symptoms. In about 150 cases postmortem evidence was obtained as to the correctness of the diagnosis. His conclusions are as follows: 1. In adults an extensor response (Babinski reflex) never occrs in health; it is always indicative of nervous disease. The pyramidal system need not be so injured as to show a postmortem lesion. An extensor response may be produced in any condition, which greatly raises intracranial pressure, even if that condition does not cause a demonstrable lesion of the pyramidal system. It may occur in hydrocephalus, meningitis and cerebral tumors during the comatose and semicomatose states of the patients: It occurs in the convulsions of epilepsy, uremia, strychnin poisoning, etc. It never occurs in hysteria and allied conditions without some organic coexisting basis. 2. A flexor response is the normal plantar reflex of the adult. It may occur in pyramidal disease. (*a*) In acute conditions, if only a small amount of the pyramidal influx is removed by an organic cause; (*b*) in chronic cases, even when a large amount of the pyramidal influx is removed. 3. In some positions of the patient it is possible to obtain an extensor response, while in others the same foot may give a flexor response; this is termed the position of pyramidal equilibrium. 4. There is a constant tendency in the adult for an extensor response to give way to a flexor response, the more chronic the case and the less severe the pyramidal lesion, the more rapidly will a flexor response be reestablished, even though the limb will remain severely paralyzed and contractured. 5. The infantile response of children under two is dependent on the immaturity of the pyramids. It resembles the response of pyramidal equilibrium rather than that of full spasticity. 6. The extensor response comes on simultaneously with the incidence of pyramidal disease, is not abolished by total transverse section of the cord, and appears to be less affected than any other reflex by nerve shock. 7. The plantar reflex may be absent in health when the foot is cold or damp, and is also frequently absent in hysteria, multiple neuritis, infantile paralysis affecting the leg, and in severe tabes. [E.L.]

Tumor of the Centrum Ovale, with Cerebellar Symptoms.—W. L. Ascherson[3] states it is indisputable that even though we have many criterions for localizing cerebral lesions, in the case of brain tumor they may prove fallacious. Gowers, commenting on this difficulty, has said that although the general region in which the growth is placed may be determined, in the majority of instances it is not found that its exact situation can be definitely affirmed. This, Ascherson holds, is especially true when the original condition is complicated by oncoming symptoms of intracranial pressure. A case is reported in detail. The patient was a woman of 42, who first complained of inability to stand or walk; later, there was loss of vision, headache, vomiting, ataxia, though there was no change in the mental state, there were occasional attacks of giddiness, but no convulsions. There was no evidence of syphilis or tuberculosis, no tremor, no facial paralysis, no atrophy, the knee-jerks were variable, but there was no ankle-clonus, and the gait was unsteady. An operation was performed, soon after which the patient died. A necropsy showed the presence of a pinkish white tumor measuring 1½ inches in its vertical and 2 inches in its horizontal diameters, situated in the white substance beneath the upper part of the rolandic area. A microscopic examination showed it to be a spindle-celled sarcoma. The case illustrates: 1. That a staggering gait may not necessarily be associated with tumor of the cerebellum. 2. If the growth be sufficiently circumscribed, it may be for months situated beneath the cortical motor area, and finally penetrate the cortex and overlying dura without necessarily giving rise to convulsions or marked paralysis. 3. Signs occurring late in the course of a case of cerebral tumor, however clearly they may point to a definite lesion, since they may be evidently the result of increased general pressure upon structure far removed from the site of the lesion, can weigh but little in the scale of diagnosis. [A.B.C.]

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[1] Berliner klinische Wochenschrift, 1904, xli, 730, No. 27.
[2] Revista de Sanidad Civil, Madrid, September 20, 1904.
[3] Münchener medicinische Wochenschrift, 1904, li, 1608, No. 36,

[1] Zeit. für Heilkunde, 1904, Bd. xxv, Heft 9, p. 209.
[2] Review of Neurology and Psychiatry, 1904, ii, 345, No. 5.
[3] The Lancet, September 10, 1904.

Treatment of Peripheral Irritations of Sensory and Motor Nerves.—Schlosser[1] recommends a new method to cure peripheral irritations of sensory and motor nerves. In the case of clonus of the facial nerve, he injects by means of a hypodermic syringe 70% alcohol carefully into the nerve trunk in the neighborhood of the stylomastoid foramen. The best terminal result will be a facial palsy coming on shortly and lasting from ½ to 1 hour. Should this remain absent or prove insufficient the injection must be repeated within 2 to 3 days. If the action is too strong, paresis occurs, which at its longest disappears after 3 to 4 months. This heroic treatment to the facial trunk he considers necessary only when all the facial muscles participate in the clonus. If the clonus be localized to the muscles around the eye, repeated injections on the outer side and below the malar bone will suffice. He reports having cured three supraorbital and one infraorbital neuralgia by means of these alcohol injections; also two cases of sciatica. Where pure motor nerves are affected, injections with 70% alcohol will suffice, but in the case of sensory nerves and the sciatic he recommends 80% alcohol. [E.L.]

Intracranial Tumors in the Insane.—I. H. Neff[2] reports two cases that present some interesting points. Both patients were pronounced insane at the time of admission, the first thought to be dependent on syphilis of the brain, and the second due to epilepsy. A short time later, the diagnosis of brain tumor was made in Case I, but its site, which proved to be basal, was undetermined. In the latter months of the illness of Case II a brain tumor was suspected. Autopsy showed a large subcortical sarcoma, involving an entire hemisphere, and extending to the opposite side. Both patients had a clear history of syphilis, but at autopsy neither of the brains showed characteristic lesions of that disease. Full clinical notes of both cases are given. Case I is particularly interesting, as demonstrating that intracranial pressure can be directly responsible for not only the general symptoms of brain tumor, but also for focal symptoms, which are commonly ascribed to localized lesions. In Case II there was persistence of fixed and systematized delusions of persecution during the entire course of the disease. There were also symptoms of focal disease, which were evidently due to the rapid extension of the tumor. In both cases the general symptoms alone proved to be valuable. [A.G.E.]

Pathology of Acute Anterior Poliomyelitis.—Preobragenky's[3] patient, a man of 23, was bitten by a mad dog. In spite of treatment directed against the disease the patient became gradually worse. Two months after the injury he suddenly noticed a weakness of the right arm and later some difficulty in breathing. The dyspnea increased, he became deeply cyanosed and the arm completely paralyzed. His mental condition was deplorable. The knee-jerks had disappeared and there was profuse salivation. He died 24 hours after the onset of the acute palsy. At the autopsy acute anterior poliomyelitis, extending from the fifth to the eighth cervical segments, was found. Microscopic sections showed large hemorrhages, dilated bloodvessels, an accumulation of small round cells, proliferation of glia cells, edema of the neuroglia and degeneration of nerve cells. Leukocytic infiltration was more marked in some parts of the central nervous system than in others. The region of the anterolateral artery was especially affected. The author considers this a case of poliomyelitis due to the toxins of hydrophobia. [E.L.]

Address on Insanity.—C. W. Burr[1] states that psychology is the most backward of the sciences allied to medicine and has thrown almost no light on the nature of mental disease. This is true, because mental disease deals with imponderables, and we even have no fixed criterion of normality of mind. Burr does not believe that intoxication is the cause of all the insanities; at least a few types, as congenital paranoia, are developmental. The source and origin of acquired insanity is to be sought for not in the brain, but in the abdominal and thoracic viscera and in the ductless glands. As to the value of treatment in insanity, popular opinion and too much of professional opinion is still absolutely pessimistic. The attitude that cases are incurable and must be sent to an asylum, where, if they do improve, treatment is given no credit, is an attitude that inhibits progress. Much may be accomplished in the prevention of the incurable forms; if the paranoiac child could be watched and perhaps removed from the untoward home environment and training, a great deal of the evil of a bad ancestry could be overcome. The prophylaxis of paresis is moderation. Burr considers at length the folly of our present management of high-grade imbeciles; he believes they should be segregated by the State under conditions in which they would be compelled to work for their own sustenance. [A.G.E.]

The Action of Poisons on the Bloodvessels of Isolated Nerves.—W. W. Sakussow[2] has extended his examinations not only to substances acting upon the vasoconstrictor, but also the vasodilator fibers. To convince himself that the bloodvessels of the organ were capable to react under the conditions of the experiment to constricting agents, he employed adrenalin as control agent. The results of his experiments were as follows: Digitalin, strophanthin, and toad poison produce a distinct contraction of the bloodvessels in a solution of 1 to 1,000,000. The vasoconstrictor power of convallamarin was very slight. Barium chlorid produced a distinct contraction of bloodvessels in relatively high dilutions, as, for instance, 1 to 100,000. Physostigmin and nicotin produce, in solution of 1 to 100,000, a hardly noticeable narrowing; in solutions of 1 to 20,000, a considerable one. Atropin is a vasoconstrictor in solutions of 1 to 10,000, and occasionally in 1 to 50,000. Cocain, 1 to 10,000, is ineffective as a vasoconstrictor. Sodium nitrate in .24% to .5% solutions produces a marked dilation of bloodvessels. Chloral hydrate produces dilation in solutions of 1 to 100,000 to 1 to 10,000. Caffein produces marked dilation in solutions of 1 to 1,000, and a slight one in solutions of 1 to 10,000. [E.L.]

Spastic Paraplegia in a Child.—Dejerine and Chiray[3] report the case of a girl of 8, who during the past six months had developed paraplegia. There was no history of previous illness, no history of disturbed sensation or sphincter function. The knee-jerks and achilles jerks were increased, but the Babinski reflex could not be obtained. The upper extremities were perfectly normal. The right pupil did not react either to light or accommodation, the left reacted but sluggishly to both. The patient was of low mental development. A lumbar puncture showed a lymphocytosis. Two sisters of the patient died at an early age, and as one of them had undoubted congenital syphilis, a provisional diagnosis of congenital spinal syphilis was made. [E.L.]

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[1] Ophthalmologische Gesellschaft, Heidelberg, 1904, xxxi, 84.
[2] The Physician and Surgeon, September, 1904.
[3] Archives de Neurologie, 1904, xviii, 87.

[1] Medicine, April, 1904.
[2] Russki Vratch, 1904, iii, No. 15.
[3] Archives de Neurologie, 1904, 170.

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The report of Surgeon-General Rixey of the U. S. Navy for the year ending June 30, 1904, contains, in addition to the usual routine matter, several points of general interest. Chief among these is the difficulty in obtaining qualified medical men for the naval service, this persisting in spite of favorable legislation in 1903. Of 30 vacancies, 25 due to increase in the force, occurring during the year, only 23 were filled, that number of the 99 applicants qualifying. The medical corps of the army and the Public Health and Marine-Hospital Service are both more popular with young physicians. Among the reasons assigned are that one year's training after graduation is required by the navy, and the shore pay of the assistant surgeon is 15% less than that of the same officer in the army. Inasmuch as the inherent nature of the service will always render the navy less attractive than the army, and also demands extended preparation and what may be denominated greater resourcefulness in the members of its medical corps, it would seem that the remuneration of the former should exceed, or at least equal that of the latter. Equalization of the services is necessary, even though it be reduced to a matter of pay roll. The report, as several previous ones have done, calls attention to the naval hospitals which, with the possible exception of that at New York, are said to be inadequate in capacity and lacking in appointments as compared with our civil hospitals. Dr. Rixey still advocates the employment of female nurses in the navy, but as yet has not succeeded in convincing Congress of their need. The general health of the navy and marine corps during the year was good, the ratio of admissions to the sick list, while slightly greater than last year, being less than the average of the eight years prior to 1902. The deathrate was low—6.01 per 1,000. With the exception of the class "general infectious diseases," the greatest number of sick days was furnished by venereal affections; disability due to this cause has the same effect upon the fighting strength of the navy as the loss of a second-class ship yearly. The report by Director Marmion of the naval medical school at Washington, shows very satisfactory work by that institution in preparing men for the service. As a whole, the report gives evidence of painstaking care on the part of the officials in demanding and maintaining a high standard in the personnel of the medical corps; the army can well afford to take pattern in many respects. Attempts to popularize the naval service must not include lowering of the admission requirements.

Control of Leprosy in the United States and Its Island Possessions.—Through the courtesy of Dr. Albert S. Ashmead, of New York, whose commendable zeal in the behalf of lepers, particularly in advocating federal control of these subjects, is well known, we have been permitted to examine memorandums, including correspondence with Governor Carter, of Hawaii, regarding articles of proposed legislation for the management of lepers. We are pleased to note an increasing probability of the passage of the Platt-Wanger Leper Bill now before Congress. This bill, it will be remembered, provides that a square mile of land in the interior of the United States be set apart as a national leper sanatorium under the control of a Commissioner of Leprosy appointed by the President; the site of this sanatorium would be determined by a commission appointed by the State Boards of Health of the four leper States, Louisiana, California, Minnesota, and Florida. The provisions of the bill apply only to lepers of the United States proper, whose interests are thus made entirely independent of those in the Philippines, Guam, Hawaii, and Porto Rico. This point is specifically stated because of earlier proposed legislation, originating in Hawaii, providing that Molokai be made a national lazaretto to which lepers from the United States, as well as from the islands, should be sent. In lieu of this, it is proposed to transfer, in the four territories named, the control of lepers from the local authorities to the U. S. Public Health and Marine-Hospital Service, the expense of such supervision to be met with special appropriations by Congress. In case the local authorities oppose such transfer, Dr. Ashmead suggests for Hawaii what appears to be an admirable substitute in that it would still bring the leper settlement under national government control without offending public opinion in Hawaii. The plan in question is for the governor of Hawaii to appoint as medical superintendent of Molokai settlement a physician who has made a special study of leprosy and who shall serve not less than two, nor more than five years. As assistants he shall have a surgical and medical staff of five men appointed, one each, by five leading medical schools of the United States. One new man would thereafter be appointed each year, thus ensuring at all times an experienced staff. The results of all investigations of the superintendent would be published only in the form of annual reports to the governor of the territory.

The Desirability of Federal Control of Lepers.—Careful study of the measures above outlined shows them to contain many valuable features. The object to be attained is the same in all, government control of a serious, loathsome, little understood, and by no means rare disease. For many of the subjects the change would be a humanitarian procedure, and undoubtedly this forms one of the motives inspiring the supporters of the proposed legislation. Transmission of the disease, if it really is contagious, would also be lessened. Of equal or greater importance are the increased facilities for studying the affection that would thereby be afforded. Physicians only would be placed in charge of the patients and the staff would be adequate in number. Fully equipped laboratories would come as a necessity, making available unlimited opportunities for investigating the cause, cure, and prevention of leprosy. Objections to any remedial legislation that may be secured will no doubt arise. For instance, no State will welcome the proposed sanatorium, even with its walled square mile of ground. Dr. Ashmead admits this, and we believe his proposition to place it in the Yellowstone Park would bring emphatic protests from the people of all the States. In settling this question, however, "the greatest good for the greatest number" should be able to override much opposition. Though the United States is comparatively free from the disease, when Japan with 100,000 and China with 150,000 lepers in two provinces are considered, systematic control and study are demanded. Dr. Ashmead possesses private records of 143 cases in New York and there are 400 epidemic and endemic lepers in Louisiana. Legislators should be enlightened regarding the gravity of an affection that may remain endemic in a country for scores, or even hundreds of years, and then assuming epidemic characters, spread with frightful rapidity. In Columbia, South America, 40 years ago there were 400 lepers, now there are 30,000. Surely the people of this country should welcome governmental efforts to suppress such a disease, even if the measures adopted are in a sense distasteful; against such measures no argument save that of absolute danger by contamination need be seriously considered.

An American Instance of Medical Socialism.—We described recently an attempt in Switzerland that is to be made in medical socialism. An American way of bringing about the same professional abasement is also occurring in Michigan, and it is at once less frank and more contemptible. The Board of Regents of the University of Michigan has ordered members of the medical faculty to give gratuitous medical and surgical aid. The ruling of many years' standing first appears in print in the *Michigan Alumnus* of October, 1904. In defense of their action, and in answer to professional protest, it is contended that the rule is an old one, and that it is necessary to secure the needed clinical material for teaching students. In further self-exculpation, it is stated:

> Of course we must regret any antagonism of "part of the medical profession of this State," if any such exists, against the medical department of the University of Michigan, but I doubt whether the Board will be willing to permit the teaching of the department to suffer because of such antagonism, if it exists. It will be rather a difficult matter to draw the line between "rich and poor," and it would seem to be a new business for the department or the faculty to examine a man's pocket or a woman's reticule before relieving a case of appendicitis or officiating at childbirth. There are many cases where people are thought to be wealthy, but a settlement of their estates shows that when their honest debts are paid, they stand minus instead of plus. Shall we wait until we examine the financial condition of a man before relieving his physical necessities, and in the meantime turn out classes ignorant of the most vital part of their medical education?

Answers to this nonsense are of course evident and convincing on the part of the profession and of any layman with a grain of sociologic wisdom. One of the simplest is the question, Why educate physicians for a calling in which their instructors will prevent a lucrative practice of their graduates by gratuitous service? Evidently the only reward of the alumnus is by securing a professorship. A graduate of the University of Michigan gives some facts, for instance:

> A man worth $10,000 being requested by me to pay $10.00 for removing tumors from the eyelids, refused to pay the fee, and went to Ann Arbor and had a free operation. Another worth $15,000 refused me $50.00 for an operation, and had it done at Ann Arbor. A third, needing a major operation, was asked for the paltry sum of $50.00. He informed me he was not a pauper and could pay it, but would not. He was operated upon at the University Hospital. I could enumerate more than a score of similar cases in my own personal experience, and I am only one among thousands likewise affected.

This abuse, moreover, has long been showing itself; or rather, existing, in clandestine ways elsewhere than in Michigan, and a solid professional protest should be effective in extinguishing it.

Agreements Not to Practise.—A month or two ago, we noted a case in which a physician of Atlantic City, N. J., had filed a bill in chancery, with a view to enjoining a former assistant from practising medicine on his own account in that city. This physician had employed assistants for very many years, and all, including the one in question, had signed an agreement depriving themselves of the right to practise in Atlantic City after they should sever their relations with their employer. The one against whom an injunction was sought had violated this contract, and was practising in defiance thereof. The employment of assistants in general medical practice is not nearly so common in America as in Great Britain. There, indeed, it is the usual thing with every general practitioner in extensive practice. The restraint of the assistant by an undertaking on his part not to engage in independent practice, under pain of forfeiture of a stipulated sum, "not by way of penalty, but as ascertained and liquidated damages," for each day's violation of the agreement, necessarily obtains concurrently with the prevalence of such a system. But, to avoid coming under the legal prohibition against contracts "in restraint of trade," which are *ipso facto* invalid, there is always fixed, not only a limit of distance from the former employer's house, but also a limit of time during which the prohibition is to remain in force. The former is commonly from three to five miles, the latter ten years. We do not know whether any such limits existed in the Atlantic City case.

The employment of assistants, if it is to become prevalent, must necessarily be accompanied by safeguards to protect the employer against a dishonest undermining of his practice. Is the extension of the assistant system desirable? We think it can be shown that it is, alike in the interests of the general practitioner, the junior members of the profession, and the public. As regards the general practitioner, it appears to us self-evident that he can perform his work more efficiently when relieved from attention to much trivial detail. Minor dressings, after-visits, insignificant cases, etc., can as safely, and with equally good results, be taken off his hands by qualified assistants acting under his supervision, as is the case with hospital physicians and surgeons. Moreover, the presence at his house of a trustworthy and competent assistant relieves him of the strain of incessant attention to business, and allows him opportunity for recuperation, of the urgent need of which we all so keenly complain. To the junior members of the profession it offers a means of supplementing the scientific side of their education, as acquired at the medical school, with much useful knowledge and methods which are not, and never can be, learned at a medical school. At the hospital the student's attention is centered on a "case," in practice he will find it very necessary to devote almost as much, if not more, attention and *savoir faire* to the *patient*, not only as a sick person, but in regard to his individuality and in his social, economic, financial, and other relations. The old apprenticeship system supplied this need to the budding practitioner very effectively; with it disappeared all training in this direction, and no other substitute has as yet been found. An assistantship, again keeps the practitioner at work during the weary waiting period, while he is gaining those years of "experience" which the public, with shrewd instinct, commonly demands, and it enables him to earn at least subsistence during that time. It cannot be replaced by an interneship; the only possible source from which its lessons can be learned is the responsibility that comes of dealing on equal terms with those on whose good will we are dependent, and whose approval and confidence it therefore behooves us to gain. Another point in which an assistantship is of service to the junior practitioner is that it oftentimes leads to a final settlement in life. Many young doctors lack the wherewithal to sustain life while practice is growing. "The horse may starve while the grass grows." Some of us know that it is not sufficient to "stick out a shingle" in order to jump at once into a lucrative practice. There are for most men weary years of waiting, during which clothes, food, lodging, and the expenses incidental to any pursuit have to be provided. A thoroughly competent and trustworthy assistant always has before him, as the possible reward of faithful services, the acquisition of a partnership in course of time, thus saving him from the fate, after many wasted years, that has happened to many good men, of having to abandon the pursuit of his profession, and turn to other, and perhaps less satisfactory, methods of earning a livelihood.

The public is the gainer from a system of assistantships, also in that a more careful attention to detail can be given to his cases by the physician than would be possible if he had to attend to every routine procedure himself. He has more time for general study, and particularly for that most important practice, the direct study of all available literature bearing upon his cases in hand. Again, the opportunity of recuperation to which we have before referred, is a direct benefit to his patients. No mind can work at its best when subject to never ceasing strain. And lastly, in the event of the absence of the principal or his incapacitation by accident or illness, his patients have at hand, in place of being compelled to turn to a stranger, one with whom they are to some extent familiar, and one who is himself familiar with them and their surroundings, as well as with the methods and practice, and the business principles of their chosen medical adviser. In short, if we are to cultivate the "family doctor" idea, as many of the most far-seeing members of the profession think it incumbent on us to do, we must put no obstacle in the way of, but rather afford every encouragement to the practice of employing competent qualified assistants.

The dangers of the assistant methods in practice, however, should not be ignored or underestimated. The custom may easily degenerate into an abuse and a commercialism which may more than neutralize all the good we have enumerated. That the American spirit could and will conquer such abuses, we believe, but older countries illustrate the dangers. In a letter to the *British Medical Journal*, an assistant is outspoken as regards certain conditions undoubtedly present in England. As a warning, we reproduce this correspondent's protest:

> There are always two sides to every question. What can be said in defense of a medical man who employs three or even, as I know, five assistants; and has them planted out in surrounding villages, and never comes near them, except to draw his money at the end of the month, and pay the assistant his meager salary? Is this to the benefit of our profession? I call it sweating, and is, in my opinion, the cause of all the trouble and discontent in contract practice. In my opinion, assistants learn more bad habits than they do good ones. To remedy this matter is simple. Make it compulsory for the assistant's name to be displayed; no medical man to keep an assistant longer than three months, and not more than one assistant at a time, who must also reside in the house with the principal. It has been said by a very learned authority, "Go out as an assistant, and make your mistakes in another man's practice." The practical training in our hospitals is now so thorough, for those who care to learn, that any one after he receives his degree should be in a position to start practice on his own account, and, with the high standard of his hospital to guide him, will make fewer mistakes than if let loose as an assistant in some village with a "Don't care how you do it" as a principal.

Competitive Examinations for Hospital Positions.—As we predicted, opposition speedily arose to the Chicago proposition to choose the attending staff of the County Hospital by competitive examination. It was urged that one school had a preponderance of teachers and graduates on the proposed board of examiners. In view of the known character of the men, this argument should readily have been dismissed, but the courts were appealed to for an injunction, and a hearing was given by the County Commissioners. Jealousy among medical teachers was the only fact prominently brought to light. After hearing the arguments of the opposition, the County Board voted to rescind its action in ordering the establishment of civil service for the attending staff, but this resolution was promptly vetoed by the president of the board. Probably the courts will have to decide whether a veto is competent under such circumstances, and also the more interesting point as to whether civil service may be applied to unsalaried positions. While it may be that civil service would prove not to be the best method of attaining the desired objects, it at least was worth the experiment. It is admitted that some staff pruning is necessary, and that the method of making appointments by political "pull" needs to be abolished, but these considerations were overruled by the fear that "the other fellow" might get a little ahead. Professional mistrust then, seems likely to defeat the project. Worst of all is the danger, now imminent, that, availing themselves of the discord among the regulars, sectarians will attain an undue number of places on the staff. An unpleasant feature of this movement, which otherwise promises to determine many points of great interest and importance to the general profession, is that the opposition seems largely to be based on the fear of some of the "sects" that they will be unable to get "in" if civil service is enforced. If such is the case, the opponents occupy a peculiarly unfortunate position for themselves and for the good of the profession. It seems a pity from such motives to prevent a needed housecleaning, the abolishment of appointment by ward pull, and the establishment of a hospital staff appointed on a merit basis; or, at least, to place obstacles in the way of the first proposed effort to accomplish these aims, without offering any other adequate plan for their attainment.

The "Cartilage Treatment," "How to Grow Tall," etc.—If the amount of money spent in advertising is an indication, the desire of Americans to be tall is deep and continuous. The discoverer of the "Cartilage treatment" says he has made a profound study of the laws and principles which govern the physical condition of mankind, that he has made great discoveries "along these lines," that these have "amazed the medical world," and that his methods have been "indorsed by the medical fraternity." The "well-shaped figure" is the desire not only of women, etc.,—and the whole for $10.00! The picture of the discoverer is that of a very young man to have made such great discoveries, but one must not be prejudiced by this fact because it is well known that most great discoveries have been made by the young. "We make no extra charge for anything" hardly tallies with other statements as to the added cost of "special attachments," for bow-legs, spinal curvature, paralysis, etc., but, if true, the charges are low enough, surely. The Cartilage Company's invention "affects the cartilage matter throughout your entire body"; "the discover's handshake denotes strength of character, honesty, and integrity." "His wonderful discovery was made while attending a small Jesuit college in the interior of Canada." "About one-half of the nose and ears is composed of cartilage which if frequently drawn, will lengthen. That is the reason why pulling the ears as a punishment to children is so rigorously condemned in our public institutions." Why, therefore, one may ask, is there such a great prejudice against the pulling of the nose by another? and especially why the dislike of having one's "leg pulled?" The query also arises how can the cartilage method lengthen the leg and not at the same time, *pari passu*, lengthen the possibly too short nose and ears? One remembers the sad story of the London gentleman with one too short leg who got a faith curist to lengthen it; but when it had grown to a length equalling that of the other leg, the faith woman had disappeared and the once-too-short leg kept on growing to a terrifying over-length. This story and the Cartilage Company's circular suggests a danger, but it also points out a striking cooperation with Mrs. Eddy. If Americans so fervently desire to be tall why should not the Cartilage Company call in unchristian unscience, which cures solely by desire and mental methods? This would avoid the $10.00 expense, with or without extras, and be a great saving—a boon, as Mr. Bell would say, to a suffering world! The difficulties of courtship of the six foot man and the five-foot woman are admirably portrayed in the circular, and "20% commission is promised for every patron secured for us."

The Degeneracy of the Vivisectionist.—Whenever the "scientist" cannot explain or cure a diseased person, especially if the scientist is a neurologist or psychiatrist, he has recourse to "degeneracy." This explains anything which the dogmatism and ignorance of the would-be explainer cannot understand, as for instance, when Professor Möbius, of Germany, says that "the tendency to headache is a part of the degeneration which is inseparable from civilization." But it is not only the Möbiuses and Nordaus who fly to this new deity for relief in intellectual and scientific troubles. The antivivisectionists also worship him. An antivivisection story called "Trixy" has just appeared, written by Elizabeth Stuart Phelps Ward. This lady and her publisher should have stuck to their last, or, to vary the metaphor, at least should have had a better science with which to sugar coat their pill. It is dangerous—the story with a purpose—and neither art nor science will justify the clandestine marriage of the parents. Mrs. Ward contends that "the book is a story." This is the portrait of the assistant chief of a large surgical institute, where investigations in physiology were conducted:

> His face . . . was brutal. He had the eyes of an inquisitor, lowering and shifty. To an ordinary citizen his was a face to be dreaded. It was the type that was common in the sixteenth century. It was broad, flat, and surmounted by a rebellious fiery mane. But if his face would inspire dread, his hands gave the layman a nameless apprehension.

Do modern investigators recognize this portrait as of themselves?

BOOK REVIEWS

A Handbook of Surgery for Students and Practitioners.—By Frederick Richardson Griffith. Published by W. B. Saunders & Co., Philadelphia, New York and London.

Into this little work of more than 500 pages has been gathered a marvelous amount of information. In fact, if we were to offer a criticism it would be that the author has attempted too much in so small a work, for not only is the subject of general surgery considered, but likewise diseases of the eye, ear, nose, and throat, genitourinary diseases, diseases of women, etc. But it must be said that while the scope is exceedingly large, the author has done his work exceedingly well. The volume makes no pretention to an exhaustive discussion of the subject, but is, as its title denotes, a mere handbook, and one well adapted to the needs of the student and to the busy practitioner for a hasty review of important points in surgery. The arrangement is systematic and the book abounds in many illustrations.

Genitourinary and Venereal Diseases.—By Robert W. Taylor. Third edition, thoroughly revised. Published by Lea Brothers & Co., New York and Philadelphia.

This is a comprehensive work of more than 700 pages, embracing the entire range of diseases affecting the genitourinary organs of both sexes, excepting those which are entirely gynecologic. Gonorrhea in all its phases and syphilis in all its conditions and relations are fully considered. The author has presented conservative and broad treatment in detail, and while surgery proper has received ample attention, it is considered as being but a part and not the whole of genitourinary therapeutics. The same plan and scope which were noted in the former editions are retained in the present one. There are many splendid illustrations and some 39 plates in color. To the syphilographer and genitourinary surgeons throughout the country the book will appeal as being strong, comprehensive, lucid, and practical, and a particular point of value is the space devoted to treatment.

Uric Acid: An Epitome of the Subject.—By Alexander Haig. Published by P. Blakiston's Son & Co., Philadelphia.

As is well known to the medical profession Dr. Haig has written exhaustively on the subject of uric acid and its relation to various pathologic conditions, particularly rheumatic and gouty conditions especially in their relation to diseases of the kidney, the various diatheses, etc. In the present little volume of 150 pages, he gives an epitome of the whole subject. It is splendidly written, clear, comprehensive, and covers briefly the entire subject. It is intended by the author to serve simply as an abridgment of the subject insofar as he has considered it in a much more detailed manner in more exhaustive works. It is particularly interesting and instructive to the internist, and almost as much so to all in the profession of medicine.

Medical Diagnosis—The Special Diagnosis of Internal Medicine. A Handbook for Physicians and Students.—By Wilhelm von Leube. Authorized Translation from the Sixth German Edition, edited with annotations by Julius L. Salinger, M.D. New York and London: D. Appleton & Co., 1904. Pp. 1058.

To those familiar with German, Leube's Diagnosis has long been a standard by which other books on allied topics are judged. It is naturally, therefore, a source of gratification that the treatise, the popularity of which in German is attested by the issue of the sixth edition, should now have been translated into English, and its disquisitions rendered available to a much larger circle of readers. Of the book itself, it suffices to say that in the realm of differential diagnosis it has no superior, and that its method of unfolding the means of differential diagnosis is at once scientific and practical. A motive of the book and the accuracy that pervades it may be judged from the author's statement that "the clinical diagnosis should be handed to the pathologist in writing before the autopsy takes place," a practice that the author has continuously followed, and that helps to confirm his reliance in the dictum *qui bene dignoscit, bene curat.* An essential and commendable feature of the book is the anatomicophysiologic discussions that precede most of the sections, and that afford the reader an insight into the anatomic and physiologic data necessary for the ready comprehension of what follows in diagnosis. Heretofore those who have been able to read it have possessed the book. This should continue.

The Optical Dictionary. An Optical and Ophthalmologic Glossary of English Terms, Symbols, and Abbreviations, together with the Equivalents of some French and German Terms relating to Physical, Physiologic, and Pathologic Optics, Optical and other Instruments of Precision, and Terms Descriptive of Color and Photochemistry, to which is added a number of General and Mathematic Expressions.—Edited by Charles Hyatt-Woolf, F.R.P.S. 12mo; pp. 166. Philadelphia: P. Blakiston's Son & Co. 1904.

This work has been compiled mainly with a view to provide a handy and reliable compendium of optical terms for the use of students and members of the optical industry, and physicians interested in ophthalmology. It bears evidence of careful and conscientious preparation, and is issued in a very convenient form.

Surgery: A Manual for Students and Practitioners.—By M. D'Arcy Magee and Wallace Johnson, with an appendix on röntgen ray work in surgery by Edward O. Parker. Series edited by V. C. Pedersen in the medical epitome series. Published by Lea Brothers & Co., Philadelphia.

This little manual contains some 300 pages devoted to the discussion of questions in general surgery. It is terse, clear, and brief, each chapter being followed by a series of questions, adapting it admirably for hasty review on the part of student or practitioner. It makes no pretense to exhaustive detail on the subject of surgery, but it meets the requirements for which it is intended.

BOOKS RECEIVED.

[Prompt acknowledgment of books received will be made in this column, and from time to time critical reviews will be made of those of interest to our readers.]

A Textbook of Physiological Chemistry: For students and practitioners of Medicine.—By Charles E. Simon, M.D., late Resident Physician, Johns Hopkins Hospital; author of Simon's Clinical Diagnosis, etc. New second edition. Revised and enlarged. Octavo, 500 pages. Cloth, $3.25 net. Lea Brothers & Co., Philadelphia and New York.

How to Cook for the Sick and Convalescent. Arranged for the physician, trained nurse, and home use.—By Helena V. Sachse. Second edition, revised and enlarged. J. B. Lippincott Company, Philadelphia, 1904.

Studies from the Rockefeller Institute for Medical Research. Reprints, Vol. ii, 1904.

A Practical Treatise on Diseases of the Skin: For the use of students and practitioners.—By James Nevins Hyde, M.D., Professor of Dermatology and Venereal Diseases, and Frank H. Montgomery, Associate Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago. Seventh and revised edition. In one octavo volume of 938 pages, with 107 engravings and 35 plates in colors and monochrome. Cloth, $4.50 net; leather, $5.50 net. Lea Brothers & Co., Philadelphia and New York, 1904.

The Urine and Clinical Chemistry of the Gastric Contents, the Common Poisons, and Milk.—By J. W. Holland, M.D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College of Philadelphia. Forty-one illustrations, seventh edition, revised and enlarged. P. Blakiston's Son & Co., Philadelphia, 1904. Price, $1.00 net.

Lectures to General Practitioners on the Diseases of the Stomach and Intestines as well as the Allied and Resultant Conditions with Modern Methods of Diagnosis and Treatment.—By Boardman Reed, M.D., Professor of Diseases of the Gastrointestinal Tract, Hygiene and Climatology in the Department of Medicine of Temple College, Philadelphia; Attending Physician to the Samaritan Hospital. Illustrated. E. B. Treat & Co., New York. Price, $5.00.

Yearbook of the Medical Association of the Greater City of New York.—P. Brynberg Porter, A.M., M.D., Editor. June, 1904.

Regional Minor Surgery.—By George Gray Van Schaick, Consulting Surgeon to French Hospital, N. Y. Second edition, enlarged and revised, 228 pages, bound in cloth, profusely illustrated. Price, $1.50. International Journal of Surgery Company, N. Y.

Suppression of Tuberculosis: Together with Observations Concerning Phthisiogenesis in Man and Animals and Suggestions Concerning the Hygiene of Cow Stables and the Production of Milk for Infant Feeding, with Special Reference to Tuberculosis.—By Professor E. von Behring, University of Marburg. Authorized Translation by Charles Bolduan, M.D. John Wiley & Sons, New York, 1904. Cloth, $1.00.

Progressive Medicine, Vol. III, September, 1904: A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 284 pages, 19 illustrations. Per annum, in four cloth-bound volumes, $9.00; in paper binding, $6.00, carriage paid to any address. Lea Brothers & Co., Philadelphia and New York.

AMERICAN NEWS AND NOTES

GENERAL.

The American Academy of Ophthalmology and Otolaryngology will hold its next meeting in Buffalo during the days of August 23, 24, and 25, 1905. President, H. W. Loeb, St. Louis, Mo.; secretary, George F. Suker, Akron, Ohio.

Papers to be Read at the Meeting of the Pan-American Congress, January 2 to 6, 1905.—Physicians desiring to contribute papers upon Internal Medicine at the next meeting of the Pan-American Medical Congress, which meets at Panama, January 2 to 6, 1905, will kindly send titles at their earliest convenience to the Secretary of the Section on Medicine, Dr. Judson Daland, 317 South Eighteenth Street, Philadelphia, Penna.

Miscellaneous.—Philadelphia: George H. Monks, assistant visiting surgeon of the Boston City Hospital, delivered the Mütter Lecture on Surgical Pathology at the College of Physicians, Philadelphia, on the evening of December 2. Subject: "Studies in the Surgical Anatomy of the Small Intestine and Its Mesentery."—With the issue of January 1, 1905, the *Journal of Obstetrics, Gynecology and Pedology* (homeopathic) will be known as the *Journal of Surgery, Obstetrics and Gynecology.*

Would Reinstate the Army Canteen.—Through the efforts of the Woman's Army and Navy League the sentiment in favor of the army canteen, which was abolished by act of Congress, February 2, 1901, is about to crystallize into a practical endeavor to secure the reestablishment of this adjunct to the army post. The canteen was abolished against the earnest advice of all the prominent officers of the army through efforts of the Woman's Christian Temperance Union, who objected to the post exchange, because in it beer was sold to the soldiers. It is thought to be fitting that the first organized effort to restore the canteen should originate with a body of women whose sole object is the welfare of the soldiers and sailors. At the last meeting of the League in Washington, D. C., a resolution was adopted, declaring that, as the canteen was abolished under a misconception of facts and that a three-year test has proved the law a failure, it should be restored to the place it held prior to February 3, 1901.

Unsanitary Conditions at Cienfuegos.—Recent news from Washington states that reports from various Cuban cities recently received indicate that the sanitary conditions of the island are far from satisfactory, and that the precautions adopted under American occupation for the prevention of disease in many instances, especially at Santiago, have fallen into disuse. Acting Assistant Surgeon McMahon, of the Marine-Hospital Service, has submitted the following report, showing the conditions now existing in Cienfuegos: There is practically no sewerage system in the city. The streets in the business section are kept fairly clean by daily sweeping. In the residence section, especially near the bay front, the streets are not kept at all clean, fruit and food refuse being allowed to remain in them all the time. The houses of the poorer people—who are three-fourths of the population—are positively filthy from accumulation of ordinary house refuse. There are very few flush water closets and none that connect with sewers. Nearly all are surface closets in the houses of the poorer class, and these are seldom cleaned. The better classes of houses have cesspools. These have not been cleaned for four years. The drinking water of the city is of poor quality and not in nearly sufficient quantity, the water pipes being open only from one to two hours in the day. To sum up, Cienfuegos is in a very unsanitary condition from every point of view.

Dr. Ross and the Warfare against Mosquitos.—Major Ronald Ross, who has been visiting Dr. Osler, in Baltimore, has left for Panama to witness the efforts that will be made there by Colonel Gorgas to put in a sanitary condition the whole line of the canal before the actual work of digging begins in earnest. Heretofore work on the canal has been seriously interfered with by the diseases which affect the workmen in that section. It is proposed to destroy the breeding places of mosquitos and to institute good drainage and in that way remove the deadly pests. Colonel Gorgas had charge of the sanitation of Havana, where his efforts were attended by splendid success, the yellow fever having entirely disappeared from that city. Dr. Ross said: "Oil upon stagnant pools and ponds has been found very effective in killing the mosquito, and this method was first worked by the American people. The relation between mosquitos and malarial diseases has been scientifically established beyond all doubt, for the parasites of these diseases are found in mosquitos. This discovery was made five years ago. Since then it has been found that yellow fever is carried in the same way. In England we don't have any mosquitos and are therefore relieved from this peril. We find difficulty in getting the public authorities to take the matter up, but we are hammering at it as hard as we can. We hope to see the time when as soon as one finds a mosquito in one's house it would only be necessary to notify a health officer, who would immediately look for breeding places, which are usually found very near the houses." Dr. Ross has made practical application of his methods at Freetown, on the west coast of Africa, Hongkong, and Ismailia, on the Suez canal. This place was a perfect hotbed of malaria, 2,000 cases being reported every year. After a few months the malarial cases fell from 2,000 to 200, and most of these were old cases. The initial cost was about £4,300, and current expenses aggregated about £600.

EASTERN STATES.

Year's Work of Floating Hospital.—At the annual meeting of the Boston Floating Hospital, November 22, Dr. Robert W. Hastings, resident physician, reported that during the season, July 6 to September 15, 290 patients were cared for in the permanent wards, an average of 13⅓ days each. On 54 days trips were made with day patients, of whom 652 individuals made 2,484 trips, or an average of 46 on each trip. This is a considerable advance over the work done in previous years. Among the permanent patients, 133 were 6 months old; 97, 6 to 12 months; 46, 1 to 2 years; 11, 2 to 3 years; and 3, 3 to 5 years; 122 were discharged well, 66 relieved, 13 unrelieved, 88 dead, and 1 untreated. Of the 88 who died, 24 were moribund at entrance and survived less than 48 hours, and 279 patients were refused, mostly for lack of room. Urgent efforts are now being made, with good prospects of success, to provide a new and larger boat for next season, which shall have beds for 100 patients instead of the present number, 57, which is inadequate.

NEW YORK.

Personal.—Dr. Frederick Holme Wiggin has been appointed a delegate to represent the New York State Medical Association at the coming meeting of the Pan-American Congress, to be held at Panama, January 2 to 6.

Tuberculosis in Cattle.—The farmers of Stockhold and Hopkinton are exercised over the action of the State Veterinary Surgeon, who has, it is asserted, found tuberculosis very prevalent among the cows on the dairy farms in that vicinity. In one dairy, out of 27 head of milch cows tested, it was claimed that 18 had tuberculosis; on another farm, out of a total of 18 examinations, 15 were tuberculous; on still another, out of 59 head of cattle tested, 51 were claimed to have the disease.

PHILADELPHIA, PENNSYLVANIA, ETC.

Smallpox under Control in Pennsylvania.—Officials of the State Board of Health state that reports from the medical inspectors in York county show that in the townships surrounding the city of York there are from 50 to 75 cases of smallpox. Two or three cases also have occurred in York. Morris Run and York county are now the chief centers of the disease, which takes a mild form, and in other parts of the State it is appearing only sporadically. Wherever it has appeared, the officials say, medical inspectors are at work superintending quarantining, vaccination, disinfection, and other precautionary measures that may safeguard the community from the possible spread of the disease.

Entomologist's Report Concerning Mosquitos.—The mosquito problem is the subject of a report to be handed to Governor Murphy by John R. Smith, State Entomologist. The report explains the character and habits of mosquitos, and goes into detail concerning the breeding, migration and other important events in mosquito life. One important point made is that the breeding places of the insect are not widely scattered, as has long been supposed, but are massed, so that work in one locality will often produce results for miles around. It is contended in the report that little fish, commonly known as minnows, are nature's most effective check against the mosquito hordes. In dealing with artificial methods of control, it is shown that draining and filling of marshes are the most effective. The report devotes considerable space to the usefulness of repellants, of oils and other materials used to destroy the mosquito in the early stages or the adult stages of his life. It is shown that much progress has been made, and at little expense, in mastering the mosquito problem. The work of extermination is to be continued ruthlessly in the future.

In Honor of Dr. Chapin.—On December 1, a dinner was given at the Bellevue-Stratford by admiring physicians, friends of Dr. John B. Chapin, it being the fiftieth anniversary since the beginning of his work among the insane. A feature of the evening was the presentation to Dr. Chapin of a large oil painting of himself by Miss Carol H. Beck. Commenting editorially on the event, the Philadelphia *Press* says in part: It is now 50 years since Dr. Chapin began his work among the insane. A graduate of Williams College, he was but a year out of Jefferson Medical College when he entered the New York Hospital for the Insane, a vast building, constructed on the magnificent scale of the past. While the erection of like colossal piles wasting public money was in full progress, and the insane in every State were losing their opportunities of cure because of a mistaken policy in housing and caring for them, Dr. Chapin at the very opening of his professional career joined issue with the system and began the revolution which has changed the entire treatment and housing of the deranged. It has substituted separate small buildings for the large, palatial structures once built. This treatment substituted the hospital for the asylum and the cottage for the great dormitory. It brought greater comfort for the chronic and a greater percentage of cures for the curable. In this advance, which he began almost alone, nearly 40 years ago, Dr. Chapin has steadily led, and the work which he has done in this city, at the head of one of its most important institutions, is one of the many claims of Philadelphia to be the center of the medical advance.

SOUTHERN STATES.

Maryland Society to Combat Tuberculosis.—McCoy Hall, Johns Hopkins University, will be the scene of a gathering on Tuesday, December 13, when the Maryland Society for the Prevention of Tuberculosis will be organized. The new society was recommended at a meeting of prominent citizens held recently under the auspices of the Maryland Tuberculosis Commission, and is indirectly a result of the tuberculosis exposition held in McCoy Hall last winter. Dr. William Osler will preside at the meeting, and addresses will be made by Dr. E. O. Otis, president of the Boston Society for the Relief and Control of Tuberculosis; Dr. William H. Welch and Dr. W. S. Thayer, both of Johns Hopkins University, and recognized authorities on the subject of pulmonary tuberculosis, as well as indefatigable workers for the control of the disease in that State.

WESTERN STATES

Insane Hospital Conditions in Indiana.—A legislator in Indiana, and a member of the committee appointed by the Governor to visit the State institutions and report to the Legislature, is reported as having said: The conditions are most revolting. There are over 2,000 insane and epileptic patients in the Central Hospital for the Insane, and this is 200 more than the institution is able to care for. There are 900 in the Eastern Hospital, 1,000 in the Northern Hospital and 1,500 in the Evansville Hospital, while at the Feeble Minded Institute at Ft. Wayne, the daily average for the year is 918. All the State institutions are inadequate, for we find over 600 epileptic patients, many of them doomed to a life of torture.

Resolution Adopted by the Illinois State Board of Health on October 22, 1904.—*Resolved*, That all persons desiring to practise medicine and surgery in the State of Illinois, shall, in addition to other requirements imposed, be required to pass a written examination, consisting of 100 questions, in the following subjects: Anatomy, including histology and embryology, 10 questions; general surgery, 10 questions; materia medica and therapeutics, 10 questions; medicine, 10 questions; obstetrics, 10 questions; pathology and bacteriology, 10 questions; chemistry, 5 questions; etiology and hygiene, 5 questions; physiology, 7 questions; neurology, 3 questions; gynecology, 6 questions; laryngology and rhinology, 2 questions; medical jurisprudence, 2 questions; physical diagnosis, 5 questions; ophthalmology and otology, 3 questions; pediatrics, 2 questions; and be it further resolved, that an average percentage of at least 75 of correct answers shall be required from each candidate. A similar schedule of questions for examination was unanimously adopted by the American Confederation of Reciprocating Examining and Licensing Medical Boards at its meeting in St. Louis, on October 25, on the recommendation of the committee appointed at a previous meeting to decide on uniformity as to scope and character of examinations by State Medical Boards.

FOREIGN NEWS AND NOTES

GENERAL.

Bubonic Plague in Chile.—News from Lima, Peru, under date of November 26, states that while the prevalence of bubonic plague has not been officially declared in Chile, it is stated that there are cases that the Chilean Government daily conceals in order that steamers may not omit touching at ports at which there are no sanitary regulations. This alleged action is considered a great peril to the Peruvian coast, Panama, and the entire country bordering on the South Pacific Ocean.

Prevalence of Smallpox in Shanghai.—Public Health and Marine-Hospital reports states that smallpox is always more or less prevalent among the natives, who seem to have but little fear of it, and hence take few precautions toward limiting its spread. An attempt is made, in the case of infants, to secure artificial immunity to the disease by inoculation through the nasal passages by means of pulverized scabs from smallpox patients, used as a snuff, and retained by cotton plugs. This, of course, when successful, as it is in a large majority of cases, causes an attack of true variola, of varying degrees of severity, and thus is a natural menace to any unprotected contacts. It is not a very unusual sight to see upon the highways infants in arms with a well-developed smallpox eruption, the result of this treatment. The mortality is said to range between 20% and 35%. The scabs are collected from those who, having been inoculated, contract a mild, discrete form of the disease, and are dried and stored away for about a year. The inoculations are done almost altogether in the spring, the victims thus having the advantage of good weather for open-air treatment. In Shanghai proper, especially among the enlightened natives, inoculation is being superseded in a measure by vaccination, there being a free vaccination institution in the native city, endowed by a mandarin, where children are taken during the spring months to be operated upon. Free vaccination is also offered to the Chinese by the Shanghai Municipal Health Department. It was at first received with some favor, 500 or more children being submitted for treatment, but the report got abroad in some way that the patients' eyes were being gouged out for medicinal use by the foreigners, since when no children have been brought in.

OBITUARIES.

Herbert William Allingham, F. R. C. S., aged 42, November 4, at his home in London. Mr. Allingham was one of the most prominent of the younger surgeons in England and had been for many years a leading authority in England on diseases of the rectum, and his writings on this special subject have been quoted extensively. He was made a member of the Royal College of Surgeons in 1887; in the same year was appointed surgeon to the great Northern Hospital; was made demonstrator of anatomy in St. George's Hospital; was later appointed surgeon to the St. Mark's Hospital, in which his father had worked and made a brilliant reputation. In 1894 he was made assistant surgeon to St. George's Hospital. He edited the later edition of his father's work on diseases of the rectum and wrote a book on operative surgery. He contributed an article on the diagnosis of diseases of the rectum to "Allbutt's System of Medicine." In 1902 he was appointed surgeon-in-ordinary to the Prince of Wales, and surgeon to the King's Household.

Phoebe A. Sprague, aged 56, formerly of Springfield, Mass., November 28, at Albion, N. Y., where she had been living for the past three years. She was a graduate of the Woman's Medical College of Chicago, now a part of the Northwestern University, but had spent almost her entire professional life in Springfield, Mass., where she had a large practice. She was a member of the Massachusetts State Medical Society and the New England Hospital Medical Society.

Nelson A. North, aged 74, November 23, at his home in Brooklyn, from pulmonary hemorrhage; a graduate of the College of Physicians and Surgeons, New York City, in 1854; member of the American Medical Association; of the New York State Medical Society; the New York Academy of Medicine; physician and consulting surgeon to the Methodist Episcopal Hospital and the Williamsburg Dispensary.

William F. Cushman, aged 66, formerly of New York City, December 1, at his home in Ridgefield, Conn., from apoplexy. He was a graduate of the Columbia College and from the College of Physicians and Surgeons, New York City, and was for many years treasurer of the New York Academy of Medicine.

Robert K. Carter, aged 66, formerly of Stephens City, Va., December 2, in New York City, after an illness of two months, from Bright's disease. He was a graduate of the University of Virginia and Jefferson Medical College, Philadelphia. During the war he was in charge of many Confederate hospitals.

Driesbach Smith, aged 42, November 15, from disease of the spinal cord, at the Marine Hospital, San Francisco; a graduate of Cooper Medical College, San Francisco, in 1885, and professor of nervous diseases in that institution. He was formerly assistant physician at the Napolis State Hospital.

D. Bird Miller, aged 54, November 11, at his home in Columbia, S. C.; a graduate of Bellevue Hospital Medical College, New York, in 1874. He was formerly county physician of Richland county, S. C., and assistant superintendent of the State Asylum for the Insane at Columbia.

Jacob P. Bixler, aged 65, November 3, at his home in Carlisle, Pa.; a graduate of Jefferson Medical College in 1866. He had retired from practice before the stroke of paralysis which ended his life. He was a member of the State and county medical societies.

Daniel Fordyce Randall, aged 96, November 7, from heart disease, at the home of his daughter in North Hillsdale, N. Y.; a graduate of the Vermont Medical College, Woodstock, and for many years a practitioner of Chesterfield, N. H.

Leonard F. Pitkin, aged 46, December 1, at his home in New York City. He was a graduate of the medical department of New York University in 1879. He was a surgeon to the Interborough Company, and had an extensive practice.

Henry C. Comegys, one of the oldest physicians of Scranton, Pa., November 29, at his home in Scranton. He was a native of Greensboro, Md., and was graduated from the University of Maryland, School of Medicine, in 1854.

Charles V. Mottram, aged 85, November 6, in the Northern Michigan Asylum, Traverse City; a graduate of the Indiana Medical College, La Porte, in 1847; he was a surgeon in the Federal service during the Civil war.

Richard H. Merserve, aged 85, November 11, in Augusta, Me. He formerly practised in Limerick, Me., but retired some two years ago; a graduate of the Medical School of Maine, at Bowdoin College, Brunswick, in 1853.

Elbert Mortimer Somers, aged 79, recently, at his home in Deansboro, N. Y.; a graduate of the College of Physicians and Surgeons, New York City, in 1858; surgeon in the Federal service during the Civil war.

William H. Hill, November 27, at his home in Sylvarena, Miss.; a graduate of Tulane University, medical department, New Orleans, La., in 1859. He was county health physician of Smith county, Miss.

Orrison B. Damon, aged 67, November 18, from apoplexy, at his home in Normal, Ill.; a graduate of Ann Arbor University Medical College in 1866. He was for many years a resident of Chicago.

Joseph Hume Taylor, aged 53, November 24, from general tuberculosis, at his home in Lapeer, Mich.; a graduate of the University of Michigan, medical department, Ann Arbor, in 1876.

William J. Tripp, aged 60, November 22, at his home in New York City; a graduate of the Eclectic School of Medicine, New York City, and well known as a specialist in nervous diseases.

Daniel P. Putnam, aged 82, November 4, from cerebral hemorrhage, at his home in Cleveland, Ohio; a graduate of the College of Physicians and Surgeons, New York, in 1850.

Robert Morris, aged 94, November 14, at his home in Ogdensburg, N. Y.; a graduate of Albany (N. Y.) Medical College in 1846; surgeon in the Federal service during the Civil war.

John W. Thomas, aged 68, November 10, at his home in Charleston, S. C.; a graduate of the medical department of the University of Pennsylvania, Philadelphia.

T. F. Gilliam, aged 75, November 28, at his home in Arlington, Va. He was one of the oldest and most highly esteemed physicians in the community.

James A. Bond, aged 48, November 19, from tuberculosis, in Craig, Mo.; a graduate of the University of Louisville, medical department, in 1881.

Lewis W. Sutherland, of Pittsburg, November 12, at South Side Hospital, Pittsburg; a graduate of Albany (N. Y.) Medical College in 1855.

Plate N. White, aged 45, November 10, at his home in Los Angeles; a graduate of the Medical College of Ohio, Cincinnati, in 1882.

Daniel F. Burton, November 17, at his home in Galesboro, from peritonitis; a graduate of Rush Medical College in 1878.

William Chilton, aged 84, December 2, at his home in Hempstead, Tex. He was for many years a leading practitioner.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 2, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
District of Columbia:	Washington	Nov. 13-26	[illegible]	
Illinois:	Chicago	Nov. 20-26	14	
Louisiana:	New Orleans	Nov. 20-26	4 Imported	
Michigan:	Bay City	Oct. 1-31		1
	Calhoun County	Oct. 1-31		1
	Detroit	Nov. 20-26	1	
	At 62 places	Nov. 20-26	Present	
Missouri:	St. Louis	Nov. 20-26	16	3
New Jersey:	Camden	Nov. 20-26	1	
New York:	New York	Nov. 20-26	3	
Ohio:	Cincinnati	Nov. 4-25	3	1
	Toledo	Nov. 20-26	3	
Pennsylvania:	Johnstown	Nov. 20-26	3	
	Philadelphia	Nov. 19-25	2	
	Steelton	Nov. 20-26	2	
	Williamsport	Nov. 20-26	1	
South Dakota:	Sioux Falls	Nov. 13-19	[illegible]	
Utah:	Seven localities not named	Oct. 1-31	103	
	SMALLPOX—FOREIGN.			
Austria-Hungary:	Prague	Oct. 30-Nov. 12	31	
Brazil:	Rio de Janeiro	Oct. 24-Nov. 6	427	175
Cuba:	Sagua la Grande	Nov. 13-19	1	
Ecuador:	Guayaquil	Nov. 3-9	Present	
France:	Lyons	Oct. 30-Nov. 5	5	
	Paris	Nov. 6-12	12	1
Great Britain:	Bristol	Nov. 13-19	1	
	Dundee	Oct. 30-Nov. 5	1	
	Leeds	Nov. 7-19	3	1
	Manchester	Nov. 6-12	7	
	Newcastle-on-Tyne	Nov. 6-12	6	
India:	Bombay	Oct. 26-Nov. 1	1	
Italy:	Catania	Nov. 11-17		4
	Palermo	Oct. 23-29	6	1
Russia:	Moscow	Oct. 23-Nov. 5	8	3
	St. Petersburg	Oct. 23-Nov. 5	11	4
	Warsaw	Oct. 2-15		24
Spain:	Barcelona	Nov. 1-10		13
Turkey:	Beirut	Oct. 29-Nov. 5	Present	
	Constantinople	Nov. 7-13		15
	YELLOW FEVER.			
Brazil:	Rio de Janeiro	Oct. 31-Nov. 6	2	2
Mexico:	Coatzacoalcos	Nov. 13-19	1	4
	Merida	Nov. 13-19	1	1
	Texistepec	Nov. 13-19	30	3
	Vera Cruz	Nov. 13-19	3	1
Panama:	Colon	Nov. 20	1	
Venezuela:	Laguaira	Nov. 12	Present	
	CHOLERA.			
India:	Bombay	Oct. 26-Nov. 1		1
	Calcutta	Oct. 23-29		8
Russian Empire:	Baku	Oct. 19-25	26	9
	Kilsit-Arwat	Oct. 17-24	1	
	Merv	Oct. 17-24	1	
	Serachs	Oct. 17-24	1	
	PLAGUE.			
Brazil:	Rio de Janeiro	Oct. 23-Nov. 6	62	28
British South Africa:	Durban	Oct. 1	1	
Egypt:	Alexandria	Oct. 22-28		1
Formosa:	Taihoku	Sept. 3-10	1	1
India:	Bombay	Oct. 26-Nov. 1		60
	Calcutta.	Oct. 23-29		4
	Karachi	Oct. 17-23	9	8

Changes in the Medical Corps of the U. S. Army for the week ended December 3, 1904:

SMITH, RODNEY D., contract surgeon, is relieved from duty at Fort William H. Seward, Alaska, and will proceed to Fort Columbia, Wash., for duty.

KIERSTED, First Lieutenant HENRY S., assistant surgeon, is granted leave for one month.

MEARNS, Major EDGAR A., is granted leave for one month, upon surgeon's certificate, with permission to apply for an extension of one month.

BROOKS, JOHN D., contract surgeon, is granted leave for one month and fifteen days, from about December 5.

THORP, CHARLES W., contract surgeon, now at Marcellus, Mich., will proceed to Fort Ethan Allen for duty.

OLIVER, ROBERT T., examining and supervising dental surgeon, now at San Francisco, Cal., will proceed to West Point, N. Y., and report at the United States Military Academy for duty, to relieve Examining and Supervising Dental Surgeon John H. Hess, who will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on the transport to sail from San Francisco about January 1.

WYTHE, STEPHEN, surgeon, leave granted September 24 is extended one month.

DUNCAN, First Lieutenant LOUIS C., assistant surgeon, is relieved from duty at Malahi Island, Laguna de Bay, and will proceed to Polo, Bulacan, and report to First Lieutenant Moses T. Barlow, Philippine scouts, for detached service at Macabebe, Pampanga, as examiner of recruits enlisted at that place.

Changes in the Medical Corps of the U. S. Navy for the week ended December 3, 1904.

IDEN, J. H., passed assistant surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Naval Hospital, Newport, R. I.—November 26.

DUNN, H. A., assistant surgeon, detached from the Naval Hospital, Newport, R. I., and ordered to the Naval Hospital, New York, N. Y.—November 26.

ALFRED, A. R., surgeon, detached from the Navy Yard, Puget Sound, Wash., December 9, and ordered to the Naval Station, Cavite, P. I., reporting on the Solace December 14, for duty en route—November 29.

CARPENTER, D. N., surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to duty in charge of the Naval Hospital, and to additional duty at the Navy Yard, Puget Sound, Washington—November 29.

BENTON, F. L., passed assistant surgeon, detached from the Naval Station, Cavite, P. I., and ordered home to wait orders—November 29.

MANCHESTER, J. D., assistant surgeon, detached from the Columbia, and ordered to the Marblehead—November 29.

FAUNTLEROY, A. M., passed assistant surgeon, detached from the Lancaster, and ordered to the Navy Yard, Norfolk, Va., December 6, and thence to accompany a draft of men to the Navy Yard, Mare Island, Cal., thence to the Philadelphia, with additional duty at the Navy Yard, Puget Sound, Washington—December 1.

STEPP, JACOB, assistant surgeon, orders of November 5, modified, detached from Navy Yard, Boston, Mass., and ordered home to wait orders—December 1.

DEVALIN, H., acting assistant surgeon, ordered to the Naval Proving Grounds, Indian Head, Md., November 30 (orders issued by Commander-in Chief, Asiatic Fleet)—December 1.

BUCHER, W. H., surgeon, detached from Naval Station, Olongapo, P. I., and ordered to the Cincinnati—December 1.

VON WEDEKIND, L. L., surgeon, detached from the Cincinnati and ordered home—December 1.

Changes in the Public Health and Marine-Hospital Service for the week ended November 30, 1904:

CARTER, H. R., surgeon, relieved from duty at Baltimore, Maryland—November 28, 1904.

MCINTOSH, W. P., surgeon, bureau letter of October 24, 1904, granting Surgeon McIntosh leave of absence for twenty-five days from November 8, 1904, amended to read eighteen days—November 30, 1904.

GRUBBS, S. B., passed assistant surgeon, granted leave of absence for twenty-one days from December 18—November 30, 1904.

COLLINS, G. L., assistant surgeon, granted leave of absence for five days from November 16, 1904, under paragraph 191 of the regulations.

HUNTER, W. R., acting assistant surgeon, granted leave of absence for fourteen days from November 25—November 26, 1904.

SAFFORD, M. V., acting assistant surgeon, granted leave of absence for five days from November 25, 1904, under paragraph 210 of the regulations.

TAPPAN, J. W., acting assistant surgeon, granted leave of absence for twenty-three days from October 24, 1904, on account of sickness—November 30, 1904.

MACDONALD, JEANNETTE, medical inspector, San Francisco Quarantine, granted leave of absence for eighteen days from December 10—November 26, 1904.

HANRATH, F. R., pharmacist, granted leave of absence for twenty-seven days from October 25, 1904—November 25, 1904.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

LIFE INSURANCE EXAMINERS.

To the Editor of American Medicine:—Anent your note of September 3 and "Inquirendo's" letter in your issue of October 1, both concerning life insurance work, a few additional remarks appear pertinent.

Life insurance companies are like men, because they are controlled by mere men. Therefore, it is easy to see that some are better than others. Because 50,000 arrests are made in a year by the police of a great city, that fact would be somewhat insufficient ground for the conclusion that all the inhabitants of that city are criminals. Just so the fact that *some* life insurance companies "tacitly instruct a certain winking at the less perfect risk" is an extremely unsafe ground from which to conclude that all life insurance companies follow the same practice. As a matter of fact, the selection of lives by some of our American companies is in the hands of as high-minded physicians as it is possible to imagine.

I wish to show the reverse of the picture recently thus presented in your columns, and I will cite from the experience of a company whose medical service is above reproach.

A few months ago this company had the following experience: In an interior city of good size, a man applied for $50,000 of insurance, an amount requiring two examinations, to be made separately by two examiners at different times. They were duly made, and the applicant was reported to the company as in every respect a safe risk. The policy was issued and duly delivered to the man. The insured, however, was honest, and he wrote the officers of the company that for several years he had been a sufferer from pulmonary tuberculosis, that he did not see how he could have passed an examination, and that he felt it dishonest to retain the policy! There was consternation at headquarters, and the company's third examiner in the town was ordered to examine the man, and he, too, found nothing the matter. The case was so puzzling that the medical director himself went out personally to unravel the seemingly impossible circumstances. Two of the examiners consented to be present (the third lacked courage, as well as honesty) when the medical director examined the policy holder who said he was not entitled to the insurance. Perfectly plain signs of pulmonary tuberculosis were readily found, and finally the fact came to light that all three of the physicians had agreed to accept a goodly sum of cash from the agent for their favorable reports! The circumstance is almost incredible, but the company's records contain unquestionable documentary evidence of the whole affair. Unfortunately, also, they contain literally hundreds of more or less similar cases, in which the examining physician for a little money sold his professional honor, and betrayed the company that paid him $5 for an honest report. In one instance an Ohio physician was proved to have written complete reports upon applicants living in distant towns whom he had never seen, accepting the agent's description. In this way he succeeded in putting on the company's books a great many bad risks, and in defrauding the company of large sums of money.

Have the medical officers of the company therefore concluded that all physicians, in their insurance work, "tacitly (practise) a certain winking at the less perfect risk?" On the contrary, they simply discontinue quietly and without notoriety every examiner who betrays his trust, and exercise every possible expedient to secure as examiners only honest physicians. AN INSURANCE PHYSICIAN.

To the Editor of American Medicine:—"Inquirendo's" remarks[1] are not fair and just to many examiners for life insurance companies with whom I am personally acquainted. Why should he confine his remarks to old line companies, and not include fraternal orders?

Personally, as an examiner for the past 16 years in old line and fraternal insurance companies, I have never experienced such laxity in the main office as he charges. Why not furnish the names of companies encouraging such lax examinations, and not incriminate companies doing a legitimate business who demand strict examinations? As medical examiner for an insurance company for seven years, I have made a great number of examinations, and none but the best risks were accepted. A careless examiner is soon dismissed from this company's employ; and very often this company requires a second examination to be made by another examiner, and especially when a policy reaches the $10,000 mark. The company, to secure good risks, instructs its agents what risks are not to be written up. It is also a rule that applicants must be examined by the regularly appointed examiner of the company, unless he is not available and the examination is urgent. The reason for this is obvious. No company would grant a policy to an applicant having tuberculosis, or having expressed intentions to commit suicide.

Bradford, Pa. J. W. KING, M.D.

To the Editor of American Medicine:—Inquirendo, page 585, October 1, has evidently had practical experience with the methods now in vogue by the old line insurance companies to increase the amount of insurance written year by year. A great deal has been written during the past few years concerning the subject of the special instruction of life insurance examiners, viz., every medical college should carefully instruct their students in this subject. The subject was discussed in such a manner that many members of the profession really thought that the old line insurance companies were looking for examiners who could, and would, do careful and conscientious work—that is, that they were seeking capable men, well versed in modern methods of physical examination, urinary analysis, and the first or primary indications of disease. Based upon this assumption, Dr. George Wells published a journal devoted to the interests of the life insurance examiner, assuming that the instruction which his journal would impart to the general practitioner who acted as life insurance examiner, would also benefit the life insurance companies.

The new journal was endorsed by the medical directors of many, if not all of the old line insurance companies. These men wrote lengthy articles on "How to Examine for Life Insurance," considering very abstruse points of physical diagnosis, and pathologic anatomy. In the light of practical experience, these very wise literary productions must be taken, *cum magna grano salis*, also the "instructions" (?) handed the examiner as a guide in making examinations.

The old line companies are not seeking for careful, competent examiners; neither is the agent. The company consults the wishes of the agent with regard to the appointment of examiner in his (the agent's) territory. The agent is going to employ the examiner who approves the business. The medical examiner at the home office must accept the business, or the directors of the company will supersede him. The old line companies are competing with one another to see which will write the most business. In the course of time, with such an aggregate of poor risks, what is to become of the policy holders? VERITAS.

A SIMPLE AND EFFICIENT METHOD OF PREPARING CATGUT.

BY

EDWARD COX MANN, M.D.,

of Buffalo, N. Y.

In the *Journal of the American Medical Association* for March 28, 1903, Dr. Nicholas Senn, of Chicago, suggested a method for the preparation and sterilization of catgut by soaking it in a watery solution of iodin and potassium iodid. After testing this method several times, I was not able to obtain catgut of sufficient strength to be useful, and while trying several other ways to obtain good results with less trouble than most of the ordinary methods entail, I came to the conclusion that as water weakens the gut, and this applies to the ordinary grades of alcohol as well (due to the water in it), that an etherile solution of iodin would give the result hoped for.

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[1] *American Medicine*, October 1, 1904.

In the experiments a 10% solution of iodin scales in ether was used. Catgut of several grades was left in the solution one week and when removed the strength was unimpaired, or nearly so: that is, it was impossible to break a piece of No. 4, by an ordinary pull.

A piece of No. 6 soaked in this solution one week is sterile, no growths being obtained from pieces from which iodin had been removed. My method for testing was as follows: Small pieces of raw catgut without previous preparation were infected with various organisms and then placed in the solution. They were removed at the end of a week and teased apart in a solution of potassium iodid and water, which removed the iodin. They were then washed in sterile water and dropped in culture tubes of bouillon, and in no case did any growths appear.

In detail, the method which has been most satisfactory is to roll the gut loosely on glass spools, drop them in air-tight glass jars containing the solution and in seven days remove and rinse in ether, to remove the excess of iodin. Then place in sterile glass jars, to be used dry as needed. Another method of preserving is in absolute alcohol. Catgut prepared by this method does not swell; it is absorbed in about the same time as that prepared by the ordinary method. It is strong, flexible, easily handled, and contains enough iodin to help in the sterilization of the area through which it passes. The process is economical, as pieces cut but not used can be resterilized so easily, and cheaper grades will give just as good results.

I have used this gut in a number of operations and Dr. M. D. Mann has used it in all his private work and in his ward work at the Buffalo General Hospital for over a year, and he has had only the best results. It has also been used in some other hospitals in the neighborhood, and has given great satisfaction.

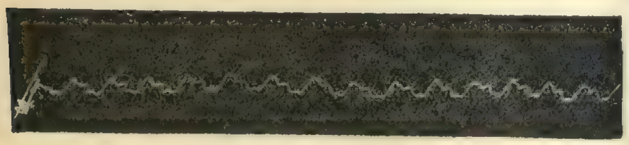
SPHYGMOGRAPHY OF THE ABDOMINAL AORTA.

BY

ALBERT ABRAMS, A.M., M.D.,

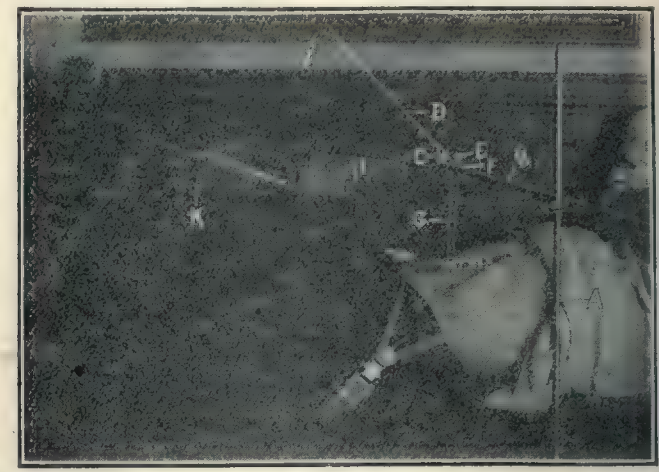
of San Francisco, Cal.

Recent reference to arteriosclerosis in the splanchnic area emphasizes two facts: Its relative frequency and the difficulties associated with its diagnosis. It is therefore imperative that we should recognize, at least tentatively, any method which suggests aid in the diagnosis of abdominal arteriosclerosis. To my knowledge reference to sphygmography of the abdominal aorta is not recorded in medical literature. The sphygmogram of the average arteriosclerotic artery shows a pulse wave of good amplitude, slow ascent and descent, and blunt summit. Like the senile pulse, it shows loss of general elasticity. To obtain tracings of the abdominal aorta the patient must rest quietly in the recumbent posture. One may observe after forcible expiration, with breathing suspended, visible aortic pulsations, which are likewise palpable. To record these pulsations, which is only possible during the time breathing is inhibited and after forced expiration, I employ the following simple mechanical apparatus, although with a receiving and recording tambour it is likely that records could be obtained more conveniently:



Tracing abdominal aorta—September 2, 1904.

To a stand (A), an adjustable rod (B) is attached; to the latter is clamped a support (C) for the lever; the lever (D) is 31 cm. in length and is so fixed in the support that it is movable freely up and down; the long arm of the lever (D) extends 28 cm. from the fulcrum, the short arm (E) 3 cm. To the short arm of the lever is attached a perforated piece of metal (F) with thumb screw, which permits of the insertion of a piece of string (G), to the lower end of which is attached a small coin (H) perforated in the center. To the long arm of the lever is affixed a bent piece of wire (I), which is smooth at the extremity and used for recording purposes. For recording purposes I use a Marey sphygmograph (J), *i. e.*, the recording part of the instrument, which is held in an adjustable support (K). The coin is first attached to the skin of the abdomen by means of adhesive plaster over the course of the aorta and the length of the string adjusted until the best movements are obtained in the long arm of the lever during the time breathing is suspended. After a few minutes' practice the patient can, as a rule, suspend breathing long enough for the operator to obtain an excellent sphygmogram.



The accompanying tracing is an average one of the kind of the aorta obtained by the foregoing maneuver. It differs from the radial tracing in the slanting anacrotic limb, in the exaggerated predicrotic and dicrotic waves, and in the oscillations of the katacrotic limb. I am now employed in studying tracings obtained from the pulmonary artery and aorta (thoracic) after the same method. Aside from the possibilities which this method suggests in the diagnosis of abdominal arteriosclerosis, one fact dominates my contribution, viz., that tracings of the abdominal aorta are capable of attainment.

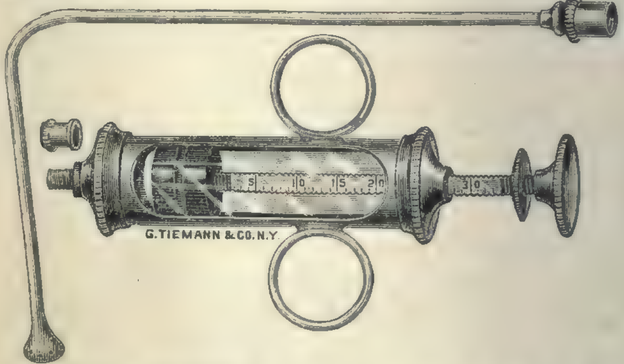
A SYRINGE FOR INTRATRACHEAL INJECTIONS.

BY

SOLOMON SOLIS COHEN, M.D.,

of Philadelphia.

One difficulty in introducing medicaments into the trachea through the larynx is in passing the vocal bands with the ordinary instrument having a round cross-section; another is that the ordinary long curve obscures vision of the end of the instrument in the mirror. To obviate these difficulties I had made some seven years ago by Messrs. Tiemann & Co., of New York, the instrument here figured. The curve is sharp. The expanded end of the barrel is oval in cross-section in both directions, and the transverse diameter is as small as can be used, so that it passes the vocal bands with the minimum of resistance. The lower edge is solid, and the medicament escapes slowly through a number of small lateral perforations; thus ensuring a minimum of irritation and a maximum of distribution. A ring may be substituted for the push-button at the end of the piston for those who prefer that method of control.



Intratracheal medication is of distinct usefulness in many chronic affections of the respiratory tract, and this syringe has for me lessened its difficulties.

ORIGINAL ARTICLES

SOME FUNDAMENTAL PROBLEMS IN OBSTETRICS AND GYNECOLOGY.[1]

BY

J. CLARENCE WEBSTER, M.D.,

of Chicago.

Marked as have been the advances during the modern scientific era in our knowledge of woman in respect to her anatomic and physiologic peculiarities, her special diseases, and the treatment thereof, many problems yet await solution, some of which are chiefly of scientific interest, others of therapeutic importance.

In complying with the request of the organizers of this great congress, I have fully realized the seriousness of the responsibility which I have assumed in restricting myself to the topics which I have selected for your consideration. I have avoided all reference to matters pertaining to the treatment of disease, believing that the presentation of certain fundamental scientific problems would be more in keeping with the aims of this convention. I have also deemed it best to confine myself to a few topics of particular interest or importance, rather than to wander discursively over the entire scientific field open to the gynecologist. Your attention is, therefore, directed to the following subjects:

1. The determination of sex.
2. The structure of the ovary.
3. The functions of the ovary.
4. Antagonism between maternal organism and ovum.
5. Functions of the placenta.

Determination of Sex.—From the time of Hippocrates to the beginning of the eighteenth century about 500 theories relative to the question of sex determination had been advanced. During the last 200 years this number has been considerably increased. At the beginning of the twentieth century, it must be frankly admitted that the problem of sex determination in the higher vertebrates generally, still remains to be solved. The most important observations and experiments bearing on the question have been made during the last 50 years, and from a study of these it would appear that the most exhaustive researches in comparative and experimental embryology and physiology will be necessary before the difficulties of the subject can be elucidated. The data furnished by the study of human beings are scanty and of little value. Most of the statements which have been made are speculative in nature, or of doubtful accuracy. Certain it is also, that all attempts to regulate the production of sex in the human fetus in utero have met with failure.

In many countries the belief has long been current that the sex of the human fetus could be modified during a greater or less period of its uterine life. Now we know that the sex is fixed at least by the beginning of the second month, for at that time the microscope can distinguish ovarian from testicular structure. It is, therefore, scarcely credible that any reversal of sex can be brought about after this period by any conceivable combination of influences. We must, indeed, look to conditions existing during the first month of gestation, or at the time of the meeting of spermatozoa and ovum, or to influences affecting either or both of the latter before conception, in order to find explanation of sex determination in the human embryo. Those who believe that both sperm and ovum share in the production of sex, refer to the various statistics giving the relationship of the parental ages to the sex of the offspring. Hofacker, in 1823, and Sadler, in 1830, independently stated, as the result of an analysis of about 2,000 births, that when the father is the older the offspring are preponderatingly male; while if the parents be of the same age, or if the mother be older, there is a larger percentage of female children. This generalization, termed the law of Hofacker and Sadler, has been the subject of much debate, having been upheld by some and denied by others during the last 70 years.

Those who believe that the influences determining sex belong to the ovum entirely find no evidence to support them from a study of the highest forms of life, though there is strong corroboration from investigations made among lower forms. Thus in cases of parthenogenesis it is evident that the influence of a male paternal element must be entirely eliminated in the determination of sex. B. S. Schultze advanced the view that there are two kinds of ovums, one of which may give rise to males, the other to females, but there has been no proof of such a differentiation in the higher forms of life. In several low organisms, however, it appears that these two varieties (of ovums) exist. Thus Korschelt describes two kinds of ovum in the ovaries of the worm *Dinophilus opatris;* one of large oval shape, developing into females, the other small and round, becoming males.

With regard to the determination of sex by influences brought to bear either upon parents, the sexual elements or embryos, many observations have been made, but trustworthy conclusions may be derived only from the study of comparatively low organisms. The influence of nutrition is thus considered of great importance in determining sex. As illustrations may be noted, the variations in the sex of frogs associated with changes in the nutriment supplied to the young tadpoles. Yung found that when the latter were left to themselves, the percentage of females was slightly in the majority, but when very rich food was supplied, 92 females to 8 males in every hundred were produced. In the case of bees it seems evident that the influence which decides whether the offspring of the fertilized ovums shall become queens or workers is the nature of the food supply. Rich and abundant diet develops queens; plain and scanty food leads to the production of workers in whom reproductive organs are undeveloped. Very interesting observations have been made upon plant lice or *aphides.* In the warm months when food is plenty they reproduce by parthenogenesis, the offspring being entirely female. When colder weather and scantier food appear there is sexual reproduction and an offspring of males. In the artificial life of a well-kept greenhouse, these phases may be repeated at the will of the observer, by varying the nutrition. So far as the temperature is concerned Geddes and Thomson state that experiments point to the conclusion that favorable conditions tend to femaleness and extremes to maleness of offspring. As regards higher forms of life it is impossible to estimate the importance of nutrition, temperature, etc., in the determination of sex, while as regards mammalians this field of injury is as yet entirely speculative.

From what is known of the early embryology of many invertebrates and some of the lower vertebrates, it would appear that their early embryonic life is one of indeterminate character so far as sex is concerned, during which various conditions, *e. g.*, nutriment, temperature, moisture, light, may act so as to produce maleness or femaleness according to their abundance or deficiency. Whereas, in the higher vertebrates, the period of embryonic sexual indeterminateness (if any) is very short and so far as is known no influence can be brought to bear on the ovum which can in any way determine sex. The mammalian ovum developing in the uterus seems to enjoy such a sheltered existence that it is impossible to conceive that changes may be induced in its environment comparable to those which have been experimentally introduced in the study of ovums and embryos of low vertebrate and invertebrate forms of life. Indeed, it would seem that the most satisfactory theory of sex determination in the higher vertebrates is that which supposes the existence of two forms of ovums—one destined to maleness and the other to femaleness, though it is impossible to establish any such differentiation by microscopic study or chemic analysis. The elaborate work of von Lenhossek, recently published, strongly favors this view that sex is fixed in the ovum before the spermatozoon fertilizes it. If such be the case it is quite futile to expect that any alteration may be brought about by dietetic or other influences made to affect the human female either before or during gestation.

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[1] Address before the Gynecologic section of the International Congress of Arts and Science, St. Louis, September 24, 1904.

In this connection it is interesting to refer to the question of the occurrence of true hermaphroditism in the human species. Many hold that this has never been demonstrated. Nagel, for example, states that it probably cannot exist, and holds that the ovary is never found with the testes in cases of socalled hermaphroditism. Recently, however, Sarré has described the case of an individual with the external configuration of a woman, who possessed a well-developed imperforate penis. On making a rectal examination two small bodies, each the size of a pigeon's egg, could be felt in the left half of the pelvis, while in the right inguinal canal an ovoid body was found. An exploratory incision was made over the latter and the swelling removed, along with a smaller mass attached to it. Microscopic examination proved these to be testicular structure and epididymis. Another small mass near the testicle was also examined and found to be ovarian tissue. A fallopian tube and a structure resembling the vas deferens were also present. Sarré believes that, with the exception of another case described by Ziegler, all other records of true human hermaphroditism are very doubtful, though he thinks it has been clearly demonstrated in some lower mammals, *e. g.*, the pig.

The Structure of the Ovary.—In spite of the immense amount of investigation to which this organ has been subjected, many points in its development, normal and pathologic histology, still require elucidation. It is generally agreed that the ovary is developed from epiblast and mesoblast on the inner surface of the Wolffian body. The epiblast, a specialized portion of the celomic lining, very early forms a mass consisting of several layers of cells, the germinal epithelium. In the deepest portions certain of these cells increase in size, giving rise to the primordial ovums. The latter are all formed previous to birth. As the epiblast layer increases in thickness, processes of the underlying mesoblast of the Wolffian body extend outward among the germinal cells, forming a network-like stroma, in the meshes of which lie primordial ovums, frequently surrounded by germ cells. Regarding the formation of the primary follicle, there are differences of opinion. Most believe that the germ cells arrange themselves around the ovum forming the primary follicle, in later life proliferating to form the membrana granulosa. In 1878, Foulis, of Edinburgh, contended that the cells surrounding the primordial ovums are derived from connective tissue, and lately Wendeler and Clark have advocated this view. The latter has pointed out that the cells are usually spindle shaped in the early stages and that frequently primordial ovums are found without any special layer of cells surrounding them. Kölliker stated that the follicular epithelium was derived from Wolffian epithelium, but this view has received little support. Regarding the changes between birth and puberty, we do not possess exact information. It is believed that during this period more than half the primary follicles disappear, though the manner and reason of the disappearance are not clear. The period of puberty is characterized by the development of graafian follicles, which rupture giving rise to the peculiar structure of the corpus luteum. In some cases this phenomenon may be noted months before the external signs of puberty are detected and occasionally years previously. The explanation of these variations is not known. Some degree of development of the ovum seems to be a normal occurrence in the prepuberty period. Stevens has recently described these as follows: The follicle and contained ovum mature to a certain extent. The single layer of flat cells surrounding the dormant ovum proliferates and becomes somewhat cubical, several layers being formed—membrana granulosa. The ovum increases and is surrounded by a discus proligerus; there is also a zona radiata and liquor folliculi. At its greatest the follicle measures about .8 × .7 mm.; the ovum, .1 × .095 mm. The tunica fibrosa is well marked and resembles the ovarian stroma, being somewhat more vascular. Sometimes excessive liquor folliculi collects. Retrograde changes gradually develop. The ovum is invaded by cells, which are apparently phagocytes, derived probably from the membrana granulosa. Their protoplasm is vacuolated and they do not resemble leukocytes. Necrobiosis gradually develops, and most granulosa cells disintegrate. The tunica fibrosa gets many capillaries and the connective-tissue cells multiply. On the inner surface a hyaline layer of fibrin forms, in which new connective tissue develops. The follicle gradually shrinks, leaving a small scar area. It thus appears that the prepuberty changes in the follicles differ from those in adult life in the following particulars: The ovum does not reach such a large size. The wall of the follicle external to the membrana granulosa does not present a two-layer arrangement; there is no rupture of the follicle; there is no formation of a corpus luteum; the ovum is invaded by phagocytic cells. In adult life, also, it is to be noted that, beside the follicles which rupture, there are others which may develop to a certain extent and then undergo retrograde changes before rupture occurs. The ovum may increase, a yellow body may form, owing to the development of lutein cells in the theca interna. Then the ovum and surrounding epithelium degenerate and are absorbed, along with the liquor folliculi. The explanation of such a process is not always certain. It some cases it appears to be due to chronic inflammatory changes in the ovary, but it is probably also due to other causes of which we are ignorant.

Regarding the bursting of the follicle there is a difference of opinion. Most authorities hold that the ovarian tissue, being greatly thinned at the most projecting point, is gradually ruptured by the increase in intrafollicular pressure resulting from the accumulation of liquor folliculi. Nagel, however, holds that owing to an increase in the thickness of the inner layer of theca folliculi, to the swelling of its cells with lutein particles and to its becoming arranged in a wavy manner, pressure is made on the follicle contents from without, and that they are forced in the direction of least resistance, viz., outward toward the surface of the ovary.

Clark holds that rupture is due to changes in the circulatory conditions in the ovary. Owing to the marked engorgement of the organ, tension is increased and the follicular contents are forced to the surface. The vessels lying external to the follicle at the bulging portion are compressed, and consequently necrosis and disintegration of the tissue take place. *Pari passu* with the development of the lutein cells there is fatty degeneration in the cells of the stratum granulosum and in those of the discus proligerus. This enables the ovum to escape easily from the cells surrounding it.

The formation of the corpus luteum has given rise to considerable discussion. Some workers still hold firmly that it is a derivative of the membrana granulosa. The majority hold, however that it is developed from the inner part of theca folliculi, which is regarded as a cellular layer of the connective-tissue stroma of the ovary.

Of great interest is the observation recently made by Stoeckel, Pick, and others, that occasionally, corpus luteum cells may not undergo their normal growth and retrogression within the limits of the follicle, but may wander outward into the ovarian stroma and even undergo atypic proliferation. I have occasionally noted this wandering, though not to a great distance; in some instances the cells contained abundant dark pigment apparently derived from blood which had been effused into the cavity of the follicle. The explanation of these irregular phenomena is quite uncertain, and is deserving of careful investigation.

Another interesting histologic appearance has been described in recent years by Pels Leusden, Schmorl, and others, viz., small localized areas of decidua-like cells in the ovary in some cases of uterine pregnancy. I have recently examined ten specimens in my museum, and have found these changes in four ovaries. In one a single area was found in a complete section of the ovary; in the others, two were found at different portions and varying in size. In each instance the areas were situated in the cortex, at or near the surface, sometimes projecting slightly from the latter, sometimes extending some distance into the cortex. The cells in these areas bear the closest resemblance to the uterine decidua in normal pregnancy, presenting similar variations in size and shape. The line of demarcation from the surrounding ovarian stroma is always well marked, giving the impression that the two tissues are distinct. Usually these areas contain dilated capillaries which are not found in the neighboring unchanged ovarian stroma.

I have never found such areas in ovaries removed from nonpregnant women. What is the explanation of these changes? It might be suggested that they are peripheral portions of the theca interna of the ripening graafian follicles or of a corpus luteum. Serial sections show, however, that this is not the case. The large cells are undoubtedly of connective-tissue origin, but their definite localization suggests some special characteristic which makes the cell capable of undergoing the same genetic reaction which is ordinarily found in the uterine and tubal mucous membrane when pregnancy develops in relation to these tissues.

Tentatively, I advance the view that these areas represent displaced portions of Müllerian tissue, which have become attached to the surface of the ovary in early embryonic life. Occasionally, I have found in the substance of such an area a gland-like space lined with columnar or cubical epithelium. The latter may, of course, be simply a derivative of the surface germinal epithelium, but it may indeed represent included Müllerian epithelium.

It is possible that the special genetic reaction in these areas may sometimes determine the embedding and development of a fertilized ovum in the ovary, and if the opinion that they are Müllerian in origin be correct, it is not unlikely that all cases of pregnancy in ovarian tissue may still serve to support the dictum which has been widely believed in recent years, viz., that embedding and development of the fertilized human ovum in the earliest stages can only take place in a tissue capable of undergoing a special genetic reaction, and that this tissue is in all cases Müllerian in origin. While the proof of this is impossible, all a priori evidence is in its favor. Those who attempt to overthrow the hypothesis, certainly undertake a heavy task in trying to establish an exception to the uniformity of performance of one of the most complex and highly specialized functions in the human body. The indication of the genetic reaction is decidual transformation, and this is normally found only in the mucosa of the corpus uteri where, indeed, it occurs in all cases of pregnancy, whether the latter be uterine or ectopic. In certain cases, we know that decidual changes may occur in other portions of the Müllerian tract, most frequently in the fallopian tubes, a fact which probably helps to explain the occasional occurrence of pregnancy in the latter.

With regard to ovarian gestation, in the specimens which have been most fully studied, viz., those of von Tussenbroek, Thompson and myself, it is true that no definite decidual layer is found in the wall of the gestation sac. Though von Tussenbroek, in her first description, mentioned a decidual layer, she afterward stated that this was an error, the cells being in reality lutein cells of the corpus luteum. The final account is in the main correct, but she cannot deny the possibility that some of the large cells were decidual. However, admitting that no decidual cells are found in specimens as advanced as those mentioned, we do not know that they were not present at an earlier stage, when the ovum was very small. One of the small ovarian decidual areas, to which I have referred, would very soon disappear as a result of the outward pressure of the expanding ovum, as well as of the phagocytic action of the trophoblast, if there be no more tissue capable of undergoing decidual changes, and it is quite evident that the ovarian stroma proper does not tend to undergo this transformation.

Even in tubal pregnancy, in which decidual changes are always present in the early stages, there may be a marked disappearance as pregnancy advances, the production of cells being evidently much poorer than in the uterine mucosa in normal pregnancy, though in the latter there is a considerable range of variation. In my own recently described specimen of ovarian gestation I believe that I have demonstrated a few scattered groups of decidual cells in the ovarian stroma, near the inner wall of the gestation sac.

For several years I have held the belief that decidual transformation is peculiar to the Müllerian tract. The occasional finding of the small areas of decidua-like cells in the ovary in uterine gestation has been regarded by several writers as a proof that other tissues may also undergo the change. From what I have already stated it remains to be proved that these areas are not Müllerian in origin. The occasional blending of Müllerian and ovarian tissues has been abundantly proved, both by macroscopic and microscopic demonstration. Take, for instance, the relationships of the ovarian fimbria. In some cases its outer end may not reach the ovary, sometimes it may just touch it; sometimes its tip may be embedded in the ovary; sometimes a considerable extent of the fimbria may lie against the ovary or adherent to it; in some cases there may be a break in its continuity, so that a small outer portion may lie close to the ovary detached from the main part. Marchand has directed attention to the early close relationship between the tubal epithelium and that covering the surface of the ovary and has pointed out that they are one and the same surface. He believed that in some cases the line of demarcation, instead of being at the end of the ovarian fimbria, might reach over to the lateral portion of the ovary and that from it processes might extend into the cortex of the ovary. The observations of De Sinety and Melassez, in 1878, seemed to establish the correctness of such a view. Other studies, especially those of Whitridge Williams, leave no doubt as to the occasional extension of Müllerian tissue into the ovary. It need not, therefore, be a matter of surprise that small areas are occasionally found in the ovary of pregnancy, presenting the appearance of decidual changes in the connective tissue of the uterine mucosa.

It must also be mentioned that small localized decidual nodes have also been found in the broad ligaments. I believe that these are also derived from displaced portions of Müllerian tissue, which are quite common, especially in the upper portions of the broad ligaments. Similar areas have also been found under the peritoneum of the pregnant uterus, but this cannot be considered as at all remarkable, since there is no doubt as to the Müllerian nature of the uterus. Rarely they have also been found behind the peritoneum of the pouch of Douglas, and it is not unlikely that even in this neighborhood may be found small detached Müllerian fragments displaced backward in early embryonic life.

In describing these small decidua-like areas it must be remembered that somewhat similar appearances may sometimes result from chronic inflammatory changes in the peritoneum, associated with inclusion of the endothelium and proliferation of the latter. The large cells produced in this manner are usually closely packed and suggest masses of epithelium rather than the looser arrangement of multiform anastomosing cells found in the connective-tissue decidual areas.

The Functions of the Ovary.—In addition to furnishing the ovums, it has long been recognized that the ovary exercises an important influence on the body, though the nature of the influence and the changes induced by it have been and still are unknown. Recently, various workers have suggested that the ovaries are ductless glands, whose internal secretion affects general metabolic processes.

Several years ago it was noted that in many cases of osteomalacia the disease could be checked by removal of the ovaries. Fehling, a pioneer in this line of work, made a careful study of the urine in his cases, but gained no information as to metabolic changes by comparing its condition before and after operation.

In 1894 and 1896, Neumann stated that removal of the ovaries in this disease exercised a marked effect in lessening the excretion of magnesium, calcium, and phosphorus, as well as diminishing proteid disintegration. Later, Neumann and Vas experimented on normal female animals, and found that Merck's ovarian tabloids, even in large doses, did not appreciably alter the quantity of nitrogen or phosphorus in the urine. They found, however, that there was an increased excretion of these when their own preparation of cow's ovary was administered. They also noticed no pronounced alteration in the phosphorus excretion after removal of ovaries from animals. When ovarian tabloids were given to spayed animals, there was increased excretion of calcium and phosphorus, and less marked nitrogenous excretion.

The experiments of Curatulo and Tarulli, in 1895, have attracted a good deal of notice. They fed bitches on a regular diet until there was a uniform average daily excretion of phosphorus and nitrogen. The ovaries were then removed, and thereafter the excretion of phosphorus was much diminished. They concluded that the ovaries produced an internal secretion, of unknown nature, which influenced the oxidation of organic substances containing phosphorus which enter into the structure of bone. In accordance with their view, it has been widely believed that the beneficial influence of the removal of the ovaries in osteomalacia was due to the retention of more phosphorus in the system and its deposition in the bones in the shape of phosphates.

In 1899, Falk repeated these experiments, but did not arrive at the same conclusions. After removal of the ovaries in two bitches, he noticed no difference in the amount of phosphorus excretion.

Moreover, recent investigations regarding the source of the excreted phosphorus tend to lessen the value of these experiments. They appear to show that much of the phosphorus is derived from nucleoproteid in food, and it is possible that the increased excretion after the administration of ovarian tissue or extract is thus explained. Curatulo also holds that the ovarian secretion favors the oxidation of carbohydrates and of fatty substances, and explains the tendency to corpulency when the ovaries are removed in the reproductive period of life, or after the menopause, as due to the loss of the ovarian secretion.

The results of various experiments in the administration of ovarian tissue or extract in the human female have in no way helped to throw light on the subject under consideration, nor have they tended to uphold the theory of an internal secretion. The use of the gland in various diseased conditions of the pelvis has not served to give to it any definite therapeutic value. Neither has its administration at the time of the climacteric served to ameliorate or dispel the troubles incident to that period. Results, good, bad, and indifferent, have been published, leading strongly to the conclusion that in the cases observed only the same variations in clinical features have been recorded which may be recognized when any group of menopause cases is studied uninfluenced by any medication.

Whatever the influence of the ovaries may be, it seems to be established that they affect the organism through the circulation and not through the nervous system, and thus support is given to the theory of an internal secretion. Many experiments have been made in transplanting the ovaries of animals from their normal situation to some other, *e. g.*, the peritoneum, subcutaneous tissue, muscles, etc. While after transplantation some of the ovarian tissue usually necroses, the remainder generally lives and continues to functionate, ovums continuing to develop, ripen, and even to escape from follicles. When this activity continues, no matter where the ovary is placed, the genitalia and mammas remain well developed just as though the organ is in its normal position.

The Role of the Corpus Luteum.—Recently the view has been advanced that the internal secretion of the ovary is produced by the corpus luteum, and that the latter structure exercises very important functions in the female organism. The late Gustav Born, of Breslau, was the first to bring forward this hypothesis, stating that the particular function of the corpus luteum was to favor the embedding and development of the fertilized ovum in the uterine mucosa.

Ludwig Fraenkel has recently published an elaborate paper in which he states his belief that the internal secretion produced by the yellow body keeps up the nutrition of the uterus during reproductive life, leads to the phenomena of menstruation, and favors the embedding and development of the fertilized ovum. Uterine atrophy and amenorrhea are brought about when no corpora lutea are found. Thus are explained the conditions normally found before puberty and after the climacteric. The facts upon which this remarkable hypothesis is based are derived mainly from experiments carried out on rabbits, since in these animals the time of occurrence of the various stages of gestation, following insemination, are fairly accurately known.

In endeavoring to determine the influence of the ovary on implantation of the fertilized ovum, Fraenkel removed the ovaries from 13 rabbits, one to six days after copulation. Later these animals were killed, and in no instance was an ovum found in the uterus. In another series, only one ovary was removed, and this did not interfere with gestation. It seemed, therefore, that implantation had been prevented by removal of both ovaries.

In another series of rabbits the ovaries were removed after implantation of the ovums, and it was found that their development ceased, though they were not expelled from the uterus.

Similar results were obtained when, instead of removing the entire ovarian tissue, the corpora lutea were destroyed with a cautery. It was found that development of the ovum might continue if only one corpus luteum was left in the ovary. When the ovaries were transplanted, destruction of the ovum occurred, though after some delay. After burning the corpora lutea from the ovaries, it was found that the uterus was much atrophied in two weeks.

This physiologic interpretation of the function of the corpus luteum is worthy of the highest consideration. Hitherto, anatomic explanations have been chiefly prevalent. Thus, it has been considered as forming an extra protective covering to the ripening ovum, as a plug to check hemorrhage after bursting of the follicle, and as a kind of splint steadying the tissues during the process of healing. Clark has pointed out that it is evidently associated with a method of repair, which leads to little formation of connective tissue, and has well stated that if the ruptured follicles were healed by the ordinary method, the ovary would be converted into a mass of connective tissue, which would render the escape of ovums increasingly difficult.

On the other hand, Fraenkel and others who adopt the physiologic interpretation, emphasize the wellknown structural resemblance of the fully-formed corpus luteum to a ductless gland, since it consists of rows of large epithelioid cells—the lutein cells, arranged somewhat radially, strands of delicate connective tissue containing bloodvessels ramifying between the columns. Fraenkel holds with Sobotta and others that the yellow body is derived from the membrana granulosa, and that thus an epithelial origin is obtained for the cells of the glandular organ. I have already pointed out that many authorities hold that the corpus luteum is derived not from the membrana granulosa, but from the connective tissue external to the latter, while a considerable number hold that the membrana granulosa is itself of connective-tissue origin. If the latter view be correct, and the glandular nature of the corpus luteum be established, such a marvelous transformation of connective tissue is without parallel in any other portion of the human body. But even if its origin be epithelial, it is equally remarkable and unique that a glandular function should be carried on during many years by a continued series of new formations in different portions of an organ.

In considering Fraenkel's hypothesis, various questions suggest themselves for investigation. If the corpus luteum causes the phenomena of menstruation, why is the latter function limited to the primates? Born has pointed out that in all animals in which there is a uterine insertion of the ovum there is a well-developed corpus luteum, whereas in all other animals the latter is either rudimentary or not developed at all. In all mammalians above the monotremes the ovum is implanted in the uterus and the corpus luteum is well developed. The absence of menstruation in the great majority of these must either be due to some peculiarity of the corpus luteum or to other unknown reasons.

If the corpus luteum presides over the implantation of the ovum through its internal secretion, does the latter influence the ovum by passing to it through the maternal tissues (where presumably it circulates) or is the ovum already influenced at the time it escapes from the follicle? Fraenkel's experiments seem to negative the latter hypothesis, for if the ovum reaches the uterus already charged with the secretion, destruction of the corpora lutea in the rabbit might not be expected to affect its implantation. It is therefore more reasonable to suppose that contact with the uterine mucosa in which the ovarian secretion circulates leads to the conditions which determine the embedding of the ovum. From histologic studies it is now known that the implantation of the ovum in the mammalia occurs after certain changes have taken place in it, that in the vesicular stage there is a proliferation of the outer layer of epiblast forming the trophoblast which has the power of attaching itself to the uterine mucosa, of absorbing the latter and burrowing into it. Is this power dependent upon the influence of a circulating ovarian secretion? Hitherto it has always been believed that these changes were possessed by the ovum itself, for in animals developed from ovums which find no resting place in the body the development of the ovum does not depend upon the maternal organism.

It must, however, be believed that in the higher mammals, at least, some special complimentary characteristic must be found in those areas of maternal tissue on which the ovum grows. In the human female, for example, as I have already pointed out, a particular portion of the Müllerian tract, viz., the mucosa of the corpus uteri, is the normal seat of implantation. The normal occurrence of a decidual reaction in this area has already been noted. Is it possible that this peculiar change is brought about by the ovarian secretion and is a prominent indication that the tissues are favorable to the reception of the ovum?

Recently various authors have suggested a connection between abnormal conditions of the ovary or corpus luteum and aberrant developments of the ovum. Thus several cases have been described in which hydatidiform mole has been associated with disease in the ovary, especially cystic degeneration. Pick has recently made a careful study of a case in which excessive production of lutein tissue was found in the ovaries, and he regarded this condition as the cause of excessive chorionic development, leading to the formation of hydatidiform mole. In chorioepithelioma this author, Runge, and Jaffé have also described excessive production of lutein cells in the ovary, which they are inclined to consider as the cause of the chorionic growth. In several specimens of ovaries examined by Pick, Stoeckel, Runge, and others, in addition to cystic changes in graafian follicles and corpora lutea, collections of lutein cells were found scattered through the ovarian stroma. Careful study of a larger series of ovaries must be made before any positive statement can be made in regard to the association of changes in them with abnormal development of the ovum. It is certainly difficult to explain the occurrence of hydatidiform mole in a twin pregnancy by the lutein secretion hypothesis. If over-production of the latter be the sole cause, it is strange that both ovums should not be similarly affected.

The Antagonism between Maternal Organism and Ovum.—For several years the idea has been steadily gaining ground that the maternal organism during pregnancy is very commonly affected by circulating toxic substances, and that many disturbances, both of major and minor importance, are caused thereby. This view has been chiefly prominent in recent investigations concerning the nature of eclampsia. Though little success has been obtained in the identification of specific toxins, there has been plenty of speculation as to their source and nature. The maternal organism has been considered the chief source of their production, the contribution of the ovum being generally regarded as of minor importance.

Recently, however, a new theory attributes to the latter a much more prominent role than has hitherto been suspected. In addition to the passage into the maternal circulation of the waste products of fetal metabolism, it is believed that there is a continual warfare between the chorionic layers of the ovum and the maternal tissues, that the proliferating and invading tendencies of the former are continually antagonized by the latter, and that a toxic chorionic internal secretion is produced which is neutralized or destroyed by maternal influences.

In normal cases of pregnancy it is considered that there is established a kind of equilibrium between the ovum and maternal organism; that in some abnormal cases the ovum suffers as the result of predominant activity of the maternal elements, while in others the maternal organism suffers when the ovum is in the ascendant. In the former instance the ovum may be destroyed and abortion result; in the latter the mother may exhibit phenomena of various kinds, from the minor nervous and alimentary disturbances of pregnancy to such marked disorders as pernicious vomiting or eclampsia. This same theory would also explain the rapid growth of chorionic tissue after pregnancy, giving rise to chorioepithelioma malignum, as mainly due to some defect in the maternal factors which normally counteract the excessive proliferation of chorionic epithelium.

These newer lines of thought have followed close upon the establishment, by recent workers, of the exact histologic relationships between the human ovum and uterus. It has been demonstrated beyond doubt that the early ovum in its vesicular stage is characterized by a proliferation of its outer epiblastic covering forming a layer of cells, distinct from one another, known as the trophoblast, and that through the activity of this layer the ovum burrows into the superficial part of the uterine mucosa, where it becomes completely embedded. The trophoblast continues to extend outward in all directions, lacunas appearing in it. Into the latter, blood finds its way from maternal sinuses which have been opened by the phagocytic activity of the trophoblast. The entire trophoblast is in this way converted into a sponge-like structure. The lacunas enlarge, and the trabeculas between them become smaller. The former are the forerunners of the permanent intervillous spaces of the placenta, the latter of the villi. The trophoblastic cellular trabeculas are gradually penetrated by the mesoblastic layer of the chorion in which the terminal branches of the umbilical vessels carry on the fetal circulation. As soon as lacunas appear in the trophoblast a change takes place in the cells of the latter lining the lacunas. They appear to become fused into a continuous layer of nucleated protoplasm in which no cell outlines can be distinguished. This is the earliest stage in the formation of syncytium, and was regarded by Peters, in whose specimen it was demonstrated, as caused partly by the pressure of the maternal blood in the lacunas, partly by the influence of the blood-plasma; in some parts, also, blood-corpuscles appeared to become degenerated and to fuse with the trophoblastic cells.

As pregnancy advances the syncytium rapidly increases so that it covers the entire chorion. The unaltered trophoblast cells subjacent to the syncytium form the layer universally known as Langhans' layer. Wherever the chorion comes into contact with the maternal decidua evidence of invasion of the latter by the former is found, but it is chiefly noticeable at the site of the placental portion of the chorion, the decidua serotina. Here in the early weeks of gestation irregular extensions of syncytium may be found. They are chiefly noticed in the compact layer of the serotina, but are observed in the spongy layer, and even in the muscular wall. Portions undoubtedly extend into maternal blood sinuses, to whose walls they may become attached. Small portions of syncytium also may be carried away in the venous circulation. That this may take place throughout a considerable period of pregnancy is highly probable. Several authors hold that pieces of villi, comprising both epithelial and connective-tissue elements, may also be deported, though I have never observed this in normal specimens. Whatever be the extent of the process no important anatomic lesions in the vessels of the lungs or elsewhere have been demonstrated to result from them. The chorionic fragments are very small and are probably rapidly disintegrated in the maternal blood. Their destruction is explained according to Ehrlich's now wellknown hypothesis. The foreign fragments produce a substance which fixes them to the red blood cells, and which also enters the serum, forming an antitoxin, which tends to destroy the fragments. Veit has termed the latter syncytiolysin. Various experiments have been made in support of the view that the chorion produces a toxin which may cause various morbid changes during pregnancy unless continually destroyed by the maternal organism. Thus Politi injected sterile filtered extract of human placenta into rabbits, producing death in some cases with spasms and marked prostration. He states that the toxicity of the extract was lowest when the placentas of healthy women were used and most marked in the case of eclamptics. Ascoli has also made interesting experiments, in which placental infections produced some of the phenomena of eclampsia. Beside the influence of the blood in counteracting the syncytiotoxin, it is believed by some that the decidual cells also share in this function. Bandler holds, in addition, that the ovary also furnishes an element in its secretion which is antagonistic.

Functions of the Placenta.—It has been clearly established that the placenta is entirely an organ of the chorion, consisting of projections of the latter termed villi, which are attached to the uterine mucosa, and bathed by maternal blood circulating among them.

Comparatively little is known as to the nature of the interchange of materials between the fetal and maternal circulations through the medium of the villi. For many years the placenta has been regarded merely as the medium through which nutritive material and oxygen passed from the mother to the fetus, and the effete products of fetal metabolism from fetus to mother; it was considered to be a kind of fine sieve, through which percolation took place, or a diffusion membrane that favored osmosis. It is now almost certain that the transmission of substances between the maternal and fetal blood is not merely a matter of physics. The chorionic epithelium is believed by many to be a highly differentiated tissue, capable of carrying on complex vital processes, possessing powers of selection, elaboration, and even digestion. Marchand has suggested that the syncytium is the chief factor in the absorption of nutritive material from the maternal blood, the Langhans layer being more concerned with the transmission of waste products from ovum to maternal blood. Cavazzani and Levi state that there is no correspondence between the quantity of urea in the maternal and fetal blood, that there is more glucose in the former than in the latter, and that the density of the fetal blood is greater than that of the maternal blood. It appears that there are considerable variations in the transmission of substances through the placenta at different periods of pregnancy. Thus, in the last three months there is a great increase in the iron, potash, and lime stored up in the fetus. In the early months there is a great predominance of soda over potash.

Various materials may be stored in the placenta. Thus, it undoubtedly fixes glycogen. It is thought that albuminoid material is transmitted as soluble peptones, though this is not definitely known. There has been some question as to the possibility of the passage of maternal leukocytes through the walls of the villi entering the fetal circulation. Varaldo states that there are more leukocytes in the umbilical vein than in the umbilical arteries, there being, on the average, considerably more per cm. in the former than in the latter, and that more of them contain iodophilic granules in the former than in the latter. It has, therefore, been concluded by several that leukocytes normally carry substances (possibly nutriment) to the fetal tissues. This has not been proved, however. In maternal leukocythemia there is no corresponding increase in white corpuscles in the fetal blood.

The placenta acts as a protective barrier against the invasion of the fetus by various poisons. It is more efficacious against some than against others. Porak's experiments on the guineapig, for example, show that in this animal, copper passes easily, arsenic with difficulty, and mercury not at all, the poisons being stored to a greater or less extent in the placental tissue. With regard to microorganisms and their toxins, little is known. Many microbes are able to pass from mother to fetus, but nothing is known as to the conditions associated with the transit. It does not appear that any placental lesion is necessary. The placenta appears to be more resistant to some organisms than to others. Thus, it is clearly established that tubercle bacilli rarely pass through it; indeed, cases of Lehmann and others prove that though tuberculosis may begin in the placental tissue, the fetus may not be affected. In this connection, however, it must be noted that sometimes tubercle bacilli may be present in the fetus, though no lesions be present, since inoculations of guineapigs with portions of the fetal tissues may cause tuberculosis.

It seems certain that in the great majority of cases the placenta is the sole route by which microorganisms and toxins reach the fetus. It is possible that they may pass through the amnion into the amniotic fluid and thence enter the fetus, but this is probably a very rare mode of infection. Charrin and Duclert's experiments on guineapigs suggest that the passage of germs through the placenta is helped or retarded by varying conditions of the maternal blood. Thus, they found retardation when the maternal system was saturated with corrosive sublimate. When tuberculin, alcohol, lead acetate, or lactic acid were present, the passage of the germs seemed to be facilitated. Neelow has experimented on pregnant rabbits, and states that nonpathogenic organisms cannot pass from mother to fetus.

The placenta suffices to allow the fetus to grow and thrive in many diseased conditions or malformations incompatible with health or life in the adult. Pathologic conditions affecting the structure and function of the placenta endanger the life of the fetus. In many maternal diseases, doubtless, the fetus is destroyed as the result of changes in the placenta, affecting its structure or function, produced by its resistance to the toxic material in circulation.

The placenta also acts as the great excretory organ for the fetus. Savory long ago produced tetanus in a pregnant cat by injecting strychnin into the fetus in utero. The passage of other drugs has been similarly demonstrated by others. Charrin holds that toxins placed in the fetus, either directly or by the spermatozoa of the father, may pass to the mother. This might explain certain cases of immunization in syphilis (Colles' law). By injecting diphtheria toxin into the fetus in utero he has killed the mother animal. Guinard and Hochwelker have shown experimentally that the passage of drugs from the fetus to the mother is stopped if the former is killed, and that if the fetus be injected after its death the drug is only found in its tissues. Baron and Castaigne have found that drugs introduced into the amniotic fluid are also transmitted to the maternal tissues, though much less rapidly than when injected into the fetus. If the latter be dead, the substances do not pass to the maternal circulation.

I have already referred to the theory that the chorionic epithelium produces an internal secretion, which may exercise a deleterious influence on the maternal system. Some hold that it may also act as a destroyer of certain elements circulating in the maternal blood which might be toxic to the fetus if it should enter the circulation of the latter.

HAS A PERSISTENCE OF THE MÜLLERIAN DUCTS ANY RELATION TO THE CONDITION OF CRYPTORCHIDISM?

BY

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In a recent article on the embryology of the anomalies of the kidney and ureter,[1] it was suggested that the first hints as to the actual proceedings in normal development are sometimes gained in the study of the congenital abnormalities, and the importance of the cooperation of the practising physicians to whom such cases come, with the laboratory investigators was emphasized. Mention was made incidentally of the close relation between renal anomalies and genital deformities and that the explanation might be found in an irregularity in the embryology of the Wolffian system from which both tracts are wholly or partly developed. It was noted that while the reasons for the descent of the testicle into the scrotum and for the ovary remaining within the abdominal wall are not known, if we grant such a condition a normal one, there is little ground for assuming that the deviations from this accepted normal may not be explained.

The testicle is not found in the scrotum in all mammals. In the primitive forms it is situated in much the same position that the ovary is—within the abdominal cavity. It would seem, as a matter of fact, that the male sex gland would be better protected if it were retained within the abdominal wall and yet we find it a requirement in those mammals in which the inguinal position is the normal for the testicle to descend into the scrotum to develop fully. Retained testicles are atrophic and sexually incompetent. The question which naturally arises is—is the sex gland atrophic because it is retained or is it retained because it is atrophic, and if so, what causes it to be retained? While the question has no practical value as far as the individual cases go, it has an importance in the theoretic problems with which it is connected and a faint show of application as will be dealt with further on in the paper.

The testicles reach the scrotum before or at the time of birth, and the discussion of the causes of malpositions fall into the province of the embryologist, who unfortunately never sees the cases. In lieu of actual specimens, he can only theorize upon the probable causes of the anomalies and await the coming of specimens to prove or disprove the possibilities considered. Before entering into the discussion of the embryology, it may be well to state the several questions which present themselves: Why should the male sex gland be subject to more variation in the development than the female? Why should the ovary be relatively constant in position and the majority of the displacements be found in the testicle? Why should retained testicles be atrophic and sexually incompetent? Why should all pseudohermaphrodites be sterile? All questions of importance, and while it is impossible to give definite answers to these queries, perhaps sufficient interest may be aroused in those who have to do with these cases to stimulate them to assist in their investigation. Many of the facts connected with the wandering of the sex glands will probably always remain obscure.

That the sex glands are not subject to much variation is hardly remarkable when one considers that they are the important organs in the preservation of the species. Anomalies in their anatomy interfere with their function, and therefore prevent the variation being transmitted to the offspring. The normal position of the sex gland is not a necessity to the survival of the individual, but is important in the fulfilment of nature's second law, and the cases are for this reason sporadic and self-eliminating.

There appears to be a common notion that the fetus is nonsexual until about the third month, when it becomes either male or female. This is undoubtedly due to the description in the embryologies of the "indifferent period." The "indifferent period" is the term applied to the secondary stages in the development of the genital organs, and appeals to the author as a gross inaccuracy in the nomenclature. So far as we know, there is no indifferent stage, and the sex gland, as soon as it may be recognized as such, may be differentiated into male or female. The sex is determined in the very earliest hours of fetal life, if not in the ovum itself, and the stage of the secondary changes should more properly be named the undifferentiated stage, because it represents an arbitrary limit to our powers of differentiation. The words, undifferentiated stage, will be used in this article.

Taking it for granted that the practising physician is not a specialist in embryology, it is my purpose to rehearse the events in the development of the genital system upon which the reasoning of the article is based, and to present matter which is new and has a bearing upon the question. For simplicity's sake, the discussion of the development is divided into three parts: (1) Up to the period of the differentiation of the sex ducts; (2) the further development of the male organs; and (3) the further development of the female organs. The requirements for the normal development of the male and female tracts will be tabulated at the close of the review of the embryology, and upon these granted requirements will be based the theory of the malposition heading the article—cryptorchidism—in particular.

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[1] *American Medicine*, June 18, 1904.

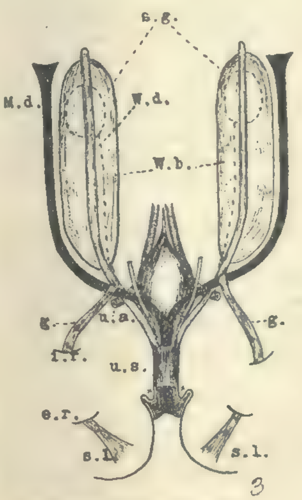
1. *A Review of the Development of the Upper Genital Tract to the Differentiation of the Genital Ducts.*—The sex glands are developed from the mesoderm at either side of the future lumbar vertebras in the dorsal abdominal wall. They lie upon the upper part of the Wolffian body (mesonephros, which has a urinary function in the lower vertebrates, and is replaced by the permanent kidney in reptiles, birds, and mammals). The Wolffian body is connected with the ventral segment of the cloaca (later to become the bladder and urethra) by the Wolffian duct, and is quite independent of the development of the cloaca. The Wolffian duct grows from above down into the cloaca as was shown in the aforementioned article. The sex glands have no other relation to the Wolffian system than that they are applied to the Wolffian body, a position which they maintain until the mesonephros degenerates. The Wolffian duct lies laterally to the sex gland and curves downward and inward to its orifice in the ventral cloacal segment. The Müllerian ducts, like the Wolffian, are also of mesodermic origin, and have a somewhat similar development in that they grow from above downward to the ventral cloacal segment, now called the urogenital sinus. They develop later than the Wolffian, and each duct lies laterally to the last mentioned until the level of the umbilical artery is reached, when the Müllerian crosses behind the Wolffian and fuses with its fellow. The fused portion lies between the two Wolffians, and ends blindly in the dorsal wall of the urogenital sinus.

At a point where the ducts cross the umbilical artery, a band of unstriped muscle tissue attaches itself to them and to the sex gland lying just above. This is called the gubernaculum, and when traced downward may be found to run laterally to the deep epigastric artery and thence obliquely through the abdominal wall to the scrotal-labial fold. The way in which this band develops its course through the abdominal wall is quite unknown, as is also its origin and the method of its further development.

In the simple diagram are represented the relations at this stage—s. g. = sex gland; M. d. = Müllerian duct; W. d. = Wolffian duct; W. b. = Wolffian body; u. s. = urogenital sinus; u. a. = umbilical artery; g. = gubernaculum; i. r. = position of internal abdominal ring; e. r. = position of external abdominal ring, and s. l. = scrotal-labial fold. Upon this diagram will be constructed the changes in the relation of the sex glands and the genital ducts, and also the accompanying diagrams of the abnormal positions to be mentioned.

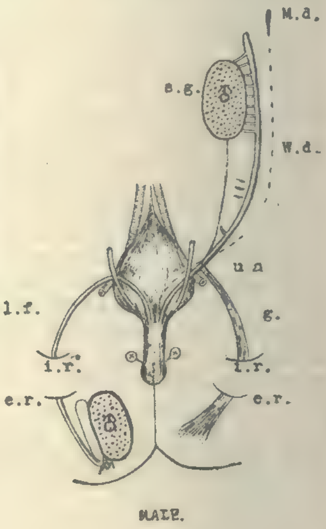
Just at this period of the development an extremely interesting embryologic process takes place—the vascularization of the sex gland, kidney and suprarenal body. The Wolffian body is at the height of its development and is supplied by a number of direct trunks from the abdominal aorta. With the entrance of the vascularity into the sex gland, kidney and suprarenal, it begins to degenerate. The kidney, referring to the previous article, receives its blood supply after it has reached its proper height and is in touch with the suprarenal as may be deduced from the fact that the kidney frequently receives a branch from the suprarenal vessel. The sex gland also shows the first macroscopic signs of differentiation in that the bloodvessels enter the female gland centrally and radiate toward the periphery, while in the male, they spread over the periphery and go to the central part of the gland from that position.

The fact that the Wolffian body begins to degenerate at the time that all these various applied organs receive their blood supply is extremely suggestive. In the first place, we grant that the suprarenal bodies, sex glands, and kidneys, have an internal secretory function. They are at this period ductless glands. Would they manifest any internal secretion before they were vascularized? If they did not and the products of their secretion are so necessary to the wellbeing of the body, what organs furnish this material until they are vascularized? If the mesonephros has no excretory function in the mammalian fetus, why should it develop to such a large size? If one combines all these questions with a further question—can a gland furnish a secretion before it has its blood supply?—a logical sequence seems to point to the mesonephros supplying this certain something until sex gland, kidney, and suprarenal are in a condition to do so. To substantiate my view I offer the following: The mesonephros is glandular and of the same origin as all the glands mentioned; it has its vascularity long before the aforementioned glands have theirs; it begins to degenerate at the time these glands seem capable of supplying their internal secretion (verified in pig by Mr. Eben C. Hill, of Johns Hopkins University), and granting that it has no excretory function, there is no other explanation of its marked development up to the second month. In addition to this, the internal secretion of the sex gland begins to manifest itself in producing (my version) the changes in the differentiation which follow the entrance of the bloodvessels. I hold, therefore, that the mesonephros supplies the developing embryo with those products of internal secretion, which are later formed by the various glands mentioned, and moreover, that the further development of the other sex organs is directly stimulated by the internal secretion of the sex glands. It is upon these assumptions that I base the ideas to be developed in the further discussion involved in this region.



UNDIFFERENTIATED STAGE.

Fig. 1.



MALE.

Fig. 2.

2. *A Review of the Further Development of the Male Organs.*—With the appearance of bloodvessels in the male sex gland, a series of changes are to be noted in the structures pictured in the diagram. The Müllerian duct begins to atrophy and at a very early stage is practically lost. The upper tubules of the Wolffian body establish connection with the developing seminiferous tubules in the rete testes. The Wolffian duct develops and a change in the relation of the testicle begins. The gubernaculum appears to shorten and to pull the testicle down upon the umbilical artery and lateral to the artery into the fossa marked l. f. I will not bore the reader with speculations regarding how much "unequal growth" and the umbilical artery play in this process; suffice it for the present to say, that the testicle appears to be pulled lateral to the umbilical artery, and that the Wolffian duct is stretched over the artery by a downward shortening of the gubernaculum.

This process I hold is stimulated by the internal secretion of the sex gland and for this reason I regard it a requirement for the descent of the sex gland in the male that the testicle be normal. It will be remembered, for the purposes of later reference, that the normal development of the testicle depends not only on its own intrinsic development, but upon that of the Wolffian duct and Wolffian body as well.

I will not dwell on the commonly accepted theory of the passage of the testicle through the abdominal wall and the pushing of all the coats of the wall (with the exception of the transversalis muscle) into the scrotal region to form coats of the scrotum and covering for the sex gland, but will go on to the further development in the female and later contrast the factors in tabular form. The reader will remember that the ureter at the time the testicle receives its blood supply, has wandered from the lower end of the Wolffian duct to its permanent orifice in the bladder. The Wolffian duct, now to be spoken of as the vas deferens, has a fixed position in the urogenital sinus which practically corresponds with that in the adult.

3. *A Review of the Further Development in the Female.*—In the female, with the appearance of the vascularity a markedly different change takes place. The Müllerian duct begins a rapid development and the attachment of the muscular gubernaculum to it becomes more evident. The fused portions of the ducts increase greatly in size and extent until all that portion below (caudad) the attachment is included. The lumen of the fused portion also increases, but the blind ending at the urogenital sinus is maintained. Owing to the ambiguous "unequal growth" the gubernaculum stretches out and becomes longer instead of shorter as in the male. The Wolffian body and duct degenerate, but not as completely as the Müllerian in the male and leave goodly traces of their presence in the broad ligament, a fact which will be dealt with later.

In addition, the Müllerian ducts begin to wander down the urogenital sinus in order that the blind end may appear at the labial cleft, and the fused portion becomes differentiated into three parts; the upper part becoming the uterus, the lower part the vagina, and the blindly ending part, which may even persist in the adult, the hymen.

A normal development of the ovary is necessary for the perfect development of the Müllerian derivatives. The degeneration of the Wolffian system, I hold to be a minor factor. The gubernaculum is lengthened by a fusion of the ducts, by the "unequal growth" and by the change in relation at the sinus.

To tabulate the development of the male and female in contrast:

MALE.	FEMALE.
Normal testicle dependent on: (*a*) Normal intrinsic development. (*b*) Normal Wolffian system.	Normal ovary dependent on: Normal intrinsic development only.
Wolffian duct develops.	Wolffian duct degenerates.
Müllerian duct degenerates.	Müllerian duct develops.
Gubernaculum shortens.	Gubernaculum stretches out.
Orifice in sinus fixed.	Ending at sinus descends.
Normal abdominal wall necessary.	Normal abdominal wall not necessary.

Glancing at this tabulation, the following points may be singled out; that for a normal descent of the testicle more factors enter into the requirements than for the change in position of the ovary. The normal testicle depends on the normal Wolffian system; active development of the Wolffian duct; degeneration of the Müllerian; shortening of the gubernaculum through a normal abdominal wall; whereas in the female, degeneration of the Wolffian is not imperative, the abdominal wall presents no difficulties and the gubernaculum is purely passive. Here is an explanation of why abnormalities in the position of the male sex gland are more frequent than the female—the embryology is not only more complicated but there are other extrinsic factors which may interfere with the assuming of the correct position and may mechanically hinder the normal gland reaching the place necessary to complete its development.

This "complete development" may be misleading. The sex gland has two periods in its development, a period before puberty, and one at puberty. Up to the time of puberty the action of the internal secretion is not so marked in deciding the secondary sexual characteristics. The young boy is not so far removed from the little girl as the adult man is from the woman. A function is assumed at the time of puberty which was not present before. It is undoubtedly this period that is interfered with in a displacement, and caused by a mechanical hindrance of the extrinsic factors. We must therefore, divide the abnormalities of the sex gland into two parts: Interference with function due to imperfect development (primary), and interference with function due to mechanical malposition (secondary). The former is always accompanied by the latter, but the latter may be distinct and be a cause of the arrested development at the time of puberty.

Should the testicle be imperfectly developed, the lack of proper internal stimulus to the gubernaculum and Wolffian duct and lack of proper *inhibition* to the Müllerian duct may cause a direct mechanical retention, in that the Müllerian might persist and be sufficiently in evidence to counteract the feeble pull of the muscular gubernaculum. A persistence of the Müllerian duct would, therefore, point to a primary poorly developed testicle and be a mechanical cause of retention.

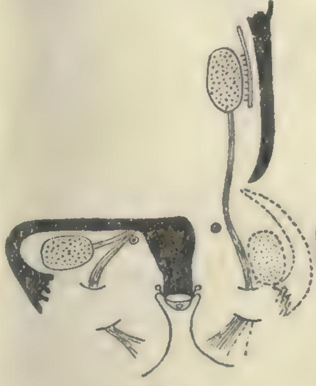


Fig. 4.

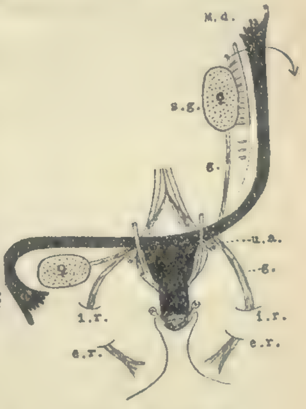


Fig. 3.—Female.

As evidence that this may sometimes be the case, I call attention to the fact that all pseudohermaphrodites have retained sex glands, and that the more developed the uterus masculinus (the persistent Müllerian ducts), the more the position of the testicle approaches the female. The testicles in all these cases are atrophic and the individual sterile from primary causes. There are numerous cases in the literature in which such a condition has been described.

While it is impossible to establish that the atrophic condition or imperfect development in the earliest stages may cause a persistence of the Müllerian duct, I believe I can prove that there is an innate tendency for the gubernaculum to contract in its development, which tendency is passively controlled by the Müllerian duct. The Müllerian duct, on the other hand, tends to develop (else why should it develop at all in the male) and is checked by the secretion of the testicle and stimulated by that of the ovary.

Leaving the attachment of the gubernaculum to the Müllerian duct entirely out of the question (ligamentum teres to the cornu of the uterus), could we grant a case in the female in which the one Müllerian duct developed in advance of the other and the lagging duct failed to reach the sinus, what would probably happen? The one tube might develop a normal vagina and hymen, for it will be remembered the anlage is a double one, but the uterus would have but one horn, to which would be attached a ligamentum teres (the gubernaculum of the same side). On the other side, the ovary might be perfectly normal, but the innate tendency of the gubernaculum to contract might not be counteracted by the free ending Müllerian duct and would tend to pull the ovary to the inguinal ring, but not through it, unless the abdominal wall was abnormal.

I wish to express my indebtedness to Mr. Max Brödel, of Johns Hopkins Hospital, for the facts of the case of Dr. Kelly's, that I have practically cited. As far as Mr. Brödel remembers, the ovary was atrophied which again would substantiate the assumption that mechanical causes could interfere with the secondary developmental period. (Malposition.)

To strengthen my position that one Müllerian duct may be developed in advance of the other, I wish to recall to the reader that I made mention of the fact in the article cited in the first part of this paper and the condition as described is to be found in the embryo 22 (20.0 mm.) of Professor Mall's collection.

In recapitulation of the points I have made thus far: The testicles are subject to greater chances of defective development because of their more complex embryology; as a result of abnormal development they may fail to inhibit the tendency of the Müllerian ducts to develop and cause mechanical retention of the testicles already abnormal; that in addition to this, an abnormal gubernaculum, or abdominal wall or both, may so affect the normal testicle as to interfere with its secondary development at the time of puberty through its displacement and render the individual eunuchoid and sterile.

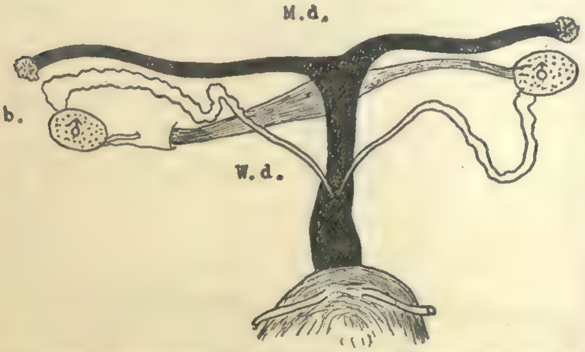


Fig. 5.—Schematic, after case of Sanger. (Gubernaculum not pictured.)

Persistence of a Müllerian duct in cases of monocryptorchidism would be incompatible with the first-mentioned view; because the one normal testicle ought to be capable of supplying a sufficient amount of internal secretion to inhibit the growth of *both* Müllerian ducts. We, therefore, arrive at a series of cases in which one testicle is retained and the atrophy in these cases is probably due to malposition and prevention of the secondary development at puberty. The experiments of Griffiths, in which he replaced the normal dog's testicle into the abdominal cavity, show conclusively that the inguinal position is essential to the maintaining of the normal function. I have no note to show that the experiments were made on dogs long sexually mature, and even if they were, the operative interference of itself might prove sufficient cause for the ensuing pathologic condition of atrophy.

I have at hand a case of monocryptorchidism, for which I thank Professor B. D. Myers, of Indiana University. I find no persistence of the Müllerian ducts, and am inclined to consider it a case of mechanical interference with the descent of the sex gland (secondary), and that the atrophy was a later acquirement, probably about the time of puberty, owing to the abnormal position.

Should operative interference in itself have no deleterious effect upon the sex gland prior to its period of secondary development, can cases of cryptorchidism, due to other abnormalities than those directly associated with the sex gland, be treated successfully? Would the change at the time of puberty occur in cryptorchiditic cases in which the testicles were placed in a normal position? Should the abdominal wall be normal, could the gubernaculum be stimulated at birth to perform its function? These are mere speculations, but so far as I can see, are perfectly legitimate experiments. A child with retained testicles will not only be sterile, but eunuchoid as well, and barring the danger of the operation, there is nothing to be lost and much might be gained.

To establish such theories as these is the lot of the human embryologist of today. There is but one way to prove or disprove the hypotheses which may lead to something of practical importance. I have no doubt that this small paper may appear sensible or twaddle—a matter entirely dependent on the interests of the reader. I made a plea for material—for human embryos, pathologic or normal, of all ages and conditions in the previous article on renal anomalies, and am in hopes that many of the readers who occasionally come across a human embryo will remember the laboratory men who are so sadly in need of them.

To quote from *American Medicine:* "The trouble in preserving embryos is not great. Formalin (10%) is a simple and effective preservative, and if there is any doubt as to the strength of the solution, the stronger the better. Mutilation of the embryos should be avoided, and they should be handled as little as possible. All embryos are acceptable, and no selection should be made whatever. In sending, the bottle should be filled completely with fluid to prevent injury in transportation, and such history as may be obtained, forwarded with the specimen."

CARBOHYDRATE METABOLISM: RELATION OF THE DIFFERENT TISSUES TO THE DESTRUCTION OF SUGAR.

BY

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A short time after Buchner demonstrated the existence of enzymes in the yeast cells, which were capable of causing alcoholic fermentation, Effront[1] made the statement that this discovery would certainly have a great influence on the study of similar phenomena, and would lead to the discovery of many other enzymes.

This prophecy has more than come true, for the already large number of enzymes discovered, and the interest shown in research work along these lines is greater than could have been anticipated. From the results of investigation informing us of discovered enzymes, it will not be long until we are compelled to accept the statement of one of our scientists some time ago, that life is a series of fermentations, or we will be compelled to reject many of the conclusions.

The subject of ferments concerned in the destruction of sugar in the body while always of great interest, is especially so since the publication of the recent work of Cohnheim;[2] his results show that large quantities of sugar are found in the muscles, and that the blood gly-

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[*] I desire to express my thanks to the Carnegie Institution for the use of one of their tables at Woods Hole; also to J. A. Koch, who occupied one of the Carnegie tables at the same time at Woods Hole, while working on the chemic nature of the enzymes, and with whom much work was done in common.

colysis is entirely too small to account for the complete destruction which takes place in the body. He found that the pancreas and the muscle yield a cell-free fluid, causing the destruction of the sugar when placed in combination under favorable conditions; that the pancreas and the muscle alone will not cause the destruction of the sugar, or, at least, only feebly. His idea of the action of the ferment is, that it may be like the action of the enterokinase of Pawlow.

A little later, the results of Arnheim and Rosenbaum,[3] working in the laboratory of Salkowski, contradicted the statements of Cohnheim in some of the particulars, the principal one being that the extracts of each and every organ used alone with grape sugar, gave a destruction of the sugar. They found that at times all of the organs, except the pancreas, might give a negative result. Like many others, they used the expressed juice, after the organs had been frozen and ground. This action has been shown by them to be even better with the use of a powder of the glands, made by taking ground glands and treating with acetone. (This powder I tried, and found good at times.) The advantage of the acetone powder form of the glands is that it can be kept better and will remain in aseptic condition and retain its virtue for a long time. The use of the combinations of the extracts of the different tissues was found to give a stronger action than when any one was used alone. The use of the pancreas and muscle together gave the best results. The amount of action was estimated by Arnheim and Rosenbaum by the amount of CO_2, which was absorbed in potassium hydrate solution, contained in bulbs attached to the fermentation tubes, the entire apparatus being weighed at the beginning of the fermentation and at different times during the progress of the experiments.

Croftan[4] employed an alcoholic extract which produced coagulation of the substances used, viz., pancreas, muscle and blood; he thinking that the hemoglobin is concerned in the active process. His results gave a decided sugar destruction, the end-products of which were not named. He used the extracts clinically, by giving large quantities of the coagulated substance per mouth, and the results were sufficiently good to show that it produced a destruction of the sugar in the body. While these and many other results have been found in the study of the diastatic ferments, or here the special class called the glycolytic ferments, that of the investigations of the part played by the proteolytic ferments will help us very much in arriving at anything like an intelligent action of the ones studied by us.

Salkowski claims that all tissues are able to digest themselves, when kept at the temperature of the body for some time. Jacoby[5] states that the ferments for the autolysis of the body are largely specific and that the secretions of one gland do not cause the digestion of the other tissues. Levene and Stookey,[6] in speaking of the combined action of the proteolytic enzymes, found that when the spleen and the pancreas were allowed to act simultaneously on a foreign protein egg albumen or casein, that the quantity of the products obtained from their action was greater than the total of the products when used alone. Wells[7] found that there occur in the cells of the animal body ferments that are capable of digesting these cells under certain conditions. He assumes the fact that it is not going too far to say that the autolytic ferments are important factors in the proteolytic metabolism, if they are not the chief factors. His results by using the extracts of the thyroid on the liver are that it cannot be shown that there is any marked effect upon the autolysis of the liver. Levene,[8] in studying the end-products of the autolysis of the testicle found that there was a decided action. In the study of the glycolytic action, we are led back primarily to the writings of Pavy, Bernard, Seegen, etc., in regard to the amount of grape sugar circulating in the animal body, how and where found, and the effects of blood upon the nature of the carbohydrate molecules after the passage through the different organs; the blood containing both glycogen and sugar. We cannot as yet answer whether the blood leaving an important organ like the liver contains more sugar than when entering the organ. How then can we satisfactorily explain the action of these organs with their contained ferments, both those secreted by themselves, and those which they may contain by reason of being furnished to them by the blood stream from some other organ?

The test-tube and prepared extracts are to a large extent replacing the animal experiments of former years. The fact that a large number of the ferments are known to act best in the absence of air; that the rapidly extirpated liver shows no sugar, or only traces, show that all the results given us by investigators must be accepted with great care.

It seems to be sufficiently settled that we can accept the opinion of Bunge,[9] and others that there are two processes concerned in the destruction of sugar, decomposition and oxidation. The decomposition occurring in the protoplasm of the muscle fibers, while possibly the oxidation of the decomposition products, occurs in the other tissue elements. Most likely he would change to a large extent the location of the processes in the light of the recent investigations on glycolysis, yet I think that the fact still is apparent that the processes named are concerned in the destruction of grape sugar.

The more difficult question to decide is how many ferments are concerned in the entire processes. Since the many investigations in regard to oxidases, notably that of Sieber,[10] it is very probable that many ferments are concerned in the oxidation, as well as the decomposition, for it is hardly to be disputed that the sugar molecules may be broken up and the products not oxidized. Sieber employed "plasma fibrin" from which she obtained three enzymes named from their solubility; one soluble in distilled water, a second soluble in neutral salt solution, and a third soluble in water and alcohol. By the estimation of the end-products—CO_2, etc., she found that when the different extracts were added to solutions of grape sugar, and permitted to stand from a few hours to 30 days, that they all showed the ability to destroy sugar; that the enzyme soluble in water, was the most powerful of them all. In some observations she noticed that there was a good sugar destruction without the formation of gas. Blumenthal,[11] came to the conclusion that the sugar destruction is probably due to the action of the ferments furnished by perhaps all the different organs of the body. These ferments destroy the sugar with the formation of carbohydrates, fat acids, and alcohol. After consideration of these results of the different investigators, and wishing to verify the conclusions of at least some of them with special reference to the combined action of the different glandular extracts I was led to make a number of experiments in these directions. The first results were so positive that I later decided to give the subject as full consideration as was possible. Accordingly I have made several hundred experiments; have used the different glands from the dog, cat, beef, hog, lamb, calf, and frog. I have used them in all combinations possible and alone. The first question to decide was, as to whether an extract could be prepared which would be bacteria free and still be active as a glycolytic agent. This I have done, but will qualify the assertion with the statement that while I do not think it possible to prepare any extract from the tissues of the animal body, which, when mixed with a weak solution of sugar and placed in an incubator for several days, but will show bacterial growth unless antiseptics strong enough to destroy the action of the ferments are used, yet extracts can be prepared, which will not permit of bacterial growth when not mixed with some other solution, nor will the bacterial action when the extracts are mixed with sugar solutions be sufficient in a few hours to be of any importance. I refer here to the glycerin-alcohol extracts which I used in the majority of the experiments. In order to avoid bacterial growth in the tests during the incubation I used a small quantity of toluol; chloroform was used in many cases, but the results were not as satisfactory. A number of cultures were made from the incubating tubes, to discover what tests could be relied upon. In the tables given below, I add some tests in which the tubes were of bacterial nature and added river water containing many germs to the solutions of sugar, with and without the addition of extracts of the glands, exposing them all to the open air at a temperature of 37° C. In many of the tests the action of the bacteria was but little, when the observations were made not later than 24 hours.

The results of the use of the single glands were quite marked at times. It was possible to obtain a sugar destruction at times averaging 3% to 25%, often more. The relative activity of the different extracts for each gland used, was, viz.: Pancreas, liver, spleen, muscle, thymus, etc., in order named.

The reason that many of the investigators have failed to obtain an action in the use of single extracts is quite apparent, when we take into consideration the factors upon which this action may depend. I failed very often, but on the other hand have been able to secure the action in all of them. The conditions mentioned will be taken up in the remainder of the article, and it will be quite easy to see that we are still at a loss at times to know upon what to base our results. Are the extracts made from the various glands active from the parts extracted from the cells proper, or is the activity due in part to the blood, especially the hemoglobin and the leukocytes in the parts of the glands used? My work shows that the addition of blood to sugar solutions produces little or no apparent change, in the action of the glandular extracts, when combined with the sugar, nor does the blood have a glycolytic action when used alone. It is possible from the results of Sieber,[12] that the ferments to which the action is due are contained in the leukocytes in such a manner that cell destruction must take place in order that there may be a blood factor. It is extremely possible that this cell destruction and discharge of the enzymes takes place normally in the body. In order to test what extracts possessed this power of sugar destruction to the highest degree, or, in other words, in what solutions could the enzymes be dissolved out of the cells, and also to discover what forms of the glands or extracts could be used to the best advantage, I made the following kinds.

In all cases the glands were taken from the animals as soon as possible after killing, with precautions with regard to aseptic conditions, thoroughly cleansed, blood removed, and then were ground finely; sometimes being rubbed up in a mortar with fine sand. This was next placed in a mixture of from three to four parts of glycerin and one part of 96% alcohol, and allowed to stand from three to four days. Then it was filtered and ready for use. At other times, instead of the glycerin-alcohol, I used solutions of different strengths of sodium chlorid or of distilled water. I allowed these to remain on the glandular substance from three to 36 hours before filtering. I also made acetone powder preparations of some of the glands, as suggested by Arnheim and Rosenbaum. The results of this last named powder were frequently active, but its use did not justify its continuation, when compared with glycerin-alcohol extracts.

In making a comparison of the different extracts, I would say briefly that the glycerin-alcohol extract is the best for all purposes, more often active, and will be preserved in a good condition longer than the other solutions. The distilled water extract is often active; while it does not act as quickly as the glycerin-alcohol extract, it will often show as great a sugar destruction in 24 hours. The glycerin-alcohol extract shows the greatest action within the first three hours. The extracts of the different salt solutions were still less active.

The results obtained show that at times some of the extracts used were many times less active than others from the same kind of animals, prepared and used in the same manner. This suggested the idea that perhaps the glycolytic ferments were secreted as demanded by the body, and that there would be somewhat of a regular curve showing the time of secretion, and a second curve showing a change in the potency of the secretions. This would be in accord with the finding of the secretions of the digestive glands by Pawlow.[13]

This idea led me to make extracts from the animals killed immediately after the taking of a heavy carbohydrate diet, a short time after eating, and after they had been starved for some time. The results, while not thoroughly investigated to the present time, still show that the animals killed after the taking of the carbohydrate diet furnish material for the extracts, both in rapidity and activity of action.

I tried combining the extracts of one animal with the extracts of a different animal, and have obtained a sufficient action to warrant the assertion that the secretions furnished by the animal body are not specific as far as those for the sugar destruction are concerned, upon those of the same kind of an animal, as that from which the extract is made. It is more of the nature of the action of the zymogen, pepsinogen, when acted upon by HCl; it makes no difference from what animal the pepsin is obtained, it will act upon foreign proteids from any animal. It must ever be borne in mind that when considering any one factor, that all the others must be remembered; not that the action cannot take place except under the conditions considered favorable in all cases, but that the failure of action is due to some one or more of these being at variance with a good action. I am not able in this present paper to make any decisive statements in regard to the amount of oxygen necessary for the glycolytic action, as a large amount of this work was done without reference to that important factor, as the facilities were not of a nature for this work, where a large amount of it was done. Although all the tests were made in the presence of sterile air, I did not employ the common method of using apparatus, connected in such a way that there would be drawn through the solutions a stream of oxygen, thus increasing the amount of oxygen to the ferments, also insuring the thorough mixing that is supposed by some to be necessary. It would seem that this drawing of air or oxygen through the solutions would be an attempt in the right direction to imitate the work of the normal tissues. There is little doubt that the sugar destruction takes place in the blood circulating in the glands outside of the cells themselves, even though the action is not in the larger streams. The question of the end-products has been neglected to a large extent, but not entirely. I cannot say that I believe that there is a decided CO_2 formation in all cases of the destruction. In cases in which we have used the potash bulbs, allowing the CO_2 to be absorbed, weighing the tubes at different times, there has not been that decided gas formation that would be expected from other investigators.

As before mentioned, Sieber states that she obtained a good destruction without any formation of gas. The presence of alcohol is quite often easily demonstrated. It seems very possible that there is at times an action produced, which would suggest a reversible action of the enzymes on the monosaccharids. Many times have I found that in 12 hours there was more sugar than there was at the end of six hours of the period of incubation, but still less than at the beginning of the experiments. This is to be explained by the fact there are either present other ferments in the extract than those which oxidize the sugar, or that the single ferment has the power of a reversible action. It seems most likely that at times the sugar molecule may be so changed that it will be isomeric with grape sugar, but will not be oxidized.

It is to be hoped that ere long it will be possible so to precipitate the active substances (I here use the term substance, for as yet in spite of the great amount of work done on the ferments, and their action, no one has been able to give us any positive information as to the real nature of the terms ferments, enzymes, etc., except to isolate some important substance, which will do some important work), and that these precipitates may be prepared in powder form and be soluble in some solvent which can be used for subcutaneous injection without any harmful results. It is quite easy to obtain the precipitate; and the glycerin-alcohol extract contains the soluble substance in the beginning, hence our hope will no doubt soon be realized.

I say that it can be used as a completely soluble ferment in this form, for I shall mention more fully the clinical use by hypodermic injections without any harmful results.

Our present knowledge of the internal secretions makes it positive that from the fact of the great prevalent distribution of the proteolytic and diastatic ferments over the entire body, that they are either carried rapidly to different parts of the body from the seat of secretion, or that they are secreted by the different tissues themselves. The fact that different tissues furnish, when extracted with glycerin and alcohol, ferments of different kinds, shows that the experiments of some investigators who endeavor to find the effect of pepsin, trypsin, etc., on the action of glandular extracts, like those used for glycolysis, is not to be relied upon, for it is apparently unnecessary and not scientific. I have been able to demonstrate the presence of diastatic ferments in all glycerin-alcoholic extracts tried; that from the liver changing starch into sugar and dextrins in a few minutes, after the sugar in the liver had been removed previously by dialysis.

The extract of the pancreas easily shows the presence of diastatic, proteolytic, lipolytic, beside the glycolytic enzymes. In the experiments made, a known quantity of a solution was taken, to which was added a quantity of one or more of the extracts. The amount of sugar was then estimated—that is, the amount present in the sugar solution and extracts combined at the beginning of the fermentation, after which it was allowed to stand in the incubator for various periods, the amount of sugar being estimated from time to time. Quite frequently a small amount of sodium chlorid was added to the mixture, but as the value of such cannot be noticed, it was later dispensed with. The reaction of the solutions was neutral. Experiments made by causing a change in the reaction, made a marked difference; when the reaction was decidedly acid or alkaline, the action was much diminished. In most cases the loss of power was more noticeable when the alkalinity was increased than when was the acidity.

The estimation of the amount of sugar present was done by the Pavy-Purdy method of titration. In making the tests, a little acetic acid and sodium chlorid were added; solution boiled and filtered. I was compelled to throw out the result of a large number of tests, in which I had added ammonium sulfate in addition to the acetic acid and sodium chlorid for the removal of the proteids, for the reason, contrary to Cohnheim,[14] the ammonium sulfate interfered very decidedly with the estimation by that test. Many times I thought all the sugar had been destroyed, only to find later that the results were wrong. The action of the ammonium salt can be explained by the theory of the dissociation of the ions present in the salt.

I tried the effect of cooking the extracts before using, and like many other investigators, found the glycolytic action abolished. There are some who obtain action to a small degree after the cooking.

The table given below shows fairly well the general results obtained by different ferments, alone and combined. When the term dextrose is used, a solution of pure dextrose in distilled water is meant. By liver substance is meant the fresh gland ground without the addition of water or cooking:

Substance used.	Period of incubation.	Sugar per 1,000 cc. at beginning.	Sugar at end of incubation.	Loss, in grams.	Percent loss.
	Hrs.	Gm.	Gm.		
Dextrose solution + lamb's blood.	18	35.53	35.53	....	...
Dextrose + river water, exposed to air.	18	35.73	28.40	7.33	20
Dextrose + river water, sterile.	24	32.00	32.00	....	...
Dextrose + glycerin-alcohol extract of pancreas (lamb) + river water, exposed to air.	24	21.42	21.42	....	...
Dextrose + glycerin-alcohol extract of pancreas (lamb).	24	25.63	21.15	4.48	17
Dextrose + glycerin-alcohol extract of spleen (calf).	24	28 58	27.41	1.17	4
Dextrose + glycerin-alcohol extract of muscle (calf).	24	33.41	33.41	....	...
Dextrose + glycerin-alcohol extract of pancreas and muscle (cat).	29	50.00	16.72	33.28	66
Dextrose + glycerin-alcohol extract of pancreas and muscle (cat).	8	5.81	3.70	2 11	36
Dextrose + glycerin-alcohol extract of pancreas and muscle (beef).	22	80.00	33.33	46.67	58
Dextrose + glycerin-alcohol extract of pancreas and muscle (beef).	3	50.00	18.86	31.14	62
Liver substance + glycerin-alcohol extract of pancreas and muscle (cat).	3	6.12	3.17	2.95	48
Liver substance + glycerin-alcohol extract of pancreas and muscle (beef).	28	6.12	1.09	5.03	82
Liver substance + glycerin-alcohol extract of pancreas and muscle (beef).	29	6.12	1.85	4.27	70
Dextrose + glycerin-alcohol extract of pancreas and muscle (beef).	24	80.00	55.55	24 45	30
Dextrose + glycerin-alcohol extract of pancreas and muscle (beef).	24	80.00	28.15	51.85	65
Dextrose + .8% NaCl extract of pancreas, spleen, muscle and liver (frog).	14	20.00	16.66	3 33	16
Dextrose + .1% NaCl extract of pancreas, spleen, muscle and liver (frog).	14	20.00	16.66	3.33	16
Dextrose + glycerin-alcohol extract of pancreas, spleen, muscle and liver (frog).	14	20.00	19 05	.95	5
Dextrose + distilled water extract of pancreas, spleen, muscle and liver (frog).	14	20 00	15.45	5.52	27
Dextrose + glycerin-alcohol extract of pancreas, muscle and spleen (beef), previously boiled.	18	50.00	50.00	....	...
Dextrose + distilled water extract of liver (dog).	20	45.45	31.03	14.42	32
Dextrose + distilled water extract of muscle (dog).	20	10.00	8 14	1.86	18
Dextrose + hypertonic NaCl extract of muscle (dog).	20	11.76	10.52	1.24	10
Dextrose + hypertonic NaCl extract of liver (dog).	20	14.36	14.36	.....	...
Dextrose + distilled water extract of muscle and liver (dog).	20	23.81	16.13	7.68	33
Dextrose + hypertonic NaCl extract of mus- and liver (dog).	20	22.45	19.33	4.12	18
Dextrose + glycerin-alcohol extract of muscle (dog).	20	30 03	24.47	5.56	18
Dextrose + glycerin-alcohol extract of pancreas (dog).	20	29 86	23.12	6.72	23
Dextrose + glycerin-alcohol extract of pancreas and muscle (dog).	20	28.52	21.43	7.09	25

The last nine experiments were made from the same dog.

I am unable to explain the result, when I used a hypertonic extract (NaCl) of the dog's liver, and found no loss.

The foregoing experiments show how the results vary; the cause very often is not discoverable.

CONCLUSIONS.

From the work done to date I find, like Arnheim and Rosenbaum, that all the organs contain enzymes, which may be extracted and cause the destruction of grape sugar. The pancreas shows the action more positively than any other organ.

The variable results are due to many conditions working together for a decided action. In unfavorable conditions the results may be negative, although the enzymes are present in abundance.

The extract, which has been found to give the best results, is the one made by using glycerin and alcohol.

The glycerin-alcohol extract of all organs used, shows by experiment the presence of pronounced diastatic enzymes as well as the glycolytic.

Clinically, results are good by the administration of the glycerin-alcohol extracts, pancreas, spleen, and muscle. The best results were by hypodermic injections of combined pancreas and muscle.

The peculiar action at times in the different experiments makes it quite possible that there is more than one enzyme concerned in the sugar destruction and that at times other enzymes interfere with the glycolytic action.

NOTE.—The work on carbohydrate metabolism is still under investigation and a further contribution will be forthcoming as soon as time permits.

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THE DANGERS OF THE MICROSCOPE IN THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

BY

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I well remember the time when to most physicians albuminuria meant Bright's disease, and the absence of albuminuria meant the absence of Bright's disease. I also remember the time, after Koch's discovery, when to most physicians tubercle bacilli in the sputum meant tuberculosis, and the absence of tubercle bacilli in the sputum meant no tuberculosis. In this respect times have changed for the better, and perhaps some may think that the medical profession is now well posted on this phase of the subject of tuberculosis and needs no intrusion of advice. Ten years ago I was urged to write such a paper as this, but desisted from the fear that it might seem superfluous and an attempt to plow over ground already well ploughed. But since then so many, many cases have been brought to my attention in which human lives have been lost which probably might have been saved by a practical application of the facts here to be presented, that I feel sure that a large (even if decreasing) number of physicians still lacks a realizing sense of the importance of the subject, in spite of much that has been written; and I also feel sure that an iteration and a reiteration, with a renewed emphasis, can hardly be out of place until the proposition is universally accepted that *a negative microscopic report does not exclude tuberculosis*; at least, not before 15 or 20 or more examinations have been made. Probably many of the physicians referred to know these facts, but do not act in accordance with this knowledge. All sanatorium doctors have abundant opportunities for ascertaining that this state of things now exists, and will willingly testify to such existence.

The joy of a physician connected with a modern sanatorium in seeing so many sufferers from pulmonary tuberculosis get well, and so many others improve, when a cure is out of the question, is literally unspeakable, especially when contrasted with the recollection of his treatment of the tuberculous in years gone by. The saddest part of his sanatorium life is the necessity of refusing applicants, who often appeal strongly to his sympathies, but for whom there is little or no hope. Some of these people, when asked why they did not apply sooner, tell with regret the same old story which the fallacious spes phthisica has always prompted, and probably always will prompt—that although warned of their danger, they neglected to respond, thinking it unnecessary. Others will state that they early consulted a physician who, either with or without a physical examination of the chest, made or procured a sputum examination, the negative character of which induced the doctor to inform the patient that he had no tuberculosis and must not worry; the patient cheerfully followed this advice and drifted gradually into incurability. After hearing such pleasant statements the patient does not, as a rule, keep himself under the observation of the physician, as a suspicious case should, but takes the matter into his own hands and goes his own way, fearing no evil.

It is not strange, then, that one who is in a position to see so many unfortunate outcomes from negative diagnoses, inspired by the absence of tubercle bacilli in the sputum, should feel impelled to raise his voice most energetically against the delusion, still so prevalent, I am sure, that absence of tubercle bacilli means absence of tuberculosis.

Of late years the medical journals of the whole world have been teeming with articles on the early diagnosis of pulmonary tuberculosis. Why? Because in late years we have learned that the great majority of cases of this disease can be cured, if taken early, and therefore it is very important that they should be recognized at the earliest possible period of their existence, when the diagnostic skill of the physician counts for life as against death following a later diagnosis, so often first made by the physician at a time when, perhaps, even the laity may recognize the disease. The exact percentage of these cures depends largely on the definition of the word "early," about which there seems to be a difference of opinion. Before Koch's discovery an early case was often what we should now call decidedly advanced, even if the general appearance was fairly good. Much was said in those days about catarrhal pneumonia of the apex, and apical catarrh, and anxiety was expressed lest such a patient might become tuberculous. If he got well, it was considered that his bronchopneumonia had cleared up and that luckily he had escaped from developing a tuberculous condition. With the bacillus came the knowledge that he had been tuberculous all the time (after it had been found), and an "early" case at once gained a new significance. Before Koch's discovery, physicians were often loth to call a case pulmonary tuberculosis until it was hopelessly advanced. Before this time the patient was thought to be "threatened" with pulmonary tuberculosis, to have "weak lungs," to be in a "pretuberculous" condition. Now that the microscope afforded positive proof of the disease, the early case was pushed one stage back. It became obvious now that a person could be really tuberculous with very slight symptoms, with little or no loss of weight, with little or no rise of temperature for considerable periods, without great impairment of strength, with ability to work, and certainly without that haggard and pale (or flushed), emaciated, exhausted appearance, which formerly were supposed to constitute the type of pulmonary tuberculosis. Many instances of this we now have at Rutland, after a few weeks of residence, in the shape of patients who, for all outward appearances, might be prize fighters or college football players or other athletes, so ruddy is the complexion, so plump the figure, so firm the step, or perhaps so abnormally fat, with weight from 160 to 200 pounds—at any rate, very different from the classic picture of what we call pulmonary tuberculosis—and yet with tubercle bacilli in the sputum.

The microscope, after Koch's discovery, was thought to give the very first intimation of the onset of the disease. It was certainly a very great advance, and when the bacillus was found in the sputum, no one from that day to this could dispute its incontestable evidence; and for his wonderful discovery Koch has since received the homage of the whole world.

But after a while some patients who died from one cause or another, who had shown no bacilli in the sputum or who had no sputum to examine, nevertheless on autopsy revealed millions of tubercle bacilli in their lungs, showing that the disease had really existed, although not disclosed by the microscope during life. Such cases, of course, proved that the "early" stage of the disease must be pushed back further still; and it now became apparent that the germs had not before shown themselves in the sputum, because the disease was not far enough advanced to let them out. A certain amount of ulceration and small cavitation and burrowing to the lumen of a bronchus are necessary for the expulsion by the mouth of germ-containing tuberculous material. Surely such a necrotic process as this cannot be a part of the true first stage of the disease. A very small and early deposit might be so favorably situated in the lung tissue near a bronchus that it might break down and be discharged and recognized by the microscope before much damage was done to the rest of the lung. But, on the contrary, time and time again have the tuberculous deposits gained really considerable magnitude, enough so as to be easily recognized by physical signs (even by the nonexpert) before enough softening has taken place to allow of the escape of the bacilli.

Dr. Pottenger,[1] of Los Angeles, says:

> It would not be considered an early diagnosis of an abscess (in any part of the body) when it had broken and the products of discharge had been found to contain the pyogenic cocci by microscopic examination; yet many are content to call it an early diagnosis in pulmonary tuberculosis, when the tubercles have broken down and afforded us bacilli-bearing sputa.

I think such opinions are wellnigh universal among specialists in lung diseases, and were it advisable, I could quote a long list. I will try to content myself with two or three more short quotations only, however, in order to support my position and to show the general trend of thought among phthisiologists.

Dr. Knopf,[2] of New York, says:

> Now, if we examine the matter carefully, we must admit that in very early cases of pulmonary tuberculosis the expulsion of bacilli with the expectoration, which is at that time exceedingly scanty, can hardly be expected. There must be a disintegration of the tubercle before we can assume that the bronchial or pulmonary secretion will contain the specific organism of tuberculosis.

Dr. Karl von Ruck,[3] of Asheville, says:

> It is well known to those who are at all familiar with the pathologic alterations which occur in tuberculous lungs that tubercle bacilli can only appear in the sputum when destructive changes resulting in the elimination of softened necrotic tissues are taking place.

Prof. Woods Hutchinson,[4] of Portland, Oregon:

> The clinician who waits until he can clinch his diagnosis of tuberculosis by the sputum test has lost the most valuable weeks or months in the whole history of the disease, and nearly half his chances of effecting a cure. Enormously valuable though it is as a means of corroboration and verification with mathematic accuracy, the man who cannot make a diagnosis of tuberculosis without his microscope is unfit to practise medicine.

(This latter statement is certainly exaggerated, but is possibly pardonable to an enthusiastic man who has been sorely tried.)

Lastly, Prof. Wm. F. Cheney,[5] of San Francisco, writes:

> We come back, therefore, in the diagnosis of early pulmonary tuberculosis to old and well-tried methods—the clinical history and the physical examination—as the ones of most importance still. Of the newer methods, sputum examination does not give information early enough; tuberculin may give reaction when no active tuberculosis is present, and may fail to give a reaction when active tuberculosis is really present; while the röntgen ray confirms for us what physical examination has already discovered, but does not tell us anything that cannot be found out in other ways.

When we accept applicants for admission to our Massachusetts State Sanatorium, it is comparatively seldom that we know whether they have previously shown tubercle bacilli or not. Even if the sputum has been examined before, the patients often cannot tell whether the result was positive or negative, and so our diagnoses are generally based on the clinical symptoms and physical signs. After entrance, the sputum of patients who have sputum is examined at least once a month, and frequently oftener. On a recent day, taken at random, out of 112 patients in my service all but 15 had tubercle bacilli, and of these 15, 11 had had hemoptysis without heart disease (not streaked sputum, but expectoration of clear blood in decided quantities). All of the remaining six either had very positive physical signs or responded to the tuberculin test.

It must not be supposed, however, that those patients who have shown tubercle bacilli have always done so at each examination of their sputum. In fact, such a showing would be decidedly exceptional. As instances I will quote from our records a few cases out of very many, a positive report (or the presence of tubercle bacilli) being indicated by the sign +, and a negative report by the sign —.

No. 2080.—Geo. W. McI. (a former patient of Dr. Moore of Brookline.) On November 18—, December 10+, January 27—, February 1+, February 15—, March 17+, April 14—.

No. 1886.—Catharine A. S. entered April 16, 1903, having coughed five weeks. April 17—, 18—, 22—, 23+, June 12—, June 13+, July 7+, August 11—, October 16+, December 4+, January 18—.

No. 1868.—A. S. L., medical student. April 3+, May 23—, May 26—, July 17—, July 30—, August 8+, September 15—, October 8—, October 31+, December 21—, 22—, 23—, January 28—.

No. 1809.—H. A. L. March 21+, April 27+, June 8—, 9—, 10—, 11—, 27+, July 16+, 22—, August 8+, October 15+, November 7—, December 3+, January 17+.

No. 1601.—Wm. T. S. Tubercle bacilli before entrance, 16 negatives in succession after entrance followed by one positive and one negative.

No. 1630.—W. J. F., 7 negatives, then one positive, 4 negatives, 2 positives, 2 negatives.

No. 1642.—L. C. Tubercle bacilli before entrance. After entrance 6 negatives, then 1 positive, 4 negatives, 7 positives.

No. 1740.—Jas. F. S., 7 negatives, 1 positive, 7 negatives, 1 positive.

No. 1767.—J. McC., 12 negatives, 1 positive, 3 negatives.

No. 1759.—H. H., 11 negatives, 1 positive, 5 negatives.

No one could possibly deny that these were genuine cases of tuberculosis, as evidenced by the presence of tubercle bacilli on one or more occasions, if not always, to say nothing of other evidence. And yet, had admission to our State Sanatorium been conditioned on the exhibition of tubercle bacilli, many worthy persons might have run great risk of exclusion, and thereby, perhaps, have lost their chance for recovery. For even in what were subsequently known as undoubted cases, the bacilli being often absent for such long periods of time together, or irregularly present, it might easily happen that they would be absent on the one or two or few occasions on which only they would probably be sought.

I should like to present from our records a few points from cases which never exhibited tubercle bacilli, either before or after entrance to our sanatorium, in spite of many careful examinations, and yet which we in our best judgment consider really and truly cases of pulmonary tuberculosis. In the first period of our sanatorium's six years' active existence, the sputum examinations were mostly made indiscriminately at the pathological laboratories of the medical schools of Harvard and Boston Universities. Latterly they have been made in our own laboratory at Rutland. In all cases the work has been without doubt accurate and conscientious.

No. 1639.—C. D., aged 31. Entered November 3, 1902, discharged May 11, 1903, as apparently cured, and has remained well since. Father has pulmonary tuberculosis. She had hemoptysis in October, 1 ounce. Heart all right, temperature 99.5°, pulse 96. Very decided dulness and bronchovesicular respiration, and a few bubbling rales right apex to fourth rib, the breathing being tubular in right midscapular region. After entrance the sputum was examined eight times with negative results, and afterward she had no expectoration to examine.

No. 1782.—C. A., aged 17, from Lynn. Entered February

10, 1903, discharged apparently cured November 9, 1903. One brother had died of tuberculous laryngitis. Continuous cough for five months. Hemoptysis 4 ounces. Dull and decided bronchovesicular respiration at right apex to second rib, with decided dulness and bronchovesicular respiration at left apex to first rib. Pulse for a long time 110 to 120. No tubercle bacilli were found in 27 examinations during his stay.

No. 2084.—L. E. F., aged 37. Entered August 11, 1903, discharged apparently cured December 30, 1903. Cough seven months. Temperature 99.5°. Slight dulness left apex to second rib. Tuberculin reaction from normal to about 102°. No tubercle bacilli in seven examinations.

No. 1905.—H. S. T., aged 19. Father and mother and sister died of pulmonary tuberculosis, also two uncles and one aunt. Always coughed. Entered April 27, left September 1, 1903. For three months of this time his evening temperature was about 1° above normal; when normal tuberculin reacted to 101°. No tubercle bacilli in 32 examinations, 10 of which were after the tuberculin injection.

No. 1776.—C. E. S., aged 20. Slight dulness and bronchovesicular respiration, right infraclavicular region. Entered February 5, left May 21, 1903. After one sputum examination which was negative, there was no expectoration. Tuberculin reaction about 102°. Fifteen months after his discharge he died at Haverhill of what his attending physician called common pulmonary tuberculosis.

That these also were undoubted cases of tuberculosis I should be perfectly willing to leave to a jury of phthisiologists. Even cases that were far less marked would by this same jury be so regarded; or, if they could not always conscientiously express so much positiveness, they would certainly agree that the probability of their being such was very strong. Of course, all the symptoms in detail and the family and personal history in each case, here omitted for brevity, would have to be taken into account.

The fact remains of necessity that, push back the very earliest appreciable stage as we may, there comes a time when no physician can positively and conscientiously state that a certain individual has tuberculosis. One with considerable skill and experience can naturally recognize the disease at a much earlier period than one with less; but the most skilful is at a loss during what we may call the stage of incubation, after the reception by its host of the tubercle bacilli, and for some time later.

Now, what is the duty of the physician who is skilful enough to recognize what in this sense is a suspicious case, rather than one often called suspicious which is really somewhat advanced? Clearly, as far as possible, it is to employ the same measures which we know to be so effective in the cure of the established disease. I believe that some time we shall have sanatoriums for the short treatment of purely suspicious cases, and even for the prevention of the disease in those of bad inheritance or constitution, where they may learn the correct principles of proper living. At present we have not reached this point. If, after having taken in for a short period of observation a suspicious case at Rutland, we decide that it is not really or probably tuberculous, we discharge the patient without further treatment. In spite of our best efforts, we have so far only succeeded in filling roughly about half our beds with what we call incipient cases, and many even of these are not strictly incipient according to modern ideas. Physicians often send to us as incipient cases those that are far advanced and absolutely hopeless.

I do not claim that a skilled auscultator (and all physicians should be skilled auscultators) can *always* recognize an incipient case before tubercle bacilli appear in the sputum, for certainly this is not true; but I do claim that *very often* it can be done. Very often, not by physical examination alone, but by a thoughtful consideration of symptoms and physical signs, in connection with a close study of the personal and family history of the patient, aided if necessary (and the necessity is not frequent) by the tuberculin test, we can reach a satisfactory conclusion weeks and perhaps months before the bacilli appear in the sputum, or even before the sputum itself appears, and thus gain time enough perhaps to save the patient.

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BRAIN TUMOR AND TRAUMA.*

BY

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The pathology of a traumatic cerebral growth is not different from that of tumor elsewhere, being modified only by the peculiar structures from which it may spring, by its method of nutrition, and by the very means which are intended for the protection of this portion of the nerve axis. The intimate relation of brain tumor to trauma is all but universally admitted. A blow upon the breast, an injury from gallstone, a bruising labor, are accepted factors in determining an overgrowth in the surrounding tissues. Cancer, tuberculosis, syphilis, the infectious granulomas, are educed locally by an irritant acting upon a constitutional dyscrasia; whether by weakening the tissues thus permitting of a retrograde metaphorphosis or by stimulating the cell in loco as they exist, or by setting up what appears upon the surface to be a new cell growth, and what we call a new formation. Of some interest is the relation of the benign to the malignant; both however are abnormal, some are on the border line; some benign at first are said later "to take on malignancy," while sarcoma of all external growths notoriously traceable to injury, is one of the more frequent intracranial varieties. The biped position of the human animal renders the cranium more liable to injury, the constant endeavor of the infant to assume this posture, and its failure with falls upon the occiput, being alleged to explain the relative frequency of cerebellar growths during childhood.

The direct influence of the blow is indicated by the tumor appearing at the seat of injury. In one case Dr. Keen remarked "Although the fall which was the probable cause of the blow left no scar to mark its site, the diagnosis of the (brain) tumor was exact." Gowers tells us "the symptoms have been observed to follow a blow, and the tumor is found to correspond in position to the seat of injury."

Surgeons recognize that the structural grouping of scalp, skull and membranes, is for protection; the five layers of the scalp, the three tables of the skull, the firm dura stretched like a safety net to break the force of the fall, the subarachnoid space communicating with the ventricles, filled with cerebrospinal fluid acting as a water cushion, within and without, the versatility of these several structures, tend to scatter the lines of the trauma and prevent its impingement upon the delicate nervous mechanism, while the dome-shaped skull as well shown by Agnew, tends also to diffuse the impetus.

If, however, the force is excessive, these very conservators become elements of danger. If the trauma at the point of impact is inordinate, each line of radiation traveled becomes a source of jeopardy, because the angle of impingement becoming wider the area of injury to the cortex is greater than upon the scalp. The rounded shape of the skull, particularly after bony ankylosis of the sutures, permits of molecular vibration, which extending in every direction, empowers a sudden outburst at a distant meeting point of the rays; the indentation of the sphere along one diameter, produces fracture along the diameter at right angles to it; the brain suspended in the water bed, may be harmed by the sudden local increased tension of the fluid, while the fluid being displaced, the brain itself may be violently projected against its bony case.

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* Read at the meeting of the Pennsylvania State Medical Society, at Pittsburg, September 27, 28, 29, 1904.

It is not necessary for me to go further into the theories of concussion and contrecoup; enough that we know that a blow upon one side has ruptured the opposite middle meningeal artery; that a gunshot wound of the occipital region, as in President Lincoln's case, has fractured the frontal plate, so that given the effects of traumatism in the production of abnormal cell growth, benign or malignant, we must admit it may induce that cell growth either directly at the point of impact or again at a distance, which is confirmed by the development of newgrowths inaccessible to a direct blow.

Of metastases infection we say nothing, the presence of artery, vein, and lymphatic in prodigality gives every opportunity, and while primary carcinoma of the brain is very rare, involvement secondary to the breast or other organ, has not infrequently been observed.

Of more importance is the influence of nutrition.. The time is past when we are obliged to consider the brain as a nerve center only, squeezing out nerve force like water from a sponge, the need of its great vascularity being attributed to this nervous function. The brain has its formative and nutritive functions to perform as well, and for this purpose is its extreme vascularization a fifth of the total blood supply. Like the spleen and the suprarenal capsule, it also is a ductless gland of tremendous import. We know the testicle has the one function of contributing to reproduction and another of a plastic influence upon one's self. Enucleate the testicle in the youth you effeminate the man. The brain is more than a galvanic battery; part of our energy is due not to an indefinable current, but to the elaboration, absorption, and transmission of a concrete brain product.

Nerve force, like light, heat, and electricity, is only one form of force, while life is the secret service that controls the force. Senility is not merely a failure of nerve force, but also a depraved elaboration of brain product, with diminished absorption and transmission. After a brain softening the nerve cut off from its ganglion wastes, the extremity is paralyzed, the muscle atrophies into alia, because the nutrient elaboration from the center is denied them. That the nerve trunks will be shown to be traveling tracts for the nutritive products is foreshadowed by the discovery of the mode of action of the toxicity of tetanus, and because to antagonize it we must inject the tetanus toxin directly into nerve and cord, but in this connection the wellknown relation of the lymph sheaths and ventricles should not be overlooked.

The effect of traumatism in producing tumor must therefore be not solely from violence but also nutritional and developmental, and it must be to a study of the laws of growth and of physiologic chemistry rather than to bacteriology that we must look in the future to determine the mediate and immediate causes of the growth of brain tumor.

Of 600 tumors tabulated by Sachs:[1]

In children	21
In adults	127
Tumors of the cortex	148
In children	96
In adults	45
Tumors of cerebellum	141

Making a total of 289 tumors. Thus 48% of the whole 600 were upon the cortex or cerebellum, the portions of the encephalon most exposed to injury from without.

In addition, the frontal lobe, the right convexity, the first and second temporosphenoidal convolutions, the substance of the right hemisphere, the outer side of the corpus striatum, the longitudinal fissure between the hemispheres, and the meninges, have been found to be the seat of tumor following injury. Of the varieties of growth (excluding cysts) carcinoma, melanotic and cystic sarcoma, gliosarcoma, soft glioma, fibroma, and gumma, are those of direct record from traumatism, in the appendix to this paper.

The time of appearance seems without limit. In one case two weeks after the injury epileptic attacks appeared; at the autopsy a gumma was found at the junction of the middle and the lower third of the postcentral convolutions; in another case a male, aged 46, with injury; during the first fortnight there were no definite symptoms, afterward he became mentally depressed with gradually increasing loss of power, paralysis of the left side, face arm and leg, optic neuritis. On necropsy a vascular sarcoma 4x7½ inches to the outer side of corpus striatum was found. On the other hand the authors have reported a period of incubation following injury of from 15 to 20 years.

Finally for this and for all other diseases we urge the importance of a careful history; the lack of a well kept "case book" is the glaring reproach of the profession in America. We often laugh at the young mother with her "baby book" for her first born, for the first year of life; of inestimable value would such a record be from infancy to old age, chronicling incidents apparently trivial, which after 20 years perhaps may lead to the serious disclosure of a brain tumor, while to the medical attendant, I need not say, the registry of the earliest deviation, in disposition, in action of body, or of mental habit, is often crucial in an early diagnosis of this lesion, or in the more advanced stages in determining a localization directly or by exclusion.

CONCLUSIONS.

The pathology of a traumatic brain growth is not different from that of a tumor elsewhere.

The upright posture renders the cranium more liable to injury, and in severe traumatism the diffusion of the force increases the dangers to the brain.

The direct influence of the blow is shown by the tumor appearing at the seat of injury, the cortex, and the cerebellum, therefore, being the parts of the encephalon most vulnerable and most liable to tumor, but by reason of concussion and contrecoup, deeper parts and parts at a distance may be affected, as proved by the clinical evidence of tumor.

The fact that the brain is so well protected from infection from without, so long as its outworks, the scalp, the skull, and the meninges are intact, militates against the bacterial origin of tumor, and favors the belief in the cellular, nutritional, and formative element as causatives of newgrowth.

We find the same variety of tumor here as elsewhere, though from traumatic causes (excepting cysts), sarcoma and gumma would seem to bear the greater proportion.

The time of the appearance is without limit, in brevity or in duration.

A completely kept history of the individual is of the greatest importance in enabling us to make a diagnosis at the very onset of the disease, or by exclusion in the more neutral areas of the brain.

MEDICAL BRIEF OF BRAIN TUMOR CAUSED BY ACCIDENT.

(Cysts are not included, as I have made these the subject of another paper.)

Dr. Sachs, page 342: "Traumatism is a very frequent etiologic factor in tumor."

Page 307: "Traumatic injuries to the scalp have been held to be a powerful etiologic factor. Dr. Starr thinks that the falls of children account for the relative frequency of cerebellar tumors. We can conceive a different causal relation between traumatic injury and a development of cyst."

Dr. Hansford:[2] Male, aged 46, fell out of a cart; first fortnight had no definite symptoms, afterward became mentally depressed, gradually increasing loss of power; paralysis of left side, face, arm and leg; optic neuritis, necropsy, tumor, 4 x 7½ inches to the outside of corpus striatum, a vascular sarcoma.

Dr. W. C. Spencer remembered a case in which a blow over the right frontal lobe was at once followed by deviation of the eyeball, loss of power of the shoulders; these symptoms disappeared; six months after, brain tumor appeared.

Dr. Arbuthnot had two years before shown a patient whose skull vault had been injured, subsequently a malignant growth of the dura appeared at the seat of injury and was removed, and up to date has not returned.

Dr. Hale White had already examined a man in whom a tumor of the cerebellum had developed on site of a blow.

Dr. Althaus:[3] Woman, aged 39, history of blow many years before; symptoms of brain tumor.

Dr. Linn recalled several cases of tumor following fractures; in one case, 15 years after the injury.

Dr. Keen:[4] Although the fall, which was the probable cause of the blow, left no scar to mark its site, the diagnosis of the brain tumor was exact. Autopsy showed tumor was sarcoma.

Dr. Edes:[5] Blows over the head, with or without fracture, are likely to cause rupture of the cerebral substance, with hemorrhage.

Dr. Pettitt:[6] Male, aged 43, severe blow some months before eye removed. On admission, seven months later, total deafness and blindness, spasms. Postmortem showed melanotic sarcoma of brain.

Male, aged 33; after a blow upon the head suffered from dull headache, vomiting, constipation, impairment of sight and of hearing, partial anesthesia of right side, stupor, convulsions. Autopsy, gumma 1¼ inches in diameter, involving first and second temporal convolutions.[7]

Starr[8]: Male, aged 45; 15 years before appearance of symptoms, kicked on head by horse, 15 months before death, small hard tumor of scalp, year following, violent headache; gradually lost sight of right eye. Tumor on scalp was an ivory exostosis; death in 37 hours. Brain showed tumor 3 in. x 3½ in. in longitudinal fissure between the hemispheres. Carcinoma.

Female, aged 39, blow on head followed by headache, vertigo, left unilateral spasm, partial paralysis of right leg and arm. Autopsy showed gumma of right convexity pressing upon cortical convolutions.[9]

Male, July, 1886, struck on the head with a stick, unconscious for 12 hours; no paralysis. Headache, three days afterward fits, followed by numerous fits; died December 29. Soft glioma 2 in. transverse, 1½ in. from before backward, posterior part of frontal lobe of left hemisphere.[10]

Boy, when 11 years, had a fall while playing football, occasional headache and irritability until December, 1877, when he had epileptic fits. Died. Large tumor occupied light substance of right hemisphere about its center, spindle-cell sarcoma.[11]

Dr. Hadden,[12] assistant physician St. Thomas Hospital, says: "Traumatism in my experience is far from uncommon as an antecedent in cerebral tumor, and I am, from a survey of several cases, inclined to ascribe some importance to injury as a causation."

Male, aged 16. Good health until six months ago had a blow on the side of the head with a pillow; felt dizzy, could not see plainly, numbness in left hand; three months later sight weak, optic neuritis. Autopsy, gliosarcoma in occipital and temporosphenoidal lobe.[13]

In one case in which operation was done by Dr. Ballam,[14] a fracture of the skull three inches long was exposed over the site of the tumor, no scar on scalp, no history of injury.

Male, aged 41. On February 12, 1892, scaffold pole fell on patient's head; he was stunned, but walked home. First few weeks nothing amiss, then headache returned in about two months, hands tremulous, sight affected, gave up work in May. Weakness of leg in October, memory bad in July. February 20, patient's condition worse, comatose, complete left hemiplegia. Autopsy, no signs of previous injury to bone, flattened tumor on surface of right frontal lobe over first frontal convolution, and a little on the second frontal, 2½ inches anteroposterior and 2 inches transverse; dura adherent, softening through whole of right corona radiata. Spindle-cell sarcoma.[15]

Patient perfectly healthy before accident. "There is abundant evidence that symptoms of brain tumor often follow an injury."[16]

Dr. Keen:[17] Male, aged 26, sustained injury when 3 years of age; 20 years later began to suffer with pains on left side of the head, epileptic seizures, etc., small scar found on left side of head, trephined over scar and found large fibroma, 3 oz. 49 gr., readily enucleated over lower part of ascending frontal and posterior part of second and third part of first frontal.

Dr. Mayo:[18] Traumatism may and not infrequently does lead to intracranial lesions acquiring immediate or remote surgical intervention in which no fractures exist and in which the injury may not have been directed to the head.

Starr:[19] "In a certain small percentage of cases a history of a blow or fall on the head has been obtained (in brain tumor)."

Bramwell:[20] "Among the more direct causes, injury occupies an important place. There can, I think, be little doubt that blows and falls on the head do sometimes lead to the formation of tumors."

Mills:[21] "While the influence of traumatism as an exciting cause of intercranial growths has probably been overestimated by some, it cannot be questioned that it is an efficient causative agent."

Oppenheim:[22] "The causes of cerebral tumor are not altogether known. We know that a trauma affecting the cranium may induce it. The mental symptoms may come on soon after the injury, but often are only observable after some time."

"Intercranial tumors are due to exactly the same causes as tumors elsewhere. Traumatic injury is in some cases undoubtedly a proximate cause."[23]

There is little doubt that traumatic influences, falls and blows on the head are occasionally the immediate excitants of a growth, since the symptoms have been observed to follow a blow and the tumor is found to correspond in position to the seat of the injury. Traces of the traumatic mischief may or may not be visible after death and apparently the nutritive changes consequent on a mere concussion may be the starting point of a tumor.[24]

Dana:[25] Blows on the head and other forms of injury to the cranium are exciting causes in a small proportion of cases.

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FIBROMA OF THE UTERUS, COMPLICATED BY DISORDERS OF THE HEART AND KIDNEYS.

Uremia without Nephritis from Tumor Pressure.

BY

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Fibroma of the uterus was formerly looked upon as a mass of unstriped muscular fiber, innocent in itself, likely to disappear at or near the menopause, and only occasionally requiring interference, because of excessive hemorrhage. Women were encouraged to wait for the menopause, under the impression that all trouble would then be over. Later observation and analysis of this very prevalent class of growths have shown that the simple, uncomplicated, harmless fibroid tumor, while occasionally encountered, is comparatively rare, if the past, present, and future of the individual are considered. Various complications appear sooner or later, which are attributable to the tumor or which are greatly aggravated by its presence. Among these may be mentioned salpingitis, peritonitis, intestinal obstruction, diseases of the bladder, primary or secondary anemia, profound depression of the nervous system from impairment of nutrition, as the result of hemorrhage; diseases of the kidneys due to back pressure, or ascending diseases from the bladder, increased load upon the heart, giving rise to dilatation. Investigation has shown that the heart muscle in the presence of fibroid tumor is liable to a special form of degeneration. Owing to the loss of blood, all tissues are starved, including the heart muscle, and owing to the increase of load or to strain produced by the interference with peripheral circulation, *e. g.*, in the lower extremities and kidneys, the fibroid tumor may become a serious feature in impairing the efficiency of the heart. Dropsy of the lower extremities is quite common. It may be due to direct pressure upon pelvic vessels or be secondary to heart weakness. From the standpoint of causation, cases be divided into (1) those in which heart and kidney degeneration or interference are due to the tumor; (2) those in which the heart and kidney lesions exist from other causes and in which the tumor exhausts the vital forces and increases the burden.

From the standpoint of the conscientious surgeon, when advice is sought, the questions of management group themselves about two classes of cases:

1. The relatively early ones, with a tumor possibly as large as a child's head, in which the hemorrhage is still within the capacity of the endurance of the individual and the secondary complications have not appeared. The discussion of whether or not to remove such a growth while yet the danger of operation is small (not over 2%) is one which depends upon many individual factors and much time would be required to formulate rules. In general, it may be said that a growing tumor, causing trouble, in any of the many channels of interference with vitality, had better be removed. A few cases may be kept under observation in which pregnancy is desirable and not likely to be fatal, or in which small tumors are quiescent in single women.

2. The other group consists of those in which serious disease of other organs exists at the time of first observation. Here the nicest consideration must be given to general problems, such as the effect of anesthesia and shock upon a system already weakened by lesions of lungs, heart, kidneys, or liver.

Without attempting to enter exhaustively into this discussion, it may be said that patients having serious visceral lesion may be operated upon with advantage if the presence of the tumor seriously exhausts the vitality or complicates the situation; as by prolonged hemorrhage or pressure, especially if there are adhesions of the intestines or chronic sepsis, always provided that intelligent study indicates a reasonable margin of safety. Such operations, if undertaken, must be preceded by a careful preparation of the individual. Rest in bed, selected simple nutritious food, saline laxatives, high retained enemas, of salt solution, bathing, the administration of digitalis, waiting for the absorption of pleurisies; bringing the urea output up; packing to control hemorrhage temporarily may be required. The avoidance during operation of exposure, bowel handling and loss of temperature is important. It is remarkable how favorably such patients may be influenced by operation thus intelligently undertaken.

The following case illustrates the management of a serious heart lesion associated with a tumor of the uterus, which is growing steadily worse, and which from increase of size, attacks of peritonitis and from hemorrhage is sure to cause directly or indirectly the death of the patient if not removed.

Mrs. B., aged 39, was referred to me at the Presbyterian Hospital by Dr. John H. Service. She had been married 13 years, but had been absolutely sterile. She had never been very strong, and was subject to colds. She had three separate attacks of rheumatism in the last 20 years, which had left their impress upon her heart. Her menstrual periods had been increased in quantity and duration for about eight years. The flow gradually became quite profuse, and recently has appeared more or less all through the month. For the first five days of her periods she uses 12 napkins per day. The patient is quite anemic, and has dyspnea on exertion. The lungs, liver, spleen, and kidneys are negative. The apex beat is in the fifth interspace, rather forcible and diffuse, and displaced outward to the nipple line. A soft, blowing, systolic murmur is heard at the pulmonary cartilage, at the apex, and in the axilla. A slight thrill over the apex. Distinct pulsation of the neck. Old pericardial friction sound.

Diagnosis.—Double mitral murmur with imperfect compensation, old pericarditis. A hard fibroma of the uterus, size of five months' pregnancy, occupies the lower abdomen. It has several nodules, and is not movable, being intraligamentary on both sides.

As the patient had no chance without operation, though the risks were increased by the heart condition, hysterectomy was advised. The operation proved difficult because the tumor was covered by universal adhesions. The bladder was drawn half way to the navel; neither broad ligament could be identified. After removal of the tumor and amputation of the uterus at the cervix, some trouble was encountered in controlling oozing from the extensive raw surfaces. On the eighth day there was pain and redness in the left wrist and elbow, with an increase of temperature. There were no further abdominal symptoms, but a typical attack of rheumatism of the arms and shoulders developed. There was some increase in the pericarditis, and pleurisy, with some effusion developed in the left chest.

The abdominal wound healed aseptically, and though the patient had considerable dyspnea, she slowly recovered from the chest complications, while the rheumatism of the arms slowly disappeared. Dr. R. G. Curtin kindly saw her in consultation during the rheumatic attack, and found no evidence of an acute element in the heart lesion. In five weeks the patient could sit up and was entirely free from chest pains, with a good appetite and constantly increasing strength. The heart murmur was then practically the same as before the operation, the lung entirely cleared up. She left the hospital in good condition.

The expectation of life of this patient is enormously increased by the final removal of her hemorrhage and the focus for attacks of peritonitis, as well as distortion of the bladder and ureters. So far as the heart is concerned, she stood the strain of operation well. Had the complications rising from acute rheumatic conditions been absent, her convalescence would have been almost uneventful.

The following case illustrates a normal recovery after hysterectomy, though the heart had a definite murmur, and there was arteriosclerosis:

Mrs. Y., sent by Dr. Fithian, has had two births, one miscarriage; she suffers from increase of flow, pain in the sacral region and in defecation, increasing for three years. Some swelling in the ankles and dyspnea. Pain in back, growing steadily worse, loss of strength and weight in last year. The heart-beat is rather diffuse, fifth interspace midclavicular, harsh, systolic murmur, loud at apex, heard faintly in axilla, second sound accentuated. Arteries rather hard, pulse full, high tension. Veins of neck pulsate. Slight pretibial edema. She had a large uterus, containing several fibroid growths, firmly adherent posteriorly. It was removed by abdominal hysterectomy, the patient standing the operation unusually well, and making a comfortable and aseptic recovery. The pulse remained constantly below 88 after the operation.

The favorable result in this case was due to very little exposure or handling of the intestines, to rapid operating, and a determined effort to protect the patient from exposure during the operation, and to maintain her temperature. There was very little loss of blood. Such a patient would stand the shock of operation poorly.

Another case illustrates the action of large fibroid tumors in producing uremia through intermittent mechanical obstruction of the ureters, a kind of ball valve action within the pelvis:

S. McD. had been a strong, hard-working woman until about a year before she came under observation, as learned from her relatives. On admission to the Presbyterian Hospital there was found a large fibroid tumor of the uterus, extending from the region of the liver on the right side, deeply into the pelvic outlet. Her mental condition was dull and apathetic, and no intelligent history could be obtained. There was high tension pulse, accentuated second sound of the heart, and scanty urine, which, however, showed no albumin and no casts. There was profuse hemorrhage from the uterus, profound anemia, a hemoglobin of 29%. The tongue was coated. Constant headache, nausea, and vomiting, with the hebetude and scant and irregular flow of the urine led to the diagnosis of uremia. The urea percentage was ——. The pulse was poor, and the patient in no condition to withstand an operation or even anesthesia. She was removed to the medical ward, under the care of Dr. R. G. Curtin, with the diagnosis of fibroid tumor of the uterus, and uremia. Some hope was expressed that vigorous treatment directed to the uremic condition might make it possible to operate at a later day. The urine varied greatly in amount, on some days being very scant and on others reaching a normal quantity. This was accounted for by variations in the pressure of the tumor upon the ureters, which had produced a condition of inefficient kidneys, without a definite nephritis. Mobility of the tumor, which, though not adherent, fitted tightly the bony pelvis, might have relieved the ureters in certain positions of the body. The uterine cervix was attached high in front. The tumor was long, and stood upright, inclined a little to the right side. Under the administration of diuretics a milk diet, and salt solution enemas, she slowly improved. The hemoglobin on one occasion was brought over 50%, but promptly dropped again from a new hemorrhage. The pulse became softer, and it was finally decided that an attempt to remove the tumor was justifiable, as without operation her condition was hopeless from kidney interference and hemorrhage. After careful attention to detail of preparation, the tumor was delivered through an abdominal incision, its blood-supply tied off, and the uterus amputated at the neck. The patient made a smooth, normal, and aseptic recovery. Her mental condition improved, the hebetude disappeared entirely, and when discharged from the hospital the anemia was being rapidly overcome. The kidneys resumed their functions after removal of the pressure, although the total amount of urine was not over 30 ounces per day. Numerous examinations of the urine failed to show casts.

The following case is an instance of giving way of the heart under the strain of excessive hemorrhage, when no organic disorder was demonstrable. There was no opportunity to examine the heart muscle microscopically as the patient did not die. There was, however, probable muscle degeneration.

Mrs. E. sent by Dr. Good. Aged 44, a multipara has bled excessively for 2½ years from a fibroid tumor reaching nearly to the navel. She saturates 12 large napkins per day, for two days, at the beginning of her period, after which the heart grows weak, the lips become ashy gray in color, there is shortness of breath and palpitation following slight exertion. She is at times seized by night or day with a sense of impending death.

There is absolute self-control and no hysteria. The pulse becomes intermittent dropping every third beat. Though this patient was obviously near the limit of her endurance and the death her friends feared from hemorrhage might have really occurred through heart failure, she was carefully prepared for operation for several days, the heart being brought under the influence of digitalis and the bleeding checked by temporary measures. Two weeks after the last hemorrhage the hemoglobin was brought up to 50%. The greatest care was taken in detail to avoid shock during the operation. Abdominal hysterectomy resulted in a very smooth recovery and the patient several months afterward reported herself absolutely free from discomfort and feeling better than for many years. The tumor was submucous.

SPECIAL ARTICLES

THE RELATION OF THE SOCALLED "PIROPLASMA HOMINIS" AND CERTAIN DEGENERATIVE CHANGES IN THE ERYTHROCYTES.

BY

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The classification in several recent works of *Piroplasma hominis* as a distinct parasite, and the cause of "spotted" or "tick" fever, leads me to publish the following report upon this socalled parasite, which was submitted to the Surgeon-General of the Army in July previous, and the publication of the results of Stiles' investigations upon the same subject, which are mentioned in a "note" appended to my report. I believe that the conclusions I arrived at in my report are justified by the negative results of Stiles' work, and that no such organism has been or can be demonstrated in the blood of patients suffering from this disease.

In 1892, Doctors Chowning and Wilson investigated the etiology of a fever which has prevailed in Bitter Root Valley, Montana, for a number of years, and reached the conclusion that it was due to a minute parasite which inhabited the red blood-corpuscles. Their report was published in the *Journal of the American Medical Association*, July, 1902. In the same year Dr. Westbrook, of the University of Minnesota, confirmed the findings of Wilson and Chowning and reported his observations in the report of the Minnesota State Board of Health for 1902. In 1903, Past Assistant Surgeon John F. Anderson, United States Public Health and Marine-Hospital Service, was sent by Surgeon-General Wyman, of that service, to Montana, for the purpose of investigating this disease, which is known in that region as "spotted" fever, or "tick" fever, the latter name being suggested by Dr. Anderson. This disease occurs not only in Montana, but also in Nevada, Idaho and Wyoming. From his observations, he concludes that this disease is due to a parasite of the red blood-corpuscle, *Piroplasma hominis*, which closely resembles *Piroplasma bigeminum*, the cause of Texas cattle fever.

Upon reading the descriptions given by the various observers of this parasite, I became more and more convinced that the phenomena observed in the red blood cell were not due to the presence of a parasite, but to certain changes, especially in the hemoglobin of the red cell, produced by disease. In the examination of thousands of specimens of blood, I have often observed appearances coinciding in every particular with the description given by Chowning, Wilson, and Anderson, of *Piroplasma hominis* (socalled), which were not parasitic in nature, but rather of a degenerative character, due to some unknown action of the disease-producing elements in the cases studied. I have observed these bodies in a large number of diseases, especially in fevers, such as typhoid, malaria, smallpox, measles, grip, and very frequently in pneumonia and tuberculosis. In my work, entitled "The Estivoautumnal (remittent) Malarial Fevers," I describe certain appearances found in the red blood-corpuscles, which I am convinced are what have been designated by the observers mentioned as parasites.

In considering this question, I shall follow closely the description of the bodies as given by Anderson. Thus, Anderson[1] says: "In the fresh blood a *few* cells were found that contained parasites." This statement is very significant, as the areas which I have described are never very numerous in the specimens of blood from any of the diseases mentioned. Thus several fields may be carefully studied before one is met.

Anderson describes three forms, the most common being the single ovoid body, refractile and situated within the cell, generally near the edge. He states that "when the slide is warmed this body possesses the power of projecting quite rapidly pseudopodia, and a slight change of position." It closely resembles, according to this authority, the earliest intracorpuscular parasites of estivoautumnal malaria. The areas which I have described agree exactly with the description which is given of this form of the parasite by Anderson. Thus, these areas are most commonly oval in shape, one end of the oval being slightly smaller than the other: They are almost always situated near the edge of the corpuscle, and they also present quite frequently a pseudoameboid motion, consisting in a very rapid expansion and contraction of the edge of the area. I have called attention in my writings to these areas, chiefly because they resemble so closely the young forms of estivoautumnal parasites, the only way of differentiating them being their greater refraction and the absence of true ameboid motion. The motion described by Anderson as occurring in the socalled *Piroplasma hominis* is evidently not truly ameboid. As regards the change in position, as I have stated, it has seemed often as though these areas change their position in relation to the edge of the corpuscle, but upon careful examination it will be found that this change is generally so slight that it is very difficult to be absolutely sure whether the change is one of position or simply the enlargement or contraction of the areas.

From the above it will be seen that the areas which I have described correspond exactly with the description of the most common form of the *Piroplasma hominis* of Anderson.

The second form described by this author, and which he states is not so common, was a little larger than the first—"larger at one end and showing in the larger end a dark granular spot." He states that this was also ameboid. Very frequently I have observed areas devoid of hemoglobin which answer exactly to this description of the second form of the socalled parasite. Such areas are pyramidal in shape, with the base of the pyramid rounded. They always present a darker granular appearing spot, surrounded by a light zone at the larger end. I have described these forms in contributions upon malaria, as they occur very frequently in conjunction with the estivoautumnal parasites. They are generally situated, as is the first form, near the edge of the red corpuscle and appear to have a considerable degree of ameboid motion. The most careful study, however, will develop the fact that this motion is not ameboid, but is probably due to peculiar optical conditions produced by focusing and by changes in the fluid in which the diseased corpuscle is bathed. Any one who has had an extended experience in the examination of fresh blood will agree with me that such bodies are frequently present both in health and disease and agree exactly with the descriptions given of *Piroplasma hominis*.

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[1] Bulletin No. 14, Hygienic Laboratory, United States Public Health and Marine-Hospital Service, p. 10.

The third form of the parasite described by Anderson consists in the arrangement "in pairs of distinctly pyriform bodies, the small end being in apposition, and sometimes united by a fine thread." He states that the ameboid motion was not noticed in this form, but that the dark granular spot which he mentions in the second form was present. Areas devoid of hemoglobin, which I believe to be identical with this socalled parasite, are quite frequently found in pairs in the red blood corpuscles, and always with the small ends united, or apparently so. In other words, these areas which occur in pairs are simply one area in which the hemoglobin is not retracted evenly, but is constricted at the center. Such an appearance is often presented in the blood of patients suffering from fevers, and is a wellknown object to the hematologist.

Since reading the description of *Piroplasma hominis*, I have paid especial attention to these areas, and a most careful study has fully convinced me that Chowning, Wilson, and Anderson have mistaken areas devoid of hemoglobin in the red cell, which occur frequently in disease, for a protozoan parasite. I believe that any one who has had an extensive experience in the examination of blood has only to read the descriptions of the socalled *Piroplasma hominis* to become convinced that the areas devoid of hemoglobin in the red cell have been so mistaken. This is further borne out by the fact that the authorities quoted state that great difficulty is experienced in the staining of these organisms. Naturally this would be so, if, as I believe, the parasites are nothing more or less than areas devoid of hemoglobin.

In describing the appearance of the stained parasites, Anderson states that it "takes the stain more deeply at one end and is only faintly outlined in its periphery, and that sometimes there is only a central stained spot surrounded by a clear unstained space." I have made numerous stained specimens of blood containing dehemoglobinized areas described above, and have found that the staining reactions of these areas correspond exactly to those given as the staining reactions of *Piroplasma hominis*. In other words, these areas are probably vacuoles, or closely allied to vacuoles, and whatever staining occurs is accidental, a certain small amount of stain being deposited within the areas. My observations show that sometimes the areas fail to stain—in fact, as a rule. Sometimes a faint stain can be observed around the edge of the area within the red cell, and very often in those areas which retain the stain at all it is found that the dark granular area so often observed takes the stain most deeply. To one who has studied stained specimens of blood these appearances are very common and are closely allied to the peculiar staining appearances found in corpuscles infected by the malarial parasites and in various disease processes accompanied by more or less change in the character of the erythrocyte. Anderson states that he has examined the blood of other diseases and has been unable to find these bodies. I believe that his failure to do so can probably be explained by the fact that he has not examined enough cases, as I have repeatedly found that areas devoid of hemoglobin occur only in certain cases and only at certain periods of the disease process. Thus many examinations of the same case may be negative so far as these areas are concerned, before a positive examination is secured.

Aside from the extreme improbability that a disease caused by a protazoan parasite could be so limited in extent as to be found only in three or four States, I believe that there is not sufficient evidence to prove that the "spotted" or "tick" fever of Montana is due to a parasite such as is described by Wilson, Chowning, and Anderson. In the first place, there is no doubt in my mind that the parasite itself does not exist, but has been confused with the areas in the red blood-copuscles just described. In the second place, the gopher is said to assist in the transmission of the disease, the socalled parasite being, in the first instance, found in this animal. It is certainly improbable that a piroplasma inhabiting the gopher and transmitted by the tick, can be transmitted to man, as it has been proved by Smith and Kilburn that *Piroplasma bigeminum*, which causes a disease in cattle known as "Texas fever," cannot be transmitted to other animals, but is pathogenic only for cattle. Again, a careful reading of the description of the disease shows that it differs very widely from the disease known as Texas fever, which is due to a pirosoma. Thus the urine does not show the changes observed in Texas fever, neither does the blood show a severe anemia. And, in fact, I believe it has been found that there is but little diminution in the number of red blood-corpuscles, and that the blood is rather thicker than normal. Leaving out of consideration, however, the data mentioned, I am fully convinced that future research will show that peculiar areas occurring within the red blood cell, chiefly those devoid of hemoglobin, and occurring in human diseases, have been mistaken for a protozoan parasite by the investigators who have studied this disease. In fact, no other conclusion can be reached by one who has extensively studied fresh blood under the microscope, and who critically reads the descriptions of these parasites as given by the investigators. These areas have been mistaken by other authorities, and have been described repeatedly as the cause of dengue fever, and of other little-known diseases. A thorough investigation will probably result, in my opinion, in demonstrating that *Piroplasma hominis* does not exist.

NOTE.—Since writing this report, I have received the August, 1904, number of the *Public Health Reports*, published by the United States Public Health Marine-Hospital Service, which contains a preliminary report upon the cause, transmission, and source of the socalled spotted fever of the Rocky Mountains, by Charles Wardell Stiles, Chief of the Division of Zoology. After a study of 10 cases of the disease, he is unable to confirm the findings of Wilson, Chowning, and Anderson, that it is due to a protozoan parasite, stating that he was unable to find any structure in the blood which he could interpret as a protozoan organism. His conclusions regarding the transmission of the disease by gophers are identical with those which I have reported, and he also calls attention to the thickened condition of the blood and the condition of the urine as not supporting the view that this disease is due to a piroplasma.

Sleeping-sickness.—Public Health and Marine-Hospital reports states that the Academy of Medicine of Paris has recently approved the following proposals made by Dr. Blanchard: 1. In view of the progressive extension of sleeping-sickness and probability of dissemination of human trypanosomiasis by means of *Glossina fusca* and other species of glossina, it is urgent that commissions of naturalists and physicians should be organized with the scope of studying in the French colonies of tropic Africa the pathologic action of the different glossinas. If the result of such inquiries should show that the glossinas of eastern and southern Africa are not pathogenic to man, either of the white or black race, it would not be necessary to disturb the relations of these sections with the infected zones. 2. Awaiting the results of these inquiries, prophylactic measures should be taken to hinder soldiers, porters, and natives from passing between infected and noninfected regions. 3. Local governments are requested to make known to both whites and natives the danger involved in exposing themselves to the stings of flies in general and of the tsetse in particular, and of the necessity of locating habitations, factories, and villages outside of the localities in which such flies are found. The commission of physicians and naturalists already referred to should be charged to point out which among the localities adapted to cultivation of the soil and to the various colonial enterprises are exempt from glossinas known to be dangerous. The administration, availing itself of this technical information, could indicate localities where the people of villages already infected could go to create new centers of population. 4. Not less urgent is the study of trypanosomiasis of animals in general, with the view of determining what stinging dipteras can transmit the disease. These studies are particularly important in Sudan, Algeria, and Tunis, where the malady is transmitted by dipteras other than glossinas. 5. Trypanosomiasis of man in Algeria merits special attention. Its systematic study should be taken up as soon as possible. It would be useful to charge with this duty either a single parasitologist or a commission of two or three parasitologists. 6. In view of the existence in various countries of forms of trypanosomiasis, which appear to be transmitted by flies of the genus *Tabanus* and other stinging flies (stomoxes), which also exist in Europe, and in view of the possibility of the introduction of these parasitic diseases, the importation into France and the French colonies of animals from regions where trypanosomiasis flourishes should be prohibited by rigorous regulations. A resolution to this effect has already been adopted by the academy (July, 1902), on the proposal of Laveran and Nocard, but it is necessary again to invite the attention of the public authorities to the question.

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8. Types of Children. (Concluded.) W. S. CHRISTOPHER.

1, 2, 3.—See *American Medicine*, Vol. VII, No. 24, p. 928.

4.—See *American Medicine*, Vol. VII, No. 26, p. 1012.

5.—See *American Medicine*, Vol. VIII, No. 1, p. 11.

6.—See *American Medicine*, Vol. VII, No. 25, p. 970.

7.—See *American Medicine*, Vol. VII, No. 25, p. 970.

8.—Types of Children.—W. S. Christopher describes three diatheses; the acid, the saccharin, and the thyroid, named in the order of their frequency. These diatheses are due to nutritional factors. His study of the urine of these states has been limited to urea, acidity, and sugar. He has found over 90% of urines examined for sugar to give a positive reaction to the safranin test. This test is valuable in determining quantitative variations in physiologic sugar. A chart gives the normal urea, safranin and acidity curves from birth to the sixteenth year. One urinalysis is misleading. In the writer's cases the average was 10. The writer discusses the various autotoxemias associated with departures from the normal indicated in his chart. He suggests that the great metabolic diseases of later life—gout, diabetes, Graves' and Addison's diseases are but the exaggerated outgrowth of conditions found normally enough in early childhood. In the acid toxemias, alkalies, especially potash salts, are most serviceable. When the tongue becomes coated HCl may be given with these. The high degree of sugar so commonly found with high acidity is managed on the same lines. In the thyroid type in which urea is excessive he uses sodium cacodylate, desiccated thymus, and opium. In any of the toxemias the bowels must be left open. In babies with the acid diathesis, condensed milk has a large field of usefulness. Orange juice or codliver oil prevents all danger of scurvy or rickets. It is to some extent serviceable with thyroid babies. Fresh milk is poisonous to quite a number of infants. [H.M.]

Boston Medical and Surgical Journal.

December 1, 1904. [Vol. CLI, No. 22.]

1. On Certain Unavoidable Calamities following Surgical Operations. MAURICE H. RICHARDSON.
2. Pulmonary Tuberculosis and Sanatorium Treatment. VINCENT Y. BOWDITCH.
3. Mechanical Restraint and Seclusion of Insane Persons. CHARLES W. PAGE.
4. Pott's Disease: Treatment at a Late Stage; Remarks on the Pathologic Anatomy. E. W. TAYLOR.

1.—See *American Medicine*, Vol. VIII, No. 2, p. 54.

2.—Pulmonary Tuberculosis and Sanatorium Treatment.—V. Y. Bowditch still adheres to the term, "arrested," for those cases in which abnormal symptoms have ceased, although subsequent history has often justified a more favorable term. At Rutland, the term, "apparently cured," applies to the same class of cases. Of both the incipient and advanced cases admitted, about 50% have left with the disease arrested; of the incipient cases alone, 70% to 80% leave in this condition. For the majority of cases, a climate permitting the maximum of outdoor living is best, other things being equal, that is, good food and comfortable living. The mental attitude of the patient should also have great weight in making the decision, but for those who cannot go so far, the institutions near home are of infinite value, and their educational value is of even greater importance. It is absurd to say that patients can improve as well in the impure air of the city as in the purer air of the country. The difference of a few hundred feet in elevation has little effect; when we come into the thousands, it is a different matter. [H.M.]

3.—Mechanical Restraint and Seclusion of Insane Persons.—C. W. Page reviews the history of the abolition of mechanical restraint and seclusion. When the humane method was first introduced its opponents explained its success by supposing the cases milder in character than those with which they themselves were forced to deal, but the fact is that when nonrestraint is once established in an institution the conditions which formerly suggested forcible measures rarely occur. When restraint is permitted, the general spirit is one of coercion, antagonism, and enforced submission. When nonrestraint is the undeviating rule, tact, persuasion, and sympathy soften every act toward the inmates. The writer cannot understand how a superintendent can satisfactorily regulate mechanical restraint, if he permits its use at all; he simply endorses the judgment of the attendants. It should be allowed only when there is no question that its use or neglect would determine the life or death of the patient. Where it is not used nurses understand that they will be regarded as incompetent if they cannot manage their patients without resort to violent measures. While seclusion is somewhat less demoralizing in its effects, in only exceptional cases can it be beneficial. Being in earnest is the solution of the nonrestraint question. [H.M.]

4.—Pott's Disease: Treatment at a Late Stage Shows Improvement.—E. W. Taylor reports the case, together with notes from J. E. Goldthwait. Pott's disease, with moderate kyphosis, appeared in a man of 44, who, except for a previous attack of typhoid fever, had heretofore been in good health. About two months before admission to the Long Island Hospital (April, 1895) he had noticed weakness of the legs, and at the time of admission he was unable to walk; there was numbness from the knees down, and some difficulty in micturition. In the hospital his helplessness became more pronounced and complete paraplegia with highly exaggerated reflexes developed. In July, 1898, he was transferred to the Carney Hospital, where he was treated by Goldthwait. In this period of more than three years the patient had become almost entirely helpless. Adhesions had formed in the joints at the hips, ankles, and knees. These were now broken up under ether; a jacket was applied and other treatment suited to the condition was used. Decided improvement followed, especially during the first year. After two years he was transferred back to the Long Island Hospital, where he finally died, in 1902, from tuberculosis of the bladder and extension of the same to the kidneys. The improvement gained at the Carney Hospital persisted, but remained stationary. The postmortem findings are given in detail, with illustration of a longitudinal section through the diseased area of the vertebras, and transverse sections of the diseased cord. Summary of the important pathologic findings is: Tuberculous disintegration of eleventh thoracic vertebra, and to less degree of several adjoining vertebras; constriction of lumen of the spinal canal; no intradural tuberculosis; widespread degeneration and deformity of the cord at the level of the eleventh vertebra; secondary degenerations above and below this level, with marked sensory involvement. There is discussion of the probability of regeneration of the essential elements of the cord after long injury from pressure, etc. The points to which special attention is called are: The rapid onset of Pott's disease in a man over 40, otherwise nontuberculous. The evidence of actual bone pressure on the cord as shown by its deformity. The extreme local injury to the cord, suggestive of a myelitis. The very marked predominance of motor over sensory symptoms, in spite of extensive degenerations in sensory areas. The unquestioned improvement under treatment. [A.B.C.]

Medical Record.

December 3, 1904. [Vol. 66, No. 23.]

1. The Treatment of Epilepsy in Connection with Autotoxis and Heterotoxis. ALLAN MCLANE HAMILTON.
2. Tachycardia and Its Relation to Injuries. U. F. MARTIN.
3. Two Cases of Henoch's Purpura: With Remarks upon the Gastrointestinal Lesion. OLIVER C. SMITH.
4. A Few Remarks on Infant Feeding: With a Simple and Safe Method for the General Practitioner. FRANCIS H. GLAZEBROOK.
5. Physical Examination, Therapeutics, and Results of Modern Medicine. A Plea for More Accurate Physical Diagnosis. WARREN SCHOONOVER, JR.

6. Acute Appendicitis Occurring on the Eighth Day of a Typhoid Fever: Operation. Recovery. GEO. HERBERT WILLIAMS.

1.—Treatment of Epilepsy in Connection with Autotoxis and Heterotoxis.—A. McL. Hamilton says many apparently hopeless epileptics can be greatly benefited, if not cured, by a rational method of treatment and avoidance of indiscriminate and routine bromid giving. The experience of the author, as well as that of numerous other investigators, bears out the view that toxemia enters much more largely than is generally supposed into the pathogeny of epilepsy, and it would appear that the occurrence of the fit betokens the accumulation in the body of some particular toxic agent, the presence of which gives rise to a convulsion when the limit of cell tolerance is reached. These toxemias may be of gastrointestinal origin, or due to the introduction into the circulation of certain familiar cocci, or lastly and especially, may be consequent on the generation and accumulation of cholin in the blood through the breaking down of nerve tissue. The author discusses in detail the plan of treatment that must be used to combat such conditions, and summarizes the principles of a rational therapy as follows: 1. We should, beside every measure that will favor elimination, regulate the dietary so that the idiosyncrasies of the individual shall be taken into account, but nitrogenous food shall be interdicted as far as possible. No large quantity of food shall be taken at any one time. 2. If intestinal autotoxis exists, cholagogs, and appropriate ferments, as well as antiseptics, shall be prescribed. 3. Everything should be done to prevent the lighting up of gross intracerebral pathologic processes, and the resulting formation of cholin. The equilibrium of the arterial pressure should everywhere be maintained. 4. The bromids should be given only in doses sufficient to diminish the activity of the cortical motor cells.

2.—Tachycardia and Its Relation to Injuries.—U. F. Martin terminates an extended exposition of the literature of tachycardia by the report of a case of his own. The patient was caught by his coat in a rapidly revolving wheel and whirled about till the throwing out of a cog stopped the machinery. He was deeply asphyxiated when cut down, though he had not lost consciousness; both feet were crushed, and several ribs were fractured. Amputation of both legs was necessary, and during the operation the pulse varied from 144 to 175. He was delirious for over a week, during which his pulse remained at 150. In the course of the next four weeks it gradually dropped to 112–120, but rose again to 150 after a secondary operation on the flaps, and was still 112 on discharge, over seven weeks after the injury. During his stay in the hospital no murmurs or abnormal signs other than the rapidity and a slightly accentuated second sound could be detected about the heart. The author places the case under the head of the pure cardiac neuroses following injury to the neck and chest.

3.—Two Cases of Henoch's Purpura.—O. C. Smith describes two cases of this disease. The first was that of a boy of 9, who developed purpuric spots on the legs and abdomen two days after a blow on the abdomen. In the course of the next week there were severe abdominal pains, the purpura became general, and the albuminous urine contained blood. Two weeks after the onset of the symptoms there was evidence pointing to intestinal obstruction, and a laparotomy was performed. The intestine was found collapsed, and presenting many ecchymotic spots. The intestines were lifted up and douched with salt solution, and a quantity of this was left in the abdomen. Relief of the intestinal symptoms followed the operation, but a month later the patient died of the renal condition, which had not been improved by decapsulation of both kidneys. The other patient, a boy of 16, presented symptoms in general similar to those of the first patient, and was also treated by laparotomy and filling the abdomen with salt solution. Improvement followed, and he was discharged cured four weeks later. From a consideration of the cases described in the literature, numbers of which presented abdominal symptoms, the author believes that Henoch's purpura should not be regarded wholly as a medical disease, and owing to the possibility of pathologic changes in the stomach and intestinal walls, giving rise to conditions susceptible of surgical treatment, he considers that in cases presenting grave abdominal symptoms, exploratory laparotomy is not only permissible, but is indicated. An important deduction from the author's two cases is that in each one filling the abdomen with salt solution was followed by a reestablishment of peristalsis in the paretic intestine, and in the cessation of vomiting.

4.—Remarks on Infant Feeding, with a Simple and Safe Method for the General Practitioner.—F. H. Glazebrook describes a simple method of preparing infant foods. For children under 3 months of age the top 9 oz. of a quart bottle of milk that has stood a few hours are removed, and 6 oz. of this are diluted with 24 oz. of dextrinized barley water. One and a half ounces of sugar are added. The result is a food composed of 6 oz. of milk containing 12% fat, and 4% proteid, diluted 5 times, which equals fat 2.4%, proteid 0.8%, and sugar 6%. By using more or less of the 9 oz. of milk, any desired strength may be obtained. For an older child, take the top 16 oz. of a quart of milk; of this take 10 oz., add milk sugar, and 24 oz. of barley water as before. This yields 10 oz. of milk containing 8% fat and 4% proteid, diluted with 24 oz. of gruel, a dilution of 3.4, or 8% fat, and 4% proteid divided by 3.4 equals 2.35% fat, 6% sugar, and 1.2% proteid. By adding 1 oz. of sugar to every 25 oz. of food, the sugar is always 9%, which is a good average amount. As before, by using more or less of the top 16 oz. of milk, we can get any percentage of fat and proteid desirable. Condensed milk is a food that is decried by specialists, but mothers and many practitioners find it useful in certain cases in which fresh cow's milk in any form is not tolerated. This is explained by the fact that the vacuum process of condensing milk seems to make the curd more assimilable for some infants. A good rule to remember in prescribing condensed milk is to take as much cream or top milk as condensed milk.

5.—Physical Examination, Therapeutics and Results of Modern Medicine.—W. Schoonover urges greater attention to the physical signs presented by patients, in order that diagnosis and treatment may be more accurate and successful. In our medical schools, sufficient attention is not paid to the study of the physical signs in health, and consequently many young practitioners are led to wrong conclusions in regard to pathologic signs, because they do not know what the normal ones are. A tendency to be corrected is, that to use the ready-made preparations of the various drug firms, instead of sticking to exercise, diet and the use of old and tried remedies of the Pharmacopeia. The percentage of deaths is being brought down in almost all diseases, owing to more careful examinations and proper therapeutic treatment, and through better teaching and more expert practice of physical examination, much practical benefit will result.

6.—Acute Appendicitis Occurring on the Eighth Day of a Typhoid Fever: Operation. Recovery.—G. H. Williams reports the case of a young girl who, when first seen, presented the typic symptoms of typhoid fever. Several days afterward local symptoms in the appendicular region developed, and on the thirteenth day of the fever the abdomen was opened. The appendix was found congested, enlarged in caliber, and about four and a half inches long. The mucous coat was soft and broken down, and the outer two inches contained a considerable amount of pus. Surgically, nothing further of interest occurred, and the typhoid ran its regular course, the patient being discharged cured at the end of the sixth week. An interesting temperature chart of the case is appended.

New York Medical Journal.

November 26, 1904. [Vol. LXXX, No. 22.]

1. Methyl Alcohol: Its Properties, Uses, and Abuses. H. W. WILEY.
2. Radiotherapy. MILTON FRANKLIN.
3. The Relation of the Physician to the Bureau of Health. S. W. NEWMAYER.
4. The Surgical Cure of Certain Cases of Socalled Chronic Dyspepsia. CHARLES A. L. REED.
5. Fibroma of Mastoid, Auricle and Auditory Canal. THOMAS R. POOLEY.

1.—Methyl Alcohol.—H. W. Wiley discusses the properties, uses and abuses of methyl alcohol. He says the general effects which are produced by the use of methyl spirit in any form internally are such as to justify its classification among the poisons. When intended for external use also, he believes that a similar prohibition should be exercised. This would lead to the prohibition of its use in the manufacture of such a mixture as bay rum or of similar decoctions which are to be applied externally. Its introduction into any substance which is to be used internally as medicine or beverage should be absolutely prohibited. Stringent precautions should be employed in the marking of all vessels containing it, so that even the unwary might be advised of danger. [c.a.o.]

4.—**Chronic Dyspepsia.**—C. A. L. Reed says the majority of cases of socalled "chronic dyspepsia," "gastralgia," "nervous gastralgia," "neuralgia of the stomach," "cardialgia," and "hyperchlorhydria," are, in fact, cases of ulcer or the organic consequences of ulcer of the stomach, or duodenum, or both. Cases amenable to medical treatment should be cured in from five to six weeks, after which time if not cured they should be placed in the surgical category, while hemorrhagic cases should be operated upon without the delay prescribed by medical writers. Surgical ulcer of the stomach, if neglected, may develop adhesions, perforations, hemorrhages, or carcinoma, or, in the absence of these, may provoke sepsis and anemia, which, if the underlying conditions are not corrected by operation, may, and frequently do, prove fatal. It is important, therefore, that the cases should be promptly brought to operation, which, without reference to details, should establish rest and maintain drainage for the diseased organ. He says that the comfortable after-course of these cases, the low primary mortality, and the permanent curative results following the operation comprise its complete justification. [c.a.o.]

Medical News.

December 3, 1904. [Vol. 85, No. 23.]

1. Second Note Relative to the More Efficient Utilization of the Spark-gap Radiations. Henry G. Piffard.
2. Extrauterine Pregnancy: Its Diagnosis. Report of Cases. Isaac Ivan Lemann.
3. Pancreatitis. W. D. Haggard.
4 Laundry Hygiene. Ira S. Wile.
5. Some Remarks on Diphtheria Bacilli. E. Andrade.
6. Intermittent Claudication and Analogous Phenomena (Angina Pectoris, etc). Arthur J. Patek.
7. Misocainia in Medicine. Achilles Rose.
8. A New Case of Chloroma with Leukemia, with a Study of Cases Reported since 1893. George Dock and Alfred Scott Warthin.

2.—**Extrauterine Pregnancy.**—Isaac Ivan Lemann reports two cases of extrauterine pregnancy, and discusses the subject at length. He believes this pathologic condition occurs more frequently than is usually supposed, and that physicians are not as a rule sufficiently on the alert to detect the most usual symptoms. They are as follows: History of amenorrhea for a month or two, accompanied by the usual signs of a normal pregnancy, occurring in a woman previously sterile for a number of years; this amenorrhea being followed by a period of irregular, intermittent bleeding from the genitals, the discharge of a decidual cast from the uterus, and occurrence of occasional severe colicky pains in the lower abdomen; and upon vaginal examination we may find the uterus slightly enlarged, though not to the size proper to an intrauterine pregnancy of the period indicated by the history, and further we may find to one side a fluctuating boggy mass pushing the uterus over to the other side. When shortly after such an examination we find the patient in a state of collapse, with all the clinical manifestations of internal active hemorrhage, we are further confirmed in our opinion by the occurrence of intraperitoneal rupture. But it is precisely these clean-cut unmistakable cases that are of rare occurrence. We must remember, in the first place, that the symptoms of rupture may be the first to direct our attention to the possibility of the existence of any serious intraabdominal condition, in fact, the woman herself may not previously have been aware of anything amiss. [a.b.c.]

3.—**Pancreatitis.**—W. D. Haggard states that inflammations of the pancreas were formerly supposed to be very rare, but the result of recent investigations and the accumulated work of clinicians have shown it to be comparatively frequent. Certain curable forms remain undiagnosed. As pointed out by Robson, the essential cause of acute pancreatitis is bacterial invasion, with cholelithiasis as the most frequent predisposing factor; typhoid fever influenza, and other bacterial diseases may be causative. Fitz succinctly describes the symptoms of acute pancreatitis: "Acute pancreatitis is to be suspected when a previously healthy person, or sufferer from occasional attacks of indigestion, is suddenly seized with violent pain in epigastrium, followed by vomiting and collapse, and in the course of 24 hours by a circumscribed epigastric swelling, tympanitic or resistant, with slight rise of temperature." Medical treatment is futile, except to attempt relief of urgent symptoms. Surgical interference offers the only hope. While the symptoms in acute pancreatitis strongly resemble those of acute intestinal obstruction, and those of acute peritonitis the symptoms of subacute pancreatitis, are of the same general nature, but less pronounced. Some of the patients recover when little or nothing is done at operation. Chronic or interstitial pancreatitis is usually the result of obstruction from (*a*) pancreatic calculi in the duct of Wirsung; (*b*) gallstones in the common duct or ampulla of Vater; (*c*) neoplasms, usually malignant, obstructing the outflow of the pancreatic fluid. It may result from general or local tuberculosis, and from excessive use of alcohol, just as cirrhosis of the liver does; in fact, it is said to be associated with cirrhosis of the liver in a fourth of the cases of the latter. A complexity of symptoms may appear, prominent among which are dyspepsia, sometimes jaundice, epigastric pains, and tenderness, emaciation, occasional attacks of nausea and vomiting, and the cachexia of malignancy may be simulated. Appropriate operations on the bile tracts to free them from obstruction, followed by drainage, is the indication. Robson lost one patient out of 22 operations, and Mikulicz collected 36 cases, with five deaths. [a.b.c.]

4.—**Laundry Hygiene.**—I. S. Wile submitted a number of questions to the proprietors of the laundries in Rochester, N. Y., and from their anonymous replies he finds the following: No especial precautions are taken to prevent the infection of employes. Particularly filthy materials are not accepted, or if accidentally received are not laundered. Bed linen and clothing are not received from places where contagious diseases are known to exist. The marking room is kept as clean as possible. Illness is no more frequent than in any other equally large business establishments. The ailments are in no way dependent on vocation. No specific cases of contagion from handling soiled articles have been found. No systematic protection of patrons is deemed necessary. Heat, chemicals, and agitation destroy the hardiest bacteria. Some concerns refuse to employ girls appearing to be unhealthy. The moist atmosphere, frequent scrubbings, and lessened dust tend to keep *B. tuberculosis* in subjection. The author reviews the literature of the subject. The statistics already gathered are useless from their vagueness and demonstrate the hopelessness of ascertaining from medical sources the dangers to laundresses. There appears to be no marked danger to patron or employe. [h.m.]

5.—**Diphtheria Bacilli.**—E. Andrade states that though in cultures from throat exudates, some solid forms of diphtheria bacilli may be found, these by themselves do not authorize the diagnosis of diphtheria, however characteristic their arrangement may be. The granular forms are of seven types, and the presence of any of these is, by itself, characteristic of diphtheria. The second group, or barred forms, present six types, and likewise the solid forms. One of the latter, the diplobacillary form, includes those which many call pseudodiphtheria bacilli. Not only the virulence of the bacilli, but the quality of medium and the number of days elapsing before the swab is examined and planted, may have some influence on the types present. [h.m.]

6.—**Intermittent Claudication.**—A. J. Patek gives a detailed history of his case and reviews the literature of the subject, and discusses the symptomatology and various analogous phenomena as angina pectoris, intermittent ischemic "dysperistalsis," spasm of the retinal vessels, etc. Intermittent claudication is a far more frequent symptom-complex than generally recognized and is doubtless frequently confounded with sciatica, neuralgia, and rheumatism. That the symptoms come on when walking and are absent when at rest, together with their intermittency should lead to a suspicion of the diagnosis. This will be made absolute by finding pulsation absent in one or more distal arteries (dorsalis pedis and tibialis posticus) of one or both legs. The pain is due to arteritis plus—in many cases—angiospasm of the affected vessel. Total occlusion of a vessel may lead to gangrene of an extremity. Early recognition may prevent this. In treatment rest, warmth, and moisture are all important. Alcohol, tobacco, and all excesses must be forbidden. Hydropathy, massage, and electricity have been of service. Among drugs the iodids, vasodilators and heart tonics are indicated. One must rely mainly however on nonmedicinal therapeusis. Cases have been reported in which all symptoms were relieved. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Pyrexia Obscura.—This sort of fever is of different origin, and Bozzolo[1] distinguishes seven groups which are characterized by a length of development and difficulty of diagnosis peculiar to themselves: 1. Certain forms of fever, such as that of ulcerative endocarditis, due to localized and internal processes, which may not be explained until autopsy. 2. Fever due to localized irritation which may discover itself after some delay—such as that due to urethral stricture. 3. Fever of glandular, or lymphatic origin, as in leukemic and pseudoleukemic pyrexia. 4. Precancerous pyrexia—fever of this type may be intermittent, and while the tumor escapes notice, is diagnosed by the failure of cinchonization to effect relief. 5. Syphilitic fevers. These are not to be confused with the pyrexia of the secondary eruption, nor that of syphilitic rheumatism socalled. But they have an irregular quotidian intermittent course, with no great ascent, do not yield to cinchona nor its alkaloids, and are easily controlled by specific treatment; specific manifestations may not be discoverable, except this peculiar, irregular fever. 6. Hysteric or nervous pyrexia is mainly determinable by the little effect on nutrition of the morbid process, and by the irregular distribution of the caloric through the body tissues—it is more often observed in women. 7. The group of fevers of distinctly hidden origin—this is considered as occurring in prodromes, and may point to septicemia. The treatment is not effective, at present, with the use of quinin, corrosive sublimate, methylene-blue, berberin, etc., but attention is directed to the possibilities of serum therapy. Maragliano emphasizes the need of separating bacteremic and toxemic febrile periods. He can discover differences in the temperature curve in pneumonitis of streptococcic origin, and that of diplococcic. Maragliano does not limit fever of tuberculous origin to cases in which the bacillus of Koch is recoverable, for very obscure focuses of the disease may exist. Lucibelli records a fever lasting 11 years, due to leukemia. Arcangeli describes the "fever of Malta." This is very like enteric fever, but continues 70 days, and lacks intestinal symptoms while presenting the vague pains, splenic enlargement, early anemia, and articular involvement. There is a negative Widal reaction, and little or no leukocytosis. Water should be administered internally, and the Brandt baths resorted to. Prognosis is guardedly unfavorable, for patients die suddenly after four months' apparent convalescence. Bozzolo is interested in the reports of the value of ichthyol treatment for cryptogenic pyrexia. [T.H.E.]

Teeth as Portal of Entrance to Tuberculosis.—Cases in which tuberculosis is acquired through a carious tooth are very rare, because of the mechanical influence of the saliva, the myriads of microorganisms situated in the carious surface, the absence of lymph-vessels in the medullary tissue and the granulation reaction of the structures around the root of the tooth. In 37 cases of tuberculosis of the maxillary bone, which Partsch[2] collected, primary infection through the teeth could be excluded in all but five with certainty; and in these five it could not be proved with certainty that the teeth were the structures through which the infection had entered. He, however, is able to report a case in which the teeth were without doubt the portal through which the infection spread. The patient was a girl of 14, who presented herself with a carious lower molar, enlargement of the lower jaw and of one of the glands in the neighborhood; the tooth was sensitive and loose, the gums showed no pathologic change. Neither the antiseptic treatment of the cavity nor the extraction of the tooth produced any change in the condition. The wound of extraction would not close, pieces of necrotic bone came through the opening, the glandular swelling increased and other glands became affected; the jaw continued to enlarge and other teeth became loose. An extirpation of the enlarged glands proved the tuberculous nature of the affection and led to a thorough curetment of the structures. [E.L.]

Hypophonesis of Pulmonary Apex, without Lesion.—C. Fedeli,[1] after 23 years' experimentation, asserts that in nearly 50% of nontuberculous individuals a measurable subclavicular and supraclavicular dulness may be discovered; and that in 3% this may occur on both sides, while if unilateral the dulness is more commonly found at the right apex. The author is convinced that anatomic reasons of incomplete development are involved, for the apparently pathologic sign is obtained in those who are of delicate or impaired health, and in whom there is a deficient development of the scalene, sternocleidomastoid, and subclavicular muscles. The dulness is characterized by variations, discoverable on repeated examination. [T.H.E.]

Pharmacology and Therapeutics of Uranium.—F. E. Tylecote[2] finds that as an antiseptic for clinical use it is useless. Tubes containing 1 to 5,000 showed marked diminution in digestion. Added to milk and rennet, clots form more rapidly, but do not shrink and dry so soon as the controls. It inhibits the action of amylopsin. Its action on muscle is comparable to that of veratrin or barium. It does not diminish the amount of work to be obtained. Contractions are remarkably uniform. It has no poisonous action on nerve trunk or endings. Uranium salts weaker than 1 to 10,000 do not affect the vessel lumen, stronger solutions cause contraction. Oxychlorid or nitrate in 1 to 1,000 up to 1 to 15,000 does not materially alter the rate of cardiac contractions. On pouring 1 to 100 or 1 to 200 solutions on the heart in situ diminution in the size of contraction is perceptible, but is very faint and the action very slow. The influence seems to be on the muscle fibers, not on the vagus. A solution of 2 grains to the ounce is useful for ulcers and abraded surfaces. It is astringent and mildly hemostatic. In gonorrhea, 5 grains to the ounce has cured in six days a case on which weak permanganate had no effect in as many weeks. The results are due to its astringent action. When given internally, the urine must be examined daily for albumin. In diabetes it caused at the outset a rise of body-weight, which continued if the dose was not pushed too far. The polyuria was lessened, but not the sugar. The beginning dose is 1 grain three times daily continuously increased. [H.M.]

Symmetric Diffuse Lipomatosis.—López and Mon[3] report an instance in the island of Cuba. Dieulafoy attributes the condition, which is rare, to alcoholism; it occurs chiefly in adults, and usually males. The neoplasms are of varied density, and quite encapsulated. The patient, a man aged 42, was a native of Spain, but has been under the writers' care and observation for 10 years, during which time the increase of fatty tissue took place over the back and shoulders, and in the cervical region. The face was also affected. Analysis of urine gives a daily quantity of 700 gm., acid, specific gravity 1,020, urea 28.3%, trace of albumin, no sugar, phosphates normal, uric acid much augmented. Launois and Bensaude believe the process to be infective by way of the lymph-nodes and channels; this is denied by the writers who agree with Dieulafoy, after reviewing tests made on the lipomatous material. [T.H.E.]

Blood-pressure in Arteriosclerosis.—T. Dunin[4] finds that increased blood-pressure is not a constant symptom of arteriosclerosis. Out of 420 patients, 120 had a normal or subnormal blood-pressure, and of these, 80 had undoubted signs of arteriosclerosis. Thirty-six of these cases had angina pectoris, 8 others merely exhibited a ringing second sound at the aortic cartilage, while the rest had both subjective and objective symptoms of vascular disease. With the exception of the cases of angina pectoris, the normal or diminished blood-pressure may possibly be explained by the absence of sclerosis in the smaller vessels, and its presence only in the larger arterial trunks. Out of the 300 cases with increased blood-pressure, 90 had no subjective symptoms. It must be assumed in these cases that the heart was healthy, and completely overcame the resistance of the sclerotic bloodvessels. In 40 cases, a systolic murmur could be heard over the aorta, without any subjective symptoms, showing that even disease of the aorta offers no great resistance to a healthy heart. This latter class of cases has been termed "latent angiosclerosis." One hundred and thirty-seven cases exhibited more or less marked symptoms of cardiac involvement, and in a large percentage of these cases the kidneys also were diseased, especially where the blood-pressure was high. Angina pectoris was a symptom in 25% of all cases of arteriosclerosis; it occurred much more frequently in the cases with lowered blood-pressure than in those with increased pressure. It is the author's opinion that in the former case the sclerosis was probably of a purely local nature, confined principally to the coronary arteries, and perhaps the aorta; while in the latter case the disease was general, involving the smaller arteries and arterioles throughout the body. Obesity was noted in 136 cases of arteriosclerosis. In those which were associated with low blood-pressure, reduction in weight had no effect on the latter. But where the pressure was high, reduction of the fat produced a marked diminution in the same. These cases are the only ones in which satisfactory results are obtained from attempts to reduce an excessive blood-pressure. [B.K.]

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[1] Il Policlinico (Rome), 64, 1904.

[2] Deutsche med. Wochenschrift, 1904, xxx, 1428, No 39.

[1] Il Policlinico, Rome, No. 58, 1904.

[2] Medical Chronicle, September, 1904.

[3] Rev. de Med. y Cir. de la Habana, October 25, 1904.

[4] Zeit für klin. Med., Bd. liv, p. 353.

A Sign of Aortic Vasomotor Tonicity.—A. Ferrannini[1] suggests tying a ligature at the base of a digital phalanx. A delay in the appearance of ischemia and hyperemia, associated with a very strong second aortic sound, indicates a grade of vascular hypertone or spasm. A delay of ischemia, but normal readiness of hyperemia, combined with a strong aortic second sound, shows a moderate aortic tonicity. A delay of ischemia, but great readiness of hyperemia, with a strong aortic second, shows a vasodilation and angiohypotone, associated with myocardial hyperkinesis. Readiness of hyperemia and ischemia associated with normal aortic second, shows slight vascular hypotone, and a normal myocardium. Readiness of hyperemia and ischemia, together with a weak aortic second, shows highest degree of aortic hypotone and cardiac myopragia. The writer notes the frequent coincidence of arteriosclerosis and aortic hypotone, in this agreeing with Keigi-Savada, von Criegern and G. Bouloumié. [T.H.E.]

Comparative Studies Concerning the Action of Hydrochloric Acid and Hydrochloric Acid and Pepsin, and Gasterin in Hypochylia and Achylia Gastrica.—S. Heichelheim and H. Kraemer[2] have made a series of examinations on a large number of patients to note the comparative action of hydrochloric acid, hydrochloric acid and pepsin, and lastly of the new preparation gasterin (gastric juice from a dog after a Pawlow fistula has been made). Only patients showing a diminution or absence of hydrochloric acid were employed. The authors wished to determine whether permanent results were obtained through any of them and how far the digestion of the individual cases was influenced. Gasterin was given to 11 patients immediately after a test-breakfast; macroscopically the meal always seemed better digested with than without it, but in many of the cases the amount of pepsin formation was even smaller than on days when no gasterin was used. The smallest amounts of gasterin of service varied from 60 cc. to 150 cc. (2 oz. to 5 oz.), but free HCl was never noted until 100 cm. (3½ oz.) were given; in no case did the amount of pepsin reach the normal, and in no case did the gasterin, even 150 cc. (5 oz.) produce perfect digestion, even in so small a meal as a test-breakfast and in no case did gasterin produce a permanent result. The HCl pepsin mixture consisted of 5 gm. (75 gr.) pepsin dissolved in 100 cc. (3⅓ oz.) of .1% solution of normal HCl; it was given to 10 patients, some taking it through a stomach-tube, others through a glass tube; the plain HCl solution was similarly given. The result after both was much the same as after gasterin. They therefore conclude while gasterin given in sufficiently large quantities at each individual meal is of some benefit, it is of no greater advantage than the other solutions, which are certainly much easier procured and cheaper. In as much as HCl pepsin solutions also influence pancreatic and biliary secretions, they advise their use in addition to dietetic measures, wherever there is hypochylia, achylia, lack of appetite, gastric fermentation and diarrhea. [E.L.]

Koplik's Sign Dubious.—O. Cozzolino[1] reports a study of 39 observations, from which he concludes that this prodrome of measles is not certain, for it may be indicative of other exanthems, or of none at all. He finds the palatal rash a fairly constant early sign. Temperature charts are given to show the irregularity of measles, and the writer believes that incubation may extend so long as 13 days. [T.H.E.]

Chronic Intestinal Dyspepsia of Children.—J. Blaikie[2] discusses the etiology, symptoms and treatment at great length. The typic case is that of a child, about the period of second dentition, showing wasting, languor, nervousness, frontal headache, epigastric pain, deranged appetite, cough, and nocturnal restlessness, with in some cases irregular bowels, excess of mucus in the motions, intestinal parasites, attacks of pallor, and cold hands and feet. The face is often sallow, with dark rings, the teeth carious; there is chronic pharyngitis and frequent albuminuria. The disease is fairly common in the country, family incidence may be due to heredity, diet, or unhygienic surroundings. The disease corresponds with the beginning of school life. The great preponderance of sugar and starch in the diet of the poorer classes of today may be a strong factor. The most powerful remedy is change of air and surroundings, next is regulation of diet; sweets, potatoes, new bread, sago, tapioca, arrowroot, Indian corn, flour, turnips, and carrots must be forbidden. Coarse brown bread and oatmeal are beneficial. The patient should be kept from excitement. The most beneficial drugs are the alkalies, oleoresins, and bitter tonics. [H.M.]

Diazo Reaction in Doubt.—Campanella[3] questions the diagnostic value of the diazo reaction. In view of the simplicity of the test many writers advise its use. Would they hold to its value, knowing that salol, indican, and urochrome ingested by the normal individual produce a marked reaction? Jung says that a positive result is caused by codein, resorcin, quinin, digitalin, and creasote. Burghardt says that preparations containing tannin, iodin, or iodids inhibit the diazo reaction. [T.H.E.]

A Case of Trypanosomiasis.—Guenther and Weber[4] report the case of a German, who moved to Africa in 1898, and shortly after began to suffer with slight febrile attacks, which were diagnosed and treated as malaria. After his return to Germany he had a severe attack, accompanied by hemoglobinuria. He returned to Africa, and soon after had a severe febrile paroxysm, lasting for some weeks and followed by phlegmonous inflammation of both legs, edema and curious localized elevated spots over different parts of his trunk. Slight attacks of fever, which disappeared spontaneously, were common from then on, but occurred without chill, sweat, herpes or pain; he never fully recovered his strength, but gradually became more and more anemic and cachectic. The edema above mentioned recurred frequently and over different portions of his body, and once after a hypodermic injection, he had a violent attack of erysipelas, during which his spleen and liver enlarged and became painful. The inflammations of the legs returned and suppuration was threatened; his pulse now remained constantly rapid (120 to 130), he developed dyspnea, and once had an attack of facial palsy. During one of the febrile paroxysms his blood was examined—the red and white corpuscles were normal, the hemoglobin 60%. A differential count of leukocytes showed 39% polynuclears, 33% mononuclear leukocytes, 26% lymphocytes, and 2% eosinophiles. Trypanosomes were discovered, but no malarial organisms. All the diagnostic points occurring in trypanosomiasis were noted in this patient, therefore, and this case is further noteworthy as being the first one in which trypanosomiasis was diagnosticated on the European continent. [E.L.]

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[1] Il Policlinico, Rome, No. 67, 1904.
[2] Münchener medicinische Wochenschrift, 1904, li, 1421, No. 32.

[1] Il Policlinico (Rome), No. 67, 1904.
[2] Edinburgh Medical Journal, September, 1904.
[3] Rev. de Med. y Cir. de la Habana, October 25, 1904.
[4] Münchener med. Wochenschrift, 1894, li, 1044.

Pseudoleukæmia Gastrointestinalis.—H. G. Wells and M. B. Maver[1] report a case of this disease with very detailed autopsy and histologic notes. The patient was a male of 51, the clinical diagnosis lying between carcinoma of the pylorus and tuberculous peritonitis. Autopsy showed a general lymphadenoid hyperplasia, particularly of the alimentary tract and the glands around the pancreas. The writers consider the case a clear one of pseudoleukemia in which the most advanced manifestation of the disease was in the stomach. This group of cases, the literature of which they review, 7 cases besides their own being collected, differs neither clinically nor etiologically from the ordinary cases, and anatomically the difference lies solely in the distribution of the lesions. They consider the term lymphosarcoma not applicable to this group of cases as the tumors do not infiltrate, and attack only lymphoid tissue, and the histology is incompatible with that of sarcoma. The case reported makes an additional one of Hodgkin's disease in which animal inoculation, as well as microscopic examination, has failed to demonstrate the presence of tubercle bacilli. [A.G.E.]

Hydrotherapy in Scarlet Fever.—R. W. Marsden's[2] experience is based on a number of cases treated by the lukewarm bath without the use of the ice-bag or the regular administration of quinin. The baths were given every four hours, and lasted 15 or 20 minutes at a temperature, save in one or two instances, of 90° F. There was no evidence from urinalysis of any deleterious influence on the kidneys, even when the baths were begun as late as the eighteenth day of the attack. It is probable that the dry and even eczematous condition of the skin, especially seen in severe, protracted, and septic cases, prejudicially affects the kidneys, and it may be that hydrotherapeutics is prophylactic as regards nephritis. When pyrexia occurs after a period of apyrexia, these baths should not be given. Coldness of the extremities, cyanosis with a soft, rapid pulse, or a temperature considerably below what ought to be expected from the general condition are also contraindications. In suitable cases, short, cold baths, frequently repeated, give the greatest benefit. In doubtful cases, however, in the young and weakly, the lukewarm bath is preferable. In the 14 cases which the writer reports, the only death was that of a child of 3, after a pyrexia of 101° F. to 102° F. for 30 days. [H.M.]

Lung Stones.—R. Stern[3] reports the cases of three patients, who after repeated hemoptysis, coughed up lung stones. The first of the patients had a tuberculous family history, and examination revealed a lesion slightly over the right lung; tubercle bacilli were never found. The second patient never gave evidence of lung disease. The third patient had passed through a number of pulmonic disturbances, but tubercle bacilli had never been found in his sputum, which consisted of blood, gangrenous particles, and numerous pus organisms. He coughed up at least 20 stones; a diagnosis of gangrene was made, and the thoracic cavity opened in the Sauerbruch chamber by Mikulicz. The middle lobe of the right lung was found inflamed, and grayish-black in color; it was sutured to the parietal pleura, and the opening tamponed. Chemically the stones consisted of calcium carbonate and phosphate, with traces of magnesium; all of them had as a nucleus, organic remains, and in one of the cases (I) tubercle bacilli were found in the reticulum. In all of the cases the stones were multiple, varying in size, irregular, grayish-white, and stone hard. [E.L.]

Disinfection in Diphtheria and Scarlet Fever in Baltimore with an Account of Reinfections.—W. P. Stubbs,[4] inspector of throats in the Baltimore City Health Department, states the requirements regarding cases of diphtheria in that city. During the past year 874 inoculations were made by attending physicians, of these, 197 being positive; Stubbs made 3,775 with 174 positive results. Houses containing the disease are placarded until throat cultures from all the inmates are declared by the health department free from diphtheria bacilli; the infected rooms are then disinfected by formaldehyd, this being repeated if necessary, until test cultures are negative. From 1,168 cases of diphtheria, 34 reinfections occurred, or 2.9%. In scarlet fever, during the same year, 18 reinfections occurred after 957 cases. This percentage of reinfection is considered as an evidence of the disinfection as a rule being effective. The scarlet fever organism, if such exists, appears to be less resistant to formaldehyd than the diphtheria bacillus, as indicated by the smaller percentage of reinfections. [A.G.E.]

Changes in the Finger and Toe-nails following Scarlet Fever and Measles.—Feer[1] calls attention to the fact that four to five weeks after the onset of these diseases very frequently a groove develops which runs transversely at the root of the nail over the superficial surface. As the nail grows the groove becomes conspicuous, and two months after the onset of the fever, is prominent, after which time the one margin of the groove tends to disappear, and the other margin becomes more precipitous. It usually requires six months for the groove to reach the free margin of the nail. Feer designates the groove the "scarlet fever line." The line is most frequently seen upon the thumb-nail, and upon strong, well-developed nails, therefore, upon the nails of adults or upon children above 10 years; the development of the line depends somewhat upon the intensity of the fever. Occasionally small erosions are found in the nail substance along the "scarlet fever line," and as a rule the surface of the nail back of the line is rougher than the portion toward the periphery. The line occurs less frequently after measles than scarlet fever; the edges are frequently terraced, are rougher, and dull. The condition is not frequently seen by physicians, because it develops at a time when the doctor does not see the patient. Feer says it is of value in that sequels of these diseases can be detected by the presence of the line. He was able to trace a nephritis to scarlatinal origin by it. Feer has never seen the line as a result of any other disease, but E. Hagenback informs him of its occurrence as a sequel of a severe case of acute rheumatic fever. [J.F.]

Ulcer of the Stomach and Duodenum.—C. P. Howard[2] bases his report upon a series of 82 cases of round ulcer occurring at the Johns Hopkins Hospital during a period of 15 years. During that time the total number of admissions was 44,338, giving a frequency of ulcer of 0.18%; in the series were 6 duodenal ulcers. Among the conclusions reached are that gastric ulcer in that hospital is rare as compared with cancer, the respective instances being 1 to 225 and 1 to 56. Of the general admissions, gastric ulcer was as common in the male as in the female and was more frequent in the colored race and among Germans. Vomiting occurred in 85%, pain in 83%, hematemesis in 75%, hyperchlorhydria was present in only 17%, perforation occurred but 3 times, and carcinoma in an ulcer in less than 5% of the cases. Hemorrhage was the cause of death in 8.5% of the total number of cases, and in 29.5% of the fatal cases. The mortality of the series was 29%, among those who received treatment only 18%. [A.G.E.]

Basedow's Disease.—Salmon,[3] at the Fourteenth Italian Congress of Internal Medicine, says that this morbid process, because of tumefaction of the thyroid, thymus, and lymphatic glands generally, and its connection with modifications of the sexual apparatus, should be considered a disease the result of changes in important internal secretions, and arising from a chain of organs of peculiar protective and antitoxic influence. The nervous system in some cases appears affected centrally, in others through the ganglionic nodes. Whatever the glandular and lymphatic alterations, there occurs an origination of toxic elements which peculiarly modify the nervous system, apparently in the pontomedullary nuclei. [T.H.E.]

A New Clinical Method of Diagnosing Renal Impairment.—A. C. Eustis[4] describes a method of determining the presence of renal impairment based on the nitrogen content of the blood; 20 cm. of blood is washed with distilled water in a test-tube and 1 cc. of concentrated sulfuric acid added. The mixture is then boiled and small crystals of potassium permanganate are added until the black color has entirely disappeared;

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[1] American Journal of the Medical Sciences, November, 1904.
[2] Medical Chronicle, September, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 1414, No. 39.
[4] Maryland Medical Journal, October, 1904.

[1] Münchener med. Wochenschrift, 1904, Bd. li, No. 40.
[2] American Journal of the Medical Sciences, December, 1904.
[3] Il Policlinico (Rome), No. 67, 1904.
[4] New Orleans Medical and Surgical Journal, November, 1904.

a water-white solution is thus obtained in a few minutes. After coloring, the acid solution is diluted to 100 cc. in a Nessler jar and 2 cc. of Nessler's solution added. A yellow color is produced which varies in intensity, this is compared with the color produced by known amounts of a standard ammonium chlorid solution. In this way the amount of nitrogen in 20 cm. of blood can be ascertained. The blood of patients showing less than 80 mg. of nitrogen per 100 cc. of blood has no renal impairment; a nitrogen content of from 120 mg. to 140 mg. shows a degree of renal involvement; while 300 mg. of nitrogen indicates the patient is suffering from uremia. The test can be performed in 30 minutes and its trial in a limited number of cases, over 30 of which are reported, shows it to have a pronounced clinical value. [A.G.E.]

Herpes Zoster.—According to Pick,[1] this disease is characterized by symptoms pointing to specific infection for its origin, and it appears epidemicly, with a factor of climatologic influence. It is usual to find no more than one nerve tract concerned. [T.H.E.]

Round Worm Obstructing the Biliary Passages.—W. Ebstein [2] reports the case of a woman who was suddenly seized with pain in the hepatic region, vomiting, and later icterus. The liver, gallbladder and spleen were found enlarged. A diagnosis of obstruction of the common bile duct was made. The patient became steadily worse for a month, and then after a certain date rapidly improved. The next day two dead round worms were found in the stool. One worm showed a constriction 5 cm. behind the anterior end. The author considers this an important point in establishing the diagnosis of obstruction of the common bile duct by round worms. [B.K.]

Intermittent Hyperchlorhydria as a Cause of Vomiting in Children.—I. M. Snow [3] directs attention to the symptom-complex, known as recurrent vomiting of children, to point out three things: 1. The condition is not as rare as generally supposed. 2. It is relatively easy to diagnose. 3. In at least some cases the gastric irritability is due to an intermittent hyperchlorhydria, a secretory neurosis, causing the sudden hypersecretion of free HCl and gastric juice. Except for the attacks of vomiting, the patients appear in perfect health. Snow gives the notes of 4 cases of the condition, and says that the cause of the recurrent vomiting is still unknown. It is probably a transitory autointoxication, which exercises its force on the nerve centers governing gastric secretion and motion. Regarding the treatment, it is difficult to estimate the effect of any therapy in an affection that may terminate spontaneously at any time, and in which long periods of health occur. The alkaline treatment was strikingly effective in one of the cases reported, and should always be tried. In gangrenous conditions, nutrient enemas, chloral by the rectum and hypodermics of morphin and strychnin, may tide the patient over a dangerous crisis. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER
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REVIEW OF LITERATURE

Anesthetization of Diabetics.—Kausch [4] formulates the following rules with regard to the narcosis of diabetics: 1. General narcosis is to be used as little as possible; the various methods of local anesthesia are to be employed whenever they are not contraindicated. 2. Anesthesia should never be produced for diagnostic purposes alone. 3. Several narcoses in the same patient with but short intervals are especially to be avoided. 4. A diabetic patient should never be anesthetized with chloroform; ether is the anesthetic of diabetes. The marked toxic action of chloroform, as compared with ether, has been proved experimentally and practically; the acetonuria which chloroform produces is much greater than that produced by ether. For short narcoses he recommends the first stage of ether intoxication, next to it ethyl bromid. 5. The quantity of narcotic and the duration of the anesthesia must be limited as much as possible. 6. A diabetic should always be anesthetized early in the morning, so the time of fasting be as short as possible; both before and after narcosis the patient's diet must be carefully regulated in regard to quantity and quality. 7. Every diabetic patient before anesthesia must be put under sodium bicarbonate treatment, until the urine is of an alkaline reaction. 8. If possible, operations should be performed when the patient has no sugar in the urine, but never immediately after this stage has set in. 9. If coma threatens or has appeared, the sodium treatment must be applied energetically, by mouth, rectum, subcutaneously, and intravenously. He also advises the use of glycuronic acid, as it is burned up in the body without impeding the sugar metabolism, and diminishes acetonuria. [E.L.]

Surgical Indications from Blood Examining.—Tuffier,[1] of Paris, referring to the cryoscopic examination of blood and its advances, and advantages in recent technic, says that an increased concentration constitutes a contraindication to nephrectomy. It is important to know whether the lesion of the kidney is bilateral, for in the event of hemic changes, both kidneys may not be chargeable. Mikulicz believes it risky to operate when the hemoglobin sinks below 38%. Others set the limit of safety at 50%. General anesthesia should be avoided at a margin well within the above limits, except in certain cases of hemorrhoids, in which authors believe that 20% is not too low. Concerning the white cells, differences of opinion exist. Locke, reviewing 800 cases, says iodophilia indicates that a suppurative process has been formed, except in cases of blenorrhagia. Mauté differs, and claims that iodophilia is inconstant, occurring more often in the absence of suppuration. Curschmann and Cazin report cases in which a leukocytosis was the single point in diagnosing pus in the peritoneal sac, and they lay more stress on cytodiagnosis than on the range of temperature, in both preoperative and postoperative care of patients. When viscera have suffered traumatic rupture, the distinguishing sign may be leukocytosis. The author has proved the want of leukocytosis in severe injuries or contusions in cases in which no visceral rupture had occurred. In cancerous disease, apyrexia, together with a diminished number of erythrocytes and a proportionate decrease of hemoglobin as against a discrete hyperleukocytosis and polynucleosis, is almost pathognomonic. Little importance is given to an increase in eosinophiles in cases of hydatid cyst. Federmann, in 500 cases of appendicitis, has not yet established the relations of thermic fluctuation, leukocytosis and the progress of the disease. Silhol, of Marseilles, believes in the value of cytodiagnosis in appendicitis, laying more stress on the variations in hemoglobin. [T.H.E.]

Carcinoma of the Heart.—F. Curtis [2] reports two cases of secondary carcinoma of the heart. The first of the patients died of esophageal carcinoma; the heart during life was not thought to be affected, as no signs pointed to disease of it. For the main affliction a gastrostomy had been done, but without benefit. The heart was smaller than normal, weighing only 330 gm. (12 oz.); the left ventricle was contracted, the right showed enormous hypertrophy at the base, due to a tumor in its anterior wall, which involved the whole region of the infundibulum and the neighboring parts. Several small, white nodules projected, giving the anterior surface a mammilated appearance. From the posterior surface projected one large mass; it was just below the auriculoventricular groove and internal to the right border. The second patient, a boy of 18, died five months after an amputation of the femur for myeloid sarcoma. The lungs and heart both showed numerous metastases, the abdominal organs none. The right ventricle contained a large polypoid tumor attached to the interventricular septum. Within it was found a mass surrounding a cavity and communicating with the ventricle. Histologically both tumors were found to be typic round-celled sarcoma. [E.L.]

Stovain as a Local Anesthetic.—P. Reclus [3] says that a new anesthetic, in order to substitute older ones, must be either more powerful or less toxic; he presents the conclusions drawn from a nine-months study of stovain in regard to these points.

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[1] Prager med. Woch., 1904, No. 18.
[2] Deut. Archiv. f. klin. Med., Bd. lxxxi, p. 543.
[3] American Journal of the Medical Sciences, December, 1904.
[4] Centralblatt für Chirurgie, 1904, xxxi, Beilage No. 27.

[1] Il Policlinico, Rome, No. 67, 1904.
[2] L'Echo Medical du Nord, 1904, viii, 325, No. 28.
[3] La Presse Médicale, July 9, 1904.

The first is difficult to determine, the best method probably being to inject half the site of a long incision with each of the agents to be tested. Reclus concludes that stovain is equal to cocain in analgesic power, and it is also less toxic. A point to be remembered is that it dilates the bloodvessels; this means that the site of operation is more bloody and the injected area less clearly outlined to sight than when cocain is employed; these minor disadvantages are more than compensated by the absence of constriction of the cerebral vessels. On account of this it would probably be safe to perform operations about the mouth or head with the patient in the sitting posture, but this point needs careful investigation. Reclus prefers stovain in lieu of cocain, and believes that it will more and more be used as a substitute for the latter. [A.G.E.]

Surgical Treatment of Chronic Nephritis.—Gelpke[1] reports having discussed and experimented with an operation similar to Edebohls' long before he knew anything about Edebohls' work. His method differs from Edebohls' insofar that he sews the decapsulated kidney to the muscles of the back, the peritoneum or the omentum. Six operations on dogs demonstrated the fact that new blood paths form after removal of the proper kidney capsule and attachment to its new coverings, and he believes that chronic nephritis can be influenced by this operation similarly to Talma's operation in hepatic cirrhosis. In one patient thus operated on the albumin sank from 5 parts in 1,000 to ½ part in the same quantity. The literature concerning the subject is reviewed. [E.L.]

Rectal Injections of Calcium Chlorid to Control Bleeding Hemorrhoids.—Boas[2] advocates this treatment. He reports 25 successful cases. It may be necessary to continue over eight or more days the regular morning injections. Little effect on the hemorrhoidal tissue is evidenced. [T.H.E.]

Experimental Inoculation of Monkeys with Syphilis.—After discussing the results of Metschnikoff and Roux, which he considers very dubious, A. Neisser[3] reports his own experiments. His experiments with *Macacus rhesus* and *Macacus speciosus* were total failures, no matter how attempted. A chimpanzee was treated with large quantities of serum from a syphilitic recently infected without the slightest harm to the monkey; he was then infected with particles from a mucous patch, inoculations being made on the dorsum of the penis and the lower lip after slight scarification and a piece was inserted into the tissues of the thigh. A chancre developed on the penis; a similar mass arose over the abdominal muscles; the other inoculations did not develop. This shows that the serum from syphilitics is absolutely without danger, and is also incapable of producing passive immunity. The anthropoid animal developed inguinal adenitis and secondary eruptions characteristic of the disease. A reinfection six weeks later had a negative result, showing that the first infection produced immunity against further inoculations. Experiments with a gibbon and an orang-outang were only relatively successful. He next discusses the different methods which he has employed and intends to employ in the future to obtain immunizing substances; thus far all his experiments in that direction have been without success. [E.L.]

Air in the Veins as a Cause of Death.—J. S. Greene[4] reviews at length the literature of this subject as a supplementary paper to the one he published in 1864. Greene says that the occurrence of fatal instances from spontaneous entrance of air into the veins may safely be affirmed, or at least, those who take the affirmative can accept the burden of proof. He urges that in every disputed case, the earliest possible measurement and analysis of the gaseous contents of the veins and heart be taken. This is what the opponents of the proposition have failed to do or even suggest. Experimental work should also be directed to declare the maximum of air access to the heart by the channels of the remoter vessels, whether they be in the dura mater or in the parturient uterus. The actual quantity of air necessary to produce death when admitted into the veins of the human being, is as yet undetermined, largely because of the reason as above given, as so little can be done for the patient after embolism has occurred. Emphasis must be placed upon preventive measures, especially during labor. [A.G.E.]

Sarcoma of Frontal Sinus.—Kutvirt[1] reports a case. He was able to compile records of 12 others. His reported case, that of a man of 21, the initial symptoms were localized at the inner canthus of the left eye, where an induration was incised, and pus continued to discharge for three weeks. Increasing induration from the root of the nose upward, and to the left was accompanied by difficulty in the passage of air through the left nasal fossa, until a growth became apparent within, near the nasion. Operation, involving the ethmoid, gave short relief. Within a month the neoplasm returned and included the antrum of Highmore; two days after a second operation the patient died. At necropsy the character of the lesion was established. [T.H.E.]

Ileus.—Roos[2] tells of such a case in which the condition had existed for nine days, when it apparently subsided after the subcutaneous injection of 3 mg. of atropin in the course of five hours. Four months later the patient had another attack; she refused operation, and suffered intensely for four days, when the same amount of atropin was injected subcutaneously, which was followed by collapse that lasted for several hours, after which time she felt much relieved, but the obstruction persisted; the patient died two days later. At autopsy a right-sided pneumonia was found involving the middle and lower lobes; other than the hernia the peritoneal cavity showed no evidence of disease. The opening of the hernial sac was guarded by a firm fibrous ring; it made no definite strangulation groove; the intestines in the sac were dark red, except the lower segment of the inclosed coils. The intestines were not adherent to the sac. Roos believes the death was due to the complicating pneumonia. A second case, about the middle of the year 1903, presented symptoms which were indicative of appendicitis; they subsided in a few days, but left a firm, tender mass just above and to the right of the umbilicus. About the end of that year the patient was again taken with severe pain in the right side of the abdomen and with vomiting. The mass was palpable, but not increased in size; the patient was constipated, and was not relieved by enema. On the fifth day an enema succeeded in producing a bowel movement, but the pain subsided slightly; on the seventh day the patient had a watery stool, with which she passed a gallstone measuring 4.3 cm. in length, 2.8 cm. in width, and weighing 12 gm. Now the firm mass in the abdomen was not palpable. Although difficult to determine the route, Roos believes the stone passed out by means of a fistula in the colon. [J.F.]

Mixed Infection in Surgical Tuberculosis.—N. Petroff[3] considers this question from a study of 44 cases of open abscess and 57 cases of closed lesions. To verify the findings inoculations were made into the joints of rabbits. For this purpose various organisms were employed. Histologic study of these results showed invariably greater destruction in the joints secondarily infected than in those which remained purely tuberculous. The spread of the disease, particularly in the lungs, was also accelerated by the secondary infection. Among the conclusions reached are that foci of surgical tuberculosis which have never been opened do not contain, in the great majority of cases, bacteria associated with the tubercle bacilli, though they may present the signs of acute lesion to a very high degree. The open areas of surgical tuberculosis always contain associated bacteria, these being usually pyogenic cocci of feeble virulence; they rarely are found deep in the tissues. The secondary infection increases the destructive action of articular tuberculosis and accelerates its spread through the body. These facts explain the wellknown rule that open forms of tuberculosis are more malignant than those which are closed. This shows that treatment when the foci are opened should be directed toward rendering the foci aseptic in the greatest measure possible. [A.G.E.]

Application of Permanent Local Pressure.—Heermann[4] maintains he has had good results by applying a combination of inelastic and elastic materials not only in the treatment of ulcers of the leg and their accompanying swelling, but also in the treatment of other swelling. The elastic material utilized may be sponges (sea), cotton, or an air cushion. If sponges are employed they are moistened and applied over the swollen area; the size of the sponge depends upon the extent of the swelling; then the inelastic material, the form of a strap with a buckle at one end, is used so as to hold the sponge or sponges firmly over the swollen area. If the air cushion used produces an irritation of the skin, a soft muslin may be placed between it and the skin. If sponges are used it is necessary to moisten them at least twice daily, and this can be done without removing the outer inelastic band. He sometimes employs sponges and air cushions in combination. Heermann tells of a patient that sustained an injury of the leg and in which extensive swelling resulted, which persisted under constant treatment for seven weeks. He wrapped a pneumatic tube around the leg, then applied the outer inelastic band, and finally distended the tube with air. Although the patient was going about, the swelling completely disappeared in three days. The disappearance of the swelling seems to be favored when the patient is up and around; he has never seen bad effects upon the skin as result of the pressure except over thin scars, where the pressure applied must not be great. [J.F.]

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[1] Correspondenzblatt für Schweizer Aerzte, 1904, xxxiv, 489, No. 15.
[2] Il Policlinico, Rome, No. 58, 1904.
[3] Deutsche medicinische Wochenschrift, 1904, xxx, 1369 and 1481, Nos. 38 and 39.
[4] American Journal of the Medical Sciences, December, 1904.

[1] Il Policlinico (Rome), No. 67, 1904.
[2] Deutsche med. Woch., 1904, Bd. xxx, No. 41.
[3] Annals de l'Institut Pasteur, August 25, 1904.
[4] Deutsche med. Wochenschrift, 1904, Bd. xxx, No. 41.

Lesions of the Neck, with Operation Involving the Vagus.—Paolo Fiori [1] reports a case and recounts others, in which either through trauma or surgical interference the tenth nerve was severed. When but one is injured death is uncommon. The disturbances are: Paralysis of vocal cord, aphonia, dysphonia, laryngotracheal catarrh, dysphagia, tachycardia, dyspnea, pneumonitis, the latter usually fatal. There are also altered rhythms of pulse and respiration. In the present case the operation was done for a recurrent epithelioma, the incision for which had been along the right sternocleidomastoid margin. The neoplasm surrounded and pressed upon the pneumogastric. It being impossible to dissect out the nerve, it was cut, a portion of the sternomastoid muscle resected, and the wound closed with drainage. After a variable period of disturbances, a perfect recovery resulted. The author does not wish to leave the impression that section of one vagus is of no gravity and may be lightly undertaken. But, in view of the low mortality, chiefly on account of acute pulmonary inflammation when it does occur, he believes it permissible in an emergency. When the situation allows, he suggests the importance of trying to suture the severed ends. [T.H.E.]

Significance of Pus in the Urine.—M. C. Millet [2] discusses the conditions which are associated with pus in the urine. They are anterior and posterior urethritis, prostatitis and epididymitis, cystitis, stone and other foreign bodies in th bladder, ulcers and tumors of the bladder, conditions associated with a vaginal discharge and inflammation of Skene's glands, suppurating neighboring organs, which have become attached and ruptured into the bladder, such as suppurating ovarian cysts and pyosalpinx, appendicitis, etc., ureteral and renal suppurations, tuberculosis and calculus of the kidney, pyelitis, tumors pressing upon the ureters, pyelonephritis, septic nephritis and pyonephrosis. The differential diagnosis of these conditions is discussed at length. [E.L.]

Suture of the Right Cardiac Ventricle.—P. Milesi [3] reports two cases, the lesions of which were traumatic. The first case terminated fatally 15 hours after operation. At autopsy it was found that the wound had involved the interventricular septum and cut the chordæ tendineæ of the tricuspid valve. A general anemia of the viscera was evidenced. The second case, seen nine months after the first, was that of a man of 40 years, in contrast with the former who was 25. Sixteen hours after operation the termination was fatal. At autopsy the tricuspid valve was found hopelessly injured. The brain was much congested, as were the lungs, one of which suffered from an extension of the same incision that has pierced the heart. [T.H.E.]

Radium upon Living Tissue.—Czerny,[1] of Heidelberg, reports experiments which show that ovolecithin is disorganized after two to three days' exposure to the action of 0.01 gm. of radium bromid. If one then injects the decomposed matter subcutaneously, the same effects are produced as would appear from the direct action of the radium salt—redness and increasing inflammation, even to necrosis of the parts; this seems to depend on the state of decomposition of the ovolecithin rather than the quantity injected. It is proposed to make an antilecithinic serum, and to test its effects on tissue rich in lecithin, such as neoplasms and lymphatic tissue. [T.H.E.]

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

Autoplastic Suspension of the Uterus.—F. H. Martin,[2] in a lengthy paper which has been in part printed elsewhere, reviews this subject and gives brief notes of 144 cases. He adds a series of 155 cases to his first of 173, making a total of 328 cases of ventral suspension in eight years; in the total number, there were eight deaths. Examination of patients several years after the operation was performed shows very satisfactory results from the method advocated. Briefly the suspension is accomplished by substituting for permanent suture material a suture of living peritoneum, which is utilized in such a way that its vitality and integrity are maintained. A strip of peritoneum a third of an inch wide is taken from one side of the abdominal wound, the upper end being detached and the free end drawn under the peritoneal covering of the fundus of the uterus; the strip of peritoneum is then reunited to the area from which it was severed. The operation furnishes an immediate suspension of the peritoneum; both portions of the peritoneum concerned in the operation retain abundant blood supply and as they are brought in contact, conditions are favorable for an immediate union. The behavior of the ligament during gestation is most satisfactory. [A.G.E.]

Ligation of Internal Iliacs, before a Panhysterectomy.—C. Merletti [3] advises the systematic ligation of these great vessels before complete evisceration. The circumflex iliacs, the lumbar, and femoral circumflex arteries assure sufficient after-nutrition. Both primary and secondary hemorrhage is greatly lessened, while drainage in consequence is by no means such a necessity. Postoperative embolism is less to be feared; and the possibility of septic matter being transferred through the vascular system is practically cut out. Pestalozzi is more conservative, and desires to await further experimentation, to see the chances of septic emboli reduced. Spinelli, of Naples, is in favor of the radical procedure. [T.H.E.]

Radiotherapy of Uterine Tumors.—Deutsch [4] found in a patient, who came to him for treatment, a large mass in the abdomen, extending a hand's breadth above the umbilicus. The mass was studded with irregular nodules, one of these the size of a man's fist, was overlying the horizontal ramus of the pubes and extended into the pelvis. The mass was difficult to outline, and was scarcely movable. The portio uteri was pushed backward and to the right. The circumference of the abdomen above the umbilicus was 120 cm. (48 in.). Since the patient refused operation, radiotherapy was instituted. After five exposures the distressing bladder symptoms which had been constantly present for a year and a half were greatly ameliorated, and at the end of 12 exposures they disappeared entirely. At the end of two years' treatment the portio uteri was higher on the right, and was movable; the body of the uterus could not be outlined; the mass extends only three fingers' breadth above the umbilicus, it is scarcely the size of a man's head, spheric, and studded with nodules of varying sizes, the largest being about 4 cm. in diameter, and situated at the brim of the pelvis; the abdomen above the umbilicus measures 95 cm. (38 in.) in circumference. Changes in the skin over the lower portion of the abdomen where the treatment was applied did not appear. An accompanying goiter without other treatment disappeared almost completely. Deutsch saw similar effects as result of radiotherapy in three other cases. [J.F.]

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[1] Il Policlinico, Rome, No. 62, 1904.
[2] St. Paul Medical Journal vi, 1904, 833, No. 11.
[3] Il Policlinico (Rome), No. 58, 1904.

[1] Il Policlinico (Rome), No. 67, 1904.
[2] Chicago Medical Recorder, September 15, 1904.
[3] Il Policlinico, Rome, No. 67, 1904.
[4] Münchener med. Wochenschrift, 1904, Bd. li, No. 37.

Ovariectomy for Mammary Cancer.—Thiéry[1] reports a case, well after two years. At operation, nodules were found scattered along the intestine, which were taken to be malignant. Pozzi denies the probability. Reynès has reported a case similar to the above in treatment, in which the patient has done well in the 18 months since ovariectomy was performed. But even two years are not to be taken as absolute proof of cure. [T.H.E.]

Erysipelas Neonatorum Grangrænosum.—In a child six days old, Nohl[2] found the following conditions: Both labia majora were reddened, swollen and tender; the thighs were hard and edematous, especially over the outer and anterior surface, the skin presented bluish mottling. The temperature was normal until the fifth day of the disease when it rose to 37.9° C. From this time the temperature rose a little higher each day until the child died. Later an ulcer appeared on each labium, but the swelling and the reddening of the surrounding structure remained as it was found in the early part of the disease. Over the right trochanter a blackish-blue area of necrosis appeared; the area was irregular in outline and 2 cm. in diameter. The edema spread, involving all the structures from the mons veneris to the feet where many vesicles developed. The upper part of the trunk, arms and head were not affected. A bloody serous fluid oozed from the umbilicus. Upon the day before death occurred, blackish-blue patches appeared on the outer surface of the left thigh, and a groove like a line of demarcation appeared on the right thigh; grayish-blue patches now appeared upon the trunk and the leg. Death took place on the eleventh day of the disease with symptoms of meningitis which set in only a few hours before the child died. There was no wound nor evidences of intertrigo which might have acted as a portal of entry for the infection. [J.F.]

Hysterectomy in Two Cases of Malignant Disease during Pregnancy.—Truzzi,[1] of Padua, reports the cases. In one the fetus of eight months, in spite of carcinoma of the uterus, had attained a weight of 1,420 gm. (3 lbs.) and was well formed. Giglio operated on cancer of the cervix, and the process of gestation continued to term, with birth of a living fetus of 3,000 gm. (6 lbs.) weight. The general opinion appears to be that intervention is justifiable. [T.H.E.]

Vaginal Operations for Fibroma of the Uterus.—W. W. Uspenski[3] discusses the comparative value of enucleation and radical vaginal operation for uterine fibroma. The first method is applicable mainly to subserous and submucous forms, even if these are multiple, and also to solitary interstitial forms. On the other hand, multiple interstitial fibromas, if treated by enucleation, leave the possibility of future dangers from pregnancy behind, and properly belong to the field of radical vaginal operation. This field also covers cases of fibroma complicated by adnexal disease, especially of a purulent character. The radical vaginal operation is a step in advance, according to the author, in the treatment of uterine fibroma. However, the individual case should be carefully studied before selecting the conservative or radical method. [L.J.]

Anterosacral Meningocele.—Nieberding[1] reports the case of a girl aged 18, who complained of violent pains and a sense of weight and oppression in the hypogastrium, and pains in the head. Menstruation began at 15. Two months afterward there was a history of traumatism to the sacral region. Now, on examination, an elastic, mobile tumor was palpable, which seems to fill the true pelvis and press the vaginal tissues against the symphysis pubis. A diagnosis of retrouterine hematocele was made. There was no improvement after four weeks. Seven months later at laparotomy, a retroperitoneal mass was found firmly attached to the spinal axis. Aspiration by Dieulafoy's apparatus through the posterior vaginal wall enabled the surgeon to withdraw two liters of clear fluid. The mass disappeared. Headache was intense for 48 hours, but after four days, recovery appeared complete. A skiagraph gave negative results. Eight cases of anterosacral meningocele are on record. There has been one operation, and that resulted fatally. The author believes a plastic osteotomy would be advisable to relieve obstinate symptoms, in the event of failure of aspiration. [T.H.E.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

EDITORIAL COMMENT

Science Versus Secrecy.—Circumstances have brought again to the front a question earnestly debated some 15 or 20 years ago, but apparently without good result. However, in medicine, as in all other human affairs "nothing is settled until it is settled right." We therefore welcome the renewal of the discussion as to the responsibility of physicians for the degradation of the professions of medicine and pharmacy involved in the use of secret medicines. Progress in medicine depends upon knowledge. The more exact our knowledge of disease and of recovery, the more comprehensive our view of the factors that influence the human body in health and in sickness, the greater will be our power to aid in the restoration of health. Science is systematized knowledge. The advancement of medical science depends upon the enlargement of exact observation, the increase of ascertained facts. Whoever contributes to this enlargement of knowledge, whoever adds to the number of useful facts, whoever contributes to the rejection of false reasoning, to the correction of false observation, to the overthrow of superstition, aids in the progress of medical science. On the other hand, whoever withholds or encourages the withholding of useful facts, whoever adds to the sum total of false observation, whoever encourages false reasoning, impedes progress and obstructs knowledge. Science is knowledge. Secrecy is denial of knowledge. Secrecy concerning alleged remedies can be inspired only by fraud or avarice, or both. In most cases, alleged remedies of which the composition is kept secret are—like their makers—frauds; that is to say, they are either wellknown remedies disguised and falsely named, or they are not remedies at all. In the improbable but possible event of a secret preparation really being new and valuable (and although there are historic instances of this, we are aware of none such among contemporary nostrums) the only reason there can be for concealment of its composition is the unworthy itch for undeserved gain. The patent laws, which preclude secrecy concerning a patented article, afford full protection for any new discovery from which the discoverer desires to reap a legitimate profit. Failure to patent, if accompanied with publicity, means that the discoverer nobly recognizes his obligation to science and humanity. But if accompanied with secrecy, it means either that there is no new discovery, or that the discoverer is not satisfied with just profit and desires to practice robbery. Secrecy, we have said, is denial of knowledge. To encourage it is to take part in that denial of knowledge. Physicians who prescribe alleged remedies of secret composition encourage secrecy, thereby obstructing progress and betraying science. They cannot shift their responsibility to the manufacturer, or the advertiser, or the patient. They have made deliberate choice of the wrong path. They are unfaithful to their profession, unfaithful to the obligation to spread knowledge, unfaithful to the duty to advance human welfare. Knowledge is light. Secrecy is darkness. The old religions and mythologies that portrayed the battle between good and evil as a struggle between light and darkness, did not miss the mark. The

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[1] Il Policlinico (Rome), No. 67, 1904.
[2] Münchener med. Wochenschrift, 1904, Bd. 11, No. 37.
[3] Medizinskoe Obosrenie, lxii, No. 18.

Hebrew scriptures make light the first manifestation of creative energy; God sees the light "and it is good." In the Persian dualism, Ormuzd, the god of light, is the source of all good; his opponent, Ahriman, wields darkness as the weapon of evil. The Greeks spoke of Apollo, the sun god, the Shining One, as the great healer, the god of medicine; while Hades, who dwelt in the netherworld of darkness, typified disease and death—and as Pluto of the Romans was also fittingly the god of avarice. In the unceasing battle between light and darkness, good and evil, truth and falsehood, knowledge and ignorance, life and death, physicians must choose their part. The hosts are divided. Over one floats the black standard of secrecy; over the other the white flag of science. "Whoever is not with me is against me," said a great teacher of old. The physician who refuses to battle with Ormuzd is numbered among the servants of Ahriman.

REVIEW OF LITERATURE

Subcutaneous Injections of Air in the Treatment of Neuralgia.—Mongour and Jacques Carles[1] have employed subcutaneous injections of air in 13 cases of neuralgia, with constant success. They used this treatment in sciatica, pleurodynia and intercostal neuralgia. An injection of from a fourth to half a quart of air may be injected into the tissues without danger, and will be absorbed in eight or 10 days. No unfavorable influence has been manifest as a result of its presence in the tissues. In making the injection, care should be taken to render the instruments aseptic and the air should be filtered. After inserting the needle, the operator should wait a few moments to see that no blood escapes through the needle. The air is forced into the tissues by means of a pump. The operation is not painful; local anesthesia may be manifest a short time after making the injection. Mongour and Carles believe that this treatment should be more frequently employed. [L.F.A.]

Mercurial Injections.—According to M. Lannois,[2] mercurial injections may be employed for their local or general effect. The best example of the former is the subconjunctival injection of minimal doses. For their general effect the injections may be made intramuscular, subcutaneous, or intravenous. The author prefers the first form. When deposited in the tissues or the blood the mercury produces three sets of effects: (1) The local action, of an irritative nature; (2) the specific general action of the drug; and (3) a toxic action, due to an excess of mercury, or to some impurity (cyanogen), or to the use of a local anesthetic. An ideal preparation of mercury for purposes of injection would have a minimal local irritative action, would be rich in mercury, would be easily decomposed or absorbed, would be nontoxic, and would require no local anesthetic. The author prefers an aqueous solution of the biniodid or the benzoate of mercury. He does not advocate that injections should supplant all other methods of administering the drug, but that this method should be reserved for special cases. It is especially indicated where it is necessary to bring the patient under the influence of mercury as rapidly as possible, or where the disease resists all other methods, or where a rapid diagnosis is desired. It may also be the method of choice under various other circumstances. [B.K.]

Intravenous Injections of Collargol in Infectious Diseases.—Ritterkeins[3] compares the action of intravenous injections of collargol in various diseases. Generally, temperature is lowered, the force of the heart and the general condition of the patient favorably influenced. In pulmonary affections and in articular rheumatism there is usually rapid and permanent amelioration after injections of collargol. In grave erysipelas of the face with the general condition bad and with signs of meningitis, the injection of collargol completely changes the clinical picture; the symptoms decrease in intensity so rapidly that this treatment should be instituted in all such cases. [L.F.A.]

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[1] Journal des Praticiens, Vol. xviii, No. 38, 1904, p. 602.
[2] Lyon Médical, October 30, 1904.
[3] Journal des Praticiens, Vol. xviii, No. 38, 1904, p. 600.

Sodium Borate in Epilepsy.—The treatment of epilepsy by the administration of sodium borate has been greatly praised by neurologists. The dose given is from 1 gm. to 3 gm. (15 gr. to 45 gr.). Hoppe[1] reports 12 cases in which this treatment was used. In seven no action was manifest. Rarely it aggravates the condition as a result of functional insufficiency of the emunctories. In the remaining five cases, improvement was noticed. Mairet has used the drug in doses of from 0.50 gm. to 1 gm. (7 gr. to 15 gr.) daily, never giving more than 10 gr. (2.5 dr.) in the 24 hours. Digestive disturbances, nausea, and vomiting sometimes follow its use. [L.F.A.]

Treatment of Inflammation of the Abdominal Aorta.—Teissier[2] reviews the usual symptoms of this condition: (1) Enlargement of the vessel, perceived on palpation, with pain radiating along the course of the iliac vessels; (2) relaxation of the aorta, and its possible displacement by the exploratory hand; (3) incurvation of the aorta (Potain). Various secondary symptoms are also manifested. Teissier points out another sign which he considers particularly valuable: Arterial hypertension in the feet. In his experience this hypertension was from 1.5 cm. to 2 cm. of mercury higher than the radial tension, and in some instances even higher. Normally, the arterial tensions in the feet is from 2 cm. to 3 cm. of mercury lower than the radial tension. The disease is frequently terminated by spontaneous cure, although sudden death has resulted from rupture of the artery. Treatment has much to do with the favorable outcome. In the first place, rest in bed should be insisted on. Hot compresses should be applied to the abdomen. In the very acute cases, leeches or blisters tend to relieve the condition. Hot baths should be given for half an hour every other day. When there is irritation, with exaggerated epigastric pulsations, and more or less pain. The following is recommended:

Ammonium bromid	2 gm. (30 gr.)
Infusion of valerian	125 gm. (4 oz.)
Wine of opium	10 drops.

This is to be repeated, according to effect. [L.F.A.]

Night Sweats.—L. Weil[3] advises agaric iodid in doses of 0.1 gm. at bedtime. [T.H.E.]

Pruritus.—Neisser[4] reviews the causes of pruritus with its treatment. Among the causes are mentioned: Parasitic affections, intoxications, such as diabetes, uremia, gout; and nervous affections, secondary to cutaneous diseases. Treatment varies according to the cause. The general condition of the patient should receive careful attention. The temperature of the room should be nearly constant. The diseased areas may be covered with cotton or moist dressings. The application of the following solution twice a day is of benefit:

Zinc oxid Talc Glycerin Water	of each . . . . 25 gm. (6 dr.)

The following ointment may be substituted:

Ichthyol	2	gm. (30 gr.)
Bismuth subnitrate	2	gm. (30 gr.)
White precipitate (ammoniated mercury)	2	gm. (30 gr.)
Vaselin	20	gm. (5 dr.)

Or:

Alum	1	gm. (15 gr.)
Camphor	0.75	gm. (12 gr.)
Lard	30	gm. (1 oz.)

The application of a 1% or 2% alcoholic solution of menthol is of value, or the following ointment may be used:

Menthol Chloral hydrate Camphor	of each . . . . 5 gm. (1 dr.)
Vaselin	50 gm. (12 dr.)

A 5% to 10% ointment of salicylic acid is at times beneficial. The pruritus due to nervous affections is best treated by the administration of 2 gm. to 4 gm. (30 gr. to 60 gr.) of potassium bromid with 1 gm. to 3 gm. (15 gr. to 45 gr.) of antipyrin daily. [L.F.A.]

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[1] Journal des Praticiens, Vol. xviii, No. 38, 1904, p. 600.
[2] Journal des Praticiens, Vol. xviii, No. 39, 1904, p. 617.
[3] Il Policlinico, Rome, No. 61, 1904.
[4] Journal des Praticiens, Vol. xviii, No. 38, 1904, p. 599.

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The World's Indifference to the Medical Student.—In several important ways the medical student differs from all other students. His student days are longer, the knowledge and skill he has to acquire far greater, the whole burden of his work preparatory to remunerative life far heavier than that of any other profession or calling. Second, he has no help from community or endowment to aid him in his work. The brutal indifference to the value of his life-work and function on the part of the lay world is amazingly shortsighted. Every other student, not only of divinity, but even of classic erudition, finds hands, endowments, and scholarships, free tuition, libraries, ready to help him in his earnest and serious aims. The medical student is as poor as the best of them, and yet, without exception, he has to pay, and pay a high price, for his tuition; there are no scholarships for him. In view of the fact that his life-work is in the interest of the community and nation, and far more valuable to it than that of any other of the educated classes, it is a strange and morbid blindness to treat him in this way. The wrong is seen to be all the greater when it is recognized that from the day he begins practice about a third of the labor of the physician is given gratis to the community. This is true of no other calling. Nothing is so important to the whole people as their health, nothing so much needed as preventive medicine, and yet the poor medical man is left to fight alone against poverty and to gain the knowledge whereby he may and must struggle the rest of his life to help the people who do not help him, who are either indifferent to himself and his function, or who are enemies of both. And the rich will lavishly endow a hundred kinds of institutions without a tithe of the usefulness of a medical college, and help every possible kind of student except the medical student. Physicians and medical societies should try to remedy this fundamental injustice.

The Textbooks of the Medical Student.—Closely allied to the cruel and foolish indifference with which the world looks upon the medical student is the wrong done him as regards his textbooks. There is no class of educated men whose work demands so many books, so many new ones, such a bitter expense for new literature, as that of our profession. Medical journals and books are the very conditions of his progress and of his ability to meet the onerous burdens of practice. Every physician should spend at least $500 a year upon medical literature. Not even the local medical library can take the place of the private one. But there are no local medical libraries for 95% of physicians. If there were such libraries in every town and village they would be useless, because the mentally myopic and selfishly charitable would not endow them or supply them with books. The local profession is too poor to do so, and novels are deemed of more benefit to school children than the public health and the expensive deathrate. To make matters immeasurably worse, the books the poor medical student and practitioner must or should have are sold at prohibitive prices. Generally the professors demand that their students shall buy the textbooks written by them and sold at a price several times above their value. Some method should be devised for remedying this abuse, and at least of supplying the students with all needed books gratis or at cost. Here is an admirable opportunity for some enterprising professor and college.

Higher Educational Standards for Trained Nurses.—The proprietors of the quack nursing schools are making all haste to reap their financial rewards in pouring upon a defenceless community flocks of women with a theoretic and superficial training of a few weeks or months. The regularly trained nurses are also doing what they can, by organization, registration, etc., to supply the existing need for well-equipped and properly trained nurses, and thus prevent the abuses of the quack nurse system. Part of the nursing problem which has prevented progress, is the want of women with exceptional ability and knowledge to act as head nurses and superintendents, not only of training schools, but of hospitals themselves. Realizing this, Harvard University has resolved upon a movement of great importance to both professions concerned. It is announced that a four-year course of training is to be established, the first of its kind in the world. The plan is of general pedagogic significance in the innovation of direct admission of women to the University. The feeling of the need of better fitted women as chief nurses and superintendents has of late been rapidly growing, and the Columbia Teachers' College, of New York, has tried to meet it by courses in Hospital Economics, 15 students having been graduated last year. There can be no more useful and honorable ambition than that which these advanced courses open up to women of executive ability and higher qualifications. Wherever such positions have found women to fill them worthily, there has almost always been a most gratifying advance in orderliness and economy of institutional management.

The Relation of Food Preservatives to the Public Health.—The address on this topic recently given before the Pathological Society of Philadelphia by Dr. Victor C. Vaughan, of the University of Michigan, was a noteworthy contribution to this much-discussed subject. No startling new facts were adduced, but certain principles underlying the employment of food preservatives, and their effect upon the consumer, were enunciated with admirable clearness. Such exposition of the fundamentals is very timely, as those who favor the free use of preservatives are prone to disregard the practical bearing of the question at issue. After stating that a food preservative, to receive legal sanction, must be safe to the ailing as well as to the healthy, to the aged and the infant, as well as to the person in middle life, Dr. Vaughan said that settling whether substances are really, or only apparently preservatives, would absolutely dispose of many materials so employed. A real preservative is not a substance that alone maintains the color of a product, or even renders it nonodorous, but one that prevents the growth of harmful bacteria. Experiments in his laboratory have shown that formaldehyd in milk in the proportion of 1 to 25,000, or even 1 to 50,000, retards the growth of the lactic acid bacillus and prevents souring, but exerts little effect upon the colon bacillus. No mother would give to her child sour milk, but she would feel perfectly safe in giving the formalin-preserved, but bacteria-laden article. Such substances used as preservatives take down the danger signal, but do not remove the obstruction, and are to be condemned, whether or not they are poisons. Dr. Vaughan is not sure that formaldehyd in the quantities used, is in itself harmful, but its employment is rightly prohibited by law. After defining a poison as a substance which, by virtue of its chemic constituents, destroys or impairs cell function, he says the employment of poisons as food preservatives must be only when sanctioned by long-continued custom or upheld by law. He is thoroughly in accord with court decisions that the presence of such substances is illegal, whether they are actually in poisonous quantities or not. The right to administer poisons to other people is given only to physicians, and as the handling of poisons by the physician and the druggist is regulated by law, why not thus regulate the putting of poisons in our daily food? Salicylic acid, though a poison, is a good preservative for certain fruits, but its use as such should be clearly defined. To sum up the entire question, a food preservative must not be a cell poison, or, if it is a poison, it must be added to food under legal restrictions only, by persons duly authorized, and all foods containing it must bear labels plainly announcing its presence and its quantity. This is a reasonable and safe conclusion. Those who honestly hold opposing views and testify for persons who secretly employ preservatives, when they are called to justice, necessarily overlook the basic principles of the cause in which they pose as experts.

The Delivery of Ice.—There are surely times when the sanitarian must be overwhelmed in the deeps of pessimism. At various times and in divers places, abattoirs, dairies, bakeries, oyster beds, etc., have been placed under sanitary control. Foodstuffs, drugs, liquors, and all things meant to be ingested, have been subjected to adulteration laws and periodically inspected by a corps of paid officials, with a prescribed punishment to follow on detected infraction of the fixed standards of purity. In some places the collection of ice for storage is supervised, and even itinerant ice cream vendors have been made the objects of surveillance. But "What's the use?" when one can see any day in any large city a huge block of ice dumped from a cart onto the filthy sidewalk, and pushed and pulled and dragged across it to the inlet of some hotel or restaurant or storekeeper's cellar, collecting in its passage, the tubercle and other bacilli expectorated by a thousand passers-by. It is no use legislating to purify the sources of supply and the modes of transportation, if the receivers are not sufficiently awake to the dangers of contamination in delivery. So long as the aforesaid hotel and restaurant and storekeepers are unconcerned, so long will the mere laborers whose duty it is to deliver the ice continue to save themselves effort at the expense of polluting the ice in the filthiest conceivable manner at the final stage of its transportation. If the fruiterer were to dump the fruit, or the butcher the meat, or the baker the bread on the dirty pavement outside, what an outcry would immediately arise. Let the same solicitude be shown about ice, and a means will quickly be found to obviate this unwholesome and disgusting method of delivery.

Life Insurance Companies and the Prevention of Tuberculosis.—Believing that the great warfare against tuberculosis calls for more money than can be derived from governmental and philanthropic sources, the leaders are asking each other whether the probable results of the campaign might not present to certain business interests the features of an investment. Some are convinced that the prospect of lessened mortality from tuberculosis and increased facilities for the treatment of tuberculosis would bring very substantial profits to the life insurance companies. In the opinion of several writers on the subject, these great institutions, controlling more funds than all the national banks, should support the campaign by large contributions, made in the expectation of much larger returns. If the business of exterminating tuberculosis promised to increase the profits of life insurance to such an extent as the more roseate enthusiasts believe, it would pay the companies to finance the whole project. But these gorgeous estimates of future profits are based on altogether erroneous views concerning insurance contracts. Conquest, speedier and more sweeping than we dream of, would hardly make the campaign against tuberculosis an attractive business proposition to an insurance company. Life insurance contracts are made, renewed, and terminated every day. They contemplate a single event, and that inevitable—the death of every insured person. Premiums cover every ponderable contingency affecting the duration of life beyond the age attained, every such contingency, including tuberculosis, figuring at its present value. In the premiums of 20 years hence each contingency will be a greater or less factor, according as its influence on expectation of life has in the meantime increased or diminished. The price of sound insurance must always obey the history of these contingencies. How far the elimination of one cause of death, tuberculosis, for instance, would augment premium paying power or the earning power of premium income, is not to be determined by subtracting the present cost of tuberculosis from the present cost of mortality, for the other causes of death would just as certainly bring every contract to the claims department, and that perhaps without very material delay. The most favorable result which the companies could reasonably expect from the elimination of tuberculosis would be increased sales of life insurance at lower rates, and this prospect has no strong allurements as a financial adventure.

The Companies and the Cure of Tuberculosis.—Hoffman's very interesting studies of the relations of tuberculosis to industrial insurance, show that this disease always terminates contracts at heavy loss to the company, and some have suggested that these losses might be mitigated by spending money on the cure of insured tuberculous patients. But the total premium income upon industrial policies, eventuating in death from tuberculosis, would not furnish sanatorium treatment to half the cases occurring; the total death losses paid on such claims might amount to a sum sufficient to pay for 16 weeks of cheap sanatorium treatment for an equal number of tuberculous patients. Supposing the treatment to be 100% successful, and no lapse to occur in the payment of premiums, the company would still carry the full original liabilities upon lives subject to increased hazard. The experience of the German insurance societies, which find it profitable to send the tuberculous to sanatoriums, affords not the slightest encouragement to American companies to do likewise. The expense which the German societies seek to abate in this way is not the cost of death, but the cost of sickness, and the cost of sickness is always and everywhere greater than the cost of death. The German societies include all wage earners; their premium income is as constant as the total industrial wage of the country; their liability for sick benefits is not limited by a specified number of weeks but covers the lifetime of the individual; timely information concerning the occurrence of tuberculosis is practically always obtainable; the beginning and the end of residence in a sanatorium are determined by the society and not by the individual; the period of treatment involves no uncertainty as to the welfare of those at home; and finally, the treatment of tuberculosis does not raise in Germany, as it would in this country, any question as to the propriety of spending premium income on one sort of disability while withholding such relief from another. In all these respects the conditions of the problem in Germany stand in contrast to the conditions existing here. Every item counts in favor of the proposition in Germany, while in America the corresponding items all count against the proposition. The last consideration named, that of unfair discrimination, would alone suffice to deter life insurance companies from undertaking to cure tuberculous policy holders. If a man insured for $10,000 and suffering with appendicitis should ask his company to spend $500 on his surgical necessities, the company's reflections would be about as follows: We must pay $10,000 when this man dies. With that event impending, he proposes that we shall incur an immediate expense of $500 on the chance that the contingent liability of $10,000 may not immediately mature. If he dies we shall pay $10,500. If he lives we shall have paid $500 for a $10,000 risk upon an impaired life at the premium rate of a younger man in sound health. The difference between the long end and the short end of the proposition will depend largely upon how long the policy has been in force. But the proposition, even in the first year of insurance, does not offer a possible saving of $9,500 by the expenditure of $500. The possible saving is determined by the advantage of surgical treatment. If nature is good for 50% mortality and surgery for 10% mortality, then in 100 cases nature would give us $500,000 of immediate and $500,000 of contingent liabilities, while surgical treatment would give us $150,000 of immediate and $900,000 of contingent liabilities. In the latter case $50,000 will have been paid for the conversion of $400,000 from immediate into contingent liabilities. What is not profitable in 100 instances is better not done in one instance, for if the interest of the company be once recognized, a hundred emergencies as acute as this will follow in short order. The conditions of life insurance in this country do not justify either industrial or ordinary life companies in the expenditure of premium income on the treatment of sick policy holders.

"Of the Fragments That Remained, There were Twelve Baskets Full," "That Remained Over and Above unto Them That Had Eaten."—It does not follow from the foregoing considerations that a successful campaign against tuberculosis will not be profitable to American life companies, or that they should not be expected to give substantial support to the general movement. The conclusions are that the material interest of the companies is less than is commonly supposed, and that it concerns the sources of future business more than the results of existing contracts. Since the incidence of tuberculosis is heaviest upon the age periods which yield the largest amount of new business, a movement promising the restriction of this disease would seem to deserve the active support of the companies. From a business standpoint, the interest of the companies is superior, and in some respects they are distinguished among the forces engaged against tuberculosis. Their information concerning the economic relations of tuberculosis is most exact, they can adjust the burden of tuberculosis most accurately, and they can determine precisely their share of the cost of restricting tuberculosis. These distinctions involve a sort of obligation. *American Medicine* can speak with some authority about the relations of the medical profession to the tuberculosis problem. On this point little need be said, for the record of the profession bespeaks a noble sense of obligation, freely accepted and generously discharged in all its several items of time, labor and money. We do not recognize the investment features which some discover in these relations, and we do not, in any event, expect to credit much of the success of this warfare to motives of the kind implied. The life companies, as such, must measure and weigh their contributions by the reasonable probabilities of the near future. But those whom the business of life insurance has really enriched in any way, may, and doubtless will, recognize their honorable obligation, and will distribute as they have been enriched in money, or in leisure, or in knowledge.

The Mistletoe: Botanic Views of Antiquity.—The Christmas season never fails, during the period of its annual visitation, to renovate the unflagging perennial interest in its usual mistletoe ceremonies. The almost weird attraction which the unique individuality of this member of the vegetable kingdom has secured in the folklore, as well as in the botanic—and even medical—literature of so many countries for a period of over 2,000 years, may well furnish food for reflection to the philosopher as well as to the scientist. The writings of Theophrastus and of the elder Pliny prove that even before the dawn of the Christian era the *Viscum album* was not only an object of wondering and curious inquiry to the scientific botanist, and a factor of special importance in the hands of the enterprising birdcatcher; it was a highly accredited item of the therapeutic armamentarium, and an object of the most devout attention to the priesthood of Celtic Druidism, and of their unnumbered followers. In this respect it rivalled the lotos of the "Celestial" and the (ancient) Egyptian empires; its prominence far outshining that of the Irish shamrock, or of the Swiss edelweiss in later times. In his encyclopedic compilation of the knowledge of Natural History obtainable from the literature and the folklore of the nations of antiquity, Caius Plinius Secundus informs his readers that, as Ivy destroys the vitality of the trees to which it clings,

> "The like is to bee said (in some sort) of the Misselto, although it is generally thought, that the harme thereby is not so soon seen."

Then he proceeds to observe:

> "And this you must thinke, that this Misselto is not to be taken for the fruit of a tree, and therfore as great a wonder it is in nature as any other: for some things there be, that not willing to grow out of the earth, engender in trees, & hauing no proper place of their own habitation to seat themselues in, sojourn as it were & make their abode with others, and of this nature is the Misselto."

And after enumeration of the names and respective habitats of the other known parasitic plants, the grand old natural annalist goes on to say (in the quaint language of Philemon Holland's version):

> "But to return againe to Misselto, there bee three kinds thereof. For that which groweth on the Firre and Larch tree is called Stetis in Eubœa, and Hyphear in Arcadia. And as for that which properly is Misselto indeed, most men are of opinion, that it groweth fast to the common Oke, the wild Robur, the Holme, wild Plumtree, and the Terebinth, and not lightly on any other trees. Howbeit, in greatest plenty it is seen upon the Oke, and that is named Dryos Hyphear. A difference there is in the Hyphear and Misselto, on what tree soeuer they are found (except the Holm and common Oke) in regard of the sauor, which is strong and stinking in the one more than the other. The leafe of them both hath no pleasant smel, and in the Misselto it is bitter, clammy, and viscous besides. . . . There is moreouer, by mens saying, another difference in Misselto—for that which groweth vpon trees, shedding their leaues in winter, loseth also his owne leaues; but contrariwise, it continueth always green vpon such as hold their leaues all the yeare long. Moreouer, set or sow this Misselto in what way soeuer you will, it will neuer take and grow; it comes onely by the mewting of birds, especially of the Stockedoue or Quoist, and the Blackbird, which feed thereupon, and let it passe thorough their body. And this is the nature of it, vnlesse it bee mortified, altered and digested in the stomacke and belly of birds, it will neuer grow. It exceedeth not at any time a cubit in heighth, notwithstanding it be alwaies greene and full of branches. The male beareth a certaine graine or berry; the female is barren and fruitlesse. But sometimes neither the one nor the other beareth at all."

The Mistletoe in Druidical Mythology and Therapeutics.—The Druidical devotion—both theologic and therapeutic—to the mistletoe is discussed by the same author, in the following terms:

> "And forasmuch as we are entred into a discourse as touching Misselto, I cannot ouerpasse one strange thing thereof vsed in France: The Druidæ (for so they call their Diuinors, Wisemen, and the state of their Clergy) esteeme nothing more sacred in the world than Misselto, and the tree whereupon it breeds, so be it on Oke. Now this you must take by the way, these priests or Clergy men chose of purpose such groues for their diuine seruice, as stood only vpon Okes: nay, they solemnise no sacrifice, nor perform any sacred ceremonies without branches and leaues thereof, so as they may seem well enough to be named thereupon Dryadæ in Greek, which signifieth as much as the Oke priests. Certes, to say a truth, whatsoeuer they find growing vpon that tree ouer and besides the own fruit, be it Misselto or anything else, they esteem it as a gift sent from heauen, and a sure signe by which that very god whom they serue giueth them to vnderstand, that he hath chosen that peculiar tree. And no maruel, for in very deed, Misselto is passing geason and hard to be found vpon the oke; but when they meet with it, they gather it very deuoutly and with many ceremonies; for first and formost, they obserue principally, that the Moon be just six daies old (for vpon that day they begin their months and new years, yea and their seueral ages, which haue their revolutions euery thirty yeres) because she is thought then to be of great power and force sufficient, and is not yet come to her halfe light and the end of her first quarter. They call it in their language All-Heale, (for they haue an opinion of it, that it cureth all maladies whatsoeuer) and when they are about to gather it, after they haue well & duly prepared their sacrifices and festiual cheare vnder the said tree, they bring thither two yong bullocks, milk white, such as neuer drew in yoke at plough or wain, and whose heads were then and not before bound by the horn: which done, the priest, araied in a surplesse or white vesture, climbeth vp into the tree, and with a golden hooke or bill cutteth it off, and they beneath receiue it in a white soldiers cassock or coat of armes; then fall they to kil the beasts aforesaid for sacrifice, mumbling many oraisons & praying deuoutly; that it would please God to blesse this gift of his to the good and benefit of all those to whom he had vouchsafed to giue it. Now this persuasion they have of Misselto thus gathered, that what liuing creatures soeuer (otherwise barren) do drink of it, will presently become fruitfull thereupon: also, that it is a soueraign countrepoison or singular remedie against all vermine. So vain and superstitious are many nations in the world, and oftentimes in such friuolous and foolish things as these."

The Mistletoe in Scandinavian Mythology.—But our present knowledge of the mythology of a later date and of remoter nations shows that the religious veneration for the mistletoe was cultivated by other priesthoods, and by peoples of far different theologic conceptions. The lore of the strange plant is prominently in evidence in the Volüspa and other Scandinavian Sagas. It was with a mistletoe branch—or an arrow prepared therefrom—that the blind and heavy-headed deity Hodus aimed his deadly blow at Balder, the god of light or benevolent principle of northern mythology. The inspiration of the use of the missile was, of course, due to the opposing principle—of darkness or evil. The plant which furnished the deadly dart grew on the eastward slope of Asgard, and was the sole agent known to gods or men—among poisons, plants, and minerals—which had not given definite promise to Freya to prove harmless if used against the person of her son Balder. Thus Scandinavian mythical lore accounts for the death of the latter. And, accordingly, a traditional idea of the poisonous properties of the mistletoe is found to persist in remote regions of the north and west of Europe, even to the present day. In Great Britian (in the Forest of Dean) it has been used down to recent date as a popular remedy in the treatment of cardiac troubles. Like the strophanthus of African arrow-poison fame, it proved a reliable substitute for digitalis. Birds which, as most authorities agree, act as "intermediate hosts" in the development of the mistletoe, suffer no ill-effects from the ingestion of the fruit. Botanic specialists describe the latter as "inferior," but succulent. Paracelsus was emphatic in its laudation as a remedy for epilepsy, and his teaching was reechoed by many generations of medical men.

Mistletoe, the Classic Source of "Birdlime."—With regard to the use of the mistletoe in the preparation of birdlime, the tale is best told in the language of Pliny, as "Englished" by Philemon Holland:

> Now as touching Birdlime, it is made of the berries of Misseltoe, gathered in haruest time before they are ripe, for if they should tarry stil to take showres of rain, wel might they thriue and increase in bignesse, but their strength and vertue would be gon clean, for euer making any such glew or birdlime aforesaid. Being so gathered, as is before said, they must be laid abroad a drying, and when they be once dry, they are braied or stamped, and so put in water to steepe, and left to putrefie for the space of 12 daies or thereabout. This one thing yet in the whole world is the better for putrefaction, and serueth to good purpose. When this is done, the said berries thus putrified and corrupt, are beaten or punned once again with mallets, in running water; by which means when they are husked and turned out of their skins, the fleshy substance within, becommeth glutinous, and will stick too, in manner of glew. This is the way to make birdlime for to catch poore birds by their wings, entangled therewith; which foulers vse to temper and incorporate with the oile of Walnuts, when they list to set limetwigs to take foule.

The general opinion of the classic herbalists regarding the deposition of the seeds of the mistletoe by the thrush gave rise to the phrase, familiar even in the days of Theophrastus and of Pliny: *turdus sibi exitium cacat*—in allusion to the fact that the thrush and blackbird were frequently caught by birdlime.

Mistletoe: Its Nomenclature.—The celebrated author of the "Paradisus in Sole" tells us of "the names" of the mistletoe:

> It is called in Greeke *ἰξὸς* by Dioscorides, and so is the Birdlime made thereof also, and *ἰξία* by Theophrastus who saith also that in Eubœa it is called Stelis, and in Arcadia, Hyphear: yet lib. 3. c. 16. of his History, he saith that Stelis groweth on the North Side of the Ilex, and Hyphear on the South, & so they differed one from another in some thing, which he hath no where exprest, in Latine Viscus and Viscum, and so also the Birdlime made of the berries, as are all these sorts called by all writers, that have written either of the two last, since Lobel, with their severall adjunctes. The Arabians call it Debach, Dabuch and Hale, the Italians Vischio, the Spaniards Liga mordago, the French Guy, the Germanes Mistel and Eichenmistel and Vogellem, the Dutch Marentacken, and we in English Missellto.

This encyclopedic herbalist also objected to the time-honored notion of the deposition of the mistletoe seeds by birds:

> It is since found by experience, that there is no shew of seed in that dung, they voyde upon the trees or elsewhere, being wholly altered in their bellies before the voyding, and further that Missellto groweth on trees from their own superfluous moystures, which made Ion the Poet to call it Sudor quercus, even as Galles doe, and Oke Apples from other sort of Okes, and have no seede of their owne, and to this purpose Virgil sexto Æneidos saith:
>
> *Quale solet sylvis brumali frigore, Viscum*
> *Fronde virere nova, quod non sua seminat arbos.*

Mistletoe and its Birdlime: Their Therapeutics in the Year 1640.—The same instructive and interesting author gives "The Vertues" of Mistletoe up to date (1640):

> Missellto is hot and dry in the third degree, the leaves and berryes doe heate and dry, and are of subtill parts, for some acrimony is in them, which overcommeth the bitternesse, the Birdlime doth mollifie hard knots, tumours, and Imposthumes, ripeneth and discusseth them, and draweth forth thicke as well as thinne humours, from the remote places of the body, digesting and separating them: but is not of that property to heate suddainely, but after some time as Thapsia doth, and being mixed with equall parts of Rossin and waxe doth mollifie the hardnesse of the spleene, and healeth old ulcers and sores: being mixed with Sandarack and Ortment, helpeth to draw of foule nailes, and if quicke lime and Wine lees be added thereunto it worketh the stronger. The Missellto it selfe of the Oke as the best, (or of the Chestnut tree as Matthiolus saith to be as good) made into pouther, and given in drinke unto those that have the falling sickenesse, doth heale them as Matthiolus saith, and that he had tryed it and healed many assuredly: but it is fit to use it forty dayes together: and with this caution, that the wood after it is broken from the tree, doe not touch the ground, which is in my minde too superstitious, as is their conceit also, that it hath power against Witchcraft, and the illusion of Sathan, and for that purpose, use to hang a peece thereof at their children's neckes: Gentilis Fulginas and others have so highly esteemed of the vertues hereof, that they have called it *Lignum sanctæ crucis*, beleeving it to helpe the falling sickenesse, Appoplexy, and Palsie very speedily, not onely to be inwardly taken, but to be hung at their neckes, and some to hang it at their neckes, or weare it on their arme to helpe them to conceive. Tragus saith that the fresh wood of any Missellto bruised, and the juyce drawne forth, and dropped into the eares that have Imposthumes in them, doth helpe and ease them within a few dayes: the leaves are often given to cattell saith Pliny, to fatten them and purge them first: but if they be diseased they cannot continue long, this the manner of curing them lasteth for forty dayes in Summer.

AMERICAN NEWS AND NOTES

GENERAL.

Health of Philippine Troops.—Recent news from Washington states that the last monthly report of the chief surgeon of the Philippines, covering the month ending October 15, and recently received by Surgeon-General O'Reilly, shows that out of a total strength of 17,664 soldiers, less than 6% were sick. The surgeon-general regards this as a splendid showing for the tropics. But six deaths occurred during that month, three from disease, the others being violent or accidental. The chief surgeon reported an absence of smallpox among the troops.

Decline in Fatalities at Sea.—News from London says: The official return shows that fewer lives were lost at sea in 1903 than in any year in the last 25. The lives lost in 1903 were 624, of which 599 were sailors and 25 passengers. The annual average for the last 25 years is 1,613 lives. Other figures show 5,765 accidents, sufficiently serious to be recorded, and 350 vessels total losses. Of these, 70 foundered, 188 stranded, 56 were sunk in collisions, and 18 disappeared. Of the lost, 2 had been sailing safely for over 60 years, 5 for over 40, 21 for over 20 years. Five thousand six hundred and sixty lives were saved on the British coasts by the following means: Rocket apparatus, 235; lifeboats, 489; coast guards, 205; passing ships, 578; ship's own boats, 1,100.

Too Few Nurses in Small Hospitals.—A New York exchange states that on November 5 a delirious patient jumped from the third story window of St. Joseph's Hospital and was fatally injured. On November 19, a patient in Columbus Hospital, New York City, was stabbed fatally by another patient who had feigned insanity to be admitted to the institution. From time to time similar occurrences are noted in the smaller hospitals in various parts of the country, and they are made possible by an insufficient staff of nurses. In the New York incident, the Sisters, who manage the hospital, were absent from the wards at evening prayer. The managers of these institutions should take these two unfortunate incidents to heart and see that the arrangements for religious devotion or other activity incidental to hospital life on the part of the ward force does not leave the way clear for some patient to do bodily harm to another patient or to himself.

A Blow to Oleomargarin.—A New York exchange states that the oleomargarin interests have been unsuccessful in emasculating the Grout law, designed to prevent oleo from masquerading as pure butter, despite the proverb that a skilful attorney can drive a coach and four through any statute. Justice Brewer, of the United States Supreme Court, recently handed down a decision approving the decision of the United States District Court under which a Chicago oleomargarin dealer was convicted of violating the vital section of the law, which imposes a tax of ten cents a pound on oleomargarin "colored artificially." In this instance the coloring substance was palm oil. The only effect of the palm oil was to color a product composed of other ingredients. The Court held that one of the objects of the legislation was to prevent the sale of oleomargarin as butter, and that when any substance introduced in oleomargarin serves only the function of coloring the mass so as to cause it to look like butter "of any shade of yellow," it is an artificial coloration. The effect of the decision is to proscribe the use of any substance in oleomargarin, however harmless to health, which gives the product the color of butter. The regulation of the sale of oleomargarin through the constitutional power of taxation was the only way by which the product could be reached by Federal legislation, and the phraseology of the law seems to be sufficiently explicit to defeat the most plausible attempts to evade it.

The Samuel D. Gross Prize of Twelve Hundred Dollars.—The conditions annexed by the testator are that the prize "Shall be awarded every 5 years to the writer of the best original essay, not exceeding 150 printed pages, octavo, in length illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens." It is expressly stipulated that the competitor who receives the prize, shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and that on the title page, it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery. The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 South Thirteenth street, Philadelphia," on or before January 1, 1905. Each essay must be distinguished by a motto and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay. The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

Routes and Rates to the Fourth Pan-American Congress in Panama and the Public Health Association Meeting in Havana.—The routes to the Fourth Pan-American Medical Congress are gradually narrowing down to a select few as more advantageous rates are offered. Those who go only to the Pan-American Medical Congress will probably go and return by the way of New York or New Orleans. From the former starting point $100 will be charged for the round trip; from the latter, $50. By far the greater number, however, will make the round trip to both these meetings, returning to Baltimore via Jamaica on the steamer which the commission is arranging to charter. The Di Giorgio S. S. Line of Baltimore, Md., offers a special ship for exclusive use of party, including meals and berth, at sea and in ports, Panama to Havana and return, attending both meetings and visiting Kingston, Port Antonio, and Jamaica for $130, providing 50 persons take passage. The Athos will leave Baltimore December, 25 at 11 a.m., arriving in Panama January 2. Leave Panama January 7, a.m., arrive in Havana January 9, a.m. Leave Havana for Jamaica January 14, a.m., arrive in Baltimore January 18. Application for reservation of state-rooms, berths, etc., to be made to Ralph F. Nolley, No. 103 Park avenue, Baltimore, Md.

Temperature and Indoor Humidity.—The Bulletin of Chicago's Health Department, says: Recently, Dr. Henry Mitchell Smith, of Brooklyn, read before the Brooklyn Medical Society a paper on "Indoor Humidity," which embodies the results of his years of study and of observation of the baleful effects of an overheated and overdry indoor atmosphere upon the health. "The neglect of the element of watery vapor in the air is the greatest cause of overheating our homes. A low humidity is the great cause of discomfort, the source of much ill-health, catarrhs, colds and other diseases of the skin, mucous membranes, etc." Tests conclusively proved that a percentage of moisture above 50, with a temperature of about 65°, yields the greatest comfort and the best conditions for health. With a temperature of 72° or 74° and a relative humidity of 30%, as compared with a room at 65° to 68°, and a relative humidity of about 60%, the latter seemed the warmer and more comfortable. Add to this the fact, pointed out by Professor Wilson, of Milwaukee, in a paper on "Atmospheric Moisture and Artificial Heating," and it will be seen that we are wasting fuel from the unnecessarily high temperature we maintain. The waste is probably greater than is generally supposed. Professor Wilson says: "About 25% of the cost of heating is expended in raising the temperature from 60° degrees to 70°, so if we can keep comfortable at a temperature of 65° we shall have saved at least 12½% of the total cost of heating."

Pneumonia in Chicago and New York.—According to the Bulletin of Chicago's Health Department pneumonia took the lead as the principal and most important cause of death in New York City during the week ended October 22, when there were 155 deaths reported from that cause out of a total of 1,193 from all causes, or 13% of the total. During the same week there were 143 deaths, or 12% of the total, reported from tuberculosis, the next most important cause of death. Since the beginning of its present pneumonia season and up to the close of office hours on Saturday, November 26, there had been reported 893 deaths from tuberculosis, 1,105 from pneumonia and 7,278 from all causes—the ratios being 12.2% from tuberculosis and 15.1% from pneumonia, an excess of 22% in the pneumonia over the tuberculosis ratio. In Chicago, during the same period, there have been reported 2,611 deaths from all causes, 309 from tuberculosis and 294 from pneumonia—ratios of 11.8% of tuberculosis and of 11.2% of pneumonia. Since the week of November 12, however, when the Chicago pneumonia season of 1904-05 began, there have been 1,317 deaths reported from all causes, 140 from tuberculosis and 182 from pneumonia—ratios of 11.3% for tuberculosis and of 13.8% for pneumonia, and these proportions may be expected to continue in both cities until the close of next April. The New York Pneumonia Commission has an immense field before it—one not less important, but much less hopeful, than that in which so many workers are engaged in battling with tuberculosis.

NEW YORK.

Academy of Medicine.—The nomination of officers of the New York Academy of Medicine was held on December 1. Among the members selected to run, and without opposition, were: Dr. C. L. Dana, for president; Dr. T. M. Prudden, for vice-president; Dr. A. Jacobi, for trustee; and Dr. D. Bovaird, Dr. H. Gibney, Dr. E. L. Keyes, Jr., Dr. J. Ewing, and Dr. C. L. Gibson, for delegates to the State Medical Society. The election was held December 15.

Pneumonia Increases with the Growth of Flats.—It is suggested by some New York physicians that the increased cases of pneumonia are due to the bad effects of living and sleeping in rooms that are overheated and poorly ventilated. During the month there were 682 deaths from pneumonia in Greater New York. By far the greater number of these deaths was in what is known as the apartment house district. It is a question whether or not the increase of pneumonia is due directly or indirectly to the rapid extension of flats and apartment house living within the city. This will doubtless be solved by the commission which has recently been appointed for the purpose of investigating the cause of pneumonia.

PHILADELPHIA, PENNSYLVANIA, ETC.

Blockley Doctors Dine.—The past and present resident physicians of the Philadelphia Hospital gave a dinner at the Bellevue-Stratford recently. The history, progress, and prospects of the institution were traced in appropriate toasts.

Bond for $1,000 to Aid Dissection.—The officials of Swarthmore College have filed a bond for $1,000 in the office of the prothonotary, which will enable them to institute a premedical course of study, with unclaimed dead bodies as subjects for the dissecting table.

Personal.—Dr. Thomas G. Ashton, formerly assistant professor of clinical medicine in the Jefferson Medical College, and more recently professor of clinical medicine in the Philadelphia Polyclinic Hospital, has been elected adjunct professor of medicine in the University of Pennsylvania Medical Department, to succeed Dr. Judson Daland.

Additional Camps for Tuberculous Patients.—News from Harrisburg states that State Forestry Commissioner Conklin will ask the Legislature to increase the appropriation to the tuberculosis sanatorium on the State Forest reservation to $50,000, with which to erect buildings and provide for the care and cure of 75 additional tuberculous patients each year.

Public Health of Philadelphia for the Week Ended December 10.—According to Public Health officials, the health of the city last week was good. About 20% of the deaths were due to what the medical inspectors term "cold weather" throat and lung maladies. Pneumonia caused 59 deaths, the largest number due to any of these diseases. A mild type of diphtheria is prevalent, although not to an alarming extent.

Bequests to Charitable Institutions.—By the recent death of Rosanna C. von Phul, a number of charitable bequests become payable. In an adjudication of the estate the Orphans' Court made the following awards: Central Soup Society, $3,000; Pennsylvania Working Home for Blind Men, $2,000; Home for Aged and Infirm Colored Persons, $2,000; Odd Fellows' Home, $2,000; Northern Home for Friendless Children, Old Men's Home, Old Ladies' Home, and the West Philadelphia Hospital for Women, $2,000 each.

The Annual Meeting of the Association for the Advancement of Science.—The annual meeting of the American Association for the Advancement of Science and of the societies affiliated with that organization, will be held at the University of Pennsylvania during the Christmas holidays. The Honorable Carroll D. Wright, commissioner of labor, president of the association, will deliver the annual address on the evening of December 28, in the gymnasium. The association has at present about 4,000 members.

Philadelphia Nurses for Panama.—Four of the trained nurses who have recently returned from Japan, where they were serving in the hospital at Hiroshima, have volunteered to go to Panama to nurse in the hospitals of the Canal Commission. Miss Ella B. King, Miss Adelaide Mackerette, Miss Minnie Cook, and Miss Genevieve Russell, the nurses in question, have had experience in Cuba and the Philippines in addition to the service rendered the Japanese government. The services of these nurses were accepted by the canal commission with the understanding that they would receive the regular salaries paid for nursing and remain until their services were no longer needed.

Jefferson Medical College Hospital.—The new six-story hospital, situated at the corner of Tenth and Sansom streets, is now well under way in construction. The steel frame is completed. The building is to be fire proof, with a basement in which will be the power plant, the mortuary, a disinfecting apparatus, and a röntgen ray laboratory. Administrative offices will be on the first floor, while on the second floor will be men's surgical wards, men's medical wards, and operating-rooms. The third floor will be occupied by the women's medical and surgical wards, and the children's wards will be situated on the fourth floor. Operative-rooms, together with drug rooms, store-rooms, diet kitchens, etc., will occupy the fifth and sixth floors. The hospital will be equipped with a roof garden and will cost about $1,500,000.

WESTERN STATES

Cause of Pneumonia.—The Bulletin of Chicago's Health Department states that as a contribution to the labors of the New York Pneumonia Commission, the director of the laboratory, Dr. J. F. Biehn, reports to the commissioner that he has recently confirmed experiments made during a number of years, conclusively showing that the cause of pneumonia is a mixed infection. Rabbits injected intravenously with the sputum of a single healthy person fail to develop pneumonia; injections with the mixed sputums of two or more healthy individuals never fail to produce a typic pneumococcus infection. These results demonstrate, among other things, the wide diffusion of the pneumonia germs; they are present in the secretions of the mouth and throat of the vast majority of healthy individuals, usually lying dormant and inactive. Mixed with the germs of others they develop the disease. The practical point for prevention is the necessity of avoiding all unnecessary contact with the pneumonia patient, and the further necessity on the part of other members of the family, nurses, and attendants, for sterilizing their throats during the course of the disease. Dr. Biehn has been requested to submit a detailed report of his work to the Pneumonia Commission.

FOREIGN NEWS AND NOTES

GENERAL.

Miscellaneous.—An exchange states that after Professor Taguchi, of the Imperial University, Tokio, died, his brain was weighed and found to stand second in the list of 107 brains of eminent men throughout the world whose brain capacity has been recorded. Taguchi's weighed 1,920 gm. The weight of the human brain ranges between 300 gm. for the imbecile to 2,000 gm. for the man of genius.

OBITUARIES.

Webster Bodine Lowman, aged 64, December 5, at his home in Johnstown, Pa., the cause of death being chronic nephritis, complicated by cardiac disease. Dr. Lowman graduated from Jefferson Medical College, Philadelphia, in 1867. After graduating, he at once located in Johnstown, where he has practised medicine continuously since. His ability as a physician and surgeon, and his high character as a man, gave him a wide and merited popularity in his section of the State. His interest was not confined to those whom he served in a professional capacity, but he was a public-spirited citizen, taking a keen interest in public affairs. He was a member of the State and national medical associations, and a prominent member of the Masonic order. Dr. Lowman was one of the first surgeons appointed by the Pennsylvania Railroad Company, which position he held at the time of his death. From 1873 to 1890, he was United States Pension Examiner in the district in which he lived, and since 1891, he had been senior surgeon on the staff of Conemaugh Valley Memorial Hospital. In 1882, he was the leading spirit in founding the Cambria Hospital, one which has served as a model for the smaller hospitals throughout the State. In the death of Dr. Lowman, Johnstown loses not only a splendid physician, but an upright public-spirited citizen.

William H. Bigler, aged 64, fell dead December 10, on the streets of Philadelphia. Dr. Bigler was an active practitioner and specialist in children's diseases in Philadelphia for many years. He was graduated from Hahnemann Medical College, Philadelphia, in 1871, since which time he had been connected almost continuously with that institution. In 1895, he was elected to the chair of pediatrics, and since then has lectured on children's diseases and physiology in his alma mater.

H. H. Woods, aged 104, December 4, at his home in Granby, Mo. He was born in New York State in 1800, and had resided in Granby for 50 years, of which 30 were spent in active practice and the remaining 20 in conducting a drug store, which position he filled up to the time of his death. He is said to have left a large fortune.

William Robert Hutchinson, aged 79, November 26, from cancer, at his home in Enosburg Falls, Vt.; a graduate of Castleton (Vt.) Medical College, in 1849. A member of the Vermont State Medical Society and thrice president of the Franklin County (Vt.) Medical Society. He was State senator in 1869 and 1870.

William McGilivray, aged 86, November 28, at his home in Pipestone, Minn., from septicemia, following an operation wound; a graduate of Toronto (Ont.) University Medical Faculty, in 1890; a member of the College of Physicians and Surgeons of Ontario and of the Minnesota State Medical Society.

William Brooks Gray, aged 71, November 21, at his home in Richmond, Va.; a graduate of Jefferson Medical College, Philadelphia, in 1852; one time vice-president of the Medical Society of Virginia, of the Richmond Medical and Surgical Society, and of the Richmond Microscopical Society.

John P. Rolls, aged 85, November 28, at his home in Gadsden Ala.; a graduate of the Medical College of Georgia, Augusta, in 1845; a member of the Alabama State Constitutional Convention of 1861, and a year later a member of the Confederate Congress.

William E. Palmer, of Spokane, Wash, aged 32, November 21, at the Sacred Heart Hospital, in Spokane, from acute nephritis following an operation for appendicitis; a graduate of the University of Buffalo (New York) Medical Department, in 1897.

William R. Newsome, aged 78, November 17, at his home in McLemoresville, Tenn.; a graduate of the University of Nashville, medical department, in 1860. He was the oldest practitioner in Carroll county.

James E. Gildersleeve, aged 78, November 25, at his home in Port Jefferson, L. I., N. Y., nine days after an accident in which he was thrown from his carriage; a graduate of New York University, in 1853.

Abram H. Shiveley, of Pleasant Hill, Mo., aged 76, at the home of his daughter (in Kansas City, Kan., November 11, from dropsy; a graduate of the University of Louisville, medical department, in 1852.

Guilford H. Gunter, aged 46, from uremic posoning, at his home in Camden, N. J. Dr. Gunter was born in Canada, and graduated from the medical department of the University of Pennsylvania, in 1881.

Edward F. Stevens, aged 77, from apoplexy, November 19, at his home in Baltimore, Md.; a graduate of the University of Maryland School of Medicine, in 1858.

James Newton McCandless, of Prescott, Ariz., aged 67, November 25, at Mercy Hospital, Prescott; a graduate of Jefferson Medical College, Philadelphia, in 1863.

William Osborn Taylor, of San Francisco, aged 64, November 11, in Alameda Hospital; a graduate of Bellevue Hospital Medical College, New York, in 1866.

Lorenzo M. Johnson, aged 86, November 13, at his home in Charlestown, Ohio; a graduate of the University of Michigan, medical department, Ann Arbor.

Samuel K. Brandt, aged 62, December 7, at his home in Alburtis, Pa., where he had practised for 35 years. He graduated from Jefferson Medical College in 1863.

Charles Mandsville Downs, aged 44, November 24, at his home in Chicago; a graduate of Yale University, medical department, New Haven, Conn., in 1883.

E. W. Baily, aged 83, December 5, at his home in Lancaster, Pa. He was surgeon to the Forty-seventh Pennsylvania Regiment during the Civil war.

J. F. Bass, a wellknown retired physician, December 6, at his home in Richmond, Va.; a graduate of Jefferson Medical College in 1860.

John Fidelle Fisher, aged 60, from apoplexy, December 9, at his home in Philadelphia; a graduate of Jefferson Medical College in 1872

James M. Brown, aged 56, November 28, at his home in Spruce Creek, Pa.; a graduate of the University of Louisville, in 1882.

Eli Griffin, aged 75, November 30, at his home in Atlanta, Ga.; a graduate of the Atlanta (Georgia) Medical College, in 1856.

James E. Booth, of Petersburg, Va., November 17, at the Memorial Hospital, Richmond, after an operation for appendicitis.

Charles A. Foster, aged 89, November 25, at the Thompson Memorial Hospital, Canandaigua, N. Y.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 9, 1904:

SMALLPOX—UNITED STATES.

			Cases	Deaths
California:	San Francisco	Nov. 19-25	1	
District of Columbia:	Washington	Nov. 26-Dec. 3	1	
Illinois:	Chicago	Nov. 26-Dec. 3	12	2
Indiana:	Hammond	Nov. 23-30	1	
Kentucky:	Louisville	Nov. 24-Dec. 1	6	
Louisiana:	New Orleans	Nov. 26-Dec. 3	1	
Michigan:	Detroit	Nov. 26-Dec. 3	Imported 1	
	Grand Rapids	Nov. 26-Dec. 3	1	
	At 62 places	Nov. 19-26	Present	
Missouri:	St. Louis	Nov. 26-Dec. 3	22	5
New York:	Elmira	Nov. 26-Dec. 3	1	
Ohio:	Zanesville	Nov. 12-19	1	
Pennsylvania:	Philadelphia	Nov. 26-Dec. 3	1	
South Carolina:	Georgetown	Nov. 30-Dec. 3	2	
Tennessee:	Memphis	Nov. 26-Dec. 3	1	
Wisconsin:	Milwaukee	Nov. 19-Dec. 3	39	

SMALLPOX—FOREIGN.

			Cases	Deaths
Belgium:	Brussels	Nov. 12-19		1
Brazil:	Pernambuco	Oct. 15-31		48
France:	Lyons	Nov. 12-19	1	
	Paris	Nov. 12-19	16	3
Great Britain:	Dundee	Nov. 12-19	1	
	Glasgow	Nov. 18-25	1	
	Leeds	Nov. 19-26	1	
	London	Nov. 12-19	1	
	Manchester	Nov. 12-19	5	
	Newcastle-on-Tyne	Nov. 18-25	6	1
	South Shields	Nov. 18-25	[illegible]	
	West Riding, including Dewsbury and environs	Oct. 1-31	137	
India:	Bombay	Nov. 1-8		2
	Madras	Oct. 29-Nov. 4		1
Italy:	Catania	Nov. 17-24		2
	Palermo	Nov. 5-12	9	6
Russia:	Moscow	Nov. 5-12	2	2
	St. Petersburg	Nov. 5-12	7	
Turkey:	Constantinople	Nov. 13-20		30

YELLOW FEVER.

			Cases	Deaths
Brazil:	Pernambuco	Oct. 15-31		1
Ecuador:	Guayaquil	Nov. 8-16		1
Mexico:	Coatzacoalcos	Nov. 19-26	1	2

CHOLERA.

			Cases	Deaths
Russian Empire:	Astrakan (suburb)	Oct. 14-16	3	2
	Baku	Oct. 11-18	60	24
	Morsha	Oct. 8-17	51	23
	Samara District	Oct. 10	Sporadic.	

PLAGUE.

			Cases	Deaths
Brazil:	Pernambuco	Oct. 1-31		1
India:	Bombay	Nov. 1-8.		52
Japan:	Formosa	Sept. 3-10	1	1

Changes in the Medical Corps of the U. S. Army for the week ended December 10, 1904:

DE LANEY, First Lieutenant MATHEW A., assistant surgeon, will be relieved from duty at the First Reserve Hospital, Manila, and will report on the Sheridan for duty as surgeon thereon, relieving First Lieutenant Junius C. Gregory, assistant surgeon, who will report to the commanding general, department of the Visayas, for assignment to duty.

O'NEILL, JOSEPH A., contract surgeon, is granted leave for twenty-one days, with permission to visit China.

KIRKPATRICK, Captain THOMAS J., assistant surgeon, is relieved from duty at Lipa, Batangas, and will report to the commanding general, department of the Visayas, for assignment to duty.

DICKENSON, CLARENCE F., contract surgeon, is granted leave for three months, with permission to visit the United States.

OLIVER, ROBERT T., examining and supervising dental surgeon, is granted leave for one month.

So much of orders of November 28 as directs Examining and Supervising Dental Surgeon John L. Hess to report to the commanding general, department of California, for transportation to the Philippine Islands on the transport to sail from San Francisco, Cal., about January 1, is amended so as to direct him to report for transportation to the Philippine Islands on the transport to sail from San Francisco about February 1.

WOODSON, Captain ROBERT S., assistant surgeon, will proceed to Hot Springs, Ark., and report to the commanding officer, Army and Navy General Hospital, for treatment.

The following-named surgeons are relieved from duty in the Philippines Division, to take effect on the dates set opposite their respective names, and will then proceed by the first available transport to San Francisco, Cal., and report by telegraph to the military secretary of the army for further orders: Majors John M. Banister, March 21, 1905; Henry I. Raymond, March 21, 1905; Alfred E. Bradley, April 21, 1905; Charles Richard, May 12, 1905; Robert J. Gibson, May 12, 1905; Peter R. Egan, May 19, 1905.

POLHEMUS, Major ADRIAN S., surgeon, having been found by an army retiring board incapacitated for active service on account of disability incident thereto, his retirement from active service, December 5, 1904, under the provisions of section 1251, retiring surgeons, is announced.

JOHNSON, Major RICHARDS W., surgeon, when his services are no longer needed at the Louisiana Purchase Exposition grounds by the commanding general, northern division, will proceed to Fort Crook for duty.

FULLER, Captain LEIGH A., assistant surgeon, is relieved from duty at the U. S. Army General Hospital, Fort Bayard, to take effect upon the return to that hospital of Contract Surgeon Treuholtz from leave, and will then proceed to Fort Clark for duty.

APPEL, Major AARON H., surgeon, will proceed to the Philippine Islands on the Army transport scheduled to sail December 1.

HAYS, MELVILLE A., contract surgeon, is granted leave for one month, with permission to apply for an extension of one month.

GEER, First Lieutenant CHARLES C., assistant surgeon, is directed to report to Brigadier-General William P. Hall, acting adjutant-general, president of an army retiring board at the War Department, Washington, D. C., for examination by the board.

MASON, GEORGE L., contract dental surgeon, leave granted for one month is extended twenty-three days.

ENDERS, WILLIAM J., contract surgeon, is granted leave for fourteen days from about December 3.

Changes in the Public Health and Marine-Hospital Service for the week ended December 7, 1904:

GASSAWAY, J. M., surgeon, granted extension of leave of absence for one day, November 27—December 3, 1904.

CARMICHAEL, D. A., surgeon, to proceed to Washington, D. C., for special temporary duty—December 3, 1904. To proceed to Evansville, Ind., for special temporary duty—December 6, 1904.

CUMMING, H. S., passed assistant surgeon, granted leave of absence for seven days—December 6, 1904.

VON EZDORF, R. H., passed assistant surgeon, relieved from duty in connection with the exhibit of the Service at the Louisiana Purchase Exposition, St. Louis, Mo., and directed to proceed to Washington, D. C.—December 7, 1904.

BILLINGS, W. C., passed assistant surgeon, granted leave of absence for ten days from December 23—December 6, 1904.

HOLT, J. M., passed assistant surgeon, granted leave of absence for one day, November 25, 1904, under paragraph 191 of the regulations.

EBERSOLE, R. E., assistant surgeon, granted fifteen days' extension of leave of absence from December 6—December 1, 1904.

STILES, CH. WARDELL, zoologist, granted leave of absence for three days from November 30, 1904, under paragraph 191 of the regulations.

BALLARD, J. C., acting assistant surgeon, granted leave of absence for three days from December 9, 1904—December 6, 1904.

ECHEMENDIN, D. M., acting assistant surgeon, granted leave of absence for thirty days from December 1—December 5, 1904.

GOLDSBOROUGH, B. W., acting assistant surgeon, granted leave of absence for two days—December 5, 1904.

SAFFORD, M. V., acting assistant surgeon, granted leave of absence for nine days from December 10—December 6, 1904.

GAHN, H., pharmacist, granted leave of absence for fifteen days from December 8—December 6, 1904.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

LARGE OVARIAN CYST.

BY

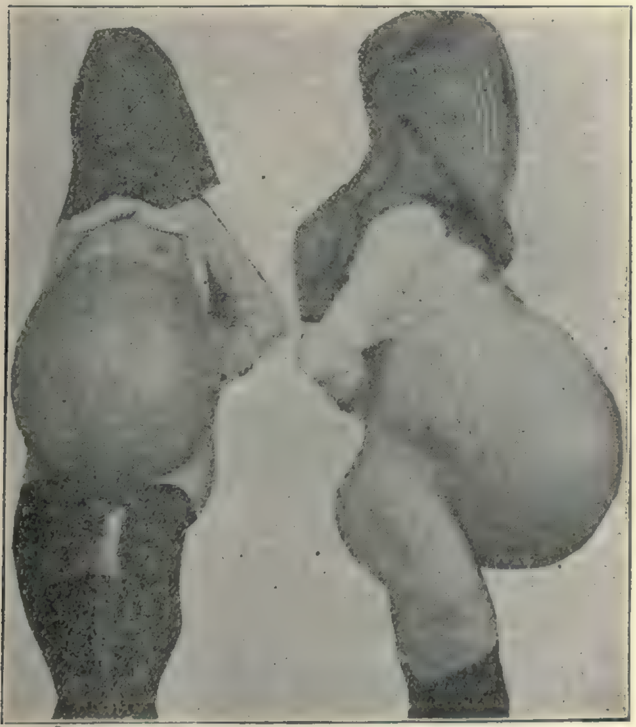
CHARLES McGIRK, M.D.,

of Philipsburg, Pa.

Surgeon-in-Chief, Doctors McGirk Sanitarium.

The following case is reported on account of its rarity, and because two excellent photographs, showing the condition prior to operation, were secured:

The patient who was referred to me by Dr. L. C. Harman, was a married woman of 35, the mother of five children, youngest child being five years of age. She was always well and robust until the beginning of the present ailment, which occurred when the youngest child was about two months of age. The mother while cleaning windows fell from a chair, her abdomen striking the back of the chair. She soon recovered from the fall, but shortly afterward noticed that there was an enlargement at the seat of the injury, gradually increasing in size. The location of this lump, as described by her, was in the right inguinal region. For the first two years she had little or no pain, the only discomfort being a heaviness and a slight difficulty in locomotion. During the third year, she experienced more or less pressure pains, sexual intercourse became impossible on account of vaginal occlusion. The tumor was diagnosed from time to time, but as no two diagnoses agreed, she became very discouraged, concluding that she would never obtain relief.



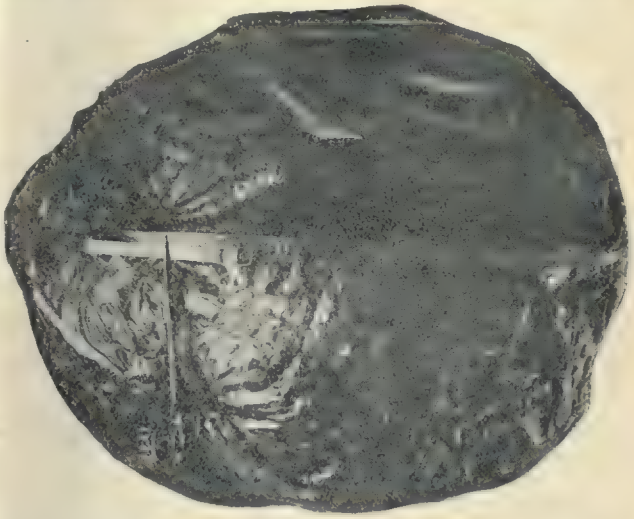
She continued to suffer more and more, especially at her menstrual periods, this function continuing with its accustomed regularity. Her pain became more and more paroxysmal, and at these times her only relief was morphin.

An examination of this patient, whom I saw for the first time in the latter part of last March, revealed an abdomen distended to such an enormous extent that she had not seen her knees for two years. The distention was symmetric in outline. There was extreme emaciation of the face, arms, neck and body, the upper part of the thorax was distorted (barrel-shaped) to an extreme degree. Both legs were greatly edematous. On palpation, the abdomen was found to be universally tense, with a greater hardness in the right iliac region. On percussion, a distinct wave could be felt, but tympany was not present anywhere. The length of time the growth had been present, the absence of any organic disease, the fluctuation, distortion, and absence of tympany, led me to believe we had to deal with a large unilocular cyst.

Vaginal examination showed an almost entire occlusion, neither cervix nor uterus could be found.

I advised operation, and this was performed March 29, 1904. I made an incision about four inches long in the median line, four inches in length, down to the cyst wall. I then introduced a large aspirating needle, and with the aid of a pump, the fluid was drawn off.

The fluid, which was dark green in color, was collected in gallon bottles, in all nine gallons. I broke up the adhesions, which were few, and withdrew the sac, ligating a narrow pedicle, requiring but two ligatures. No drainage was used, and the abdomen was closed in the usual manner.



The patient made an uneventful recovery, and at the present time is doing her own housework.

Weight of patient at time of operation	146	pounds
Weight of fluid	74	"
Weight of sac	8¾	"
Total	77¾	"
Weight of patient after operation	68¼	"

DIPHTHERIA ANTITOXIN IN HAY-FEVER

BY

W. R. ROWLAND, M.D.,

of East Corinth, Vt.

Each year physicians are confronted by the hay-fever patient, and usually, the patient receives little benefit from treatment. Whatever the causes, whether rag-weed, flowers, hay, grain, dust, or all combined, it is evident even with the assistance of numerous specifics (?) that we are not doing much practical good. The number of the afflicted is not getting less. It is noticed that each year's attacks seem worse; and a host of peculiarly distressing colds, asthmatic attacks, and catarrhal troubles come on at this season and seem to be directly related to the hay-fever malady.

Those who have suffered go at once to the mountains or other resorts where the causes are unknown, because they know too well the ineffectiveness of any other means. Many are unable to do this, and with these the practitioner must cope as best he may. The ineffective remedies remind one of the diphtheria treatment of a few years since, and along this line I have a few cases which I desire to report that may be suggestive of better and more effective work in future in this disease:

Case I.—Male, aged 65, a resident of Vermont, has been subject to severe attacks of hay-fever for over 20 years. Complete prostration occurs unless he goes to the mountains. He usually went to Bethlehem, N. H., about August 10, remaining till October 15. Two years ago, in July, his granddaughter became sick with diphtheria, and fearing the effects of the antitoxin on her, he took 2,000 units as a test. The quarantine which was established made it impossible for him to go away as usual, and as a consequence he was in daily dread of becoming the victim of an attack of hay-fever. Much to his surprise no symptoms appeared that season; and the following season, a year ago, a slight nasal discharge and coryza came on August 18, but lasted only two days. This past season a severe attack came on August 17, in the morning, and at 6 p. m. he took 2,000 units of antitoxin. At 9 a. m., the following day, no symptoms were manifest. This was the end of the attack. A chronic nasal catarrh has scarcely manifested itself since two years ago.

CASE II.—Male, aged 27. Patient had suffered from hay-fever for a number of years. He had a bad nasal catarrh at all times, and much pharyngitis. While attending a case of diphtheria three years ago, he took an immunizing dose of antitoxin in August, with the result that he had no hay-fever that season or the following. Last December, a return of the nose and throat symptoms caused him to take 2,000 units more of antitoxin, and it gave complete relief.

CASE III.—Having observed the foregoing cases, I tried the antitoxin on the following case seen in Minnesota. Male, aged 70. The patient has been a chronic asthmatic for years, with the most aggravated type of hay-fever, complicating, every season. Great prostration has usually compelled him to remain in bed many weeks after an attack. When I saw him, he was suffering from all his usual symptoms. Temperature 102°, pulse weak and fast. I gave him 3,000 units of antitoxin at 10 a. m., and at 6 p. m. temperature was 100°. At 6 p. m. the following day, temperature was normal, asthma was relieved, discharge nearly gone from nasal passage. He made a good recovery in less than two weeks, and passed the easiest winter for years.

Eight other patients, all having typic cases of hay-fever, have tried antitoxin. Six took 2,000 units, and were all greatly benefited. One patient, who took by request 6,000 units, declared herself well in five hours. One, who would only take 500 units, had a less severe attack than usual.

With the wellknown results of antitoxin in diphtheria, it certainly seems reasonable that, in other diseased conditions, affecting the mucous surfaces, we could best get at them by serum therapy. Knowing the marked effect of antitoxin on these surfaces, and also that it contains more than one principle, is it not highly probable the use of it might be extended over a much wider field than the present one? Possibly a serum that is particularly applicable to this condition may be discovered; but until then, if antitoxin does have an ameliorating power, it is a remedy that is ever at hand, and has been proved safe.

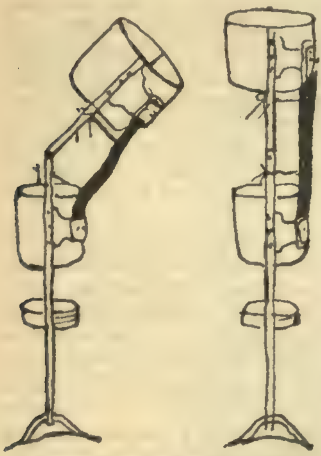
RUPTURE OF BOTH QUADRICEPS EXTENSORS.

BY

SAMUEL BLUME, M.D.,

of Riverhead, N. Y.

On the morning of November 19, 1900, while going down the front stoop of the office of Dr. William Carr, of New York City, when within two or three steps of the sidewalk, my right foot slipped, then my left, both heels remaining in place. To prevent myself from falling forward I naturally threw up both arms, bending backward, and in so doing tore both quadriceps extensors, the right about three-fourths of an inch above, and the left about one and a half inches above the patella. The fascii were also torn on both sides, and I fell on the sidewalk. Fortunately I turned slightly, striking on the outside of my right thigh, thus not doing any injury to my wrists or forearms.



Artificial quadriceps extensor.

Dr. Carr and an assistant helped me into his waiting room. A carriage took me to the residence of Dr. Henry M. Silver, who sent me to St. Mark's Hospital. Dr. Silver had ice constantly applied until the morning of November 24, when he operated. Over 70 chromaticized catgut ligatures were used in bringing the tendons, fibers, and fascia in apposition. A posterior splint was applied to both limbs. After one week these were removed and Dr. Silver put up both legs in plaster-of-paris, which extended from the instep to the hip-joint of each leg. This remained on for six weeks. On removal the wounds were found healed by primary union. Dr. Silver ordered massage, passive motion, and the use of electricity. I remained in the hospital three months and one day.

Dr. Silver constructed two artificial extensor tendons which the illustration will show. I used both for about three months. After that time I needed the left one only, for a few months longer, at intervals. I was very careful for a long time not to bring my legs at right angles with my thighs, for fear of weakening the extensor tendons, but last winter while in the Blue Mountains of eastern Oregon I got into very deep snow and I was compelled to put them in that position to get out. I was quite sore for a few days about both knees—but it did them good. At the present time no one would know that I had ever had such a severe injury. I walk as well as ever.

SUTURE OF THE BRACHIAL ARTERY.

BY

GASTON TORRANCE, M.D.,

of Birmingham, Ala.

Surgeon to St. Vincent's Hospital.

In July *Annals of Surgery*, I reported the case of a boy of 17, whose left arm was badly crushed by a mine car, followed by an infection and sloughing of the tissues, involving the brachial artery, with profuse hemorrhage. Fortunately, I happened to be in the hospital when the hemorrhage occurred, and had the patient sent down to the operating-room and sutured the wound in the vessel immediately. A few hours after operation, there was complete restoration of the radial pulse, and the patient made an uneventful recovery. When seen a year later, he had returned to his work and had a good, serviceable limb with the exception of the loss of supination of the forearm. After considering the advisability of suturing the musculospiral nerve at this time, I decided that it was best not to attempt it, as there were numerous adhesions about the artery from the muscle graft.

During my service at St. Vincent's Hospital this summer, I had a case very similar to the foregoing, but unfortunately could not follow the case up, as the patient died the same day from a wound of the lung.

J. P., colored, aged 22, a laborer, was admitted September 25, 1904, having received a charge of No. 8 shot, at close range, in the right lung, which also tore away the muscle of the arm about midway between the elbow and shoulder, exposing the bone. When the wound was cleaned, it was found that the brachial artery and the basilic vein were both punctured, causing considerable hemorrhage, which was controlled by pressure. The wound in the vein was sutured with a small curved intestinal needle, several interrupted sutures of silk being employed. One pursestring suture was introduced and completely closed the wound in the artery. There was full and immediate restoration of the radial pulse. The wounds in the vessels were covered by a muscle graft.

I am satisfied I would have had a good result in this case had the patient not received a mortal wound of the chest.

MUSIC A MEDICINE FOR INTERMITTENT PULSE.

BY

EPHRAIM CUTTER, M.D.,

of New York City.

To the Editor of American Medicine:—As I am informed that there is now being built in Kalamazoo, Mich., a hospital for the treatment of diseases by music, it is in order to suggest ideas.

An octogenarian gentleman, a graduate of Yale, a leader of a choir, organist, successful music teacher, and factor and at one time a medical student, had an intermittent pulse. We sat side by side at an ensemble concert with an audience of over 1,000 persons. As he was accustomed to feel his pulse he was asked during some particularly well-rendered selections from Beethoven, to see if his pulse intermitted. He said it did not intermit.

A patient with an intermitting pulse was requested to sing some choice music. He did so. Pulse became regular.

When we consider that music directly strengthens the heart, promotes the excretion of CO_2 gas that specially paralyzes the heart, equalizes the nerve circulation, promotes digestion, etc., these two instances are not so strange. But it is very doubtful if such musical therapy is prescribed. It seems as if it ought to be, and music thoroughly tested to see if these cases are confirmed. It does not need a hospital to do this nor even a doctor. The Rev. Peter Kimball who died at the age of 99 said that when 86 years old he used to quiet palpitation of his heart by drumming on a drum with drum sticks.

ORIGINAL ARTICLES

ON HYPERNEPHROMA.*

BY

W. W. KEEN, M.D.,

Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia.

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AND

A. G. ELLIS, M.D.,

Associate in Pathology, Jefferson Medical College, Philadelphia.

[From the laboratories of the Jefferson Medical College Hospital.]

HISTORIES OF THE CASES AND SURGICAL TREATMENT, BY DR. KEEN.

My part in this joint paper will concern chiefly the surgical treatment of hypernephroma. Dr. G. E. Pfahler, who referred one of the cases to me has kindly consented to consider the symptomatology and diagnosis, and Dr. A. G. Ellis, who has examined not only the specimens from the two cases herewith reported, but also another, a postmortem specimen, to consider the pathology.

The term hypernephroma is so recent that it does not even appear in Morris' "Surgical Diseases of the Kidney and Ureter," the preface of which is dated May, 1901. It was first employed, I believe, by Birch Hirschfeld,[1] in 1896.

The term is applied to tumors of the suprarenal gland and is derived from a Greek form of the Latin name of the suprarenal gland. The Greek form is adopted in order to correspond etymologically with the Greek termination "oma," indicating tumor. Küster uses also the name, "epinephroma," a term of similar origin.

Such tumors arise from the adrenal tissue, whether in the normal position of the adrenal (*i. e.*, suprarenal gland) or as aberrant "rests." Prior to 1883 these tumors were called by many different names—lipoma, sarcoma, adenoma, angioma, angio-sarcoma, adeno-carcinoma, myxoma, endothelioma, etc. In the two cases here reported I did not recognize their real character by the naked eye even after they were removed; but believed them to be in the first case a sarcoma, an opinion in which Professor Weir concurred, and, in the second, a possible tuberculosis or sarcoma of the kidney.

Grawitz,[2] in 1883, was the first to recognize their real character as arising from the adrenal or hypernephric tissue, the title of his paper being "On the Socalled Renal Lipomata."

It has been stated repeatedly that they are very rare. The statement should rather be, that, up to the present time, they have rarely been recognized, and they are much more frequent than we have heretofore supposed. Bevan even says they are the most common form of malignant tumors of the kidney and the same statement is attributed to Israel. It is not surprising that they should be frequent when we remember the wide distribution of supernumerary adrenals or "rests" of the adrenal tissue. These have been discovered in many parts of the body; in the solar and renal plexus; under the capsule, or in the substance of the kidney, or in the perinephric tissue; in the broad ligament; along the spermatic vessels; in the testicle and ovary; in the liver, the mesentery, and the inguinal canal. This is not to be wondered at when we remember that in the embryological development of the suprarenal gland, it is in very close physical connection with the mesonephros or primitive kidney, and the sexual organs. In fact, Holmes[3] states that "rests" of such tissue can be discovered in various parts of the genito-urinary tract in 90% of all postmortems.

The surgical prognosis of such tumors varies greatly. Some of them never manifest any malignancy, while others are exceedingly malignant, so that, as Ramsay has pointed out, the average duration from the onset of the first symptom until death was from 6.7 months to 10.6 months, the shortest duration being six weeks and the longest three years. This is a much more malignant course than usual in other malignant growths. Happily in neither of the cases which I report tonight is there any apparent malignant tendency. In Case I, nearly four years have passed since the operation, and the patient's health is excellent; in Case II, nearly 11 months have passed since operation, and the patient is in better physical condition than ever before in her life.

The malignancy is shown either by local extensive invasion not only of the kidney, but of neighboring organs; or by metastasis. Kelly and Bierring and Albert[4] have called attention to the fact that metastasis not uncommonly occurs by reason of the invasion of the renal vein by such tumors. In fact, in several cases there has been even thrombosis of the vena cava itself. This invasion of the venous circulation readily accounts for such a case as is reported by Clairmont,[5] in which the recurrence was in the bronchial lymphatic glands. In view of this possible mode of metastasis, the latter authors properly call attention to the importance of not handling the tumor roughly, either before or during the operation, and of tying the vein at as early a stage of the operation as is possible.

It is very doubtful whether in most cases a proper diagnosis can be made prior to operation, hence, as a rule, the operation must be an exploratory one, and only carried to completion in case the tumor can be removed in its entirety. If such extensive adhesions are found as to prevent entire removal, or if metastasis to other organs be discovered when the abdomen is opened, the operation should be abandoned. The operation does not differ from an ordinary nephrectomy either by the abdominal or the lumbar route, or a combination of both, as is so warmly commended by Morris. If the tumor is very large, it may be desirable even to resect the twelfth or the eleventh and twelfth ribs, though this will only very rarely be necessary.

CASE I.—R. J. D., aged 52, of Bethlehem, Pa., was admitted to the Jefferson Medical College Hospital, December 11, 1900. His father died at 87 of an unknown cause; his mother of some intestinal trouble; one sister of tuberculosis. The only illness that he remembers is an attack of typhoid 20 years ago.

Three years ago he suddenly had an attack of hematuria at night. The next morning, while at his work, severe cramp-like pains commenced and lasted for three days. They were so severe that they were only checked by the free use of morphin. The pain radiated from the kidney to the head of the penis. He had no further attacks for a year, when a second one, less severe than the first, occurred. About this time he noticed a tumor below the border of the right ribs. This was freely movable, so that he could himself push it up under the ribs and down into the right iliac fossa. He has had a great deal of pain at irregular intervals. During the last two weeks the pain had greatly increased. He had passed blood at intervals ever since the disorder began. Within the last two weeks especially he has been troubled with almost constant and severe hematuria, and on one occasion had to be catheterized, when one and a half ounces of bloody urine with many clots was removed. The presence of the clots often produced trouble in voiding the urine. He usually had to rise two or three times during the night. Rest relieved almost all the symptoms; exercise increased them.

On examination I found a tumor extending from the median line to the flank and from the costal border to the crest of the ilium. It was only slightly movable. It measured 12 cm. vertically and 8 cm. horizontally. The right half of the abdomen measured 35.5 cm., the left 34 cm. On palpation, pressure was felt reciprocally, anteriorly, and posteriorly. Heart and lungs were normal. The urine showed a reddish, flocculent deposit, about 10%, in the specimen examined, but without clots; specific gravity, 1,019; acid; albumin, $\frac{1}{10}$ moist layer; no sugar; urea, 1.8%; by the microscope a small amount of amorphous urates, a few squamous epithelial cells, and a large quantity of blood cells, but no tube casts or crystals; no tubercle bacilli were demonstrable by stain.

Operation in my clinic, December 19, 1900. Professor

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* Read before the College of Physicians of Philadelphia, November 2, 1904.

Robert F. Weir, of New York, had kindly consented to conduct my clinic on this day, and operated upon this patient with my assistance. So soon as the abdomen was opened both of us believed that we had to deal with a sarcoma of the kidney. The outer layer of the mesocolon was incised and the kidney delivered and removed: the pedicle was tied with a continuous suture. The wound was then packed with iodoform gauze and only partially closed. On the sixth day the stitch was removed loop by loop without hemorrhage. The patient was discharged February 18, 1901, in good health, with the exception of a very small sinus, which, undoubtedly, would heal spontaneously in a few days. The day after the operation his temperature rose to 101° and fluctuated from 100° to 101° until the fifth day, when it became normal.

October 15, 1904, I had a letter from him, saying that he is in excellent health, with no evidence of any recurrence after nearly four years.

Dr. Ellis reported as follows (Laboratory No. 1,415):

Two tubes of glycerin agar were inoculated with urine; in 24 hours an abundant growth was demonstrable, grayish-white in color and extending over the whole surface of the medium. There was also abundant gas production noticed in the tubes. Spreads were made and stained with Löffler's methylene-blue and by Gram's method.

Microscopically numerous bacilli were demonstrable, 1 micron to 3 microns in length and .3 microns in thickness arranged and occurring for the most part in pairs and also singly. They decolorized by Gram's method. Together with this organism there is seen another bacillus, 1 micron to 2 microns in length, .6 microns in thickness occurring mostly singly, having rounded ends and more or less oval in shape and staining by Gram's method, corresponding to *Urobacillus pasteuri.* Cocci are also seen which are identical both morphologically and tinctorially with staphylococci.

Diagnosis.—Bacillus coli communis; Urobacillus pasteuri; Staphylococcus pyogenes albus.

Dr. A. G. Ellis also made the following report upon the kidney:

CASE I. (Laboratory No. 1,416.)—The specimen is a kidney strongly resembling the spleen in shape and 13 cm. by 10 cm. by 9 cm. in dimensions; the weight is 520 gm. The plane surface is covered by a rather firm, thick, smooth capsule, brownish-red in color, containing numerous dilated vessels. An oval depression measuring 5 cm. by 8 cm. and corresponding to the renal pelvis, extends diagonally across this surface; the margins of this depression are rounded. Projecting from it is a mass of fat and also several nodules, each 2 cm. in diameter and dark blue in color. The convex surface of the specimen presents a markedly lobulated condition which includes bossed elevations 3 cm. to 5 cm. in diameter; distinct nodules, 1 cm. to 2 cm. in diameter and from 1 mm. to 5 mm. in height, some presenting a cauliflower appearance; and, finally, mere granular points may be distinguished. These varied projections are entirely subcapsular, the capsule in no way differing from that covering the plane surface. The color variations of the nodules are remarkable, varying from pale gray to deep blue or red, all shades between these being represented. In consistency, some of the nodules are soft, as though cystic, while others are quite firm. Incision of the specimen meets considerable resistance, and exposes surfaces of varying composition. Medulla and cortex can be differentiated only at the larger end, where there is an area of renal structure 5 cm. by 2 cm. by 2 cm. In this is seen one pyramid, the overlying cortex varying from 3 mm. to 10 mm. in breadth. This area is separated from the remainder of the surface by a band of dense white fibrous tissue from 0.3 cm. to 1 cm. wide, and extending from end to end; from this, narrower bands of varying width project into the surrounding tissue in every direction, dividing the surface into irregular alveoli. These bands are especially adherent to the capsule of the specimen, and extend deeply into what is apparently the renal pelvis. The enclosed areas or alveoli contain finely granular, softened masses, ranging in color from grayish-pink to red or blue. In a few, the contents are yellow and firm. The specimen was fixed in Heidenhain's solution, dehydrated, cleared and embedded in paraffin; sections were cut and stained by hematoxylin, with the addition of eosin or Van Gieson, toluidin blue, and Mallory's reticulum stain.

Microscopical examination shows the tumor to be divided into various sized, irregularly circular or oval alveoli by broad bands of dense fibrous tissue, continuous with the capsule at certain points. In these bands are small areas resembling in miniature the alveoli enclosed by the stroma. The alveoli proper are occupied in part by a reticulum of fibrous tissue which transmits blood vessels. Certain of these vessels are quite large and possess relatively thick walls, others are capillary in size and are bounded by endothelial cells only. The former, in many instances, appear to be dilated, though at such points they contain little or no blood. Lining the spaces formed by this reticulum are large cuboidal or polygonal cells. These are placed on the fibrous stroma, or in the case of capillaries, on the endothelium forming their walls, giving in the latter instances the appearance of double rows or columns. Each cell possesses a single large deeply-staining nucleus placed centrally or near the base of the cell. Nucleoli are usually, but not always, conspicuous. The cytoplasm in the greater number of cells stains faintly. It is represented largely by vacuoles that undoubtedly are spaces formerly occupied by fat. Some of the smaller reticular spaces are almost filled by these cells, the free ends closely approaching each other. Larger spaces contain detached cells and also red blood cells, in many of the alveoli blood being present in such quantities as to become the predominant feature.

Diagnosis.—Hypernephroma of right kidney.

CASE II.—Mrs. W. H. P., aged 54, of Philadelphia, was first seen in consultation with Dr. G. E. Pfahler, on December 12, 1903. Her father died of carcinoma of the face, and her mother of carcinoma of the breast. She has been more or less of an invalid for many years. Two years ago she suffered from marked indigestion, but made a fair recovery. In the early winter of 1902 she suffered from two accidents, but it is not certain that they injured the kidney. In one she was thrown from a carriage; in the second she fell from a stool upon which she was standing. After this second accident she kept her bed for several days.

On December 12, 1902, after exertion connected with a social function, at which she ate some chicken salad, her present illness began with marked gastro-intestinal symptoms, such as nausea and occasional vomiting, alternate diarrhea and constipation, and vague abdominal pains, accompanied with languor, progressive weakness, and anemia.

In January, 1903, a small polyp was removed from the cervix uteri by Dr. Elizabeth L. Peck. Dr. Peck at the same time discovered a movable tumor in the right lower abdomen, which she thought was probably a floating kidney. Dr. Pfahler was first called to see her early in November, 1903, and immediately took careful skiagraphs of the abdominal tumor. In the skiagraph the shadows were first thought to be gall-stones, but later Dr. Pfahler was disposed to think that the tumor was a kidney with a suspicion of three stones in it.

The blood examinations were as follows:

	Erythrocytes.	Leukocytes.	Hemoglobin.
November 23	3,920,000	12,000	40%
November 30	4,200.000	10,000	41%
December 14	4,690,000	8,000	42%

The urine was negative. She had never had an attack of hematuria. There was some mucus in the stools.

A few days prior to my examination she had vomited some undigested food, in which Dr. Pfahler found no free HCl. Owing to her great weakness he had not administered a test-meal. In the region of the pylorus there seemed to be a painful spot, with possibly increased resistance, but this was rather vague. She has never had renal colic. Her pulse has usually been from 80 to 90; her temperature from 100° to 102° of late. Her normal weight was 113 pounds, but this had fallen by November to 97 pounds, and when I saw her December 12 it was proabbly below 90 pounds. Her weakness had progressively increased so that she was very feeble.

On examination I found a rather slender delicate woman, evidently very ill, but who faces her grave condition with great equanimity, and has made up her mind that an operation is necessary and shall be done. As soon as the abdomen was exposed a tumor was perceptible to the sight on the right side of the abdomen, extending from the right iliac fossa to the border of the ribs, and from near the median line into the right loin. Reciprocal pressure was felt in front and behind. It was not particularly painful, and was fairly movable. No tumor about the pylorus or gall-bladder could be made out, nor was there any great sensitiveness. My diagnosis was a kidney enlarged to nearly, if not quite double its normal size by the presence of a tumor. I advised an abdominal section. The evidence for disease of the stomach was not convincing, but if there were any serious condition found, it would have to be operated upon.

Operation.—December 16, 1903, by an incision in the right semilunar line. As soon as the abdomen was opened, I drew out the stomach, which seemed to be entirely normal. In the kidney a large tumor was perceptible just above its middle. It was lobulated, and in my opinion probably a sarcoma. The kidney was delivered through an incision in the outer layer of the mesocolon. The pedicle had to be tied in several sections; one enormous renal vein, at the upper part, the size of a finger, gave me considerable trouble, and required three ligatures before it was completely secured, the final one being very near to the vena cava. As a further precaution against later hemorrhage, I packed some iodoform gauze over the stump. The distal end of the ureter was tied, cauterized with pure carbolic acid, and dropped. The mesocolon was then closed, except where the packing found its exit, and the operation terminated.

The operation was done on a hot water mattress. During the operation, Dr. A. B. Craig infused a quart of saline solution with a dram of adrenalin, 1-1,000. In spite of her great weakness, whether due to these precautions or not, there was practically no shock after the operation, the temperature only falling from 99.2° to 98°, and the pulse rising from 109 to 118.

Blood examination on December 30:

Erythrocytes	4,910,000
Leukocytes	8,800
Hemoglobin	42%

On the third day the packing was removed. Her temperature never rose above 99.6°, saving at 4 p. m. of the day of the operation, when it rose for once only to 103.2°, and she made an uninterrupted recovery.

The following table shows the secretion of urine from the left kidney:

First 24 hours	9½	ounces
Second " "	15½	"
Third " "	12½	"
Fourth " "	13¼	"
Fifth " "	16¼	"
Sixth " "	12½	"
Seventh " "	20½	"
Eighth " "	14¼	"
Ninth " "	18½	"

To all of these amounts should be added more or less urine passed with the stools. Two culture tubes inoculated from the kidney showed no growth.

I first thought that the tumor was a sarcoma. Later, on making a section of it, I was inclined to think it was possibly tuberculous. The histological examination by Dr. Ellis, however, as he will explain, showed it to be a hypernephroma.

By February 15, 1904, two months after the operation, she had gained 30 pounds in weight.

On January 26, 1904, the blood examination showed:

Erythrocytes	4,940,000
Leukocytes	8,600
Hemoglobin	56%

By May 14, 1904, her hemoglobin had risen to 70%.

On October 20, 1904, I saw her in blooming health. Her weight had increased to 136 pounds as contrasted with less than 90 pounds 10 months before. Indeed she asserts that she is in better health than she has ever been before. The urine varies from 36 ounces in hot weather to 60 ounces in cold weather. The average is about 46 ounces.

Dr. Ellis made the following report upon the kidney:

CASE II.—(Laboratory, No. 2,546.) The specimen consists of a kidney 11 cm. long, 5 cm. wide, and 3.5 cm. in maximum thickness. The weight is 298 gm. The organ shows no conspicuous gross lesion, except on the posterior aspect of the upper half, where there is a projecting tumor, irregularly globular in outline, measuring in its greatest diameter 7 cm. It projects beyond the surface of the kidney a distance of 4 cm. The tumor is covered by a capsule, which is apparently an extension of the capsule of the kidney. It is very thin, translucent, and contains numerous small, distended blood-vessels. Broadly speaking, the surface of the tumor is fairly smooth, though it presents several rounded elevated areas, varying from 0.5 cm. to 2 cm. in diameter. These areas have a maximum elevation of 0.6 cm. and merge gradually with the surrounding surface. They are much softer than the intervening tissue, which is quite firm, though readily compressible by the finger. The color of the tumor mass beneath the capsule is distinctly yellow. A few punctate dark areas resembling small extravasations of blood are scattered over the surface. Externally, the tumor is sharply differentiated from the substance of the kidney and a mesial incision, which has been carried through the mass into the renal pelvis, shows the entire tumor to be thus clearly outlined. (Fig. 1.) Both cortex and medulla of the kidney have been usurped by the growth, which extends to the renal pelvis, without encroaching upon or notably projecting into that structure. The depth of the tumor as measured from the external surface to its termination at the pelvis of the kidney is 7 cm. The upper border of the growth is, at its junction with the surface of the kidney, 2 cm. from the extreme upper end of that organ, but its free extremity projects beyond the attachment until the outer portion is even with the margin of the kidney. The incised surfaces of the growth are yellow in color. They are marked out into variously sized circular or oval areas by narrow bands of grayish tissue, presumably fibrous in character. These areas exhibit pronounced bulging. Minute reddish points are seen dotting these surfaces, apparently marking the situation of severed blood-vessels. Further incision of the mass reveals the presence on the surfaces of darker areas 0.5 cm. to 1 cm. in diameter. A few areas of softening are noted. The entire tumor mass, on its incised surfaces, is soft and very friable.

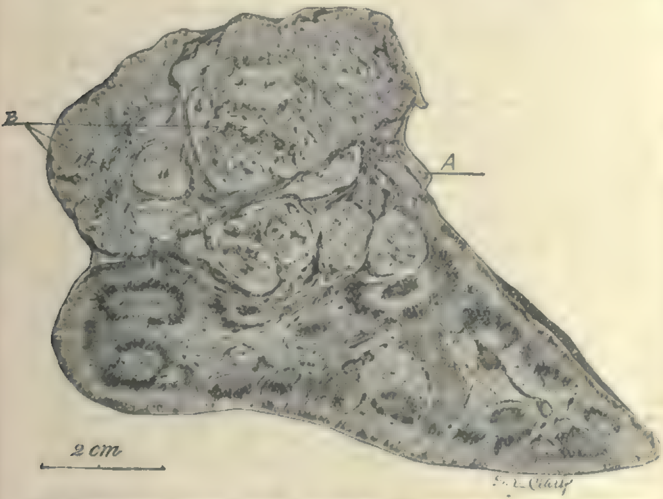

Fig. 1.—Hypernephroma, Case II. A, Capsule of kidney extending over tumor; B, areas of hemorrhage.

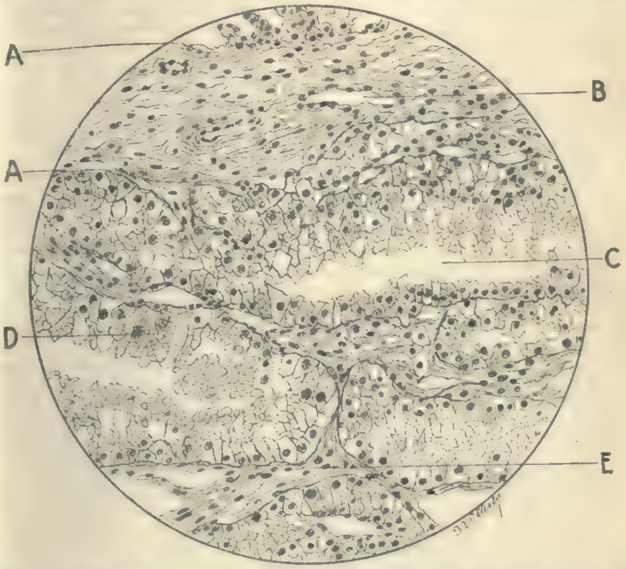

Fig. 2.—Section of hypernephroma, showing capsule (Case II). A to A, capsule; B, blood-vessel in capsule; C, alveolus surrounded by polyhedral cells, many of which are columnar and possess the general characters of the cells found in the adrenal cortex; D, typic spongiocyte; E, connective-tissue reticulum.

Slightly below the center of the posterior surface of the kidney and a little internal to the common border, at a point 2 cm. from the margin of the tumor described, is a yellowish, slightly elevated nodule 0.5 cm. in diameter. It is immediately beneath the capsule of the kidney and is quite dense in texture. This nodule was removed entire, with the surrounding portion of the kidney, for further study, hence its depth of penetration was not at this time noted.

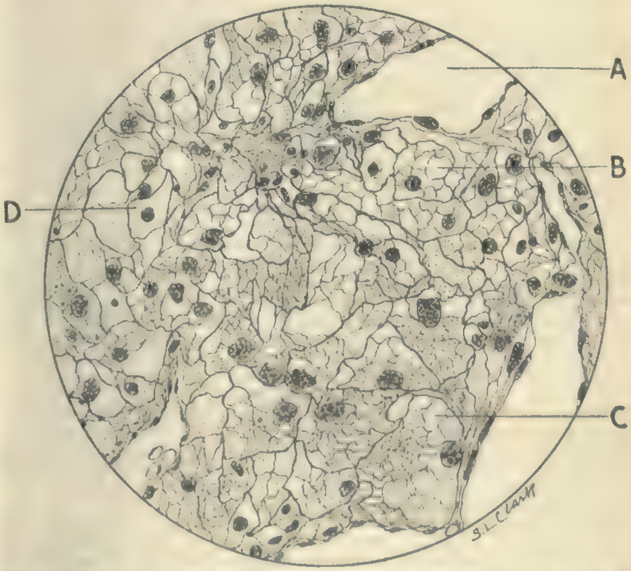

Fig. 3.—Section of hypernephroma, showing character of cells. Same section as Fig. 2 (Zeiss 2 mm. homo. im.). A, blood-vessel; B and C, spongiocytes. In the upper cell (B) the intraprotoplasmic spaces appear empty; the corresponding areas in the lower cell (C) contain faintly acidophilic fine granules. D, similar cell, with structureless clear protoplasm.

Inoculations were made and cover-glass spreads prepared from the tumor; part of the latter were fixed in absolute alcohol. Half of the specimen was preserved by Kaiserling's method. The other half was fixed principally in Bensley's fluid, but small portions were also placed in absolute alcohol and in 10% formalin.

Examination of spreads stained by methylene-blue shows them to contain a variety of cells. Polymorphonuclear leukocytes are quite numerous as are also lymphoid and hyaline cells. In addition to these are large polyhedral cells ranging from 12 microns to 40 microns in diameter. The cytoplasm is finely or coarsely granular. The nucleus is large and usually single, though occasionally two nuclei are noted and in one cell, four are present. Some of the nuclei stain deeply, but many are but little darker than the cytoplasm. One or more nucleoli are usually present. A few of these cells, particularly the smaller ones, contain one or more vacuoles. In certain others a clear space separates the nucleus from the cytoplasm. Inoculations on agar yielded no growth.

The fixed portions of the tumor were embedded in paraffin and sectioned. Sections were stained by hematoxylin and eosin, hematoxylin and Van Gieson, toluidin blue, Mallory's reticulum stain, and by specific stains for glycogen.

Microscopical examination of the sections shows the following characters: Sections including both the kidney substance and tumor show these two structures to be separated from each other by a distinct zone of fibrous tissue. This zone is quite wide and shades off gradually into the kidney substance proper, appearing to be a condensation of the renal tissue, with some added fibrosis, rather than a true capsule of the tumor. The structure of the tumor at this point is that of an exceedingly scanty, almost filamentous, fibrous stroma or reticulum, which ramifies in various directions as long bands, to each side of which are attached large cells, or form variously sized alveoli lined by similar cells (Fig. 2). These cells vary in size but the majority are extremely large. They are cuboidal or columnar in type and contain round, fairly deeply staining nuclei, situated usually near the middle of the cell. The cytoplasm is very loose in structure and stains indifferently. It contains in many of the cells numerous clear or translucent areas that suggest the presence of fat, but which do not have the regular, clear-cut outline usually presented by distinct globules of that material. In many areas these cells are but one layer in depth, but other portions are made up of alveoli practically filled by several layers of them. In such areas the limiting membranes of the cells are the most conspicuous feature, forming an irregular network in which is seen the slightly granular, shadowy cytoplasm. (Fig. 3.) Many of these cells contain no demonstrable nucleus. Portions of the tumor are quite compact, while others possess an exceedingly scanty network of stroma and cells, the large spaces thus formed containing in some instances blood, in others detached tumor cells, both showing various degrees of cytolytic change. The parts of the tumor described resemble, in general structure and character of the cells, the zona glomerulosa of the adrenal gland, showing here, of course, cellular proliferation and also degenerative changes. In other sections are seen areas made up of columns of cells forming a network in the interstices of which are capillary blood-vessels. These cells are much smaller than those previously described, containing vesicular nuclei and clearly defined fat spaces. The similarity of these areas to the zona reticularis of the adrenal is very striking. Sections stained for glycogen by the iodin method show numerous variously sized granules or droplets of that material in the large cells of the tumor.

The kidney shows granular changes in the epithelium of the tubules, accompanied, in some areas, by considerable desquamation. Slight recent hemorrhages into the tubules or tufts are occasionally noted, but are not at all conspicuous. A few granular tube casts are in situ. The capsule of the organ is slightly thickened and small areas of beginning fibrosis immediately beneath it are observed. The conspicuous fibrous transformation in the vicinity of the tumor has been previously mentioned; parenchymatous change is also more noticeable as the tumor is approached.

Sections through the small nodule in the kidney, mentioned in the gross description, show it to be beneath the thickened renal capsule. It is made up of a loosely arranged network of fibrous tissue enclosing spaces which, in the central part of the mass, contain cells resembling to some extent those in the large tumor. Dense accumulations of lymphoid cells are also present. Although it cannot be definitely stated that this is a metastasis from the larger tumor, it is reasonable to suppose that such is the true nature of the small nodule. It is not sharply demarked from the adjacent tissue, possesses the semblance of a capsule at points only, and shows, equally with the larger mass, such evidences of growth as to indicate that both are progressing at about the same rate; if any difference can be inferred (for inference is all that is possible upon this point), the smaller tumor would appear to be the more rapidly growing of the two.

Diagnosis.—Multiple hypernephroma of right kidney; slight chronic diffuse nephritis.

By the kindness of Professor Coplin, Dr. Ellis had the opportunity of examining a third specimen obtained postmortem.

CASE III.—The specimen was obtained at autopsy upon the body of a man aged 43, the pathologic diagnosis being: Chronic adhesive pleuritis, arterio-sclerosis, chronic interstitial nephritis, chronic interstitial pneumonia, hypernephroma of left kidney, arterio-sclerotic softening of right cerebrum.

The left kidney was small, lobulated, and possessed an adherent capsule. On the convex border, just above the middle of the organ, was a slightly elevated, nearly circular nodule 1 cm. in its longest diameter. It was yellow in color, and sharply differentiated from the surrounding tissue. The surface of the nodule was roughened by small projections, giving it a wart-like appearance. Incision showed the tumor to be almost spherical in outline and slightly more than 1 cm. in diameter.

Microscopical examination of sections from the specimen shows an encapsulated tumor situated immediately beneath the capsule of the kidney. The latter structure where it surmounts the tumor is considerably thickened and elevated. In addition to the general elevation, caused by the location of the growth, the capsule of the latter sends outward several projections that produce irregular secondary elevations of the kidney capsule, and impart to it a papillomatous appearance.

The capsule of the tumor is a broad band of fibrous tissue, which, throughout the larger part of its extent, presents two fairly distinct, but not sharply delimited zones. The outer is composed of rather dense tissue, containing but few blood-vessels and cells; the inner zone is not so dense, and shows more or less conspicuous invasion by tumor elements. This is particularly true of the part bordering the kidney, where evidence of extension of the growth is most marked. Here, even the outer zone is extremely cellular, shading gradually into kidney substance undergoing progressive fibrous transformation. The larger blood-vessels in this area are the site of obliterative endarteritis. Into this extending capsule, tumor elements are well advanced. At several points are quite large spaces better considered in connection with the tumor itself. Scattered throughout a large part of the capsule and extending into the stroma of the tumor, are granules and irregular collections of golden-brown pigment, both intra-cellular and extra-cellular in location.

The tumor proper is composed of a fibrous reticulum enclosing variously sized cell-lined spaces. The bands of the reticulum transmit capillaries and vary considerably in thickness; some consist of but little more than the endothelial wall of the capillary, others are distinct, though narrow, fibrous bands. The reticulum does not extend inward from the capsule as prominent narrowing and dividing trabeculas, but, as stated in the description of the capsule, presents more the appearance of impinging upon and invading the inner portion of that structure. The cells lining the spaces of the tumor are large and usually polygonal in outline. They are attached perpendicularly to the reticulum, and where the latter is most scanty present the appearance of double rows or columns separated but slightly by the capillary wall. The nucleus is usually situated toward the center of the cell and reacts well to chromatin stains; the cytoplasm stains very faintly, and in most of the cells contains large fat spaces. The spaces enclosed by the reticulum of the tumor vary in size from those essentially filled by the lining cells up to cavities 2 mm. in diameter. The smallest spaces contain detached cells of the type described and a few red blood cells; the large cavities are nearly filled with blood, and also contain desquamated cells in various stages of disintegration. A few of the better preserved cells contain pigment similar to that described in connection with the capsule. The spaces previously mentioned as located in the capsule are similar to those just described, and are evidently extensions of the growth; the largest is 0.5 mm. in diameter.

The histology of that part of the kidney immediately bordering the tumor capsule has been described in connection with the latter structure. Further from the tumor, and presumably uninfluenced by that body, the renal cortex shows a decided increase in connective tissue, with hyalo-fibrous transformation of the glomeruli. The tubular epithelium is granular, fatty, and desquamating.

Diagnosis.—Hypernephroma of left kidney; chronic diffuse nephritis.

SYMPTOMATOLOGY AND DIAGNOSIS, BY DR. PFAHLER.

As Dr. Keen has indicated there is but one method of treatment, and that is operation; and the earlier it is performed the greater are the chances of complete recovery. All, then, depends upon an early diagnosis. With the object of working out the symptomatology and diagnostic factors, and at the suggestion of Dr. Keen, I have reviewed the literature upon the subject, have made an analysis of the clinical histories, and have tabulated the symptoms of the cases reported, including our two cases.

The great majority of the reports upon this subject contain only the description of the pathological nature and tendencies of these growths. In this collection, I have included only undoubted cases of hypernephromas in which the clinical reports contained all of the symptoms and observations that were noticeable; but have not included the cases reported in which the symptoms were produced by metastatic growths. In very few were the clinical histories complete, nor were all of the methods of investigations used that were at our command. Until all such methods of investigations have been used, we have no right to claim that a diagnosis cannot be made. I have collected and tabulated 26 cases. (See table.) The three most important symptoms or diagnostic factors connected with the disease clinically are hematuria, renal colic, and the detection of a tumor. All of these may occur together, any one may occur alone.

The most constant of these is *hematuria* which is usually the first symptom complained of by the patient. In 63 cases studied from this point of view by Albarran,[6] it was the first symptom in 36. It occurred at some time during the course in 58 out of 77 cases, or in 75%. Hematuria occurred alone in 4 cases, with a tumor in 28, with pain in 4, and with pain and tumor in 22. In the cases collected by me, hematuria was present in 19 out of the 26. It was associated with pain in 14, and with tumor in 15 cases.

It is probably only present when the kidney itself is involved, but, as Dr. Ellis will show, the kidney is involved in nearly all cases, and therefore this distinction is of little practical importance. Usually the hemorrhage begins without apparent cause, and at times while the patient sleeps; but in three cases it seemed to be excited by traumatism or exertion. In one case it was caused by direct traumatism to the lumbar region; in another by the lifting of a heavy barrel; and in a third case it occurred at the end of a race, associated with fainting. In one of our own cases (No. II) trauma may have been a factor in the causation of the disease. It is usually sufficient in amount to form clots, and may amount to a pint or more; and it may be passed as almost pure blood. Ureteral clots are often present.

Hematuria may be almost constant for several months, and then be entirely absent for several months. It usually occurs at intervals, and lasts but a short time. Plummer[7] mentions a case in which hematuria occurred only once, 14 months before operation. Morris[8] also reports a case in which hematuria only occurred once, two years before the operation. In seven of the 26 cases there had been no hemorrhage during the entire course, and no urinary symptoms. This was true in one of our cases (No. II) and in this case half of the kidney structure was involved by the growth. Therefore the absence of hematuria does not indicate that the kidney itself is free from growth.

Pain.—The usual form of pain is that which is usually described as renal colic; but it may be a mere dragging sensation, or dull pain in the lumbar region, such as occurred in the cases of Thorndike and Cunningham.[9] Morris mentions two cases in which the pain occurred in the region of the gall-bladder and lumbar region, respectively, and radiated toward the right shoulder.

The pain usually occurs with the hematuria, and in such instances may be due to the formation and expulsion of clots from the ureter. It may occur without hematuria, such as was noted in one of Bierring's,[3] and two of Lubarsch's[10] cases. In the study of this point by Albarran, pain was the first symptom in 20 out of 63 cases. Of these 20 cases, it occurred alone in 14, with blood in 5, and with tumor in 1. In 77 cases, pain was present at some time during the course in 32. In my series it was present in 19 out of the 26 cases.

Tumor.—A tumor may be discovered by the patient before any other symptoms have been produced. It was the first symptom in 12 out of the 63 cases studied by Albarran. The same author found it present at some time during the course in 69 out of 77 cases, or in 89%. In my series of 26 cases it was detected in 21. As a rule the tumor is detected after other symptoms have become manifest, and the interval between the earliest symptoms and the discovery of the tumor may be several years. In size the tumor varies, but may reach that of a child's head. Out of the 26 cases 4 were so described. The tumor was movable in 12 of the 26 cases. This mobility varies from a slight movement with respiration to very free movement, and this forms a very valuable point in the differential diagnosis. Tenderness was elicited in 6 of the 26 cases.

Location: The tumor was found upon the right side in 18 of the 26 cases.

General Symptoms.—The general symptoms consist chiefly of a marked asthenia, emaciation, and languor or depression. These symptoms were present in 18 of the 26 cases. The color of the skin is usually described as being pale. In only two was it described as cachetic, and in none of them was it found to be bronzed. Gastro-intestinal symptoms were complained of in 5 cases. In one of our cases (No. II) it was the chief complaint.

The *blood* has been examined in only 4 cases, and in one of these only the leukocyte count was made. In the 4 cases the leukocytes varied from 6,000 to 12,000. The hemoglobin was comparatively low, once as low as 25%. In one of our cases it was 41%, while the erythrocytes were 4,200,000, the leukocytes were 12,000, and the differential count was normal. We had therefore in this case the blood picture of chlorosis.

The examination of the *urine* was reported in 13 of the cases, but except when it contained blood, it was practically normal.

The *age* was given in 22 cases. The oldest patient was 73, and the youngest 38, the average being 52. Hypernephroma therefore, as a rule, appears to be a tumor belonging to middle and advanced age. Albarran says that it is rare below 40, and after 60.

The *sex* was mentioned in 24 of the 26 cases. It was found 13 times in the male, and 11 times in the female. This point was studied by Lubarsch in 28 cases, 19 of which were in the male. This disease therefore seems to occur rather more frequently in the male.

Heredity.—The family history was mentioned in only 6 of the 26 cases. In 3 of these 6 there was a distinct history of carcinoma in the parents.

Duration.—The duration of the symptoms varied from 15 weeks to 8 years, or an average of 2 years and 3 months.

Grawitz and Strübing[2] report a case in which a tumor was present in the region of the kidney 5 years, J. Israel[11] one 8 years, and Beneke[12] one 10 years, while Askanazy[13] reports a case in which the tumor was discovered early in youth, then lay dormant twenty some years, and produced symptoms at the age of 53.

Hypernephroma therefore may be a slowly growing tumor. This should not, however, become an excuse for delay in operation, because at any time an intercurrent affection may cause rapid progress of the disease, followed by metastases. This was noted in two cases after an attack of influenza. One of these cases was reported by Lubarsch.

Special examinations were made in 9 cases. A cystoscopic examination was made in 3 cases, and in each showed blood coming from the ureter of the diseased side.

A röntgen-ray examination was made in 3 cases. In 2 it excluded stone. In one of our cases, a shadow of the tumor and kidney was shown, and in the general outline more dense shadows were obtained which corresponded to the nodules of the tumor. In a case reported by Lubarsch, an examination under ether, which was made three months before a tumor could be felt, gave increased resistance over the kidney. In one of Robson's[14] cases the colon was inflated, and the tumor was pushed up toward the liver. In a case reported by Morris, a varicocele had developed upon the affected side, which was found to be due to a distortion and dilatation of the spermatic vein as it passed over the tumor.

Diagnosis.—The diagnosis of these tumors is, of

CLINICAL ANALYSIS OF TWENTY-SIX CASES OF HYPERNEPHROMA, INCLUDING

Author.	Reference.	No.	Pain.	Hematuria.	Tumor.			
					Location.	Size and shape.	Mobility.	Tender.
Morris.	Brit. Med. Jour., Lond., Vol. ii, 1893.	1	....	At intervals during two years.	Right.	....	....	....
Thorndike and Cunningham.	Boston Med. and Surg. Jour., Dec. 3, 1903.	2	Dull aching pain in lumbar region, and renal colic when hematuria ceased.	At intervals during three years; constant during six months; passed ureteral clots.	Right.	Convex, nodular.	Moves with respiration.	Tender.
"	"	3	First symptom, simulating renal colic, immediately after injury; later dull.	At intervals.	Right	Convex, smooth.	"	None.
"	"	4	Dull aching pain in back was first symptom; pain occurred with and without hematuria.	Began one week after pain and lasted 48 hours; passed ureteral clots.	No tumor.	Abdomen symmetric.	....	....
Ohlmacher.	Cleveland Med. and Surg. Jour., March, 1903.	5	Renal pain, five years.	Recurrent hematuria during five years.	Right.	....	Movable.	....
"	"	6	....	Periodic.	....	....	....	....
McWeeney.	Brit. Med. Jour., Feb. 8, 1896.	7	Abdominal pain.	None.	Left.	Size of a melon.	Fluctuation.	....
"	"	8	Abdominal pain.	"	Right.	Twice size of kidney.	Freely.	....
Jellinek.	Cal. State Jour. of Med., Vol. ii, No. 2.	9	Recurrent renal colic, two years; first attack after running a race; dull pain five or six years.	Said to have occurred.	Right.	Size of child's head.	....	....
"	"	10	Pain in bladder, radiating toward penis.	At intervals during two years.	Right.	Size of kidney.	Movable.	Tender.
Boyd and McFarland.	Proc. Path. Soc. of Phil., June, 1902.	11	....	....	Right.	....	....	"
Bierring and Albert.	Jour. Am. Med. Assn., July 23, 1904.	12	Renal colic recurred at intervals of three months and six months; then at intervals for two years and six months.	Began after six months, and recurred for two years and six months.	Left.	....	Fixed.	....
Chandler.	N. Y. Med. Jour., Sept. 3, 1904.	13	Renal colic developed after lifting a heavy barrel; recurrent during four years.	Recurrent with colic.	Right.	....	Movable.	....
Lubarsch.	Virchow's Arch., Vol. cxxxv, 1894.	14	....	First symptom, recurred at intervals during six months.	Right.	Size of child's head.	Moves with respiration.	....
"	"	15	Renal colic, one year before hematuria, was the first symptom; recurrent until operation, one year later.	Occurred repeatedly, beginning about a year after first attack of renal colic.	Right.	Size of child's head.	Movable.	....
"	"	16	None.	None.	Right.	....	Movable with respiration.	....
"	"	17	Pain was the first symptom, in the region of the kidney, three years before other symptoms.	Bleeding began suddenly and without cause, and again two months later, after exertion.	Left.	Small.	....	....
Plummer.	Ann. of Surg., No. 39, 1904, p. 468.	18	....	Only one hemorrhage fourteen months before operation; none again; pure blood.	....	....	....	....
Bevan.	"	19	Renal pain.	Hemorrhage.	....	Large kidney mass.	....	....
Brown.	Ann. of Surg., No. 39, 1904, p. 299.	20	Renal colic three years before operation; recurred at times with the hematuria.	Hematuria three years before operation; recurred with and without pain.	Right.	Large nodular.	....	Early tender.
Morris.	Brit. Med. Jour., Nov. 11, 1899.	21	....	Hematuria two years before operation, and only occurred once.	Left	Noticed six months before operation.	Freely movable.	....
"	"	22	Renal pain.	Hematuria two years.	Right.	Tumor of right temple; palpable.	....	....
Robson.	Brit. Med. Jour., Oct. 21, 1899.	23	Pain in region of gallbladder, radiating to the right shoulder; lasted two years.	No urinary trouble.	Right.	Noticed three weeks before operation.	Freely movable.	Not tender.
"	"	24	Pain in right lumbar region, extending to the shoulder; about one year.	....	Right.	Palpable.	....	....
Keen, Pfahler and Ellis.	The present paper.	25	Vague pains in the abdomen.	None.	Right.	Twice size of kidney.	Movable.	Slight.
"	"	26	First symptom, renal colic at intervals for three years.	Hematuria at intervals during three years.	Right.	12 cm. in diameter.	....	....

ONLY THOSE CASES IN WHICH THE CLINICAL HISTORIES WERE FAIRLY COMPLETE.

General symptoms.					Etiologic factors.				Special examination.	Probable duration.	Result of operation.
Emaciation, asthenia.	Color of skin.	Gastro-intestinal.	Blood.	Urine.	Age.	Sex.	Family history.	Traumatism.			
Marked.	......	......	......	......	43	......	......	......	......	......	Immediate result was good; died of metastasis.
"	Pale.	None.	Hemoglobin, 60%; whites, 6,500.	Sp. gr., 1,026; albumin, blood.	48	M.	......	......	......	8 yrs.	Successful.
Lost 25 pounds in 6 months.	Very pale.	"	Hemoglobin, 25%; reds, 2,770,000; whites, 6 200.	Sp. gr., 1,016; pus, no blood.	52	F.	Mother died of intestinal obstruct'n.	Followed traumatism to right lumbar region.	Cystoscopic examination showed clot in left ureter.	4–5 mos.	"
Lost 10 pounds in 4 months; weak.	......	......	Whites, 12,000.	......	52	M.	Father, tumor of abdomen; mother, cancer of breast.	......	......	15 wks.	Died one week after; no cause determined.
......	......	......	......	......	49	F.	......	......	......	5 yrs.	Found at autopsy.
Edema of both legs.	......	......	......	......	52	M.	......	......	......	5 yrs.	Immediate result good; died of metastasis.
Delicate.	......	Vomiting; nightsweats	......	......	53	F.	......	......	......	9 mos.	Living four years after.
Emaciated.	Cachectic, pale.	......	......	......	38	F.	......	......	......	6 mos.	......
"	Slightly cachectic.	......	......	Albumin, pus and blood; indican, coagulation.	43	M.	Negative.	Hematuria began in a faint at end of a race.	......	5 yrs.	Lived three months.
45 pounds in 1 year; weak.	Pale.	Chills, fever and sweats.	......	Dendritic clots.	55	M.	......	......	Cystoscope showed clot in right ureter.	......	Successful.
......	......	......	......	Negative.	...	F.	......	Followed or associated with pregnancy.	......	......	Died.
......	......	......	......	......	58	F.	......	......	......	3 yrs.	......
Emaciation and debility.	Pale and muddy.	Gastrointestinal catarrh.	......	......	43	F.	Negative.	Followed the lifting of a barrel.	......	4 yrs.	Successful.
......	......	......	......	......	52	M.	......	No apparent cause.	Examination of bladder and kidney under ether, 3 months previous, gave increased resistance over the kidney.	6 mos.	Lived one day.
Well nourished.	......	......	......	Acid, cloudy but not bloody.	64	F.	......	......	......	1 yr.	Lived one week.
......	......	......	......	Negative.	73	M.	......	......	......	Over 8 mos.	No operation; metastasis developed after influenza.
......	......	......	......	Blood in urine.	50	M.	Negative.	An attack of bleeding occurred after exertion.	Cystoscope showed blood from left ureter; under ether, induration of kidney.	3 yrs.	Lived one day.
Emaciation and weakness.	Pale.	......	......	......	68	M.	......	......	......	14 mos.	Operated upon.
Secondary.	Anemia.	Diarrhea develop'd after operation.	......	No tubercle bacilli.	...	......	......	......	Röntgen ray examination showed no stone; no tubercle bacilli in urine.	......	Metastasis developed in the intestines.
Marked; cachexia at time of operation.	Cachectic.	......	......	"	46	M.	......	......	Röntgen ray examination, no stone; no urine from right ureter 2 years before operation.	2 yrs.	Recovered.
Emaciation and debility developed after operation.	Pale.	......	......	......	...	M.	......	......	Varicocele on left side, found to be due to obstruction of the spermatic vein.	2 yrs.	......
Emaciated.	......	......	......	......	43	M.	......	......	......	2 yrs.	Living eight months after; liver had increased in size.
Asthenia; depression: emaciation.	......	......	......	Negative.	47	F.	......	......	Colon inflated; tumor pushed up toward the liver.	2 yrs.	Lived one month.
Emaciation; depression; asthenia.	......	Indigestion and flatulency.	......	......	57	F.	......	......	......	1 yr.	Living two years after.
Emaciation and debility.	Very pale.	Nausea, vomiting, diarrhea, constipation.	Hemoglobin, 41; reds, 4,200,000; whites, 10,000.	Negative.	54	F.	Father, cancer of face; mother, cancer of breast.	Followed traumatism.	Röntgen ray showed dense areas in general shadow of the tumor.	1 yr.	Well eleven months after.
"	"	......	......	Albumin, $\frac{1}{10}$; no casts, no tubercle bacilli.	52	M.	......	......	......	3 yrs.	Well four years.

course, very difficult, since we have no pathognomonic sign or symptom, but I believe that it can be made in some cases by a careful consideration of the symptoms, coupled with a complete examination. The diagnosis simply of tumor of the kidney was made in a number of the cases reported, but it is most desirable that a correct diagnosis should be reached before any palpable tumor exists, and that an exploratory operation should immediately follow the diagnosis.

The diagnosis can only be made by the method of exclusion. Time and space will not permit of a review of the methods that may be used, but a study of the foregoing table will give an idea of the points to be investigated directly.

Having excluded the other causes of hematuria and renal colic, and having detected or suspected a tumor of the kidney in a patient of advanced life, especially if it occur upon the right side in a male and is freely movable, we are justified in making a diagnosis of hypernephroma, and in advising an exploratory operation.

PATHOLOGY, BY DR. ELLIS.

The terminology of tumors of the adrenal and kidney is still in a state of considerable confusion. This is particularly true of certain adenomatous and lipomatous growths, regarding the histogenesis of which there exists difference of opinion, and even with regard to carcinoma and sarcoma all authorities are not fully in accord. Grawitz, in 1883, to the views then held, introduced a conflicting element by his assertion that a group of the smaller tumors of the kidney, currently recognized under the name of lipoma, were in reality derived from aberrant adrenal glands. For them he suggested the name of *strumae lipomatodes aberrati renis*. New interest in the subject was immediately aroused and the results of numerous investigations were soon published. In general, the views of Grawitz were supported, though dissenting opinions were by no means few in number. This has remained the status of the question up to the present time, although the opponents of the views of Grawitz have steadily lost ground as carefully studied cases have increased in number. To these tumors Birch-Hirschfeld, in 1896, applied the name of hypernephroma, a term now most often employed, though by some they are designated simply as adrenal tumors.

Histogenesis.—It is not my purpose at this time to enter into a lengthy discussion of the histogenesis of these tumors. Those who wish to investigate this phase of the subject are referred to the admirable work of Kelly [15] for a critical summary of the earlier writings as well as the findings of careful original studies. Among the most extensive recent contributions are those in the works of Hoche and Albarran and Imbert. It should be said, as previously intimated, that the literature of the subject, since Kelly's paper appeared in 1898, is principally in the nature of reports of additional cases, lending weight to the original views of Grawitz. Apparently conflicting opinions are, for the most part, due to differences in histologic interpretation rather than dissent to the original proposition. Hoche,[16] after carefully reviewing the subject, is unwilling to admit that the theory of Grawitz is absolutely demonstrated, but says it is sufficiently established for one to believe, until proved to the contrary, that certain intrarenal tumors originate in adrenal tissue.

Albarran and Imbert[6] regard the reasons given by various writers and summarized by them, as being fully sufficient to establish hypernephroma on a solid basis. They are convinced, however, that many tumors of the kidney, if examined by different pathologists, would be pronounced by some "epitheliomas with clear cells" and by others hypernephromas. This is due to the probability that malignant tumors with clear cells develop from aberrant adrenals, and also that neoplasms identical in appearance may take origin in the epithelium of the kidney. The future must teach us to distinguish between the two. Albarran and Imbert recognize three varieties of lipoma or pseudolipoma of the kidney: (1) The true lipoma described by Virchow; (2) pseudolipoma or hypernephroma of Grawitz; (3) pseudolipoma of Ulrich, resulting from fatty degeneration of the epithelium lining the convoluted tubules. Tumors of the kidney in general are placed by these authors in four groups: Group 1. Tubular and papillary adenomas and carcinoid epitheliomas with the transition form of adenocarcinoma. Group 2. On the one side the benign pseudolipoma of Grawitz and alveolar adenomas; on the other side malignant hypernephromas, which include in great part the epitheliomas of clear cells. All these, with evolution benign or malignant, may come from capsular debris. It is also possible that a certain number of cancers with clear cells may originate in renal canaliculi. Group 3. Sarcomas, lipomas, and true angiosarcomas that originate from the mesodermic tissue of the kidney. Group 4. Mixed tumors originating in embryonal germs. They believe that the tumors described by Paoli, Driessen, and others under the name of endothelioma, angiosarcoma, etc., relate in part to carcinomas of clear cells, particularly to those which take their origin in aberrant adrenals.

Kelynack [17] holds that but few pathologists now deny the adrenal origin of certain renal growths. McWilliams [18] says "the pathogenesis of adenomas of the kidney is obscure. Some are undoubtedly of accessory adrenal origin, others arise from remains of the Wolffian body, others from isolated elements due to errors in development." Williams [19] thinks "this (suprarenal) origin for certain renal tumors may be considered as firmly established as any fact in renal neoplastic pathogeny."

Kelly,[20] in a later article, says that most of the socalled primary carcinomas and alveolar sarcomas of the kidney are in reality hypernephromas. Bland-Sutton [21] speaks of renal "sarcomas" arising in adrenal rests, and states there are no facts to support the assumption of some writers that renal sarcomas arise in the adrenal gland and gradually become incorporated with adjacent parts of the kidney. Morris [22] observes that the microscopic characters of this group of tumors are capable of various interpretations, and what one person classifies as a typical renal tumor of accessory adrenal origin, another calls spheroidal-celled carcinoma, another endothelioma, still others epithelioma of clear cells, renal adenoma, primary angiosarcoma, alveolar sarcoma, or lymphadenoma. Norman [23] describes an encapsulated tumor an inch in diameter, half of which was within, the other half projecting from the surface of the kidney. The cells were cylindric and loaded with fat. He believes there is not sufficient evidence to support the theory of Grawitz, and prefers the explanation of Sabourin, that these tumors originate in proliferated epithelium of the convoluted tubules of the kidney.

Parodi [24] grafted adrenals from embryo rabbits into the kidney, liver and sciatic nerve of rabbits three or four months old and also into adult animals. The cortex became adherent, the medulla did not; after a time this was smothered by developing connective tissue. The morphology of the grafts in the kidney and liver led Parodi to the conclusion that adenomas of those organs assuming hyperplasia must be considered as adrenal inclusions. Neusser [25] says that excessive proliferation of circumscribed portions of suprarenal substance gives rise to small tumors resembling lipomas which have been termed suprarenal strumas or adenomas. They are situated in the cortex of the suprarenal capsule or more frequently in accessory glands occurring in the kidney. According to the latest views he believes they are to be considered as sarcomas of the vascular perithelium (perithelioma). Ricker,[26] in certain cases in which the adrenal was abnormally near the kidney, found renal tumors in the adrenal and adrenal tumors in the kidney. Of nonmalignant tumors of the kidney he describes: 1. Tubular adenomas. 2. Trabecular cystomas. 3. Those of adrenal origin.

These references might be many times multiplied, but they are sufficient to demonstrate two things: 1. The majority of writers recognize the adrenal origin of certain tumors called hypernephromas found in the kidney and elsewhere at points near to, or remote from, the adrenal gland itself. 2. The difficulty of deciding in all instances between hypernephroma and adenoma, lipoma, or even carcinoma of either kidney or adrenal; this may be assigned as one reason for the existing differences of opinion regarding renal growths in general, and the one we are at present considering in particular. Hypernephroma, then, may be defined as a tumor arising from adrenal tissue, whether in the normally situated gland or in ectopic fragments of that organ known as adrenal rests. By common usage the term is seldom applied to growths of the adrenal itself, being reserved almost exclusively for those springing from aberrant particles of the gland. Primary hypernephroma, therefore, while usually in the kidney (96% of reported cases), is possible in widely different situations.

Embryology.—The embryology of the adrenal gland throws much light upon this frequent occurrence of ectopia of the organ. Radasch[27] mentions that at one time in the development of the embryo the adrenals are comparatively large and enclose nearly the whole of the kidney. As the fetal kidney is lobulated, he says it may be readily understood how small detachments of adrenal cells could, at that time, be enclosed in the interlobular connective tissue of the kidney. The development of the adrenal from the same type of tissue and in relation with the sexual glands accounts for the frequency with which fragments of the former are strewn along the paths of the latter in their descent. Radasch also states that ectopic adrenals occur in both sexes, the usual location being some point between the kidney and the descended sexual gland. They have been found in or upon the adrenal, kidney and liver, in the perirenal tissue, solar and renal plexuses, mesentery, in the region of the internal abdominal ring, in the inguinal canal, upon the spermatic cord, between the epididymis and testis, in the broad ligament, and the fundus of the uterus. Marchetti[28] has also found them embedded in a serous cyst of a human ovary and in the ovaries of guineapigs. The frequency of ectopic adrenals is placed by some writers surprisingly high. Imbert[29] says they are found in 92% of all bodies coming to autopsy, and in the kidney in 6% to 8% of cases. Holmes[3] places the number at 90% of all autopsies, the bodies being found in various parts of the genito-urinary tract. Duckworth[30] mentions the case recorded by Pitt, in which there were four adrenals, two being on the anterior surfaces of normal kidneys, an inch from the upper end. Wynn[31] has observed a high frequency of supernumerary adrenals in cattle. McFarland[32] does not believe they are so frequent in man as in cattle. He has made a careful examination in more than 1,000 autopsies and in them has never seen a distinct supernumerary adrenal. Kelly (*loc. cit.*) found an instance of union of the adrenal bodies with the kidneys and misplacement of portions of the former within the latter. The tendency of the adrenal itself to abnormal development is shown by Flint,[33] who speaks of finding islands of the cortical substance in the medulla and vice versa. Also of the medullary substance extending from the central vein to the capsule and the cortex from the capsule to the central vein.

Frequency.—Without endeavoring to make the search exhaustive, I have found references in the literature to 160 cases of hypernephroma, recorded since 1890; to these the present series of three should be added. Nearly or quite a dozen known unreported cases are not included in this list. Albarran and Imbert give the number of tumors of the kidney reported from 1890 to 1902 as 588; of these, 529 were subjected to histologic examination, and 90, or 17%, shown to be hypernephromas. In addition to those called hypernephroma, many tumors of the adrenal are reported as sarcoma or carcinoma, with the statement that they correspond partially or entirely to the description by other writers of hypernephroma. Rolleston,[34] in mentioning 26 cases of primary tumor of the adrenal, says that nine may be called either malignant adenoma or carcinoma, the former being closely allied to hypernephroma. Amberg[35] reports a primary malignant tumor of both adrenal glands in a child of two months, with secondary involvement of the liver. Though both primary and secondary growths reproduced the medulla of the adrenal, Amberg considers the tumor impossible of classification on such basis, because the histogenesis of the adrenal is not definitely decided. He therefore says it may be morphologically classed as either a carcinoma or an alveolar sarcoma. From his description it would appear that this tumor might, with propriety, be called a hypernephroma. Amberg refers to Pepper's[36] six cases as being similar, and gives a lengthy discussion of primary tumors of the adrenal. Woolley[37] discusses at length adrenal tumors. He speaks of "malignant" adenomas, but does not mention hypernephroma or even aberrant adrenals. From these statements will be seen the difficulty of determining the exact number of cases of hypernephroma, and the reason why no attempt has been made in this paper so to do. I am fully convinced the number cited is far too small, but cases reported as adenoma, carcinoma, or sarcoma, must be accepted as such, even though their metastases produce what seems to be adrenal tissue. That any attempt to number the cases must result in only an approximation, is recognized by Albarran and Imbert, who furnish elaborate tables of statistics regarding different tumors of the kidney, as to their frequency, symptoms, malignancy, etc., and then say there are so many bases of diagnosis that their figures are given only as curiosities.

Site.—Of the 163 cases of hypernephroma included in this paper, 157 were in the kidney, 3 in the adrenal, 2 in the liver, and 1 in the uterus. This great preponderance of cases in one organ explains why the term, "hypernephroma of the kidney," is almost invariably used in reference to this tumor. As previously stated, it appears as if the number in the adrenal might be greatly increased were it not for the tendency among observers to avoid this term for tumors of the adrenals themselves. Clinically, the problem would be simplified, and but little change in the classification made necessary, if the name hypernephroma was restricted by all pathologists to primary tumors, and their metastases, originating in aberrant adrenal tissue only, and not to those springing from the normally placed organ. Still better, in the opinion of the writer, would be the application of the term "adrenal tumor" to all new-growths producing adrenal tissue, regardless of situation. Clinically, of course, they would be benign or malignant.

Morbid Anatomy.—In the kidney, hypernephromas are usually single, but not rarely multiple, and have been found in both organs. Regarding the side, they occur indiscriminately. Of the cases in this series in which it is specified, the tumor was in the left kidney 57 times, in the right 55. As to sex, 71 were in males, 45 in females. The tumors are situated beneath the capsule of the kidney and vary in size from a pin-head to that of a pea, in what may be called the strictly benign growths, and from this to the size of a child's head in the frankly malignant cases. When small they are almost always confined to the renal cortex, though they may be in the medulla. When large they project from the surface of the organ and also extend inward at the expense of renal structure until they reach the pelvis, which may be obliterated by pressure, but is seldom actually penetrated. Either pole or the middle of the kidney may be involved. In the former case one extremity, and in the latter both, may retain the renal outline and structure. The external surface of the tumor is lobulated by depressed bands of the capsule. The color is usually grayish-red or yellow, the latter predominating, but often there are brown or bluish, or even black areas, due to the presence in the tumors of small or massive hemorrhages. The tumor may be firm, but in many of the larger growths the projecting masses are softened, in some instances being almost cyst-like in consistency. Incision of the tumor reveals surfaces corresponding closely to the external appearance in color and in lobulation. Masses within alveoli formed by the fibrous stroma may be so soft as to project, and even detach themselves from the surrounding tissue. The tumor is generally sharply outlined from any remaining renal structure by a distinct band of firm fibrous tissue. Hemorrhages into the tumors are exceedingly common and areas of softening, due to degenerative changes, are also frequently present.

Targett[38] found in one of his cases, on the lower and outer surface of the kidney, a yellowish body the size and shape of a finger-nail. The capsule was split and through the lower part the adrenal tissue extended into the kidney. Conversely a few convoluted tubules passed into the adrenal structure. His second case was one of a tumor two inches in diameter. Thorndike and Cunningham[9] report three cases. They say the outline of the tumor is usually that of the kidney. It is commonly either encapsulated within the kidney or is situated immediately beneath the renal capsule. Eurich[39] found congenital atrophy of the kidney, the upper pole of which was two inches from the adrenal. The intervening space was occupied by a spheric tumor one inch in diameter, purple in color and encapsulated; on the upper pole was the normal adrenal. The histology of the tumor was that of the adrenal medulla, and Eurich believes the tumor originated in the adrenal gland. Plummer[7] reports the case of a man of 68, who had a hypernephroma of one kidney eight inches in length; connected with it were three cysts, each containing two ounces of fluid. Boyd and McFarland[40] report a case appearing to follow pregnancy in a negress of 30; autopsy showed collapse of the tumor, the larger part of which had become necrotic. Between the tumor and kidney was fibrous tissue belonging to the tumor and also additional connective tissue, resulting from atrophy of the parenchyma of the kidney. Bevan[41] reports a case in which the tumor projected into the pelvis of the kidney like a polypus. Two weeks after operation the patient suffered an attack of diarrhea and pieces of hypernephroma were found in the feces. Bevan has seen seven or eight cases, and considers hypernephroma the most frequent malignant tumor of the kidney.

Caird[42] speaks of an enormous adrenal tumor that had engulfed the whole of a kidney. Brown[43] reports a large tumor of the right side, lobulated like the fetal kidney, and almost entirely composed of adrenal tissue. He also mentions three cases observed by other surgeons. Brown says certain facts regarding his case afford reasons for the query as to the possibility of a kidney being so entirely made up of adrenal tissue, even at a time when it is not appreciably enlarged, as to be essentially functionless as an excretory organ. Of interest in this connection is the statement of von Frisch[44] that the cryoscopic point of the urine from a kidney in which a hypernephroma had caused the disappearance of the pyramids, was normal, thus leading to the supposition that the kidney was functionally perfect.

Morris (*loc. cit.*) says the relation, or apparent relation, of the capsule to the various tumors in and around the kidney is not reliable as a guide to their morbid anatomy. "The isolation from the renal parenchyma of a tumor situated immediately beneath the renal capsule is far from being decisive in favor of the theory of Grawitz; neither is the argument that the capsule of the kidney seems to be continuous over the tumor a decisive proof that the tumor originated in the kidney and not outside of it." A primary tumor of the adrenal may stretch part of the kidney over it as a hood. There is equal reason to believe that as a primary tumor grows downward it may invade and cause destruction of the kidney tissue. Morris[8] later reports two primary tumors of the adrenal involving the kidney.

Thompson,[45] in speaking of liver abscess, says: "In disease of other organs I have only once met pus simulating that found in liver abscess. The case eventually proved to be a hypernephroma occupying the upper end of the right kidney. The symptoms simulated those of hepatic abscess, and an aspirating needle was thrust through the tenth intercostal space in the midaxillary line. At a depth of about two inches chocolate-colored fluid exactly like liver pus was withdrawn. It contained a few white flakes. No amebas were found. Operation revealed a normal liver and an enlarged kidney, the upper end being occupied by a cyst as large as a small orange. This was drained. A small piece removed from the wall showed the mass to be a hypernephroma." Harris[46] says when these tumors originate in the adrenal proper they are commonly separated from the kidney by connective tissue, and however much the kidney may be attached to or flattened by the growth, the latter may usually be separated and removed, saving the kidney to the patient. Bean[47] reports the removal of a tumor supposed to be a cystic kidney. Examination revealed a hypernephroma 15 cm. by 16 cm. (5¾ in. by 6¼ in.) in size. A. P. Ohlmacher[48] reports two cases of hypernephroma of the kidney. One was as large as a child's head, removed by operation, with recovery of the patient; the other the size of a hickory nut, found at autopsy. Karewski[49] reports a case of multiple hypernephroma of the kidney in which suppuration had occurred. The appearance of the gross specimen was that of typic tuberculosis with multiple cavities. He knows of no other case of suppurating hypernephroma, and accounts for the complication in this instance by the general condition of the patient, who, although only 27, had had cholera, pneumonia, purulent pleurisy, appendicitis with abscess (opened), and cholelithiasis (operated). Chandler[50] observed a case in which the entire kidney, with the exception of the capsule, was replaced by adrenal tissue, measuring 24 cm. by 13 cm. by 11 cm. (9½ in. by 5¼ in. by 4½ in.). Rupprecht[51] found a hypernephroma of the right kidney in a child of 2½ years. There was no recurrence one year after removal.

When occurring in the liver, primary hypernephroma presents much the same appearance as those situated in the kidney. That reported by Vecchi[52] was in the right lobe above the adrenal impression, definitely circumscribed and stated to be the size of a nut, from which we can infer but little as to the dimensions. It was intensely yellow, glistening, and distinctly lobulated by white bands, which, surrounding and penetrating it, caused bulging of the tissues between. Noyes[53] found a large tumor of the liver nearly identical with the structure of the adrenal and attributes its origin to an aberrant gland. There was no primary growth in the adrenals. To these two cases, three more might possibly be added, but I consider them better placed under the head of ectopic adrenals.

But one case of hypernephroma of the uterus appears to be on record. This was exhibited by Eastwood[54] and was a large malignant growth attached to the fundus, being separated from the uterine tissue by a fibrous capsule. The zona glomerulosa of the adrenal was represented, the tumor showing typically the features of a malignant adrenal growth. Eastwood also showed two such tumors in connection with kidneys.

Metastases.—A most interesting part of the morbid anatomy of hypernephromas is the occurrence of metastases. This at once raises the question of the clinical character of this group of tumors. From the descriptions already given it readily may be seen that the small hypernephromas giving rise to no symptoms and found only at autopsy are as benign as the adrenal rests from which they spring. It is just as evident that the larger growths, which extensively destroy surrounding tissues by pressure or by actually breaking through the capsule, possess malignant attributes. This attains its highest degree in the formation of metastatic growths in other tissues of the body. These varying clinical manifestations of hypernephroma not inaptly have been compared to true adenomas of other tissues which later develop malignant characters. On this basis, all hypernephromas may be regarded as potentially malignant. Eisendrath[55] says the socalled Grawitz tumors are an intermediate class between benign and malignant groups, occurring in the circumscribed form as benign, or in a more diffuse manner as malignant growths. Neusser (loc. cit.) calls attention to the fact that apparently benignant hypernephromas are capable of giving rise to metastases larger than the primary growth. Metastases are most frequently found in the lungs, the liver, and in bones, but almost all other tissues of the body have been invaded. The discussion of this phase of the subject will, we believe, prove of most interest and value if the various points are taken up in connection with the exceedingly instructive series of reported cases.

Schultze[56] obtained postmortem specimens including several organs. There was a tumor of the left adrenal, the organ being four times its normal size. The right kidney was eight times as large as normal, nearly all tumor; this growth extended through the renal vein into the vena cava as far as the liver. There were a number of isolated metastases in the visceral layer of the pleura, about the bronchi, and in the left kidney. The lower epiphysis and adjoining shaft of the right femur was invaded and increased four times in size; absorption was marked, the bone being easily fractured and even cut through by a knife. In the discussion, Brooks said he had seen two cases, one of which showed metastases in the corpora cavernosa. Kelly (loc. cit.) reports four cases of hypernephroma of the kidney and one of the adrenal, four of which gave rise to metastases and the fifth invaded the renal vein and ureter. The tissues involved in the secondary growths were the peritoneum, vesical plexus and mucous membrane, vena cava, and lungs.

Bierring and Albert[4] report five cases of hypernephroma of the kidney, three of which (collectively) produced metastases in the liver, lungs, intestine, and retroperitoneal lymph-nodes. They discuss at length the method of metastasis, which they believe occurs most frequently through the blood by way of the renal vein. That extension through the lymphatics does occur, though rarely, they consider proved by their case with involvement of the retroperitoneal lymph-nodes and also by the case of LeCount which included invasion of the lymph-nodes in the left inguinal region. They believe involvement of the liver by secondary growths is due in most cases to retrograde embolism through the vena cava and hepatic vein. In the discussion of this paper McCallum, of Baltimore, said a number of cases of hypernephroma occurring at the Johns Hopkins Hospital indicated that the most frequent metastasis was by way of the blood-vessels. He does not, however regard the secondary growths in the liver as best explained by retrograde embolism. In one case the liver was almost filled by nodules and it is difficult to believe they could have come from the vena cava directly. He believes the tumor cells passed through the lungs, although none appeared to lodge in those organs. Coplin suggested the possibility of hepatic metastases through the portal circulation rather than the lungs, aberrant vessels from the adrenal structure furnishing the mode of entrance to that system. A. P. Ohlmacher (*loc. cit.*) reports a case occurring in the service of Van Hook in which the tumor and kidney weighed 4,725 gm. The vena cava contained a thrombus extending through the diaphragm and also into both iliac veins. The liver was filled with metastatic nodules which Ohlmacher attributes to retrograde embolism. Brown (loc. cit.) showed three specimens obtained by colleagues. One patient died three years after operation, from metastases (location not given). In the discussion of this paper, Lilienthal said he had seen three cases. One man died from prompt recurrence and a woman operated on one year ago has a probable metastasis in the frontal bone. Hardou,[57] in reporting a case in which the right kidney was the site of a tumor, says that when hypernephromas are malignant it is to a less degree than are sarcomas.

Clairmont[5] found an egg-sized hypernephroma in the lymph-nodes at the bifurcation of the trachea. The patient had been operated on 10 years previously for a tumor of the right kidney. At that time the right pleura was opened and, it is believed, infected by tumor cells, which were carried by the lymph stream and deposited in the nodes. The tumor in the mediastinum had grown slowly under unfavorable circumstances. Holmes (loc. cit.) found in a subject, who had a tumor of the left kidney (or adrenal), the right lung filled with solid tumor masses and also three small foci in the left lung. Böhler[58] discusses 37 cases, 10 of which are original. Of these 13 had metastases, 12 in the lungs. The other sites of the metastases were the opposite kidney, pleura, retroperitoneal lymph-nodes, femoral vein, adrenal, femur, inferior vena cava, liver, dorsal vertebras, ribs, temporal lobe and frontal sinus, and the wall of the left ventricle of the heart. J. C. Ohlmacher[59] reports the case of a woman of 49 from whose left kidney was removed a hypernephroma the size of an orange. She died in six weeks from metastases in the left temporal bone, right side of neck, left breast and axilla, right abdominal wall, and beneath the line of incision in the lumbar region. The renal vein was invaded. This tumor reproduced the medulla of the adrenal. Jellinek[60] reports two cases. In one a tumor of the right kidney was firmly attached to the under surface of the liver and sent a cone-shaped projection into the inferior vena cava. LeCount[61] found in the right kidney of a subject one hypernephroma the size of a hen's egg and several smaller ones. A retroperitoneal growth extended into the bony pelvis and through the first sacral vertebra, producing a tumor of the buttock with ulceration and gangrene. Metastatic growths were found in the left femur and left iliac lymph-nodes and pathologic fractures of the right ilium and left femur had occurred.

Histology.—As the microscopic characters of the tumors reported in this paper have been described with some detail, and are fairly representative, more than brief reference to certain general features of the histology of hypernephroma is not at this point demanded. The tumors reproduce more or less perfectly the structure of the adrenal gland, usually one or more layers of the cortex, rarely the medulla, being represented. They possess a fibrous capsule, but this may be penetrated and even partially destroyed by rapidly growing tumors. The two prominent features are the stroma and the cells. The former may be composed of quite dense bands of fibrous tissue, but commonly consists of capillaries with walls of endothelial cells only. In the larger growths, both types are frequently represented, vascular fibrous bands dividing the tumor into large lobules or alveoli which in turn contain a capillary network. The relatively large cells of the tumor are round, polygonal, or even columnar in type; usually they rest on the stroma or the endothelium of the capillaries, but often become detached and lie free in the larger spaces. The cytoplasm is scanty and granular and contains numerous vacuoles marking the former site of dissolved fat. The nucleus stains deeply and a nucleolus is generally conspicuous. By some, considerable diagnostic value is placed upon the fact that the nucleus and nucleolus stain dissimilarly. Glycogen can usually be demonstrated in these cells. Giant cells not infrequently occur. Kelly ascribes diagnostic importance to the presence of granules of intensely black pigment similar to those normally present in the adrenal cortex. He believes the cysts found in some hypernephromas originate in renal tubules enclosed within the adrenal tissue, and this point has been substantiated by other observers. In all tumors of any considerable size, degenerative changes are a prominent feature. Hemorrhages are often conspicuous, and are largely responsible for the marked color variations seen in many of the tumors.

Pathologic Physiology and Chemistry.—The question of increased arterial tension as a manifestation of hypernephroma may not improperly be considered at this point. This implies hypersecretion by adrenal tissue or the excessive introduction of its secretion into the circulation, and applies more properly to tumors of the adrenal gland itself, but has been observed in cases of hypernephroma of the kidney. Certain writers strongly emphasize this point; the majority entirely disregard it. Ochsner[62] states that the tumors of Grawitz cause severe systemic disturbance, the principal symptom being greatly increased arterial pressure. "The patient rapidly becomes sick and dies, usually with a hemorrhage into the brain or other important structure." Sippy (*ibid.*) said he knows of only four reported cases in which adrenal tumor of the kidney was accompanied by greatly increased arterial tension. Two cases, seen postmortem in Vienna, which were accompanied by cerebral hemorrhage sufficient to cause death, had high arterial tension during life. He states that Neisser and Holmes each report a similar case, but gives no reference to their papers. Sippy does not consider increased arterial tension a diagnostic sign of much value. An editorial writer[63] mentions two cases of high arterial tension accompanying hypernephroma. One patient suffered from persistent headache until the tumor was removed. The second was supposed to have renal sclerosis, the pulse being always of high tension, though the patient was pale. This writer says the size of the tumor does not determine the virulence of the intoxication. A small tumor may cause cerebral hemorrhage, or a large one may give rise to no marked circulatory symptoms. Vaquez[64] reports an adenoma of the adrenal removed at autopsy; the patient had had a persistently high arterial tension. The occurrence of secondary softening of the brain in Case III of our series is exceedingly suggestive, even though the associated arterio-sclerosis in itself might easily account for cerebral hemorrhage. Neusser (*loc. cit.*) suggests the possible diagnostic value of injecting into animals the urine of patients supposed to possess an adrenal tumor, to determine if it cause increased blood-pressure. Cooper[65] says the technic necessary for this is too complicated for general use, and recommends injecting the urine into the ear of a rabbit and noting if changes occur in the easily observed vessels of that organ. The whole question of increased arterial tension in hypernephroma can be considered as entirely unsettled, clinical observation on this point having been sadly neglected. This is readily explained by the fact that the tumor is seldom diagnosticated before operation. The point is one that should be investigated, however, in every case of suspected adrenal or renal tumor.

The diagnosis of gross specimens of hypernephroma by the iodin-starch reaction of Croftan[66] deserves mention. Several observers attest its value, but at present I cannot similarly endorse it. The reaction was obtained with a part of the tumor in Case II, after it had been for several months in formalin. An obscure tumor of the liver, thought possibly to be a hypernephroma, also gave the reaction. Testing its value further, we obtained a positive result with a tuberculous mamma, fresh, and a formalin-preserved mixed tumor of the parotid gland. Further experiments will be necessary to convince us of the specificity of the reaction of this test.

Since the demonstration that a part of the fat content of the cells, particularly the spongiocytes, of the adrenal gland is lecithin, the search for this substance in hypernephromas, as a diagnostic aid, has been suggested. The difficulty of isolating this substance rendered the question for some time of academic importance only, but Bernard, Bigart, and Labbe[67] appear, in part at least, to have solved that problem. The diagnostic value of lecithin in tumors, however, remains to be determined. Albarran and Imbert do not consider it, any more than fat or glycogen, pathognomonic of hypernephroma.

The privilege of studying two of the present cases I owe to Dr. Keen; the third to Dr. W. M. L. Coplin. I am deeply indebted to both for their kindly interest and assistance in the preparation of this paper.

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[51] Central. f. Gynäk., 1890, Bd. xiv (quoted by Targett).
[52] Virchow's Archiv, Bd. clxxvii, H. 1, 1904.
[53] Trans. N. Y. Path. Soc., 1899–1900.
[54] Lancet, January 11, 1902.
[55] Jour. Amer. Med. Assoc., March 17, 1900.
[56] Med. News, July 9, 1904, p. 93.
[57] Illinois Med. Jour., May, 1904.
[58] Wien. klin. Woch., Nos. 19 and 20, 1903.
[59] Jour. of Med. Research, Vol. vii, 1902.
[60] California State Med. Jour., February and March, 1904.
[61] Trans. Chicago Path. Soc., Vol. v, No. 5, 1902.
[62] Jour. Amer. Med. Assoc., March 17, 1900, p. 649.
[63] Jour. Amer. Med. Assoc., August 14, 1897.
[64] Soc. Med. des Hôpitaux, February 5, 1904.
[65] British Med. Jour., June 4, 1904.
[66] Jour. Amer. Med. Assoc., January 10, 1903.
[67] Comp. Rend. de la Soc. de Biol., T. v., 1903, p. 120.

Illness Ruled by Inches.—Among the most interesting of the papers read at a recent meeting of the British Association, at Cambridge, was that of Dr. Shrubsall on the physical characteristics of hospital patients, says a London exchange. Sufferers from tonsillitis, rheumatism, and heart disease, he said, are of a higher stature, and sufferers from tuberculosis, nervous, and malignant diseases of a lower stature than healthy individuals. It appears that blonde sufferers from pulmonary tuberculosis respond to treatment better than brunets, while in diseases of the heart the positions are reversed. It is believed that in successive generations of city life stature shows a progressive diminution and that there is an increase in brunet traits with each generation passing from rural to urban life. With increasing length of residence there is an increase of morbidity among the different classes of Londoners.

THE VALUE OF THE PHYSIOLOGICAL PRINCIPLE IN THE STUDY OF NEUROLOGY.[1]

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The subject of this address will be considered under three heads: 1. The limitation in usefulness of those methods of medical investigation which are based on the assumption that disease is always a localized process. 2. The importance of the part played in disease by readjustment and adaptation on the part of the organism, and the need of cultivating physiological conceptions as a means toward a proper understanding of these processes. 3. The impropriety of attempting to draw fundamental distinctions between "functional" and "organic" disorders, and the significance of the hypothesis of "energies" as applied to living organisms and to disease.

When the late Professor Virchow was chosen to deliver the opening address before the International Congress at Rome, in 1894, he selected for his topic "The Anatomical Principle in the Study of Disease" ("*Morgagni und der Anatomische Gedanke*"),[2] a doctrine to the maintenance of which a great portion of his own long and splendid labors had been devoted. The anatomical principle was not conceived by Virchow in any narrow spirit. Its tenets were that disease is always a localized process, and ought to be susceptible of expression in some sort of anatomical terms, but he asserted that the search for this process might be made as properly through the clinical examination of the patient by the trained physician, together with a careful study of his history, as through the scalpel and microscope of the anatomist. He admitted that the time was still far distant when we should be able to discover the whole of the anatomical evidence, and urged that the inquiry should be extended from the organs to the tissues, and from the tissues to the cells, and even to the very "vital functions" themselves. But he insisted, nevertheless, that in some sense—a sense not as yet strictly defined or definable—every disease was to be thought of as occupying circumscribed areas, in the midst of tissues for the most part or in great part sound. "*Ubi est morbus?*"—"Where is the diseased spot to be found?"—was proclaimed as the watchword of the investigator, while at the same time the students of therapeutics were congratulated on having found means, as a result of anatomic discoveries, to carry local treatment to portions of the body hitherto regarded as out of reach.

It is needless to attempt a recital of the successes which have been won under this banner of anatomical research. The principle which the great master Virchow proclaimed was one that had appealed and still appeals alike to the faithful plodder and to the man of genius; its history is the best part of the history of medicine during the past half century; it has been the best thread of guidance since the history of medicine began.

The value of the anatomical principle has been quite as evident for the department of neural pathology as for any other, and the devotion to its maintenance quite as strongly marked. At the meetings of neurological societies the pathologic anatomists have always been more certain of an attentive hearing than investigators of any other sort; in the direction of their work has seemed to lie the sure and trusted path of progress toward a better understanding and a better treatment of disease.

And yet, in spite of all that has been accomplished, there are abundant reasons for the opinion that the very successes of the anatomical principle have thrown unduly into the shade the claims of another mode of approaching the problem of disease, without the aid of which anatomical research must prove inadequate to the task which has been imposed upon it. For this latter principle, which emphasizes the importance of recognizing, in disease, the signs of more or less widespread modifications of function of the organism as a whole, the designation of "physiological principle" is appropriate.[1]

The argument is not that the anatomical principle is faulty because it has failed to accomplish all that had been hoped of it as regards the discovery of the essential nature of disease, but that, under it, certain local aspects of the disease process are made the exclusive subjects of research, and that the mind is thus turned aside from a recognition of the fact that an equally important object of study is the modification of functional activity, local or general, which marks the efforts of readjustment on the part of the organism to the effects of the primary disturbance. Such a study as this cannot be adequately made without a thorough use of physiological methods, or of clinical methods inspired and guided by physiological conceptions, the term physiological being understood as including all means of research which throw light upon the mechanism of the processes of life. Psychological and chemical investigations belong preeminently in this category. The faintheartedness which most of us have felt in searching for an anatomical explanation of the great neuroses and psychoses has not been simply a quailing at difficulties which were theoretically surmountable, but has been due in part to a justifiable suspicion that we were not altogether on the right track. We have striven to ticket each one of the histories in our case-books with an anatomical designation indicative of some localized pathological process, but we have realized when we did so that our designations usually fell far short of expressing the whole state of the sick man whom we had before us when the history was made.

The widespread feeling that no investigation of symptoms, however thorough, could give us the sort of insight which we needed has led us to underestimate the real value of such inquiries. If the study of symptoms does not carry us to the heart of the disease, neither does the anatomical study of the disease carry us to the heart of the symptoms. In fact, a thorough inventory of symptoms, that is, an inventory of the signs of disordered functions of the body as a whole, can often tell us more of what we wish to know than an inventory of anatomical signs of altered structure. No anatomical research can pierce to the secret of broken coordinations, and yet it is in these that a great part of disease begins, or comes eventually to consist. No anatomical research can help us to estimate the margin of resistance against strain, and yet in the estimation of this margin, for each individual patient, issues depend which are of scientific and practical importance. One man's health is very different in quality and quantity from another man's health, though the two men, untested, may appear alike, and the investigation into their respective powers of effectiveness and of resistance is often a valuable part of the study of their diseases.[2]

We need, in short, to supplement our researches into the direct and local effects of a given lesion by a study into the more or less widespread modifications of energy which the organism exhibits as a result of the lesion, and which it is customary to designate as indicative of an attempt[1] to repair the damages which the lesion has induced. We need, also to learn a great deal more about the genesis of symptoms, even though we must remain ignorant about the genesis of what one would call disease, in an anatomic sense.

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[1] Read before the Neurologic Section of the International Congress of Arts and Science, Universal Exposition, at St. Louis, September 22, 1904, and published synchronously with the Boston Medical and Surgical Journal, by courtesy of its editor.

[2] Berl. kl. Woch., 1894.

[1] There has been a growing tendency to recognize the importance of this standpoint, and very recently Professor Wolkow, of St. Petersburg, has devoted an able and thoughtful essay to a series of considerations analogous to those here offered.—[Die Physiologische Anschauung in der Klinischen Medicin, Berliner kl. Woch. 1904. Nos. 15 and 16.]

[2] Physiologists recognize that organs, such as the heart (*cf.* the address by Welch, cited below) are able, under special stimulation, to work with more than usual effectiveness. This extra force is called the "physiologic reserve."

The signs of readjustment constitute, in fact, all that we can really learn in the study of disease, for the disease process, considered as independent of them, is an abstraction, without real existence.

And if this is so, then all the indications of this process of readjustment are proper objects of our study, whether they be of the nature of symptoms or of anatomic marks, whether they concern special localities and organs which are the seat of primary "lesions," or other parts standing in functional relationship to them, and even though they point to changes which are not to be classed as morbid, but rather as modifications favorable to health. The reactions after a socalled "healthy" fatigue, which often lead to new and better powers of endurance, would be of this latter sort, and the same is true of those reactions through which immunity is secured after infectious disease. At such points as these, "disease" and "health" touch hands, and it becomes, indeed, evident that neither disease nor health is a definite condition, but that both of them are movements toward some relatively endurable equilibrium,[2] a goal which is never fully reached.

Of course, to a certain extent, investigations of this sort are daily made by every student, but the question is: In what direction is it now most important that the emphasis of research should be thrown and scientific instincts developed? Imitation and fashion play a large part, even in scientific investigation, and the almost universal tendency to bend all energies to the search for the physical evidence of localized lesions has led too often to a disregard of disturbances usually classified as functional. Not only is it essential that "clinical medicine" should be studied in the light of "physiology," but the field of morbid psychology, which now lies untilled save by a few students, is one of the utmost practical importance for each practitioner.

We can hardly treat a patient, no matter with what he may be suffering, without having to reckon on the vast and complex part which his mental attitude will play in controlling the result. In many instances, indeed, the physician's success depends upon the skill with which he makes this estimate. Yet how rarely is it systematically and consciously made, under the guidance of any definite principle, and how gladly would most physicians crowd out of sight the necessity for making it at all. A man meets with an injury attended with great nervous shock, and the neurologist is ready enough to spend infinite pains on the study of the necrotic areas in his spinal cord, but is apt to overlook the fact that this localized process does not explain why he has at the same time lost flesh and strength and color, and has become the football of his delusions and his fears. The data gathered by psychologists and physiologists, and the principles based thereon, count for but little in most assemblages of neurologists. The reason usually given for this disregard of psychological and physiological data is the insufficiency of our means for the verification and interpretation of them. But this fear should not hold us back from making the attempt to utilize these facts, for the same uncertainties attend anatomic research the moment we endeavor to use it for probing the essential problems of disease and life. The confusion attending the recent discussions over the neuron theory and the real seat of neural energy both justify and illustrate this statement.

This attitude toward the problem of disease, which claims pathology as a special department of physiology, is essentially the attitude of Wolkow, to whose stimulating essay I have alluded already, and it is also the attitude of Dr. Hughlings Jackson, of London, whose brilliant studies, stretching back for nearly half a century, mark him as foremost among the advocates of the physiological method in neurological research. Professor Welch,[1] of Johns Hopkins University, has recently made substantially the same claim in his address upon "Adaptation in Pathologic Processes," drawing his illustrations from the department of general pathology. Verworn[2] takes the same position when he speaks of diseases as stimuli (*Reize*), which alter the conditions under which life is carried on, thereby adopting Virchow's designation: "*Die Krankheit ist das Leben unter veränderten Zuständen.*"

The physical changes which the organism undergoes in this process of adaptation may be few and slight, and mainly local, or they may be so broad and numerous as wholly to overshadow the lesions by which they were set in motion. In illustration of this overshadowing of the direct effects of a lesion by the processes of readjustment, I will mention three instances of widely different sorts, yet similar, as I think, in principle. These are: First, myxedema; next, the vast changes that sweep through the organism at the great climacteric epochs of adolescence and the menopause; and finally, those kindred processes of metamorphosis by which through castration, the bull is converted into the ox.

In all these cases we see two tendencies at work, the one suggesting disease, or failure, the other pointing toward the establishment of a new sort of equilibrium, containing wellmarked elements of stability and health. Is not the controlling principle in these instances analogous to that under which the neuter bee is converted into the queen bee through a change in nourishment, or that through which some of the lower forms of marine animals are altered in type by gradual removal from salt into fresh water, or by some kindred modification of the chemical constituents of the fluids by which they are surrounded?

The conservative physician is usually disinclined to admit biological principles as applicable to the problem of disease. Yet, in fact, it is just in this direction that our search should tend, and when we see complex disorders, such as Graves' disease, or even certain types of neurasthenia, of unknown primary lesion but with hosts of secondary physical and neural signs, we should remember the processes I have cited, and should hesitate before stamping summarily as "disease" modifications of structure and function which doubtless represent, in part, movements toward a new and relatively stable existence. Who can doubt that we ourselves, regarded from another point of view than our own, are defective and mutilated beings, who have sacrificed much to gain the faculties which we justly regard as so important?

This would be a proper place to mention in detail, at least by way of illustration, some of the more important contributions made by physiologists, psychologists, and biologists, which have thrown light upon the clinical problems of compensation and adaptation.

I have already referred to the principle of "physiological reserve" force, as utilized by Welch in his important address, and speak of it here again only as possibly helping to explain the numerous instances where the organism shows the power of fostering certain of the functions of the nervous system at the expense of other manifestations of its life. The case of the runner from the field of Marathon, who brought his message to Athens in spite of the gathering dissolution which laid him dead in the market-place at the moment of his

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[1] The word "attempt" and others of like meaning are here used not in a teleologic, but only in a descriptive sense, for it seems plain that we must follow the example of the biologists who have studied the problems of growth and of repair (compare Thomas Hunt Morgan, "Regeneration," and admit that there is no justification for assuming a special *vis medicatrix naturæ*).

[2] "Stationary Equilibrium." (Ostwald, Die Philosophie der Natur.)

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[1] Transactions of the Congress of American Physicians and Surgeons, 1897.

[2] Berl. kl. Woch., 1901, No. 5, and other papers.

arrival, is a striking illustration of a principle which is of frequent application.

Thus, the disarrangements of the nervous system that are liable to follow nervous shock of some severity are sometimes very late in making their appearance, and in the interval the patient may appear as if unaffected by the experience through which he has just passed. The final "breaking down," due to prolonged strain, is often similarly postponed, only to come on eventually with great suddenness.

The fact is often overlooked that there is an analogous "latent period" in the early stages of toxic affections, when the symptoms are masked by this strong tendency on the part of the organism to continue offering an unchanged front in response to the calls of the environment. Thus a patient who is exposed to lead or alcohol may retain the power to use his weakened nerves and muscles for a long period, until finally, under some slight additional strain, complete disability suddenly makes its appearance.

It is apparently this same intense instinct to present a functionally adequate front to the demands of the environment that enables the hysterical patient whose vision is failing to retain the accuracy of the central field, and guides the brain in the reassertion of its powers after injury. The compensation in many cases is so complete as to leave no trace of the primary loss, although some relatively slight additional lesion may make it clearly evident. This is illustrated by the interesting compensatory relationship between the sensory motor functions of the cerebral cortex and those of the semicircular canals discovered a number of years ago by Ewald.

It is as difficult to explain adequately why it is that the organism thus seeks to reassert itself on the old lines, in a physiological sense, as it is to tell why the lower animals are able to make good the loss of important parts and organs, even those of the interior of the body, with regard to which the "habit" of restoration cannot have been acquired through evolution.

Many partial explanations, such as those indicated by Loeb under the name of "tropisms" are indeed of value, but Morgan,[1] after reviewing with great care the evidence at hand for the case of the restoration of lost parts, declares that a satisfactory explanation is there impossible. One important reason for arriving at this conclusion is that it is by no means invariably true that in the process of restoration the interests of the organism as a whole are consulted. In repair, as in development, the results are often (from the standpoint of the ordinary observer) monstrous or grotesque. And so, too, in human pathology, the processes of compensation and readjustment seem sometimes to work distinctly toward disease instead of health. Nevertheless, these processes must remain the main subject of our study, and the principles underlying them must be restated more and more broadly, in physiological and philosophical terms, before a unifying conception can be reached.

It is to the clear insight of Hughlings Jackson[2] that we owe some of the most fruitful suggestions as to the mode in which symptoms of disease arise when the normal balance between the various functions of the nervous system has been broken. New light has been thrown on many of the phenomena of which he speaks by the physiologists who have worked on the vast subject of inhibition, and the effects of a disturbance of the interplay between inhibition and excitation. The names of Meltzer,[3] Sherrington, Biedermann, and Wedenski[4] come to mind, especially, in this connection. Nevertheless, the fundamental principles which Hughlings Jackson so long ago expressed retain for the most part their validity. He made it clear that the signs and symptoms met in disease are of dual origin, that portion of them which is due to a lesion, such as we might expect to demonstrate anatomically being often the less conspicuous part, while the more conspicuous part is due to the vital energy of the uninjured remainder of the nervous system, acting without due control and yet with reference to such coordination as is still in force. Special and reciprocal coordinations of this sort exist between the cerebellum and the cerebrum, so that the special tensions and characteristics of either one is liable to come singly or preeminently into play when the activity of the other suffers a check. The disorders thus set up form "complementary inverses" of each other. Similarly, when any portion of the nervous system is damaged, there are signs of defect or "negative symptoms," due to impairment of the more highly coordinated functions of the part concerned and related parts, and signs of over-action, or "positive symptoms," due to uncompensated activity of the functions of "lower levels."

These "positive symptoms" might be classified simply as if due to unchecked liberation of energy, or as attempts at compensation (in a duly qualfied sense) on the part of the organism as a whole. Sometimes the phenomena which seem at first glance to bear the stamp of "disease" are really better classifiable as of conservative or compensatory nature, while under other circumstances the reverse may also be the truer statement. Thus Strohmeyer[1] has pointed out how "compulsive ideas" may sometimes have a value for the mental health of the patient, and Hughlings Jackson has suggested an explanation for the fact that motor convulsions, in epilepsy, may, at least, be less injurious for the mental condition of the patient than the seemingly less serious psychic seizures.

We owe also to Hughlings Jackson the generalization that lesions which occur suddenly, and throw out of gear, as they are bound to do, the more delicate of the functions represented in that part of the nervous system which is concerned, are likely to be followed by symptoms of a more violent sort than those which take place slowly. Thus, the epileptic discharge accompanying a lesion so slight as to leave no recognizable anatomic trace behind, is liable, by virtue of its suddenness, to give rise to a maniacal outbreak, which represents the uncontrolled activity of relatively uninjured portions of the brain, while on the other hand, lesions which anatomically may appear infinitely more serious are accompanied by no such outburst. Different forms of epileptic discharge and their secondary results differ widely also among themselves in these respects.

These hypotheses are in need of further analysis and should be tested anew by neurologists trained in physiological methods.

Reasoning on lines similar to those laid down by Hughlings Jackson, Edward Cowles has recently sought to unify the various members of the large class of the psychoneuroses of exhaustion, or of lowered mental tension. Thus the different phases of manic-depressive insanity are not due, he thinks, to separate and specific processes for which we might expect to find special chemic or anatomic expressions, one process leading to excitement and another to depression, but these phases, which in fact are often mixed, are phenomena of secondary occurrence, and are explicable on principles analogous to those outlined above as indicating the genesis of epileptic mania.

Some of the principles brought out by Hughlings Jackson are quite in harmony with those insisted upon of late years by a relatively small group of observers, abroad and at home, who have brought psychologic investigations to the aid of clinical research. I have especially in mind the fine work done by such men as Janet and Freud in Europe, Morton Prince and Sidis in America, not to speak of many others who have labored in the same field. To them we owe such knowledge as we now possess of the contrast between the dissociation of consciousness so characteristic of hysteria, and of the contrast between this tendency and that which gives rise to the complex and varied mental phenomena of asthenic states, or to the temporary and quasi-normal disturbances of daily life.

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[1] Regeneration.

[2] The first lecture of "Hughlings Jackson Course," delivered in January, 1898, contains a brief outline of the importance of his generalizations. (Lancet, January 8, 1898.)

[3] Med. Rec., June 7, 1902. "The Role of Inhibition in the Normal and Some of the Pathological Phenomena of Life and other papers."

[4] Pflüger's Arch. f. d. ges. Physiol., 1900.

[1] "The Conception of Compulsive Ideas as a Safeguard Neurosis." ("Abwehrneurosen"), Cbl. f. Nervenheilkunde u. Psych., Vol. xiv, 1903.

It would be impossible even to name, in a few paragraphs, the many clinical researches tending toward a better understanding of mental symptoms, for the prosecution of which a knowledge of psychological and physiological generalizations is essential. A few illustrations must suffice.

Thus, in every movement leading to exact thought and exact expression, in every movement of the memory, vast numbers of mental processes must cooperate, and if the outcome is to be effective, this cooperation must be governed from the outset by a leading idea as a ruling motive. The failure of this ruling idea leads to the wayward flight of thoughts, so characteristic of various forms of mental weakness, as has been pointed out by Liepmann.[1] The psychological bearing of this principle has repeatedly been insisted on by the keen psychologist, Bergson, both in his work on memory and matter,[2] and in a more recent essay.[3]

The psychological researches into *habit* and *set* are likewise of practical importance. The laws of habit describe the tendencies under which the varied reactions of the nervous system recur under forms which are really stereotyped and predetermined, although simulating the purposive reactions of health, and often only with difficulty to be distinguished from them. The term "set," describes the process by which the reactions of every individual, beside their purposive significance, receive a form and coloring, which, in a measure, reflect the general characteristics of the personal life of the actor, his temperament, his racial traditions, his education. It indicates, as has been justly said, the "signature" in the musical sense, under which the movement of his life goes on. The "set" of each patient must be understood before his illnesses can be mastered. In the study of these important laws psychologists and neurologists can lend each other mutual support.

If a further illustration was needed of the way in which a refined study of physiology and psychology can be made of the highest use to supplement anatomic data, in affording a basis for clinical conclusions, it could be amply furnished by a consideration of the problems of fatigue, that mysterious region, daily traversed, where health and sickness are so strangely mingled.

Thanks to recent investigations, we know a good deal about the anatomy, chemistry,[4] and physiology,[5] of the nervous system in fatigue, as representing the primary lesions, but it needs only a brief reflection to show how numerous and varied are the secondary manifestations, neural and mental, involving eminently the functions of the organism as a whole and in all its parts, that characterize the clinical outcome of acute or of prolonged exhaustion.[6] To give to these manifestations an adequate expression would often mean the passing in survey the functions of all the organs of the body. This is a task which would be anatomically impossible, since even the most extensive anatomical survey would fail to take cognizance of the disarrangements of old coordinations and the establishment of new ones.

Almost equally important with the generalization that the manifestations of disease are largely compensatory or adaptive, *i. e.*, vital or physiological manifestations on the part of the organism, is that which describes these changes as affecting *not organs, but functions.* This view is justly made much of by Wolkow, who points out that too close an adherence to the analytic methods of the anatomist encourages a tendency to regard the body as a congeries of organs, of tissues, and of cells, having an independence of each other which, in reality, they do not possess. A mode of conception such as this robs the organism, regarded as a whole, of its individuality, and as a substitute for it we need to cultivate the habit of regarding each individual as representing a vast system of interlocking functions, partly known to us already, partly unknown. It is during the disturbances and reorganizations of these functions, either in themselves or in their relations to each other, that the symptoms of disease arise, and the problem of the physician is to cast up the patient's account at each critical juncture, and to reckon upon what assets, in a physiological sense, he has yet to reckon, upon what powers of compensation and readjustment he can still rely. In place of regarding the body so much by piecemeal, we need to regard it more as a whole; as a supplement to our study of structure we need a closer study of function. Some diseases, as Wolkow suggests, could best be defined as disorders of unknown functions. It is probable that, under the same principle, those disorders which we now classify as due to premature death of anatomical parts[1] could be more properly described as due to the premature falling out of more or less specialized functions.

In no department of pathology is it so difficult to arrive at satisfactory conclusions by the aid of the anatomic method alone as in the department of neural pathology. For it is the nervous system upon which the organism preeminently depends for the very existence and efficiency of these interlocking functions, which are the basis of life. We can get on without admitting the existence of matter, in the familiar sense of that word, but we cannot get on without admitting the existence of *energies*,[2] superposed one over another in ever increasing complexity of organization, and to admit this conception of energies is at once to throw the emphasis of research upon the study of functions, and to admit the significance of the anatomical method only as a valued help toward the better understanding of function.

One unfortunate result of a too close adherence to the anatomical method is that it has introduced into medical literature, and, more important still, into medical thought, a differentiation of diseases into two contrasted, although vaguely defined, categories designated as "functional" and "organic," two terms which are objectionable because they help to perpetuate false notions of physiologic, pathologic and clinical sorts.[3]

However useful these terms may have seemed as affording a convenient, if rough, classification of diseases, and however inspiring it is to reflect that with the idea of "functional" goes that of possible curability, it is nevertheless true that their employment has had a mischievous because a misleading effect, and that it turns away the mind from the true recognition of a nature of the facts at stake.

Contrast, for example, the cases of hysteria and epilepsy, with regard to which these terms are often used, as if with an essential meaning. If in calling

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[1] Ueber Ideenflucht, publ. by Carl Marhold, Halle, 1904.

[2] Matiere et mémoire.

[3] L'effort intellectuel. Rev. Philosophique, 1902, p. 53.

[4] See especially various papers by Verworn and his pupils, which are published or referred to ni the recent volumes of the Zeitschrift f. Allgem. Physiologie, 1901 to 1904.

[5] See especially Richet, Dictionaire de Physiologie, article "Fatigue."

[6] See "Neurasthenia," by Cowles, Shattuck Lecture, 1891, Boston Med. and Surg. Jour., see, also, the various accounts of the Exhaustion Psychoses, and of studies on the contests in the Olympian games.

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[1] Termed by Gowers "abiotrophy."

[2] Of course, in the final analysis, it must be admitted that any given conception of "energies" can be taken only in a symbolic sense. It is, however, at present, the term most conducive to clear thought and adequate generalization.

[3] Compare in this connection, Obersteiner, Functionelle und Organische Erkrankungen, 1900; and Krehl, Die Functionelle Erkrankungen, in Die Therapie der Gegenwart, 1902.

hysteria "functional" and epilepsy "organic" it is meant that the one is curable and the other incurable, neither assumption is strictly accurate. If it is meant that in the case of hysteria there is, presumably, no essential anatomic peculiarity of the brain and nervous system, while in epilepsy such a peculiarity is present, neither assumption is correct. For no one can doubt that the brain of the hysteric is in some degree abnormal, and while we must make the same assumption in the case of epilepsy, we know nothing of the actual change which brings the epileptic fit about or makes it possible, nor can we even say that the fit itself is not a conservative process, in a certain sense. Again, the epileptic paroxysm, as such, is a sign which distinctly deserves the name of "functional," as much when occurring spontaneously as when induced by experimental excitation of the cortex. Furthermore, it would be only partially correct, and certainly not scientific, to call hysteria a "functional" and epilepsy an "organic" disease because epilepsy occurs oftener than hysteria in patients who exhibit certain physical peculiarities which we classify as stigmas of degeneration.

It would be equally erroneous to claim that having classified a disorder as "hysterical," and therefore as "functional," we have the right to consider it as representing a condition which anatomy need not take into account. Mental action is, in every sense, a real force, standing on the same plane with the other forces which we regard as more familiar, and as such it is capable of influencing the nutrition of the body. It is only by evasions and subterfuges that we can deny the reciprocal relationship between bodily processes and mental states. Both of them are manifestations of energy, and there must be some denominator common to them both. Between death from a bullet that traverses the brain and death from an emotional shock, the difference is one solely of detail. When any disorder such as we should be inclined to call functional is hostile to the fundamental interests of the organism, it leads at once to manifest disorders of the nutrition. Not only is this true of depressive emotions, but even of excessive intellectual preoccupations, as when Dante said, "My great work has made me lean." This datum of common observation is receiving, more and more, the solid endorsement of scientific thought. Thus, Ostwald[1] dwells upon the fact that mental operations of a pleasurable sort directly favor nutrition and the normal flow of chemical energy, while those of a painful sort interfere with nutrition and hinder the flow of chemical energy.

At both these latter points the barrier between the functional and the organic is broken down. As a matter of fact, this barrier does not, by right, exist, and we should not be tempted to use the terms "functional" and "organic" as applied to disease, at all, were it not for two reasons, the first being the convenience of the custom, the second that there are many conditions which we recognize as being on the whole hostile to most of the interests of the organism and which we therefore feel justified in classifying as disease, yet where the disorder is not adapted for anatomical expression. If we adopted, as we should, the conception defended by the clear-minded philosopher and scientist (Ostwald), that the organism is a fabric built up, not of atoms, but of energies, we should never draw these unscientific distinctions between "function" and "structure," or "symptomatology" and "anatomical expression," as standing for fundamentally different and contradictory conceptions, or as affording the one a truer and the other a less true method of approaching the study of disease, but we should admit that the data gathered under these different headings stand upon the same plane as regards their admissibility as evidence. The data furnished by the study of symptoms, which in the case of the socalled functional disorders constitute all the evidence at our command, are data of a physiologic sort, and throw light rather on the reactions of the organisms than on the direct effects of the primary lesion. For this reason they are not susceptible to discovery by anatomic means.

In conclusion, then, I offer the following propositions:

Every organism, whether we call it diseased or well, presents itself to our view as a web of interwoven "energies," which, in order to study them by anatomic means, we must break artificially into fragments that have, in reality, no correspondingly separate existence.

These energies, under tendencies which countless ages of evolution have established, have woven themselves into a mechanism of interlocking functions, forming an endurable and relatively stable equilibrium which we denominate as health. This equilibrium, however, must always remain but relative, and would become a real equilibrium, if that were possible, only at the sacrifice of further evolution and progress.

The processes of mutual modification and adjustment through which such an organism seeks to gain and to maintain this equilibrium, under the ordinary conditions which we classify as health, are the only means which it possesses to meet the more serious needs created by the unusual conditions that we call disease.

It rarely happens that these efforts[1] at readjustment (after any considerable disturbance of this equilibrium) are thoroughly successful, and in the abortive or exaggerated reactions on the part of the organisms, energies are set free and habits are established which are often hostile to the main interests of the organism as a whole, and therefore are reckoned as evidences of disease.

In many cases the processes of readjustment are taken part in by various functions of the organism which do not seem to be at first sight related to the changes primarily at stake, to such an extent that the earlier effects of the original lesion are overshadowed, and we seem to be in the presence of what would be called a change of type rather than a disease. In this way, for example, what are called by biologists the "secondary sexual characters" arise. Clinical examples of this tendency toward such a generalization of the process of readjustment have already been suggested.

Although these processes of readjustment do not seem to be guided by teleologic influences, and although they often fail to benefit the organism, and, instead, work it great mischief, yet in many instances they do have all the outward appearance of being under the direction of some general principle analogous to that which governs the processes of growth, and is manifested in the repair of lost parts among the simpler forms of life.

The tendency, according to which the processes of repair are governed by a "general principle," presents interesting analogies with the government of the flow of thought and memory by a "leading idea." The same tendency probably finds application, in fact, in the case of all complex reflexes, no matter of what sort.

In order to give aid and guidance to the more favorable elements of these processes of readjustment, we, as physicians, need to bend all our powers to a better understanding of the resources which each organism has at its command for compensation, for continued life on the old lines, or for gaining a new and more stable life, no matter at what sacrifice. The patient who thoroughly understands his resources and is master of them, even if these are few and slight, is often in a better position than one who has more to draw upon but who is liable to be upset by surprises.

In the accomplishment of this task we need all the help that anatomy can furnish, but as it is the organism in activity that we seek eventually to understand, it is necessary that the splendid services of anatomy should be supplemented by physiology, and the physician—

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[1] Philosophie der Natur.

[1] It is to be understood, as stated above, that the term "efforts" is here used in a descriptive sense alone.

above all the neurologist—needs, therefore, to be trained more thoroughly than at present, to work and reason in accordance with physiological conceptions and methods as applied to the problem of disease.

As regards our duty in the treatment of our patients, we should not fail, first of all, to seek for the original cause, wherever it may lie, by which the old equilibrium of relative health has been, in one direction or another, broken into, and we are, therefore, bound to acquaint ourselves with all those functions and processes which are related to nutrition in the broadest sense. Still, for the neurologist in particular, the problem of nearest interest is often to gain a point of temporary vantage for his patient by training him to make the best of a present situation, and the methods by which this end is to be accomplished are classifiable under the general name of education.

In these methods the future therapeutics of the nervous system is largely to assist; to them we are more and more to look for guidance, both in relieving our patients of their ills and in teaching them how to bear them. The physician who knows best how to appreciate the needs and resources of those coming under his care, to divine their capabilities, to search out the hidden causes of their present troubles—lying, perhaps, in the experiences of childhood—the physician who has the trained keenness to recognize that, however poor the material with which he has to work there is almost invariably some benefit to be gained, if not in the direction of relief, then in that of compensation—such a physician as this can make himself of infinite service to the community in which he lives and works.

As among the newer representatives of the successful laborers in this field, we ought to recognize not the scientific investigators alone, but also those practical workers, whether lay or medical, who have shown what education can actually accomplish. I have in mind, especially, the physicians who have demonstrated that tabetic ataxia can be relieved, the sufferers from obsessions and morbid fears restored to their place in society, the vacant lives of imbeciles and dements made more full, and new promise given to the efforts for the reform of the waifs and wards of our great cities. In this outcome is to be sought one of the best practical pieces of evidence for the value of the physiological principle in the problem of disease.

THE EYE AND THE DIGESTIVE SYSTEM.

BY

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The medical practician of today is not so prone as his forefather was, to refer sensations, pain, functional states of organs, to organic changes in them. He is, or ought to be, quite familiar with many common reflex phenomena, and he is constantly seeking to learn of new relationships existing between neighboring or distant structures, and to determine the nature of their inherent connection.

The unit or body is not made up of individual independent systems, but of dependent ones. The systems of the body, circulatory, muscular, lymphatic, nervous, or digestive, are not made up of separate free organs, but of kindred ones. The organs are not composed of unrelated, but of dependent tissues. The secreting cell is supported by the connective-tissue cells around it, and both depend on the different systems, circulatory, nervous, etc., for their maintenance. Every organ and every tissue of the body is dependent on these great systems, and the chief systems exist and are of great importance in every part of the body. Hence it is important to study these relations carefully. Every one knows that if the circulatory system be abnormal, every tissue, every organ must suffer, and if one or more organs are so diseased, or abnormal, as to interfere with the proper function of this system, all other organs are thereby affected, some more, some less. Practically the same may be said about all the different systems, but I wish to confine my remarks to the influence of the eye on the digestive system, and of the digestive system on the eye, which influence is chiefly, but not wholly, exerted through the nervous system.

In the output of energy—muscular, heat, etc.—a certain part is nerve force, varying in different individuals, and is necessary in the regulation of all physiologic processes, respiration, circulation, digestion, secretion, etc., and in volition and all cerebral activities.

Only a certain proportion of the whole force or energy of the body should be nervous; if more than this is required, the other manifestations of force will be lacking. It is also important that nerve force itself should be distributed in proper proportions for the different activities. If one item of expense is too great, the remaining needy processes must go begging. The amount of energy or force varies greatly in different individuals, and its distribution likewise varies. If there is too small a supply, or if abnormally distributed or wasted, the person must suffer for it.

The nervous system may be compared to an electric battery with numerous appliances attached. If one appliance is used too much, or requires too strong a current, there is less electric force for some or all the others, depending on how each is connected. It must also be remembered that dead cells adding more resistance to the circuit, lessen the strength of any battery.

A waste of nervous force in any one direction diminishes its necessary strength to other processes, and if any one of these processes which help to produce nervous energy is interrupted, its production is interfered with. Sometimes there is a leakage in this nervous energy in different ways, but often the system can succeed if one or more of the chief wastes are prevented. Sometimes a person's nervous system is abnormal in many particulars, wasteful in many ways, and the removal of one waste avenue will give a return to health. Witness, that many headaches and other nervous phenomena disappear when the eyes are fitted with proper lenses. It is but relieving one cause. No doubt in many of these cases other agencies are at work, but it is always the last straw that breaks the camel's back.

The normal eye views the surrounding objects without the use of much force or energy; of course, it must accommodate, move upon its axis in different directions, rotate, etc. Some force also is used for the act of conduction, volition, and the interpretation of the image. However, in an abnormal eye in which a constant effort of the will is often necessary to maintain sufficient accommodation, convergence, etc., an expenditure of much nerve force is often required. It may not have occurred to some that sight is the only special sense constantly used. It is impossible to strain in tasting, smelling, or touching, and the straining to hear merely consists in concentrating the attention closely to sounds. If those persons with abnormal eyes must use their eyes much, an excess of expenditure is the result, and the economy must suffer. The nerve force of the bank is overdrawn, the reserve is even being used, and a nervous bankrupt is the consequence. It is remarkable how the use of abnormal eyes will often completely deplete the nerve force of an individual. Putting on an improperly fitted pair of spectacles often produces dizziness, nausea, and even headache and faintness within a few minutes. Those who are without proper lenses, are in the same condition as those who have used the improper ones. The former have become more accustomed to the evil conditions existing in their eyes, and that is the reason they usually do not experience such acute distress. The eyestrain caused by abnormal strengths of the eye or its muscles, usually, but not always, gives rise to loss of nerve force directly in proportion to the degree of the abnormality and the amount the eyes are used.

Many seem to forget the fact that the eye has any nerve supply other than the optic. This latter is purely one of special sense, viz., vision, and has little or nothing to do with the direct sensory or motor nerve supply, but only as concerns reflex acts. As the aqueduct of Sylvius and the floor of the fourth ventricle contain the nuclei of all the motor and sensory nerves of the eye, and also the pneumogastric, which are intimately connected by associate fibers, lesions in this neighborhood are apt to affect both. Branches of some of these nerves, *e. g.*, the fifth, also supply the upper portion of the digestive tract and have close communication by means of some of the ganglions with its nerve supply. In this connection the sympathetic nervous system is the principle link, especially the three cervical sympathetic ganglions.

The function of the digestive organs is under the constant control of the nervous system; the amount of blood to each organ must be regulated, secretion excited, controlled, and the movement of certain organs regulated, *e. g.*, the intestinal movements. If too much nerve force has been expended on other activities the nervous control of the digestive system is not normal; and the other systems (blood, lymph, etc.) affecting this particular system are also often not properly regulated. Therefore, eyestrain often gives rise to nausea, loss of appetite, and even to constipation. It probably often affects the real digestive processes in the manner stated, and in return this influences nutrition and assimilation.

I ask every patient who comes for glasses if he has nausea or vomiting, and it is surprising what a very large proportion of people with weak eyes have one or the other. Hundreds of times patients have stated that after being properly fitted with glasses, nausea and vomiting entirely ceased. I have not questioned very much about constipation, but in a considerable number of cases with otherwise good results I have made bold to ask afterward, and have often been told that whereas they had suffered from constipation before using proper glasses, they did not now. This may seem to be drawing force from the stars, but these are mere facts. No doubt a great many other functional digestive disturbances, such as flatulency, pyrosis, hyperesthesia, eructation, colic, etc., are sometimes caused in a similar way. It is easy to understand that an exhausted nervous vitality may cause otherwise healthy organs to act imperfectly. The pains of iritis, cyclitis, and glaucoma are sometimes partly referred to the teeth, causing neuralgic toothache. Solutions of atropin and other drugs dropped into the conjunctival sac sometimes find their way through the nose into the throat in sufficient quantity to cause toxic symptoms.

It must not be forgotten that nausea and other symptoms usually referred to the digestive tract are often, if not usually, cerebral in their origin. There may be nothing wrong with the organs to which the sensation is referred, *i. e.*, the stomach may be perfectly healthy, but a look from a dizzy height or out of the window of a rapidly moving car, is often sufficient to give rise to them. No doubt seasickness is greatly due to the disturbance in our sense of equilibrium, and is always aggravated by looking at objects not on board ship. It is well known that vertigo is often due to diseases of the ear, when the semicircular canals are affected.

The digestive system, on the other hand, is often the cause of symptoms referable to the eye. The eyes may be abnormal but still capable of performing their function without pain or discomfort, if the stomach or other digestive organs are normal. These people have discomfort in trying to use the eyes after a too hearty meal, when sufficient energy is not left to supply the eyes. Poor digestion influences all the other systems and processes of the body, such as the blood, lymph, and muscular systems, and therefore the great processes of assimilation and nutrition are interfered with. All these systems and processes should be normal if the eye would properly perform its delicate functions. The innervation and the proper tone of the muscles must be retained, or the eyes will not be properly directed, and accommodation and convergence will be interfered with.

The patients so troubled may complain of dimness or blurring of vision, specks before the eyes, even doubled or contorted images, and especially is this so if some abnormality of the eye is present. It is very common for people, and even some of the profession to ascribe nearly every defect of vision to the stomach. Headaches due to the eyes and accompanied by nausea, dizziness, and vomiting, and especially sick-headaches, are often called "stomach headaches" by the laity. These patients are often totally and quickly relieved by proper glasses, or by wise treatment of their ocular muscles, after having taken remedies to cure their digestive ills for years without any beneficial result.

Hemorrhages of various sorts are often immediately, or after some time, followed by partial, or complete temporary blindness. Hemorrhages into the intestines, and especially the stomach, seem particularly apt to cause this loss of vision, although uterine, nasal or traumatic hemorrhages will also cause blindness. Recovery is less apt to occur in gastric hemorrhage than in any other variety. It is not clearly understood why this is so, though different explanations have been given.

If the eyes in these patients are examined ophthalmoscopically soon after the onset of blindness, there may be discovered slight retinal edema, or signs of acute inflammation of the nerve and retina, with hemorrhages and white patches. If examined later the optic discs are often atrophied, the retinal vessels shrunken, and signs of degeneration of the retina are present. A few cases of dysentery and severe vomiting have been reported as causing blindness.

Diseases of the liver, accompanied by jaundice, sometimes cause yellow vision (xanthopsia), and it is claimed by some that retinal hemorrhages sometimes occur in these cases. The cause of many eye affections, especially of the conjunctiva, cornea, iris, and even blindness and optic neuritis has been attributed to decaying or decayed teeth. Toxic amblyopias are often accompanied by chronic gastric catarrh, due to alcohol, tobacco, etc.

I appeal only to those who are willing to receive facts for their worth, and while I might have written much more on this interesting problem, and mentioned other symptoms that I have found, I have merely tried to suggest the more common. I will feel amply repaid, if I can direct greater attention to the many complex relationships of these widely separate organs, in the hope that this interesting subject may be better understood.

EARLY RECOGNITION OF THE THERAPEUTIC VIRTUES OF IRON.

BY

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The history of iron does not reach at all so far back into the misty shades of antiquity as does that of copper, of silver, or of the more rare and coveted gold. The *ferrum* of the Romans (*καλὺψ* of the Greeks) does not appear to have been known to prehistoric man, as bronze undoubtedly was. But its history, not only metallurgic but medicinal, is quite old enough to command veneration. There is no doubt that iron was extensively employed by the ancient Phenicians and Egyptians, and by their Hebrew slaves, even before the days of Moses. What testimony exists goes to show that the Greeks used it at the siege of Troy; not only in the construction of weapons and machines, but therapeutically as a local application to wounds, on account of its known healing (? hemostatic) properties. In the quaint language of the elder Pliny—as Englished by *Philemon Holland, Doctor of Physicke*—we are told that: "The very rust of yron also is counted medicinable; for so *Achilles* is said to haue healed *Telephus;* but whether the head of his speare were iron or brasse, of which he vsed the rust, I doe not certainly know. Certes, he is paynted thus: With his sword scraping and shaking off the rust into the wound." Modern readers will, doubtless, incline to the belief that the rust was of iron.

And the tonic powers of the same agent were known to the fabulous antiquity of Greece; for we are told by Apollodorus that Melampus restored the virility of Iphikles by mingling rust with his wine! The opening sentences of Pliny in his account of iron are, as usual, mainly philosophic:

> Yron, a mettal which we may well say is both the best and the worst implement vsed now in the world; for with the helpe of yron we break vp and ear the ground, we plant and plot our groues, we set our hortyards and range our fruitful trees in rewes; we prune our vines, and by cutting off the superfluous branches and dead wood, we make them euery yere to look fresh and yong againe; by meanes of yron and steele we build houses, hew quarries, and cut in stone, yea, and in one word, wee vse it to all other necessary vses of this life. Contrariwise, the same yron serueth for wars, murders, and robberies, not onely to offend and strike therewith in hand, but also to reach and kill afarre off, with diuers sorts of darts and shot; one while discharged and sent out of engines, another while lanced and flung by the force of the arme; yea, and sometime let flie with wings: and this I take to be the wickedest inuention that euer was deuised by the head of man: for to the end that death may speed away the faster to a man, and surprise him more suddenly, we make it to flie as a bird in the aire, and to the arrow headed at one end with deadly yron, we set feathers at the other: whereby it is euident, that the mischiefe proceeding from yron, is not to be imputed to the nature of it, but to the vnhappy wit of man.

And the same writer's account of the therapeutic properties of iron is, of course, as usual, fully comprehensive of the collective knowledge—or belief—of his day:

> As touching the vertues thereof, it is clensing, exiccatiue, and astringent; it recouereth the haire in places despoiled thereof, if they be annointed therewith in the forme of a liniment: being reduced into a salue with wax and oile of Myrtles incorporate together, many vse it for roughnesse about the eie-lids: the pimples also breaking forth all ouer the body. For shingles and S. *Antonies* fire, it is singular good to apply it in an vnguent with vineger; likewise it killeth scabs, and healeth whitflawes of the fingers, and the excrescence or turning vp of the flesh about the roots of the nails, if linnen rags wet therein be applied conueniently. The same conueyed vp in wooll after the manner of a pessary into the naturall parts of women, staieth the immoderat flux both of whites and reds. The rust of yron tempered in wine, and wrought together with Myrrhe, is good for a greene wound: put thereto vineger, and then it helpeth the piles and swelling bigges of the fundament. A liniment made with it, mitigateth the pain of the gout.
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> As touching the skales of yron that flie from the edge or point of any weapon wrought in the smiths forge: they serue in the same cases that the rust doth, and haue the like effects, saue only this, that they haue greater acrimonie, and work more eagerly: in which regard they are emploied about the repressing of the flux that falleth into watering eies. But marke this one thing: Yron being that which woundeth most and sheddeth bloud, yet the skales that come from it, stanch the same: a property they haue besides to stop the flux in women: and being applied to the region of the spleene, they do open the obstructions thereof, and ease other infirmities incident thereto: the running hæmorrhoids they represse, and such vlcers as are giuen to spread farther and corrode as they go. Reduced into a fine powder, and gently strewed vpon the eye-lids, they are good for the accidents thereto belonging. But the principal vse of them, and for which they are most commended, is in a certain liquid plaster called Hygremplastrum; which serueth to mundifie wounds, vlcers, and fistulaes: to eat away all callosities, and to incarnate and ingender new flesh about bones that are perished. And this is the receit of that composition: Take of the scouring Tuckers earth the weight of two oboli, of brasse six drams, of the skales of yron as much, and no lesse of wax, incorporat all these according to art in one sextar of oile. But in case there be need to mundifie any sores, or to incarnat, there would be put therto some plain cerot besides.

In another paragraph the writer tells us that:

> Gads of steele or other yron red hot quenched in water, so long vntil the same water be hot, causeth it to be a wholsome drinke in many diseases, but principally in the bloudy flix.

The views of Pliny with regard to iron in surgery and demonology are somewhat more erratic:

> As touching the vse of yron and steele, in Physicke it serueth otherwise than for to launce, cut, and dismember withall: for take a knife or dagger and make an imaginarie circle two or three times with the point thereof, vpon a young child, or an elder body, and then goe round withall about the party as often, it is a singular preseruatiue against all poisons, sorceries, or inchantments. Also to take any yron naile out of the coffin or sepulchre wherein man or woman lieth buried, and to sticke the same fast to the lintle or side-post of a dore, leading either into the house or bed-chamber where any doth lie who is haunted with spirits in the night, hee or shee shall be deliuered and secured from such phantasticall illusions. Moreouer, it is said, That if one be lightly pricked with the point of sword or dagger which hath beene the death of a man, it is an excellent remedy against the pains of sides or brest, which come with sudden pricks and stitches. An actuall cauterie of yron, red hot, cureth many diseases, and especially the biting of a mad dog; in which case it is so effectuall, that if the poison inflicted by that wound, haue preuailed so far, that the patient be fallen into a Hydrophobie thereby, and cannot abide drinke or water, let the sore be seared therewith, the party shall find help presently.

The above allusions to the uncanny powers attributed to iron in classic antiquity furnish an item of collateral testimony to the common kinship of the primitive notions of untutored humanity. In the remote parts of Ireland—at least down to a few years ago—the faith in the powers and virtues of "the blessed iron" was universally diffused among the peasantry. The benighted traveler who carried an iron or steel weapon in his hand could safely pass the haunted cross-road or the "gentle" rath. He could even cross the path of the "gentry" in the midnight transit to a new annual residence which they always made on *Halloween*—the most dangerous of all incidents in remote country life. The pining changeling which was left behind by the "good people," when the bright and healthy infant was "taken away," should be taken on a shovel and thrown from the door: it then instantly vanished in a flame. The devil himself always winced and retired when opposed with an iron weapon. "No fairy takes, or witch hath power to charm" any one protected by the hallowed and gracious metal.

The Arabian physicians, who were the great authorities in matters medicinal during the Middle Ages, held to the classic notions of the therapeutic properties of iron, as collected and presented in the great thesaurus of Pliny. The theory and practice of the uses and applications of this metal in medicine and surgery continued throughout that strange period of the history of European civilization to be governed and directed solely by the influence of "authority." Accordingly, there was no scope permitted for scientific development in this department. Such had to await the explosive intellectual upheavals of the period of the Renaissance, and their consequential phenomena and events. It was by Monardes, of Seville (in 1571), that some rational instructions were published for the first time regarding the internal administration of iron. The principal conclusions which he had derived from his own observation were, that it improved the appetite, strengthened the body, diminished the volume of the spleen, and cured impotence. And so remained the standard of the therapeutic knowledge of this metal for over another century.

The modern history of iron in its therapeutic function undoubtedly dates from its advocacy by the famous English physician, Sydenham, in the treatment of chlorosis (1681). Since that epoch the reputation of "martial remedies" in the regeneration and reconstitution of blood may be said to have continuously progressed. A very important impetus was given by the publication of the views of F. Hoffmann (1753) on the nature of chlorosis, a condition whose genesis and pathology had always remained a mystery to even the immediate successors of Sydenham. And the very earliest essay toward a truly scientific account of the treatment of the various anemias by ferruginous waters is that of the celebrated Irish chemist, John Rutty (1757). The next important landmark in the history of martial therapeutics is formed by the publication by Halle (1802) of his observations on the *miners' anemia* of Anzin, and the successful treatment of the same by preparations of iron salts. Then chemistry grew year by year—almost day by day—throughout the whole period of the nineteenth century. It demonstrated the wide distribution of iron throughout the animal and vegetable kingdoms, as well as the mineral. It also demonstrated the presence of this metallic element as an essential and necessary constituent in the red bloodcorpuscle. By a further step forward, it revealed the fact that the special compound within the corpuscle to whose formation iron was essentially necessary, was that which gave the characteristic color to the corpuscle, and through it to the whole vital fluid. Then was announced the view that the iron was the true oxygen bearer of the hemoglobin molecule; that oxyhemoglobin corresponded to a ferric oxid, while the reduced hemoglobin corresponded to a ferrous. In contact with the oxygen of the air the latter instantly became oxidized to ferric. In contact with the tissues of the various parts of the organism the ferric compound was as rapidly reduced to ferrous. And the red corpuscle was the receiver, the carrier, and the distributer of the life-maintaining oxygen—thanks to the chemic properties of the iron which it contained!

When the discovery of iron in the most essentially characteristic constituent of the vital fluid had been demonstrated, and its modus operandi in the functions of circulation and respiration were firmly grasped, the absolute necessity of its presence for the maintenance of health—and even life—was, of course, fully recognized. The immediate induction from the data was that, wherever there existed a deficiency in quality or quantity of the circulating blood, iron was to be introduced at once, as the alpha and omega of the internal treatment. Of course it had to be admitted that even the unlimited administration of therapeutic iron was not always followed by the wished-for result. Then explanations must be supplied. It was observed that it caused digestive disorder—which might interfere with its absorption, or with the subsequent assimilation. The martial salts produced a local astringent action— a contraction of the bloodvessels of the mucous membrane, and consequent diminution of healthy secretion. Their presence also caused—by direct physical or chemic influence—an arrest of the activity of the digestive ferments. Further investigation even went to throw doubt on the assimilation of any medicinal iron; and even on its absorption from the alimentary canal. It was found that the quantity eliminated by this passage exactly represented that introduced by the mouth. The explanation provided to meet this apparently startling difficulty was that the action of the iron on the constitution of the blood was attained by its stimulation of the gastrointestinal mucous membrane, in consequence of which the alimentary iron was more effectively absorbed. The corresponding clinical effect of arsenic preparations in such cases lent great plausibility to this view. Further corroboration seemed to be afforded by the power which iron displayed in restoring the failing verdure of plants, although chlorophyll itself was not a ferruginous compound. So that the influence of arsenic and of iron in restoring hemoglobin to anemic patients might be strictly comparable to that of the latter element in the indirect production of chlorophyll. The tonic action of ferruginous preparations seemed in such light to be strictly comparable to that of vegetable "bitters." Mitscherlich advanced the hypothesis that iron salts were absorbed in albuminous combination; and others suggested that the iron atom, preparatory to absorption, definitely replaced a corresponding proportion of hydrogen in the albuminous molecule. Later still, Bunge and Podwissotzki, advanced the view that iron was absorbed with the digested aliments in a state of organic combination. Indeed, every reader who has had any practical experience of chemic testing well knows how effectively the presence of "organic matters" in solution prevents the precipitation of a small proportion of iron. The former of the two last mentioned writers advanced the ingenious hypothesis regarding the action of iron in chlorosis; that its beneficial effects were due to its ready combination with the alkaline sulfids which formed a continuous product of the digestive disorders of that condition, and thus preventing the excessive waste of organic nutriment by (at least approximately) anticipating their formation. Schultz has enunciated the view that the various members of the metallic group which includes iron, manganese, nickel, cobalt, and chromium, are all direct stimulants of cellular activity; that they impress oxygen and some other nonmetallic elements with a greater mobility, and, accordingly, determine by their presence the formation of albuminates. Still, however theories may come and theories may go, there is no disputing the fact that the proportion of iron in the blood is increased after the administration of iron by the digestive tract. A rapid elimination might explain the appearance of the ingested iron in the alvine evacuations. The alimentary iron is known to be principally eliminated in the bile, and in form of a phosphate—an inorganic salt. Some observers have maintained that iron administered medicinally is eliminated largely by the kidneys; but, as will be gathered from the views above stated, this opinion has by no means secured unanimous corroboration.

The excessive ingestion of iron leads, as is well known to clinical observers, to the development of symptoms of progressive discomfort and "martial" poisoning. The collective group of phenomena produced in this way has received the inclusive denomination of *siderismus*. It includes the symptoms of a distressing artificial plethora, necessarily emphasized by the constipation which always coexists. There is violent pulsation of all the arteries—most conspicuously felt in the carotids; accompanied by cardiac palpitation, bursting headache, and all the other symptoms of active cerebral congestion—and even febrile heat, flushed face, injected conjunctivas, etc. There is also epigastric tenderness, with a feeling of depressing weight and dull pain; and a necessary coexistence of (dark) furred tongue, impaired appetite, and occasional colicky spasms. And in cases where the gastrointestinal mucous membrane is already in a diseased or very delicate condition, the irritation produced by the ingestion of preparations of iron gives rise to continuous diarrhea, or aggravates this symptom if already present. This necessary consequence has but too often given rise to the worst results in the hands of physicians who thought it necessary to treat *anemia* of every variety with the natural remedy of iron! On this account we would emphasize the fact that the internal use of iron should never be resorted to where organic intestinal disease, or even extreme irritability, exists. It should not be administered in the convalescence of enteric fever or of dysentery till a considerable period has elapsed; and then with extreme caution, if at all. It should never be employed in tabes mesenterica or pulmonary phthisis, although we fear that it still sometimes is. That iron exercises a kind of specific influence on the intestinal mucous membrane would seem to be indicated by the results of the experiments of Smith and Orfila who killed a number of dogs by depositing in the subcutaneous tissue of the thigh of each 7.5 gm. of pulverized vitriol (ferrous sulfate). Postmortem examination in each instance displayed the lesions of gastroenteritis, and patches of congestion of the convex aspect of the liver. Those results argue strongly against the hypodermic use of iron salts which was at one time strongly advocated by some. For it proves the danger of the remote, as well as of the local, irritation which is so likely to follow. Another mischief which would be very prone to follow the hypodermic use of iron, is the development of the renal phenomenon which was described by Kobert as the "metallic kidney," that is, the condition which develops as the result of the effort of the renal organs to eliminate the excess of iron which may have found its way into the circulating blood. Kobert found that, in such cases, the iron accumulated in the cells of the lining epithelium of the *tubuli contorti*, and to such a degree as to obstruct the lumens of the latter. Apart from such developments, such a condition as chronic siderism can hardly be said to exist; as the quantity of iron absorbed by the gastrointestinal mucous membrane is far too small to occupy the functional powers of the eliminatory organs for any considerable time.

Under the name of *siderosis*, Quincke described a condition which should perhaps receive recognition in this connection. It is one in which iron is deposited in certain tissues and organs of the body in such a way as to be microchemically demonstrable. The iron deposited in siderosis is that of the hemoglobin of the red blood-corpuscles—when the destruction of the latter takes place too rapidly to permit the complete elimination which is normally carried out by the liver. After the original description of Quincke, Peters (Kiel, 1881) made two varieties: (1) Siderosis of the spleen and bone marrow; which develops in most old people, and in many young ones who have been the victims of chronic disease; (2) siderosis of the liver, spleen, and bone marrow; which is found in the fatal intestinal catarrh of infancy. In the discussion of these pathologic curiosities, it is, of course, well for our readers to bear in mind that the term "siderosis" has also been used to denote the condition of lung which is brought about by inhalation of particles of steel—and which is but too well known in all manufactories of cutting and pointed steel instruments. On account of this source of ambiguity, it is desirable that the other should be referred to as "Quincke's siderosis."

Concluding Remarks.—In the present state of combined scientific and clinical knowledge, the general results of all collective research on the internal administration of iron go to show that while the preparations of this metal form a practically specific means of cure in the anemia of chlorosis, they are not so fully to be relied on in the management of other varieties. Clinical evidence also goes to prove that in order to obtain the full benefit of its blood-making powers, free action of the bowels must be maintained throughout; and that they are most effectively grasped when the administration of iron is combined with that of arsenic. The other actions of iron salts which have from time to time been utilized in clinical medicine are well known in a general way to all practitioners, and are not of sufficient importance in the present state of our knowledge for any critical discussion. The antiseptic value of ferrous sulfate is still recognized; and it was probably some foreshadowing of such property which brought Velpeau—long before the scientific establishment of antisepsis—to announce its efficacy in the treatment of erysipelas; locally as an ointment and a lotion, and internally as a general tonic remedy. Also the dictum of the famous syphilographer, Ricord, that the "tartrate ferricopotassique" was "the born enemy of phagedena," in the treatment of which he used this salt both locally and generally, owed its genesis pretty surely to some corresponding revelation of the light to come. The hemostatic (coagulative) powers of some of the ferric salts, and the mildly caustic action of a few of them, are familiar to all practitioners. So are the application of freshly precipitated ferric oxid as an antidote to arsenic, and the more or less satisfactory endeavors which have been made from time to time to prepare iron compounds in such a way as to ensure their absorption by the gastrointestinal mucous membrane without the production of digestive disorder or constipation.

SOME RESULTS OF RÖNTGEN RAY TREATMENT.

BY
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It is now generally understood that a malignant neoplastic growth or a growth of low type or vitality, is specially susceptible to destruction and death, when properly subjected to the röntgen rays.

One very important advantage in röntgen ray treatment is that the sufferers are ever on the alert to be relieved of their cancer or lupus by a painless and bloodless method, and they therefore apply early for treatment; not resorting to continual postponements fearing a surgical operation. Hence it is that the röntgen ray therapist is consulted as soon as there is the slightest evidence of a diseased tumor, making the prognosis more favorable. From this now almost universal knowledge, the percentage of cures from all malignant diseases at least, should be greatly increased.

Let me enumerate some of the distinct advantages that the röntgen rays have over all other forms of treatment in malignant growths: 1. The röntgen rays have a specific action on structures that are malignant and of low vitality. 2. The röntgen ray applications are painless. 3. They leave little, if any scars. 4. The röntgen ray can be used in cases in which surgery would fail for the lack of tissue for future repair. 5. The percentage of permanent cures is equal to if not greater than when surgical methods are used. 6. There is no loss of blood to cause weakness and exhaustion. 7. The avoidance of an anesthetic with its attendant annoyances and dangers. 8. The röntgen ray should be used after all surgical operations involving malignant growths.

The greatest utility afforded by röntgen-ray therapy is found in the superficial diseases, such as epithelioma and lupus, acne and rodent ulcers of the face and neck; and all exposed areas in which a cosmetic result is of desirable advantage. Psoriasis, eczema, acne rosacea, the socalled birthmarks, and other skin diseases are being successfully treated with the röntgen rays.

Hodgkin's disease and tuberculous glands are in the field of röntgen-ray therapy, and some very marked results are noted. In Hodgkin's disease and all inoperable malignant growths, the röntgen ray has diminished discharges, relieved all pains, and so prolonged a comfortable existence. In some incurable and hopeless cases, a few unexpected recoveries have occurred.

The anodyne and soothing effects of the röntgen rays have shown brilliant results in the treatment of severe cases of neuralgia. Patients that have been compelled to use hypodermic injections of morphin have been relieved by one or two röntgen-ray treatments. In facial neuralgia and severe attacks of sciatica; in acute gouty paroxysms and rheumatoid arthritis, I have seen relief afforded in from one to three applications. When the static and constant currents have failed to relieve the pain, the röntgen ray has invariably given the desired relief.

The following cases will show, by the history, treatment and results, what has been done:

Lupus.—Mr. H. G., aged 34, who was born and lived in Philadelphia, has a good family history. He states "that a small sore appeared on his arm about five years ago without any known cause. It has been treated with all kinds of drugs, externally and internally." When I saw the patient it was somewhat larger than a silver dollar, and had eroded the parts to a depth of a fourth of an inch. At times the pain was very severe. There were 39 exposures made of 12 minutes' duration, with a medium hard tube 10 inches distant. In two weeks the structures broke down, became disintegrated, and began to assume a healthy condition. Improvement continued without any surgical or medical treatment, with a final and permanent cure.

Birthmark.—Miss M., aged 24, had a port wine discoloration covering almost her entire left cheek. It had been the same color and size since her fifth year. She was given three treatments a week, 12 minutes each, for four weeks, with very little change of appearance. The duration of each treatment was lengthened to 16 minutes, with the tube six inches distant. Desquamation soon appeared, and in three weeks the discoloration was gone. There has been no return in two years' time.

Cancer of the Lip (*Epithelioma*).—Mr. J. F. C., aged 61, had been under treatment at a hospital in this city. The report from the pathologist shows the tumor to be an epithelioma. It was situated on the left half of the lower lip, about the size of a walnut, and had a fetid discharge which interfered with his eating. Pain was present continually; more severe when eating or talking. Removal with the knife was suggested, to which he strenuously objected. In fact, this proposition was the cause of his retiring from the hospital. The glands were enlarged on both sides of the lower jaw, and hard and painful on pressure. The röntgen rays were applied three times a week for about seven weeks. Medium tube was used to the cancer, and also to the glands about 10 minutes. Pain ceased after third treatment. The discharge lessened and the edges assumed a healthy condition, which soon extended to the center. Hypnotics were discontinued during the second week, the patient being able to secure natural rest and sleep. A very slight scar remains, and the enlarged glands have all disappeared. The last treatment was in November, 1902. I have watched him carefully since then, but there is no evidence of a return of the disease.

Cancer of Breast.—Mrs. M. J., aged 44. This lady was sent to me by her physician, who stated that she had a carcinoma of the left breast, which had been enlarging during the last three years. On May 23, 1900, the breast was operated on by a Philadelphia surgeon. Ten months following the operation the parts began to enlarge and become painful. There was general emaciation and concomitant cachexia. The glands of the left axilla were involved, being hardened and enlarged. A fetid discharge appeared at the seat of operation, the former line of union separating. I advised a second operation, but she refused. The only remedy left, I resorted to powerful hard tube röntgen raying. The plan of treatment adopted was 25 minutes, at a distance of 6 to 8 inches, 3 times a week, applied with a Queen regulating tube. A marked change and absence of pain was noticeable after the fourth application. At the termination of five weeks new tissues began to form, and an uninterrupted healing of the structures continued. The glands were rayed once a week only. Some few scars remain as an evidence of the destroyed skin. The patient has recuperated in flesh and strength, and in March, 1904, said: "I am perfectly healthy."

Leg Ulcers.—Patients with chronic leg ulcers have usually been medicated by physicians, druggists, friends, and charlatans with about equal results. All chronic leg ulcers, whether from varicose veins or traumatism, are indolent and so thoroughly perverted as to be classed as almost incurable.

With the röntgen ray we have a sure mode of physiologic stimulation and can promise a complete recovery. The tube must be a medium one, used about every fourth day, of 10 minutes' duration and about 14 inches from the ulcer. When the ulcerated surface begins to granulate, then a static brush discharge should be applied every other day, in addition to the raying. If there are varicose veins, the electrode must be applied over the veins from the ankle to the upper thigh. I have cured 15 patients by following this plan of treatment.

Mrs. R. T., aged 59, residing in West Philadelphia. The patient has had three children, each birth being followed by varicose veins of the legs. Ulcer appeared 12 years ago on the left inner calf of leg, which was treated by medicaments and mechanical measures of all kinds. In March, 1902, I first saw the patient, and found a large fetid ulcer 3¾ inches long and 2¼ inches wide. The edges were indurated and a thick tenacious fetid material covered the surface. The discoloration of the entire leg was blue and red. The veins were prominent. Painful itching was the sensation described. The foot and ankle were edematous, pitting on pressure and painful when pressed hard.

The röntgen ray was used every four days, with a 10-minute exposure. After the fourth treatment, new, clean granulations began to form; the pus became healthy, and the itching ceased. The static current was then added to the treatment, making an application every other day. Both plans of therapy were continued until June 15, when she was pronounced cured. I have seen her several times since, and the leg is well and free from varicose veins. The static current has since been applied to the other leg to remove the varicosed condition.

All the foregoing cases are taken from a class, each having alike certain salient symptoms and conditions. The results that have been obtained, are positive evidences that the röntgen ray will always be an important therapeutic agent. This branch of treatment is, then, a permanent one, and must appeal to the surgeon as one of his best adjuncts as a surgical synergist, apart from the diagnostic function of the röntgen rays.

THE RÖNTGEN RAYS IN THE TREATMENT OF TUBERCULOSIS.[1]

BY

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My attention was directed to the treatment of tuberculosis with röntgen rays in 1896, when on prolonged exposure in a fluoroscopic examination of the chest of a tuberculous patient, I was told that the pain usually disappeared with every examination, and the exposed surface of the skin showed not only marked erythema, but also graver degrees of irritation. This peculiar behavior of the skin brought me to my experimentation, and as early as 1898 I reported two cases of tuberculosis of the skin cured completely. I made inoculations and different experiments on mice, guineapigs, and rabbits to see how near the best rays could be brought into the direct contact with other tuberculous lesions, especially in the bones and tendons of the joints, and later on, of the chest and abdominal cavity, the glands of the neck, the larynx, testicles, etc. The results of my early work and research in this line were not the best, hence my anxiety to study the subject more thoroughly. Believing in hygiene, good nutrition, light and fresh air, with all other modifications according each individual case, and not in routine treatment, I have treated 20 patients with pulmonary tuberculosis at home, or as near to their places of residence as was possible, with the röntgen rays or the rays of light of penetrating qualities, which seem to destroy some bacteria differently in different media and attack the tissues of low vitality first, producing there certain electrochemic action, which in superficial lesions like lupus, results in a complete cure. Now, if we can get excellent results in superficial lesions of tuberculous character, why should we not after a thorough investigation get results in other lesions of the same origin, of the same character, and nearly the same behavior? And why not adopt the same method of treatment when the lesions seem to be the same? Out of the 20 cases mentioned and reported before, four patients recovered and are now useful members of society. In these cases I accepted the theory of cure with proper reserve, but grasped at the opportunity for investigation, because under the circumstances there seemed to be no better analgesic available that would produce as favorable results. In regard to the diagnosis, there was absolutely no doubt, and cures were perhaps symptomatic, but they were, and are still here. The patients feel well after a lapse of five years, during which time they have had the benefit of medical supervision, constant, painstaking, firm discipline in regard to proper living, with all the essential conditions to the proper treatment when necessary. However, to state that a permanent relief in these cases was due to the röntgen ray only, would be an error no less grave than that the application of eddyite principles might be fraught with beneficial results, relief of suffering, or prolongation of life.

We now know positively that incipient tuberculosis is curable, but the question is what to do with such cases? First the positive diagnosis must be made much earlier than has been done heretofore. All the modern means of recognition of tuberculosis in the incipient stages should be used, giving the röntgen rays opportunity to reveal the real condition right in the start, with all the details of the lesion otherwise not obtainable. In each individual case the extent of the disease should be compared with the normal parts, bearing in mind all the factors in the treatment of tuberculosis—fresh air and sunshine with remedies suitable for relief, as indicated, advising plenty of nourishing food, and using the röntgen rays to get the stimulating effect upon the circulation of the blood. This should be done without endangering your patient, and without producing more irritation than valuable stimulation, with the expectation that such an exposure to radiant energy should have a decided effect upon pathologic tissue. For pathologic tissue, as stated by Jones, is, as a rule, composed of cells whose molecules are even more complex in their atomic arrangement than cells of normal tissue. If, then, we should expose an area, composed partly of pathologic tissue, to the influence of an excited and special röntgen ray tube, bringing the best rays of the röntgen ray in direct contact, so to say, or as near as possible to the lesion proper, we may expect better results, just as in lupus the amount of radiant energy being increased with all the penetration possible to produce sufficient effect in chemic changes in the abnormal cells, which are of more complex structure and lower vitality, as stated before. It is very difficult to control and estimate the amount of radiant energy, or the sensitiveness of the cells exposed and to discover the proper dosage in each individual case, to give the patient a complete protection, therefore a suitable tube made specially for these patients will be, I hope, gladly accepted. Such a tube must have a prolongation from the middle of the röntgen ray field proper, made out of lead glass, except the end where the rays emanate, which must be flint glass to enable the rays to emerge at this point, which must be laid against the lesion. The remaining part of the tube is enclosed in a special shield, which protects the patient when exposed. To get an idea what may be done with a tube of this kind, we only need touch the prolongation when the tube is in action to feel the bombardment, and bring the rays to any place desired, the rays following the tissues of the finger in any direction, and if a patient with lupus on the nose is exposed, we simply attack the lesion directly and with much better results. On the other hand, when the differential diagnosis between incipient pulmonary tuberculosis, isolated foci of infection, tuberculous cavities, etc., is made by means of the röntgen rays, we simply follow the shadows of the diseased tissues, with the prolongation of our tube, and bring the lesion under the direct effect of the best rays, without endangering the patient, and without raying undesired areas. In this manner the diseased cells are attacked more readily, and they break down sooner under the direct electrochemic influence of the rays, better circulation of the blood follows to the lesion stimulated, the pathologic cells are killed, liquefied, thrown off, and are slowly absorbed into the circulation, or remain with formed adhesions. In other cases in which there seemed to be too much infiltration, infection, or larger areas, we began at the edges of the lesion proper, changing the position of the prolongation of our special tube accordingly, raying the whole chest generally but alternately with a large German tube of high vacuum; plenty of quinine sulfate being given internally for better absorption of the rays through the tissue.

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[1] Read before the American Röntgen Ray Society, September 9 to 13, St. Louis, Mo., U. S.

Since December, 1902, I have had under treatment by this method 20 selected cases of pulmonary tuberculosis. Of this number, 5 cases were hemorrhagic, and these showed an improvement in 10 weeks, and are still doing comparatively well. There were 10 fibroid cases, which gave 3 deaths after a lapse of 6 weeks; 2 patients died with complications in the bowels, 1 had tuberculous meningitis, and 4 cases are yielding slowly, but the patients are at work, and all their symptoms are improving. Three patients with mixed infection ceased taking the treatment for various reasons, but 2 patients continued and both improved, showing steady gains in weight. The röntgen rays were used in conjunction with the regularly accepted treatment, which relies also upon pure air, light, and nourishing food. The final results seemed to be better than in my experiments of 1896.

In 6 cases of acute abdominal tuberculosis of the peritoneum, the results were very promising; 1 patient died, but all the others recovered, and there has been no recurrence. In glandular tuberculosis, we had 19 failures, 8 patients were cured and 6 benefited; 4 patients are under treatment and are doing well. There is no doubt as to the favorable action of the röntgen ray in lupus vulgaris. We have 16 patients apparently cured, and only 3 failures, but in tuberculous laryngitis we have used the rays as a prophylactic measure only, and have only 1 case out of 8 which seemed to be benefited. In tuberculosis of the joints the results were simply marvelous; 8 patients with simple tuberculous synovitis were cured in 6 weeks, 4 chronic cases were benefited in 4 months. In 1 case of tuberculous dactylitis we had good results after a lapse of 6 weeks, some deformity remaining, and in 2 coxalgias the sinuses healed in 4 months with simple dressing. Two patients died, and 2 cases of 3 years' standing are negative thus far, 3 patients now under treatment are doing fairly well. In 2 cases of tuberculosis of the testicle, the results were very promising, but in 1 case recurrence occurred in 3 months. I had some other cases, but they cannot be reported because of faulty data and records.

In all tuberculous lesions of the bones, we never produced ankylosis with the view of betterment by complete rest, nor ever put the patient to bed, depriving him for a long time not only of the use of the member, but also of outdoor life, sunshine, and exercise, with proper nourishment. But we did give the röntgen ray treatment, the treatment of the light of penetrative qualities, the treatment which does not predispose to general debility, and hence to general tuberculosis. Our comparatively small results seem to justify this view, and our procedure.

Sanitation in Santiago.—News from Washington, under date of November 23, says: The State Department has directed the American charge at Havana to call the attention of the Cuban government to the sanitary conditions in Santiago and other places in Cuba and to express the hope that prompt and thorough relief will be forthcoming. It is stated that there is practically no drainage at Santiago, and that water is allowed to stand in the streets for days at a time.

Chloroform vs. Glycerin Method of Preparing Vaccine Lymph.—According to the Bulletin of Chicago's Health Department, the chloroform method was devised by Dr. Alan B. Green, of the English Government Lymph Laboratories, London, Eng., who, in a recent report, says: "Since April, 1903, the date of my preliminary note on this subject, the preparation of calf vaccine by the chloroform process has been carried on at these laboratories and a large number of vaccines have now been treated by this method. These lymphs have been freed from their nonspore-bearing extraneous bacteria within a period ranging between one and eight hours after their collection from the calf and have, subject to the usual tests, been issued for general vaccination purposes about two weeks after collection. Their use has resulted in high 'case' and 'insertion' success." On Saturday, November 26, Dr. J. F. Biehn, director of the Chicago department laboratory, made a final report to the commissioner, setting forth the unqualified success of the method. Emulsions of vaccine pulp exposed for four hours to chloroform vapors were found uniformly free from all foreign organisms except that (or those) causing vaccinia. Concerning the latest test, he reports that "this vaccine was used by the physician five days after it was removed from the calf. One day was required to prepare it, one day to ship to Chicago, two days to test it bacteriologically, and one day to send it to the clinician who made the clinical test." Ten days after its receipt the clinician reports (November 26): "The chloroformed vaccine submitted to me on the seventeenth has given 100% of successful primary vaccinations." The most important advantage of the chloroform process is the rapidity with which vaccine lymph may be purified. Purifying by the action of glycerin requires from 40 to 60 days; by chloroform, 4 hours.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

December 10, 1904. [Vol. XLIII, No. 24.]

1. The Choice and Use of Medical Ligature. Hugh T. Patrick.
2. Thoughts Suggested by the Study of the Eye Injuries of Independence Day. Robert L. Randolph.
3. Some Further Observations on the Use of the Stem Pessary for Scanty Menstruation, Dysmenorrhea, Infantile Uterus and Sterility. J. H. Carstens.
4. Membranous Endometritis. Florus F. Lawrence.
5. Adherent Uterus as a Complication of Labor, Citing Two Cases. John C. Applegate.
6. A Study of Eighteen Consecutive Cases of Whoopingcough Treated by the Elastic Abdominal Belt. Theron Wendell Kilmer.
7. The Nervous Symptoms Produced in Children by Uncorrected Refractive and Muscular Errors. J. Herbert Claiborne.
8. Congenital Occlusion of the Lacrimal Canal and Acute Contagious Inflammations of the Conjunctiva in Children. John E. Weeks.
9. Prophylaxis: Its Various Phases in Relation to Conservation of the Teeth. Charles F. Allan.
10. Changes in the Salivary Secretion Affected by Systemic Disease. Heinrich Stern and William J. Lederer.
11. Pneumonia: The Value of Internal Medication and Local External Applications. George Dock.
12. The Prevention and Treatment of Heart Failure in Pneumonia. Solomon Solis Cohen.
13. Serum Treatment of Pneumonia. J. M. Anders.
14. Latent and Ambulatory Plague. Maximilian Herzog and Charles B. Hare.

1.—See *American Medicine*, Vol. VIII, No. 20, p. 832.

2.—See *American Medicine*, Vol. VII, No. 24, p. 925.

3.—See *American Medicine*, Vol. VIII, No. 3, p. 95.

5.—See *American Medicine*, Vol. VIII, No. 3, p. 95.

6.—See *American Medicine*, Vol. VII, No. 24, p. 925.

7, 8.—See *American Medicine*, Vol. VII, No. 25, p. 971.

9.—Prophylaxis.—C. F. Allan states that our aim should be not the simple prevention of caries, but the full use of 32 teeth through the whole of a long life. The controlling factor is the condition of the oral secretions, though cleanliness greatly offsets what is unfavorable. A hypoacidity of the saliva is generally associated with destruction and hyperacidity, with immunity from decay. Normal, as opposed to malocclusion, is another necessary factor. You cannot remove one tooth without injuring all. The back teeth, without mesial support, move forward, the crowns tilting, thus destroying mutual support and perfect relation with the opposite jaw, reducing and interfering otherwise with the area of mastication. Certain teeth are put on unusual strain and loosened, and teeth irregularly placed are more difficult to keep clean. Porcelain fillings have a prophylactic value over gold, in that the vitreous surface is practically continuous with the enamel surface; it is thermally nonconductive, and there is an immense saving of time, pain and nervous strain. [H.M.]

10.—Changes in Saliva from Systemic Disease.—H. Stern and W. J. Lederer find the literature of this subject unsatisfactory. The conclusions of this paper are from investigations in diabetes mellitus, uricacidemia, and gastric disease. In 158 cases of diabetes the saliva was increased in 6, diminished in 89, normal in 63 cases. It was acid in 47, alkaline in 92, neutral in 8, and was not examined in 11 cases. Glucose was found in 85 and absent in 73 cases. The diastatic quality was unchanged in 90% of the cases. When glucose was present in considerable amount in the urine and absent in the saliva, the glycosuria was apparently nondiabetic. Salivary glucose, however, is not indicative of the severity of the diabetic condition. In some of the graver cases not any was found. In 28 cases of uricacidemia, 59 examinations, the reaction was alkaline in 52, acid in 5, neutral in 2 examinations. The diastatic quality in 18 examinations was normal 13 times, subnormal 3 times, decidedly so twice. Uric acid was demonstrated 21 times. In acute gastritis, the saliva was acid in 8, alkaline in 12 cases; in hyperchlorhydria, acid in 71, alkaline in 41, neutral in 5, and amphoteric in 65 cases. In hypochlorhydria the reaction was acid in 2, alkaline in 15, amphoteric in 6 cases. In pyloric stenosis it was acid in 5, alkaline in 8 cases. The quantity varied irregularly in all these conditions. [H.M.]

11, 12, 13.—See *American Medicine*, Vol. VIII, No. 3, p. 97.

14.—Latent and Ambulatory Plague.—M. Herzog and C. B. Hare quote the assertions of the governor of Hongkong as to the infection of various animals and the chronic affection of man which, if substantiated, would make it impossible to stamp out this disease. Diagnosis cannot be made by the microscope; cultural methods must be used. Even in fatal cases bacilli are not found early in the blood. The infection, as a rule, is localized in the lymphatics, therefore it is improbable that in a latent form the patient harbors the bacilli in his blood. The disease is endemic in Manila, though not so markedly so as in Hongkong. The blood was examined in 245 persons in a period during which 35 or 40 cases were reported, and in which a large proportion of these had been exposed. In not a single instance was the bacillus found. From this it may be safely concluded that dormant plague does not exist in either Manila or Hongkong. The failure to eradicate the disease in the latter city is due to the custom of throwing plague corpses in the street, the dishonesty of the rat-catchers, the unhygienic construction of the houses, and the sewage pollution of the ground. Ambulatory cases of plague do occur in which the disease is not latent, but the signs have escaped detection in the absence of urgent subjective symptoms. [H.M.]

Boston Medical and Surgical Journal.

December 8, 1904. [Vol. CLI, No. 23.]

1. Clinical Lecture on Urethral Stricture, Delivered at the Boston City Hospital to Fourth Year Harvard Medical Students. F. S. Watson.
2. Serum Diagnosis of Tuberculosis. Drs. Arloing and Courmont, I. The Historic Aspect of the Subject. II. The Technic for Investigating the Serum Reaction of Tuberculosis. Difficulties and Sources of Error. III. Results and Conclusions.
3. Remarks on the Jurisprudence of Civil Malpractice, Based Principally on the Decisions Rendered by the French Courts. Chas. Greene Cumston.
4. The Diagnosis of Incipient Pulmonary Tuberculosis. Jay Perkins.

1.—Urethral Stricture.—The article by F. S. Watson is a lecture delivered to senior students of medicine, and it has to do mainly with the treatment of organic stricture. In a comparison of methods, he says gradual dilation is the treatment most frequently employed, because: 1. The general practitioner feels competent to perform it. 2. Patients often refuse any other form of treatment. 3. The patient is not confined while the treatment is being carried out. It is useless for resilient and very dense strictures; it is unsafe in comparison with operations in those cases in which constitutional symptoms follow instrumentation. The author's conclusions are: 1. The meatus must be cut to a caliber 2 mm. larger than that of the normal urethra previous to properly carrying out any form of treatment. 2. Internal urethrotomy yields the most permanent results of any method, and for stricture of the anterior urethra, irrespective of character, is the operation of choice. 3. All resilient, intractable, nondilatable and impassable strictures of the bulbomembranous or membranous urethra are best treated by external perineal urethrotomy. 4. With the exception of these, all strictures so situated are best treated by gradual dilation, unless, during its course, constitutional disturbances of importance arise, in which case it is safer to divide them at once by external perineal urethrotomy. 5. Divulsion and electrolysis are methods not to be commended. [A.B.C.]

2.—Serum Diagnosis of Tuberculosis.—Arloing and Courmont, from their own experiments and confirmative observations made by others, conclude more confidently than ever that homogeneous glycerinated bouillon cultures of *B. tuberculosis* permit the investigation of the agglutinating power of fluids, especially the serum of tuberculous patients, thus establishing the serum diagnosis of tuberculosis. The advantages of the method are absolute harmlessness, its application in all cases, whether febrile or not; ease and rapidity, requiring only a few hours, with the patient not under observation; the delicacy of the reaction when lesions are discrete or latent and difficult to recognize by the usual methods. In slightly advanced pulmonary tuberculosis the agglutinating power is nearly always constant. In advanced cases the reaction is absent or slight. The reaction is generally in inverse ratio to the gravity of the infection and extent of the lesions. Tuberculosis may thus be diagnosed in the presence of other diseases, in persons apparently healthy and in suspected cases. A negative reaction has less value, since agglutination is sometimes absent in genuine cases. Absence of reaction in advanced cases may confirm an unfavorable prognosis, and in suspected cases it helps to eliminate this disease. [H.M.]

4.—Incipient Pulmonary Tuberculosis.—J. Perkins emphasizes the following points: Competent observers can by repeated examinations make a reasonably accurate diagnosis of incipient pulmonary tuberculosis without finding bacilli in the sputum or using the tuberculin test. When there are persistent symptoms of a mild toxemia as shown by malaise, chlorosis, indigestion or a daily rise of temperature, with or without cough, especially if with any loss of flesh or strength, in the absence of other manifest cause, tuberculosis should be suspected, and its presence or absence verified by tuberculin. Moist rales when localized make careful watching imperative, but are not pathognomonic unless persistent and accompanied by evidences of mild toxemia. In all suspicious cases many examinations of the sputum should be made; when bacilli are relatively too few to be demonstrated microscopically inoculation in a guineapig might show their presence. [H.M.]

Medical Record.

December 10, 1904. [Vol. 66, No. 24.]

1. Problems in Dietetics. W. GILMAN THOMPSON.
2. Rheumatism. GEORGE E. MALSBARY.
3. Treatment of Pneumonia in Adults. MORRIS MANGES.
4. A Question in Gallbladder Surgery: Cholecystotomy or Cholecystectomy? HARRIS F. BROWNLEE.
5. A Series of Foreign Bodies in the Vermiform Appendix Met with in 1,600 Necropsies. LOUIS J. MITCHELL.
6. A Case of Cryptorchidism. JOHN M. FRANCE.

1.—Problems in Dietetics.—W. Gilman Thompson reviews in detail the dietetics of the diseases in which regulation of the food is considered of special importance. The subject is one strangely neglected in comparison with other branches of treatment, and though there are differences of opinion as to details, there are fundamental principles which deserve greater attention than is usually bestowed upon them. Different conditions require different dietetic regimen, and individualization is essential to success. Undue prolongation of the milk diet in typhoid is to be deprecated, and it is the author's practice in ordinary cases to commence the feeding of semisolid food on the day the temperature first reaches the normal. There is much less danger of causing relapses by increasing the dietary than is generally supposed, and there are asthenic cases and those with long-continued temperatures which demand judicious additions to the diet. The proper guide is not the thermometric record alone, but rather the state of the digestion and the patient's general condition. Arthritis deformans is best treated by forced feeding, using largely fat foods and an abundance of meats. The problem in nephritis is a very complex one, and though in acute cases the conventional diet is demanded, in chronic types there is occasion for greater latitude. In these cases the danger of meat eating is considerably overrated, and there are some cases in which its use is positively demanded. Such cases are (1) those of very long standing, in which the chief symptom is a moderate albuminuria; (2) those in which anemia and loss of strength and weight are the prominent features; and (3) those in which some associated disease makes the use of animal food desirable. In diabetes the author has found the various gluten foods and nuts, substitutes for starch, unsatisfactory, and it is often best to allow the patient one or two very thin slices of well-toasted bread once or twice a day, or a small baked potato.

2.—Rheumatism.—G. E. Malsbary says that the term rheumatism is used to cover a multitude of diagnostic sins, and that each case should be carefully analyzed so as to determine its exact nature before attempting a line of treatment. At least five distinct affections are comprised under this appellation, viz.: 1. Acute articular rheumatism. 2. Chronic articular rheumatism. 3. Gonorrheal rheumatism. 4. Muscular rheumatism. 5. Nodular rheumatism (arthritis deformans). The author describes the symptomatology of each of these groups in detail and then discusses the proper plan of treatment for each variety. His advice is: 1. Determine whether the disease is a rheumatism or some simulating affection, such as gout, arthritis, trichinosis, syphilis, tuberculosis, rickets, osteomalacia, or diffuse sarcomatosis or carcinosis. 2. Classify the case among the recognized clinical forms of rheumatism. 3. If possible, find the cause or causes operative in the individual case in order that the treatment may be rational. 4. Watch the heart.

3.—Treatment of Pneumonia in Adults.—M. Manges' detailed discussion of the treatment is subdivided under the following heads: 1. To maintain life. The careful management of the stomach by a suitable diet to prevent distention and the consequent cardiac embarrassment is of the highest importance. It is wiser to give too little food than too much and to avoid all carbonated beverages. 2. To support the heart. The best drugs for this purpose are strychnin, caffein, alcohol, camphor, and ergot. If prompt results are not obtained all the drugs should be given hypodermically and in sufficient amount to exert their physiologic action. Views as to the value of large doses of digitalis are still divided. Adrenalin, the precordial icebag, cupping, and venesection are also useful measures. 3. To control hyperpyrexia. Large, flat icebags on the chest will be found useful, but care is necessary to avoid producing intercostal neuritis. Cold sponging and packs are of value, but must be used with caution, and cold baths are contraindicated. The rational use of coaltar antipyretics in small doses may contribute much to the patient's comfort. 4. To relieve suffering. The cough and pain are combated by the use of small doses of morphin hypodermically, or of heroin hydrochlorate. The Paquelin cautery is of great value for the pleuritic stitches. Oxygen is probably of less value than is generally supposed. Every effort should be made to secure as much sleep for the patient as possible. 5. To control complications. Pleurisy with effusion, empyema, pericarditis, endocarditis, etc., require the treatment ordinarily pursued.

4.—Cholecystotomy or Cholecystectomy?—H. F. Brownlee says the custom advocated by many surgeons of removing the gallbladder in all cases when lesions exist in the organ is supported by the claim that the operation *per se* is not dangerous, and that secondary operations involve more risk, while removal of the gallbladder provides greater surety against the reformation of stones and a greater degree of neatness and thoroughness of operation. The author is in accord with these views in dealing with cases in which the gallbladder is from any source atrophied or diseased beyond repair, but he believes that the viscus has a well-defined function which cannot with impunity be ignored and that it should not be sacrificed when repair is still possible. The gallbladder represents a safety valve for the liver, and in cases in which the bile ducts become secondarily obstructed after a cholecystectomy the liver is directly acted upon by the retrograde pressure, and the interval during which surgical intervention may still prove effectual is greatly shortened. Infection of the gallbladder a second time is an exception to the rule, as is also a second accumulation of stones.

5.—Foreign Bodies in the Vermiform Appendix Met with in 1,600 Necropsies.—L. J. Mitchell gives a list of true foreign bodies found in the appendix during his service as coroner's physician. One or more grape seeds were present in 8 cases, one or more shot in 3 cases, and fragments of bone in 2 cases. Other objects were a portion of a shingle nail, a globule of solder, a piece of nutshell, a portion of the vertebral column of a small fish, and fragments, apparently, of ash or stone. None of the appendices containing these bodies showed any signs of inflammation, either past or present.

6.—Cryptorchidism.—J. M. France describes the case of a man of 27, married, and the father of one child, who asked for relief for abdominal pain which for the past three months had incapacitated him completely. The testicles had never descended, and, on examination, the penis was found normal, but the scrotum was merely a rudimentary sac. The left inguinal canal was totally obliterated, and at a point an inch above where the internal ring should have been a round, sensitive nodular body could be felt. The diagnosis of malignant disease in an incarcerated testicle was made, and the abdomen opened by a median incision. The tumor was found to be of considerable size, filling the lower part of the pelvis and adherent to the mesentery, intestines, and bladder, the base resting on the right psoas muscle. The removal was difficult and consumed three hours. The neoplasm, which weighed 28 ounces, was found to be a large spindle-celled sarcoma. The patient made an uninterrupted recovery. The author suggests that when the absence of the testicles from the scrotum is discovered at birth, as a means of protection against malignant disease in after life, the organs be sought for by operation, and either placed in their proper position or removed.

New York Medical Journal.

December 3, 1904. [Vol. LXXX, No. 23.]

1. Cases of Epilepsy Cured without Drugs, with Explanatory Remarks Concerning the Modern Treatment of this Disease. AMBROSE L. RANNEY.
2. Some Observations upon the Nonoperative Treatment of Squint; The Worth Amblyoscope. WILLIAM CAMPBELL POSEY and H. MAXWELL LANGDON.
3. Early Intrauterine Death, with Undue Delay in the Occurrence of Abortion Thereafter (Missed Abortion). JAMES OLIVER.
4. Should Pulmonary Tuberculosis be Treated at Home? R. W. CRAIG.
5. Pregnancy and Successful Parturition in a Patient with Advanced Carcinoma of the Cervix. CHARLES A. L. REED.
6. An Accident with the Antrum Trocar. BEAMAN DOUGLASS.

1.—Epilepsy Cured without Drugs.—A. L. Ranney discusses this subject and reports a number of cases. He says that as epilepsy is not necessarily an organic disease there is always hope of a cure. A very large proportion of epileptics suffer from some type of reflex, viz.: Ocular, abdominal, genital, or other local sources of nervous irritation. Of these reflexes he believes the eyes are unquestionably the most frequent seat of trouble. No medication should ever be employed to control epileptic convulsions until every possible exciting cause has been intelligently sought for and scientifically combated. The refraction of all epileptic patients should first be carefully determined under the influence of a mydriatic. The writer usually employs homatropin to dilate the pupils and to relax the accommodation. If in doubt after this step he uses atropin. He has seen many instances in which total cessation of fits for weeks followed the use of atropin in the eyes. Furthermore the effect of paralyzing the accommodation is often of great aid in getting a patient to accept a strong hypermetropic glass for constant use. He says it is usually advisable to first correct fully the refraction of epileptic patients by properly prescribed glasses; and to have the patient wear them for a time, before positive conclusions are arrived at regarding any maladjustments of the eye muscles. A large proportion of epileptics unquestionably suffer from heterophoria. After the correction of errors of refraction by glasses for a time, the tests for maladjustments of the eye muscles should again be made. The percentage of cure of chronic epilepsy under skilful eye treatment will naturally be modified greatly by the abnormal eye conditions found, the physical condition of the patient, the amount of drugs that have been given to the patient, and the complications that may coexist with eyestrain. To colonize epileptics or to place sufferers of that type in private sanatoriums without any investigation of their eyes and eye muscles cannot be too strongly condemned. He thinks that the total percentage of epileptics who suffer from eyestrain as an important factor is very large; after first deducting from the total number the comparatively small number of cases that owe their epileptic seizures directly to some organic lesion of the brain or to a depression of the skull. Almost all chronic epileptics give a history of falls that have some time injured the head in some way. Few of them, however, have enough depression of the skull to make trephining imperative, and in every such case the injury must have preceded any epileptic seizures to make it probable that the fits were the direct result of the injury. The duration of eye treatment in epilepsy varies from three months to three years. Most of the work is done during the first six weeks; but long intervals of rest, between the successive operative steps that are commonly demanded, often extend the period of treatment over quite a long period whenever the convulsive seizures are not totally arrested. [C.A.O.].

3.—Early intrauterine death, with undue delay in the occurrence of abortion thereafter, is discussed by James Oliver. This disorder is one which may occur at any time during the child-bearing epoch of the woman. The patient is, as a rule, induced to seek advice more on account of the absence of all signs of activity than in consequence of the existence of any definite symptom. Lactation is at times accountable for this disorder, for it occasionally results when conception occurs while the activity of the mammary glands is being maintained. Such a case is reported in a woman of 26. The child had been nursed at the breast for two years. About a month after weaning, and when the mother presumably was five months pregnant, a hemorrhagic discharge made its appearance externally from the vagina, and continued for 14 days. A month later the mass was expelled from the vagina, the patient having during the immediately preceding 12 hours complained of labor-like pains and slight hemorrhage. The second case reported is that of a primipara of 29, in which the death of the embryo was due to hyperemia of the endometrium. Menstruation had been held in abeyance for seven months. The mass was expelled, and upon opening the sac an embryo of about seven weeks' development found. The third case was that of a primipara of 32, in which physical shock was the cause. When the patient was presumably seven months pregnant, the mass was expelled, in which an embryo of seven or eight weeks was found. A fourth case is reported in which hypertrophy of the chorionic villi is the cause assigned. While the product of conception is undergoing retrograde change in the uterus, pain may or may not be complained of, but more or less external hemorrhage is generally noted, and occasionally it is this alone which causes the patient to seek advice. The signs which aid chiefly in the diagnosis of this derangement are those elicited by careful bimanual examination. [C.A.O.]

4.—Pulmonary Tuberculosis.—R. W. Craig believes that many physicians make a great mistake in advocating the home treatment of pulmonary tuberculosis, especially in those who have the necessary means to secure proper climatic treatment and the other natural advantages that are most likely to result in the cure of their disease. The best results can be obtained in a warm, dry and equable climate. Three vital principles are advocated, viz., open air, day and night, in a suitable climate, good food, and as nearly as possible, absolute rest, physical and mental. The results obtained from this outdoor life, studied clinically, are summarized as follows: Loss of temperature, increase of appetite, improved nutrition, with consequent gain of weight, decrease of cough and the disappearance of night sweats, and also an absence of the "colds," which are the bane of the tuberculous individual's existence. [C.A.O.]

Medical News.

December 10, 1904. [Vol. 85, No. 24.]

1. The Immediate Repair of the Pelvic Floor and Perineum. EDWARD P. DAVIS.
2. Recent Advances in Surgery. CARL BECK.
3. The Influence of the First and Second Dentition Periods in the Etiology of Epilepsy. WILLIAM P. SPRATLING.
4. The Care of Fractures from the Standpoint of the General Practitioner. WM. S. NEWCOMET.
5. A New Method of Staining the Capsules of Bacteria: Preliminary Communication LEO BUERGER.
6. A New Case of Chloroma with Leukemia, with a Study of Cases Reported Since 1893. GEORGE DOCK and ALDRED SCOTT WARTHIN.
7. Intracerebral Injections of Antitetanic Serum in Traumatic Tetanus. S. D. HOPKINS.

1.—Immediate Repair of the Pelvic Floor and Perineum.—Edward P. Davis states that lacerations of the anterior segment of the pelvic floor occur in about the ratio of one to three to those of the posterior segment. Attention is usually called to this accident by hemorrhage. These lacerations, if small and devoid of infection, usually heal spontaneously; if extensive, the important fascia of the pelvis will be torn and prolapse and dislocation of the urethra and vaginal wall will result. Primary closure of such injuries by fine or medium-sized chromicized catgut under antiseptic precautions give good results. A sound or catheter passed into the urethra during repair will indicate the position of the urethra and injury to the same. Laceration of the posterior segment of the pelvic floor divides itself into tears of the pelvic floor and those of the perineum. The recognition of injuries to the pelvic floor requires special care in exposing the deeper tissues. Repair of the lacerated pelvic floor is of much greater importance than repair of the lacerated perineum. Lacerations of the posterior segment may be closed immediately or after some delay. If the tear be considerable and the condition of the patient bad, the operator may wisely delay such repair for 24 hours to 36 hours. [A.B.C.]

2.—Recent Advances in Surgery.—Carl Beck gives a review of recent procedures and discoveries which mark advance in surgery. König's method of treating congenital fistula of the neck is cited. König mobilizes the fistulous tract by dissecting to a point above the digastric muscle; the tube is then liberated, by the finger, to a point near the mucous membrane, just in front of the tonsil, where an incision is made from the oral side and a silk thread passed through the same is tied about the external end of the fistulous tract; the latter can now be pulled into the oral cavity, where it is fastened to the margins of the incision and the projecting part removed. The use of the bronchoscope in removing foreign bodies has proved valuable. Sauerbruch's air chamber, in which the patient whose thorax is to be opened is placed, and in which the operator and assistants work, while the head of the patient is outside the chamber, has proved remarkable in preventing collapse of the lung or lungs. Marked advance in the surgery of the biliary passages has been made, particularly by Kehr and Mayo. European surgeons are coming more and more to accept the views of American surgeons in reference to immediate operation so soon as appendicitis is diagnosed. Laparotomy for chronic symptoms produced by peritoneal bands and adhesions has become a recognized procedure. Subcutaneous feeding in disturbance of the gastrointestinal tract has proved efficacious in the hands of Friedrich. Chaput has performed laparotomies for removal of the appendix, hysterectomy, enterostomy, etc., under local anesthesia from cocain. In suppurative peritonitis, Küster places the patient in the abdominal position to favor drainage. V. Mosetig-Moorhof, after extensive experience, recommends filling bone cavities with iodoform. Only the newgrowth of osseous tissue will absorb iodoform, hence, this being slow, there is no danger to the patient. Perfection in the skiagraphy of renal calculi has almost been reached, and there appears a fair promise that the same may eventually be reached in reference to hepatic calculi. Distinct advance has been made in the therapeutic use of röntgen rays, but this and the use of radium are still on trial. [A.B.C.]

3.—First and Second Dentition Periods in the Etiology of Epilepsy.—W. P. Spratling believes we are never justified in looking upon the convulsions of early life as harmless manifestations. Contrary to the opinion of some he believes that difficult dentition in suitable subjects constitutes a sufficient irritant to cause convulsions. These may ultimately lead to epilepsy. By suitable subjects he means those inheriting a neuropathic tendency, whose parents had epilepsy or insanity, or who were alcoholic or suffered from some other vice diminishing tissue resistance. He does not believe that difficult dentition alone without ancestral taint and with freedom at birth from a tendency to nervous disease can cause epilepsy. Caution must be exercised to place the cause where it belongs, as gastrointestinal disorders, the sequels of the eruptive fevers, etc., may produce similar results. [H.M.]

4.—Care of Fractures from the Standpoint of the General Practitioner.—Newcomet holds that the advent of the radiograph has enabled us to recognize many of the errors which we formerly made, and are even now making, in the diagnosis and treatment of fractures. Many cases which were formerly diagnosed and treated as sprains are now plainly proved to be fractures, and the treatment is regulated accordingly. To no class of physicians is this of more importance than the general practitioner, because he is in most instances, called first to treat such patients, and being, on the whole, less familiar with fracture conditions than is the expert, he may be led into error, unless availing himself of the advantages of the skiagraph. In conclusion, it might be stated that too much care cannot be given to fracture cases, and when doubt exists as to the nature of the injury, it is best to clear up the mystery immediately, and not wait until the bones become united and leave a deformity that lasts the remainder of the patient's life. It is not always possible to obtain results that are most desired, but these unfortunate instances would not be so common if in all cases the proper precautions were taken. [A.B.C.]

5.—A New Method for Staining the Capsules of Bacteria.—L. Buerger states that by his method capsules can be recognized not only in exudates but also in certain mediums, the staining being so characteristic that diagnosis is easy. He gives the technic in detail. The method depends on rapid fixation of the bacteria while still alive and when spread in a medium which prevents dissolution of the capsules. Thin spreads can be made by emulsifying the culture in a drop of serum on a separate slide. A good preparation can be finished in about a minute. [H.M.]

6.—A New Case of Chloroma with Leukemia.—G. Dock and A. S. Warthin conclude as the result of their studies that chloroma is a tumor-like hyperplasia of the parent cells of the leukocytes, primary in the red marrow, the periosteum being involved only secondarily. As a result, atypic leukocytes or those corresponding to one of the normal types may appear in the blood in varying numbers. Chloroma is a leukemia. In some cases the cells are of the large lymphocyte type, in others resemble neutrophile or eosinophile myelocytes. The blood picture is varied and possibly we may designate different varieties. It is possible in some stages that new forms do not get into the blood. An aleukemic form is therefore possible. Chloroma differs from other leukemias in its more marked neoplastic character and the formation of green infiltrations and metastases. It is probably a more malignant leukemia. The white cells multiply in the blood streams and tissue spaces, the masses resembling metastatic tumors. The hyperplasia leads to crowding out of the erythroblastic elements and therefore to severe anemia, one of deficient hematopoiesis, not of excessive hemolysis. The malignancy depends chiefly in replacement of the red marrow and diminished red cell formation. The large numbers of degenerating white cells present throughout the body possibly give rise to an intoxication. The cause of the green color is unknown. The ultimate etiology of the question is unsettled. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

The Red Light Treatment of Smallpox.—This is a short article, and the last written for publication by the late Niels R. Finsen,[1] of Copenhagen. It is in defense of the red light treatment of smallpox and was written but a short time before his death, and at his request is now published. He states it is well known that the red light treatment of smallpox is based on the fact that the smallpox infection renders the skin very sensitive to light. The phenomenon is not unique. The same thing is observed in the buckwheat disease in cattle. In smallpox the infection produces a more or less strong exanthema over the body. If now the patient, during the period of the appearance and the growth of the exanthema, is protected against daylight, especially against the chemic rays by means of a red light, the exanthema will be less strong than otherwise, and as a rule no suppuration will occur. If, on the contrary, the patient is allowed to remain in bright daylight, suppuration will often occur. It is impossible, of course, to give an absolute rule, as there are many degrees of smallpox exanthemas. In many cases no suppuration occurs, although light is not shut out. It will thus be seen that the shutting out of the light acts differently in different cases. Experience, however, shows that if a patient is placed in red light, or in darkness, immediately after the first appearance of the exanthema, no suppuration will, as a rule, occur even in unvaccinated cases. Experience further shows that even a relatively short exposure to light, especially if the exanthema is fully developed, suffices for the production of suppuration. The following two conditions are indispensable to good results from red light treatment: (1) An early treatment of the patient, and (2) entire exclusion of hurtful rays of light. It has previously been stated by Finsen, and still maintained, that when the patient comes under treatment early enough, before the fourth or fifth day of the disease, suppuration of the vesicles will be avoided. If later than this, it is uncertain whether suppuration can be avoided. Finsen's strong plea is that those who have made adverse reports concerning the red light treatment have neglected to apply the treatment in the early stages of the disease. [A.B.C.]

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[1] The Lancet, November 5, 1904.

Triferrol in Anemia.—Josef Reichelt[1] employed triferrol in 20 cases of anemia of different character, namely, chlorosis, anemia from gastric ulcer, tuberculosis, and scrofulosis. Most of the patients were adults. The best results were in the cases of chlorosis, while in all the other cases, with one exception, the drug was well borne, and in no case was the taste objectionable. The dose for an adult is 1 to 2 teaspoonfuls 3 times a day; in children, a coffeespoonful 2 to 4 times a day. [J.H.W.R.]

Further Note on the Red Light Treatment of Smallpox.—In a short article Finsen,[2] before his death, criticised the paper of T. F. Ricketts and J. B. Byles, in which they reported the treatment of 13 cases of smallpox by the red light method, and the method was condemned as valueless. The gist of Finsen's criticism was that Ricketts and Byles deferred the red light treatment until it was too late to prevent pustulation in the cases reported. Ricketts and Byles[3] now enter a rejoinder, and state that in Finsen's criticism he has labored under a misapprehension. The theory upon which the red light treatment is based is that it prevents pustulation, and hence the formation of pitting or scars. In choosing their test cases for treatment Ricketts and Byles did not select those which were near the suppurative stage, on the contrary, they selected only those patients whose rash was in a quite early stage; in no less than 7 of the 13 the eruption was papular only, and in 4 the papules were only beginning to appear. The remainder of the patients showed more or less vesiculation; but in no one was vesiculation advanced. If red light cannot be beneficially used for all such cases as these, it ceases to be useful for fully 50% of patients admitted to a hospital for smallpox, because a majority of cases admitted have the rash further advanced than it was in the test cases used. To sum up, the result of treatment in the test cases failed to substantiate any one of the claims made for red light treatment of smallpox. The authors still hold that the red light treatment is valueless. [A.B.C.]

Congenital Icterus, with Chronic Splenic Tumor.—H. von Krannhals[4] has observed three cases of this condition in one family, and has obtained information that leads him to suspect its presence in several other members, running through four or five generations. The condition is characterized by a jaundice, present from birth, of varying intensity, accompanied by an enlarged spleen. The liver is of normal size, and the bowel movements are of normal frequency, color, and consistency. The jaundice is sometimes increased by a meat diet, by alcohol, or by psychic excitement. The urine is normal, never contains bile pigments, but almost always holds urobilin. The blood-serum is always bile-stained, and the number of red corpuscles diminished. The size of the latter shows considerable variation, but the cells are never nucleated. The symptoms are evidently due to an excess of bile production, and not to any obstruction of the biliary channels. These cases are evidently closely allied to a series of cases of hereditary icterus, with and without splenic tumor, described by various French observers. The pathogenesis of this condition is still unknown. [B.K.]

Concerning Attempts to Immunize against Tuberculosis.—P. Baumgarten[5] has for 20 years attempted to immunize rabbits with inoculations of human tubercle bacilli against bovine tuberculosis, but without success. The inoculated animals succumbed to infection with bovine tuberculosis as readily as those which had not received injections of the bacilli of human tuberculosis. The author next tried to immunize cattle in the same manner, and with great success. He found that cows could be immunized with the bacillus of human tuberculosis against doses of bovine tubercle bacilli large enough to kill the control animals. Only one subcutaneous injection was necessary to obtain this immunity. The lesion resulting at the seat of injection was not tuberculous in nature, but an inflammation which may follow the presence of any foreign body, such as dead tubercle bacilli. Baumgarten believes that the immunity is produced by a stimulation of the antibody producing organs, and that when another dose of bacilli is introduced, enough antibodies are manufactured to destroy them. Depending on this theory, the author tried to secure a serum from cattle which would protect guineapigs and rabbits against bovine tuberculosis, but without success. The writer states that even though it is impossible to secure protective serum against tuberculosis, yet he hopes to immunize against human tuberculosis by injecting the bacillus of bovine tuberculosis. This, however, is not practicable until the nonidentity of human and bovine tuberculosis has been positively determined. [W.E.R.]

Physiologic Action of Ethyl Alcohol Considered as a Food.—W. H. Goddard[1] carried out an extensive series of experiments on dogs, to determine the food value of alcohol. The series was carried out with three groups of animals, these separated according to the amount of alcohol used. He observed from these experiments that when alcohol to the amount of $\frac{1}{750}$ part of the body-weight of the animal was administered, a little more than 5% of that amount was excreted; and since no aldehyd or other alcohol derivatives were found in the expired air, in the urine, in the blood, or in any part of the animal after death, he concludes that the remainder—nearly 95%—was made use of as food. When double the quantity of alcohol used above was employed, he found that a little more than 6% was excreted, and here for the first time acetic aldehyd made its appearance in the expired air. When very large doses of alcohol were employed, about 50% of the alcohol, or its equivalent, was excreted. Thus it was observed that about half the alcohol so administered was not utilized in the body in any way. The compounds formed from the alcohol were aldehyd, alkaline acetates, alkaline carbonates, and probably carbon dioxid, and water. Other carbon compounds probably existed. This series of experiments thus indicates that alcohol in small doses is undoubtedly a food; but in large doses 50% is excreted, and it is not a food in the proper sense of that term, and in still larger doses it is probable, says the author, that a still higher percentage is excreted. [A.B.C.]

A Means of Heat Regulation in Early Infancy.—V. Thévenet and E. Moreau[2] propose to apply a spiral tube around the abdomen of the infant, and regulate the bodily temperature by the circulation of water through the tube. Febrile temperatures may thus be reduced by cold water, and subnormal temperatures raised by warm water. The authors believe to have favorably influenced the course of acute gastroenteritis in infants, by the application of continuous, moderate cold by this means. Heat may thus be conveniently applied in cases of premature birth. [B.K.]

GENERAL SURGERY

Martin B. Tinker
A. B. Craig C. A. Orr

REVIEW OF LITERATURE

Clinical Observations on the Anesthetic Effects of Methyl Oxid, Ethyl Chlorid, and the Socalled "Somnoform."—After extensive clinical experience and experimentation, Frederic W. Hewitt,[3] anesthetist of St. George's Hospital, London, comes to the following conclusions: 1. When *methyl oxid* is largely diluted with air the mixture, which is not unpleasant to inhale, does not produce a satisfactory form of anesthesia. Mixtures sufficiently concentrated to produce satisfactory anesthesia are too pungent to be pleasant. As compared to the anesthesia obtainable by customary means, that produced by methyl oxid is of a light type, and is not uncommonly followed by nausea and distress. In the few cases in which the methyl oxid was used there were no indications whatever of danger. 2. *Ethyl chlorid* is a useful anesthetic for certain cases. It is a fairly good substitute for nitrous oxid when this gas cannot be obtained. It is somewhat uncertain in its action, sometimes answering every possible requirement, at other times almost failing to produce anesthesia. Its chief drawback lies in the frequency with which it produces unpleasant after-effects —headache, nausea, vomiting, and an indescribable feeling of depression. As a routine anesthetic for short dental operations ethyl chlorid is distinctly inferior to nitrous oxid and oxygen, although it produces a longer anesthesia. In small children who are about to undergo some brief dental or throat operation, and in those adults who are bad subjects for nitrous oxid or nitrous oxid and oxygen, ethyl chlorid will generally answer well. The best results are obtainable by means of the apparatus which allows of a gradual addition of ethyl chlorid vapor to a known volume of air breathed backward and forward. 3. *Mixtures of nitrous oxid and ethyl chlorid.* By adding ethyl chlorid to nitrous oxid a very deep form of anesthesia is induced with extraordinary rapidity, the method having the advantage of destroying consciousness more pleasantly than with ethyl chlorid alone. 4. *The socalled somnoform* does not produce such good results as pure ethyl chlorid, and is distinctly more dangerous. The effects produced by the two agents are, however, very similar. [A.B.C.]

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[1] Wiener klinisch-therapeutische Woch., 1904, No. 44, p. 1151.
[2] The Lancet, November 5, 1904.
[3] The Lancet, November 26, 1904.
[4] Deut. Archiv. f. klin. Med., Bd. lxxxi, p. 596.
[5] Berliner klinische Wochenschrift, October 24, 1904.

[1] The Lancet, October 22, 1904.
[2] Lyon Médicale, November 20, 1904.
[3] The Lancet, November 19 and 26, 1904.

Treatment of Lupus Vulgaris.—Malcolm Morris,[1] consultant to St. Mary's Hospital, London, has treated more than 1,000 cases of lupus vulgaris by different methods. In his results exact statistics are not attempted, because in most cases treatment has been of a mixed character, and the results could not be ascribed to any one method. His conclusions are: 1. It must be confessed that after every kind of treatment, whether used alone or in combination with others, recurrence is still very common. 2. As a general statement, it may be said that small, superficial, quiescent patches are curable. 3. When the disease is of moderate extent and situated on the face, Finsen's method, either alone or combined with the röntgen rays, and supplemented by the use of caustics, is the most efficient method in regard to cosmetic effect, and probably also in regard to permanency of result. The treatment, however, requires much time and entails considerable expense. 4. If rapid effect is desired, reliance must still be placed on gentle cautery if the disease is on the face, and excision if it is on the limbs or on the trunk, supplemented in the former case by pyrogallol, salicylic acid, silver nitrate, or other caustics. 5. Very extensive and severe cases in which the health is affected must be dealt with by general measures (open-air treatment, feeding, exercise, etc.) used at the present day in the treatment of pulmonary tuberculosis. Morris holds that in this day the curable cases are more easily and quickly cured than by the older methods, but that the incurable cases still remain incurable, in spite of new methods. [A.B.C.]

Operative Treatment for Cicatricial Ankylosis of the Lower Jaw.—Manasse,[2] in giving the technic as carried out upon a case of a man who while a boy suffered an attack of erysipelas, and in whom a large scar remained as a result of the treatment. The upper and lower teeth separated only a distance of 3 mm. He made an incision anteroposteriorly from the angle of the mouth to just beyond the anterior border of the masseter muscle, after which the jaw could be separated to some distance. Because of the contraction of the new-formed tissue, the space between the alveolar process and the cheek was obliterated. On the left side he dissected a flap from the neck and drew it up and implanted it so that the epithelial surface lined the buccal cavity. He sewed the upper margin of the wound of the cheek to the mucous membrane of the hard palate, and the lower margin of the wound to the gums, and then inserted a flap from the tissues of the neck, as was done on the left side. The nourishing bridge of a flap such as the one mentioned is not cut until about four weeks later. The wound produced on each side of the neck was closed by means of the button-hole suture, after the nourishing bridge was cut. Manasse saw his patient a year and a quarter after the completion of the operation, when the patient was able to separate his teeth 4 cm. He was able to masticate his food as well as a normal individual. [J.F.]

Suture of Wound of the Heart.—Edgar Somerville[3] reports that on July 26, 1904, a man attempted suicide by thrusting the blade of his penknife between the fifth and sixth ribs aiming at the heart. The blade was two and a half inches long and it entered the full length; he allowed it to remain in position for a half minute then withdrew it, and reinserted directly above the first wound between the fourth and fifth ribs over the region of the heart. Not being satisfied with this he rotated the blade twice. A bystander called for assistance and the patient was hurried to the hospital, being seen, however, by Somerville five minutes after the wound was inflicted. He was in a state of collapse, there was free bleeding and the heart's action was feeble. Operation was commenced 50 minutes after the wound was received. Under ether anesthesia the pericardium was exposed and found wounded by the stab through the fourth interspace, the pericardial sac was full of blood and a wound was found in the left ventricle of the heart three-eighths of an inch in length, with its long axis in the long axis of the ventricle. The aperture had been plugged with lacerated myocardium which resulted from rotating the knife; blood was expelled at each beat of the heart. The lacerated cardiac muscle was removed and hemorrhage became more profuse, but was arrested by the introduction of the tip of a finger into the wound, this also steadied the heart's action, and with curved intestinal needle three interrupted silk sutures were passed deep into the myocardium, but short of the endocardial lining; these being tied, the hemorrhage was controlled. The wound in the fifth interspace was next enlarged and it was found that both the pleura and pericardium had been opened producing pneumothorax and pneumohemopericardia, but the heart had not been injured. The pericardium and pleura were cleansed, drainage was introduced, and the wound closed; the operation lasting three-quarters of an hour. The patient's condition was bad, but he rallied and made an uneventful recovery after having been in bed a month. [A.B.C.]

Craniocerebral Topography.—Richard A. Berry and Hubert D. Shepherd[1] compare the methods of (1) Hare and Thane, (2) Chiene, and (3) Reed with reference to their methods of establishing craniocerebral topography. Their conclusions are about as follows: The method which they tentatively recommend is based largely on that of Hare and Thane and is as follows: The superior rolandic point lies, in the majority of instances, 1 cm. (½ in.) behind the midpoint of a line drawn from the frontonasal suture to the external occipital protuberance; the fissure of Rolando—the line may be determined with sufficient accuracy by drawing a line downward and forward from the superior rolandic point at an angle of 67.5° with the mesial plane; this angle may be determined by Hare's method of folding a sheet of paper. In view of Sherrington's physiologic researches, the surgeon wishing to trephine on the rolandic motor area should do so in front of the line. The sylvian point may be determined by drawing a line horizontally backward from the frontomalar suture for a distance of 35 mm. (1⅜ in.), and from the end of this a vertical line upward 12 mm. (½ in.) and the upper end of this line corresponds to the sylvian point. The fissure of Sylvius may be determined by drawing a line from the frontonasal suture backward from the sylvian point to the parietal eminence. The parallel fissure may be determined by drawing a line from the tubercle on the malar bone to the lambda, and perhaps even more accurately by taking the middle third of a line drawn from the frontonasal suture to the lambda. The parietooccipital suture; the external limb of this fissure corresponds sufficiently accurately to the lambda. [A.B.C.]

Retropharyngeal Blood Cyst in Purpura Hæmorrhagica.—P. Stanley Blaker[2] reports that a female child of eight months, previously in good health, was brought to the hospital after having been ill six days. There had been epistaxis. A rash had appeared on the body and there was dysphagia. On admission, there were hemorrhagic spots over the body, especially about the knees; there was a large quantity of mucus in the mouth which obscured the pharynx, but a digital examination revealed a distinct tense elastic swelling half the size of a walnut, situated on the posterior pharyngeal wall. The examination was followed by bleeding at the nose. Diphtheria was suspected, but a cover-slip from the nasal discharge, stained, revealed no diphtheric organism. Acute retropharyngeal abscess was diagnosed, and as there was marked dyspnea, the tumor in the pharynx was incised without an anesthetic; dark clear blood escaped freely from the mouth, but there was no pus; hemorrhage continued until the patient died, five hours after. Various means were attempted to control it. Necropsy showed the supposed abscess in the posterior pharyngeal wall to have been a blood cyst the size of a large cherry. There were various petechias throughout the body and in the intestinal canal. The case might have been mistaken for suprarenal apoplexy, but in this case the suprarenals were found normal. [A.B.C.]

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[1] The Lancet, October 22, 1904.
[2] Deutsche med. Woch., 1904, Bd. xxx, No. 41.
[3] The Lancet, November 5, 1904.

[1] British Medical Journal, November 19, 1904.
[2] The Lancet, October 1, 1904.

Carcinoma of the Appendix.—Charles J. Cullingworth and Edred M. Connor[1] report the case. The patient was a woman of 31, who had for some time suffered from uterine trouble; six months ago she had been operated upon for hemorrhoids; two months later she had an attack of pain in the right side which lasted two hours; two weeks later there was a similar attack, less severe. Pain was low down in the right iliac fossa. Upon vaginal examination there was felt a hard mass to the right of the uterus, depressing the vaginal fornix. This was thought to be a solid tumor of the ovary or a subperitoneal fibroid burrowing into the broad ligament. The mass was the size of a pigeon's egg. Laparotomy showed the tumor to be a small fibroma of the right broad ligament. This was enucleated and the appendix examined. It was normal, except at the extreme tip it was thickened and bulbous, and it was therefore removed. Sections were cut and examined by an expert pathologist, who reported that the tumor was spheroidal-celled carcinoma. The wound healed by first intention, and the patient made a good recovery. After two years there has been no recurrence, and the patient is in good health. The authors state that it has been claimed that one out of 251 cases of carcinoma of the bowel is a carcinoma of the appendix. A recent monograph by Battle and Corner state that 40 cases have been collected, over half of which have been recorded in the last five years. This would seem to indicate that the disease is more common than usually supposed. [A.B.C.]

Nonfatal Rupture of an Aortic Aneurysm.—Charles H. Melland,[2] physician to Ancoats Hospital, Manchester, states that a small number of cases have been recorded in which life has been maintained for several weeks, months, or even years after aneurysmal rupture has occurred. These cases have been those with distinct rupture of the sac, with extensive hemorrhage into the esophagus, air passages, or other cavities, such as the pleura or pericardium. Ferry has reported a case and given a review of eight additional cases. A number of cases are recorded in which patients lived a few hours or perhaps a day or two after rupture of an aneurysm into the lungs, pleural cavity or pericardial sac, but these cases fall in a different category from those which are here spoken of. Several cases not mentioned by Ferry are mentioned by Gairdner in his "Clinical Medicine." A case reported by Melland was that of a laborer, aged 56, who, while at work, felt a tearing sensation in the chest, and a large amount of blood came from the mouth. He was brought into the hospital in a state of collapse, blanched and almost pulseless, hemorrhage had ceased, and saline infusion was introduced into the median basilic vein. The patient rapidly rallied, and his condition improved for three weeks when a severe hemorrhage recurred from which the patient soon died. A necropsy showed a sacculated aneurysm the size of a hen's egg, which took origin from the convexity of the arch of the aorta immediately behind the left carotid. The sac was almost filled with a form of laminated clot. [A.B.C.]

Lithotrity in Egypt for Large Stones.—Frank Milton,[3] professor of clinical surgery in the Government School of Medicine in Cairo, says it is not clear to all surgeons that lithotrity is the best form of operation in stones of large size, that is, of 50 gm. (1⅔ oz.) weight and over. In the discussion here, lithotrity has reference to that done through the urethra. The statistics he gives concern the practice of himself and H. M. N. Milton. They comprise 150 cases of stone of 50 gm. (1⅔ oz.) and over; all the patients were over 15 years of age, with the exception of 9; 6 were between 12 and 14. The largest of all the stones weighed 995 gm. (33 oz.), and for this laparotomy was successfully done, but it is not included in the lithotrity list. The largest stone treated by lithotrity weighed 452 gm. (15 oz.); by suprapubic lithotomy, 592 gm. (20 oz.); by perineal lithotrity, 386 gm. (13 oz.), and by lateral lithotomy, 90 gm. (3 oz.). The total results obtained were as follows: Lithotrity cases, 84, deaths 5, mortality 5.9%; perineal lithotrity cases 47, deaths 7, mortality 14.9%; suprapubic lithotomy cases 22, deaths 8, mortality 36.3%; left lateral lithotomy cases 6, mortality, nil. The comparative mortality of the two forms of operation, even including the lateral lithotomies, which were done for small stones, the largest weighed 190 gm. (6 oz.); was for lithotrity 5.9%, and for the cutting operation 18.9%, showing a mortality in favor of the crushing without a wound, of 13%. [A.B.C.]

Treatment of Pyopneumothorax.—Samuel West[1] discusses at some length the treatment of this condition and the causes leading to it. He lays down the following rules: 1. In the early stage of pneumothorax, when suffocation threatens, the air should be removed and the pressure relieved by paracentesis, repeated, if necessary; if this be not sufficient, it is justifiable even to lay the side fully open rather than to lose the patient. 2. In the later stage of pneumothorax, when effusion forms, its nature should at once be ascertained. 3. If the effusion be serous the case should be treated on the general lines for serous effusion. 4. If it be purulent, evacuation at once by free incision should be carried out. A piece of rib should not be excised, unless it be absolutely necessary. If it be necessary, no more should be removed than is required to secure free drainage. 5. An aspirator should never be used in pneumothorax under any circumstances; it is unnecessary and dangerous. [A.B.C.]

Development of and Morphology of the Tail.—A. H. Young and A. Robinson[2] discuss at length the development of and morphology of the tail, give numerous illustrations, and conclude as follows: 1. The tail is not merely a backward prolongation of the body, consisting of the same dorsal and vertebral parts. 2. The tail is produced by the energy of a growing point which takes part in the formation of the body, and after that is completed it extends its remaining energy in the formation of the tail. 3. The segments of the tail are not equivalent to the segments of the body for their nervous portions are rudimentary or absent, and they are devoid at all periods of a celomic space. 4. The posterior segments of the tail develop neither spinal nor sympathetic ganglions, nor nerves, and their neuromeres never attain complete development. 5. Many of the muscles of the tail are not supplied by the neuromeres and ganglions of their segments but by the nerves of more anteriorly placed segments. 6. The bloodvessels of the tail are not prolongations of the primitive bloodvessels of the embryo, but of its segmental somotic branches. 7. The tail is in the widest sense an appendage to the body and its nerves and vascular supply are dependent upon the nerves and vessels of the body which have been prolonged into it. [A.B.C.]

TREATMENT

Solomon Solis Cohen
L. F. Appleman E. Lindauer

REVIEW OF LITERATURE

The Treatment of Constipation by the Injection of Olive Oil.—George Hneschell[3] states that the treatment of constipation by this method has been much neglected. In most obstinate cases of constipation, especially when due to spasmodic contraction of the bowel, we find the methodic use of oil injection an exceedingly useful procedure, especially in cases of mucomembranous colitis. Not only is the constipation relieved, but the amount of mucus is reduced remarkably. This treatment will probably not do good in cases dependable upon improper food or the drinking of hard water, or the result of pyloric stenosis, or gastric myasthenia, but invariably good results are obtained in cases depending upon chronic colitis, and in constipation associated with spasm of the bowel, such as we frequently find in neurasthenia and in constipation due to atony of the intestines. The author holds that the failure to secure good results with this treatment has been largely due to the improper use of the drug. He describes and illustrates an apparatus devised and used by himself, which sets forth the proper employment of the oil. The apparatus consists of a funnel-shaped glass receptacle with a rubber tube attached thereto, as to a glass funnel. In the other end of the rubber tube is inserted the hard rubber rectal piece, the funnel-shaped receptacle is suspended to a hook, and the contained oil is allowed to pass into the rectum through the rubber tube. The tube should be of large caliber. The outflow of the oil is controlled by a spring clip. By this method no assistance, except that which the patient renders himself, is necessary. [A.B.C.]

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[1] British Medical Journal, November 19, 1904.
[2] The Lancet, November 19, 1904.
[3] The Lancet, October 1, 1904.

[1] The Lancet, October 22, 1904.
[2] British Medical Journal, November 19, 1904.
[3] The Lancet, October 1, 1904.

Pyramidon for Rheumatism.—Ducarre[1] advocates the drug. Its action is similar to that of a combination of antipyrin and the salicylates, but it is more efficacious in acute articular rheumatism, relieving the pains quickly. In pseudorheumatic blenorrhagia, it is also indicated. Rheumatic temperature may safely be lowered by the administration of moderate divided doses of the drug. [T.H.E.]

Intravenous Use of Salicylic Acid.—F. Mendel[2] makes the statement that with proper technic and carefully chosen drugs the intravenous route of application is no more dangerous than others, and is much more effective. He experimented with solutions of salicylates, the hypodermic use of which he stopped because of the great pain given. Of a solution containing 8.0 gm. (2 dr.) of sodium salicylate, 2.0 gm. (30 gr.) of caffein-sodium salicylate, and 40.0 gm. (10 dr.) of water, he injected from 1.5 cc. to 2 cc. every 12 hours for 8 days, with remarkable results, no matter what rheumatic disease was being treated. In all, intravenous injections were given in more than 150 different cases of rheumatic disease. The pains and effusions disappeared almost at once, in some instances a single injection being sufficient to produce a cure. The most gratifying results were obtained in patients upon whom salicylates applied internally and externally had had no effect. He was able to cure several cases of arthritis deformans with this method. Febrile states were not so amenable as others. He says of the intravenous method, that it is the surest and quickest way to remove all rheumatic pain, that it is useful in instances where other methods have failed, and that it is free of all unpleasant after-results, such as sweats, vomiting, tinnitus, kidney and heart irritation. He considers the action of salicylates to be an antitoxic one, as only that explains the favorable action of such small doses of the drug. [E.L.]

Treatment of Enteric Fever.—F. Foord Caiger,[3] in the Bradshaw lecture, in an extensive paper dealing with many phases of the treatment of enteric fever, particularly the cold bath method, the socalled antiseptic method, indications for surgical interference, etc., gives the results of his observations in the internal administration of oil of cinnamon, in 147 cases. Nothing phenomenal is claimed for the drug, but it is believed to exert a beneficial influence. Of the 147 patients, 14 died, a mortality of 9.5%. His conclusions are: 1. The temperature in the majority of cases indicated a mean throughout the course of 101°. This effect was more pronounced in cases brought under treatment at a comparatively early stage of the disease. 2. The patients remained for the most part drowsy throughout their illness, as a result of which mental rest was secured and delirium was less frequent. 3. Intraintestinal decomposition, as evidenced by abdominal distention and fetor of the stools, was controlled to an extent which was striking. The antiseptic action was so pronounced that with the exception of several patients in whom the condition was present at the time of admission to hospital, no single instance of meteorism occurred among the 147 cases which were treated with the oil of cinnamon. [A.B.C.]

Failure of Urotropin in Scarlatina.—Bela Schick[4] believes that in his cases urotropin was of no value in preventing kidney complications, and possessed no therapeutic effect upon the course of the nephritis developing during scarlatina. In 38 cases in which urotropin was given, there developed nephritis in 5 cases (13%), while in 72 cases in which no urotropin was given, only 4 cases of nephritis developed (5.5%). [J.H.W.R.]

Calomel as a Poison.—T. L. Bunting[1] states that calomel is very inconstant in its action as a poison. Guy states that six grains have proved fatal, while an ounce has been taken with impunity. Rungberg records a case in which three injections of one and a half grains each given within a month proved fatal, and he mentions other similar fatal cases after subcutaneous injections of small doses. Bunting appears to favor the theory, rejected by Guy, that calomel acts as a poison only by its partial conversion into perchlorid of mercury by the free hydrochloric acid of the gastric juice. On this supposition the very small fatal doses could be explained on the theory that hyperacidity of the gastric juice converts the calomel into perchlorid more rapidly than usual, though he deems it more likely that an impurity (probably perchlorid of mercury) was originally present in the fatal cases. On the theory that it acts only by conversion into perchlorid of mercury the relative impunity of large doses is explained by the supposition that so soon as sufficient conversion has taken place, purgation supervenes and the remainder of the calomel is expelled unchanged. Calomel injected subcutaneously according to the theory would be converted into perchlorid by the chlorids of the blood, but in this case the action of a small quantity could not cause expulsion of the remainder, hence the fatal results from small subcutaneous doses. Though appearing to have some faith in the perchlorid theory the author however, states that little is to be feared when pure calomel is used in moderation however the method of administration. [A.B.C.]

Calomel as a Diuretic.—G. Lesignoli[2] reports a careful study of four cases, three of which were of mitral insufficiency, and the last was a case of cardiac hypertrophy, due to rickets. Calomel is indicated in dropsy of cardiac or hepatic origin; many writers have long so prescribed it. The dose is given in three or four powders daily of 0.15 gm. (2½ gr.) each. It is well to combine with this a minute dose of deodorized tincture of opium, to diminish the chance of intestinal irritation. He concludes that this treatment will increase the urine passed within from two to nine days. Salivation is to be guarded against. The advantage of calomel is the fact that it will succeed when many other diuretics have failed, and it produces a mild, steady and sustained increase in the amount of urine, which may be maintained for months. [T.H.E.]

The Serum Therapeutics of Snake Bite.—George Lamb,[3] assistant director of the Pasteur Institute of India, discusses at length the serum treatment of bites from poisonous snakes and concludes as follows: 1. Antivenomous serums are markedly, if not absolutely, specific even between the venoms of species of the same genus, hence in any case of snake bite the serum prepared with the venom of that species which has inflicted the bite must always be used. 2. The difficulty in collecting the poisons of the different species of snakes in sufficient quantity for purposes of immunization is apparently very great. 3. Up to the present the only serums which have been used particularly are the one prepared by Calmette and the one prepared at the Pasteur Institute of India, with pure cobra venom. Both these serums are particularly specific for cobra venom. 4. As the neutralization power of these two serums is not great, and as a cobra can inject a large amount of venom, the serum must be given in large quantity, as large as from 300 cc. to 400 cc., even when given intravenously, would be necessary in some cases. If given subcutaneously from 10 to 20 times this amount would be required; it should therefore always be given intravenously. 5. Experiments on dogs, and the records of cobra bite in man, bear out these conclusions. 6. It is evident from the above consideration that it is a question as to whether the advantages gained by the serum treatment of cases of snake bite are at all commensurate with the cost entailed in the production of the serums. [A.B.C.]

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[1] El Mes Médico, Habana, November, 1904.
[2] Münchener medicinische Wochenschrift, 1904, li, 1452, No. 32.
[3] The Lancet, November 26, 1904.
[4] Wiener klinisch-therapeutische Woch., 1904, No. 38, p. 970.

[1] The Lancet, November 26, 1904.
[2] Il Policlinico (Rome), No. 67, 1904.
[3] The Lancet, November 5, 1904.

American Medicine

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A New Turn in the Newspaper Advertising Business.—The one sure test of the trustworthiness of a newspaper in its news and reading columns is the character of its medical advertisements. The more partisan and degraded its editorial advice, the more corrupt its reporting and "write-ups," the more it ministers to sensationalism and crime, the worse its "medical" advertisements and the more flaring the portraits of its testimonial letters. The filth of some papers reeks with indescribable incentives to abortion and crime. A few exclude all of this stuff, and these all physicians should help by their subscriptions and encouragement Not seldom the worst are seen upon the doorsteps and breakfast tables of physicians. But there is a larger class of newspapers which excludes the worst advertisements, some pretending to shut out all "disreputables;" but even these have a hard time in drawing the line, and lapse into barbarism with ludicrous ease and self-excusings. The few things admitted, however, still cure all the diseases of mankind,—whisky, for instance. In the scare at bad and adulterated whisky the whisky advertiser is reaping his reward, and the editors of family newspapers are receiving the flaunting advertisements of this kind with a recklessness that shows their rule in excluding others is a compelled virtue. All that honorable subscribers need to do to finish the great reform thus happily inaugurated is to bring it to the editorial and publishing consciousness that whisky, even if "pure" and "recognized" by the government as a "medium," is not recognized by the medical profession as a cure for all diseases. The worst diseases we have to fight are those of the whisky drinkers!

International military medical statistics of the U. S. Army for the year 1903 are embodied in a supplement to the annual report of the Surgeon-General for 1904. The statistics are arranged in the form of ten tables, which were adopted at the meeting of the International Commission for the Unification of the Medical Statistics of Armies, held at Budapest in 1894, and modified by the last meeting at Madrid, in 1903. The tables include the movement of the sick during the year, stated in absolute and proportionate numbers, by arms of service, by months, in the larger garrisons, and according to the most important diseases; the last item is also given by arms of service and by months. Finally are two tables setting forth the deaths and the discharges for physical disability. The international nosologic table includes 35 diseases or disease groups; the greater part of the names is in Latin, but an admixture of English mars the uniformity and seems hardly in keeping with the dignified product of an international commission. We read, for instance, "Ulcus molle (*inclusive* adenitis venerea)," "Alkoholismus acutus, *including* delirium tremens," "Gonorrhea," and the like. The list of diseases in itself is very comprehensive. The idea of international uniformity in the presentation of army medical statistics is an admirable one, and could with profit be extended to include vital statistics of all classes. Methods of combating disease, as well as the publication of results, are now so cosmopolitan, that the findings of any one country should be readily intelligible in all others. At present this unfortunately is not the case, and what is still more deplorable, various States and divisions of the same country not uncommonly employ diverse methods of registration and publication. Than this nothing could be worse except the entire absence of records. We have insistently emphasized to the profession the desirability of complete and accurate vital statistics; in their collection and tabulation national and international uniformity is needful. We commend to civilian guardians of health the example of the military authorities.

The Women of the Army Favor the Canteen.—It is reported that the women of the army will visit Washington this winter in the hope of getting the canteen reestablished. The news is vague though cheerful. We do not know the number of these missionaries, nor the names of any of them, nor what new evidence they can offer. If the overwhelming testimony of army officers has not convinced Congress that the abolition of the canteen was an egregious blunder it is difficult to see what the women can accomplish by mere evidence. One may hope for the success of their venture, but the odds of organization, experience, and leadership are against them. The arguments which enabled a few petticoated politicians to set the United States Senate in motion against all manly sense and reason have not been tried against womanly sense and reason, but will doubtless be just as effective. It has always been a weakness in the defense of the canteen that the army officers are not quite unanimous. A single officer of very high rank opposes the canteen, and the weight of his opinion is vastly enhanced by the circumstance that he is a sober man. His fellow officers who favored the canteen divided unwisely between insobriety and inconsistency. Some one will say that it is most immoral, but we hazard the suggestion that diametric and unanimous inconsistency will help the army women in their coming ordeal. Though advocating the restoration of the canteen, these women should all be sober. It will be difficult, but they should do whatever is necessary to convince the Women's Christian Temperance Union that they are sober women. After that they will need to prove that, though favoring the canteen, they are honest women. As the matter now stands, the advocates of the canteen are nullified, and the opposition is strengthened by the fact that the opposition is not in secret league with the liquor interests. Unless the women of the army can somehow escape the scandalous imputations which General Miles' integrity is made to cast upon all who differ with him about the canteen, we shall regret their exposure to this unequal contest. If they should establish their reputations for honesty and sobriety, the charge of subserviency to the vices of their kinsmen and lovers may furnish their gentle antagonists a delightful horror. The insinuation that advocacy of the canteen and the nurture of vice are one and the same thing chilled the marrow of senators and representatives in the first place, and now, when mere inaction will defeat the new champions, Congress can probably be controlled by some subtlety less repulsive. The indisputable fact that drunkenness and other vices have been increased by the abolition of the canteen has no appeal to Congress, for no debauchery of which the American soldier is capable will excite the earnest solicitude of that body. No more are the reformers moved by the indisputable fact that their intemperate zeal has increased drunkenness and worse vices, for American soldiers are no more capable than other men of winning the approval of their arid stepmothers. Congress suspended the canteen for no reason whatever except to placate the Women's Christian Temperance Union. Neither the agitators nor the agitated care a rap for the difference between a smile and an orgie. The canteen will be restored when the Women's Christian Temperance Union becomes reasonable, and Congress bold. But meanwhile, unless the women of the army get very strong support from that great weight of private opinion which the experience of four or five years past has formed concerning the morals of the soldiers, these poor fellows will not be turned aside from the way of perdition made easy by their aunts and guardians.

Functional Diseases, at Last!—So far as pertains to medicine the most noteworthy characteristic of the St. Louis Congress of Arts and Science was a remarkable unanimity of resolve to attack the pathology of functional diseases. For many years there has been a growing conviction that the work of pathologic anatomy has been yielding less and less valuable results in the prevention and treatment of disease. Its duty has been done and its function has long been practically at an end. All the time the great makers of organic disease, the breeders of the morbid results shown in a million slides, made from dead tissues, have been neglected, almost scornfully ignored. All the time the pathologic anatomist seemed to be indifferent to the habits and conditions, the morbid functions which began long ago in each organism, and which finally produced the diseased condition recognized as anatomic. The preparation of the soil was forgotten in the supposedly more important question of the seed. That physicians should so far forget the clinical side of their work, symptomatology and morbid physiology, is regretable. The dead tissue appeared more interesting than the living, anatomic pathology more instructing than morbid physiology, the end-products of disease than the causes which produced them. Disordered and unhealthy function, even in the anatomicly demonstrable diseases must prepare the way and begin the changes, must at least make the soil for the terminal diseases. It is plain if we are to prevent these end-results, we can do so only by attention to the morbid function. The materialism of many investigators possibly had much to do with the overlong absorption in anatomic pathology, as iteration and reiteration was tireless that there are no purely functional diseases. Now that there is a hastening return from such nonsense to saner views, it is seen that the greater part of the diseases which afflict us, those that are the heaviest to bear, and the most painful, are precisely those most clearly functional, and which no microscope or stain can detect. What to the anatomic pathologist are fatigue, anorexia, headache, migraine, epilepsy, monomania, melancholia, insomnia, diarrhea, constipation, nausea, dyspepsia, biliousness, seasickness, and dozens of other diseases or symptoms? Every physician should "read, ponder and inwardly digest" the splendid articles of Meltzer and Sedgwick.

Professional Interest in Institutional Matters.—Why should not the organized medical profession take the lead in the near approaching movement to render clean, morally and financially, the governments of all institutions for the shelter of the physically and mentally infirm? In each State the council could well undertake this task, or it might be entrusted to a special committee. In any event it would be necessary that such a committee—or the council—should be composed of members who have no interest, direct or indirect, in the institutions examined, except to see established decent administration free from "graft" and "influence." Every State Association should assume, as a regular part of its function, the examination of those State institutions that have any medical aspect. The examiners should be men who will do more than perfunctory work. Real unprejudiced investigation is what is now so urgently needed. The reports of the examiners should be regularly given to the public through the press. The inauguration of this custom will of itself do much to stay political interference with the proper care of the insane, epileptic, crippled, imbecile, and all other defectives. In many, if not most States, at present, "politics" is more in evidence in the asylums and other houses of refuge than is medical science, although our profession knows how much good can be done the helpless wards of society if our science stood to the fore. The institutions that are peacefully slumbering are those in which "grafting" is going on, either with the knowledge and assistance of the chief medical officer or through a convenient dimness of vision that enables him undisturbed to retain his position. Occasionally this serene calm is rippled by a factional applicant for the chief post who stirs up some dust in the hope that in the confusion of facts and interests, and amid the cries of "wolf! wolf!" he may, while undiscovered in his sheep's clothing of loudly proclaimed honesty, slip into the coveted seat of "graft." As a rule, however, the existence of disciplinary unrest in an institution that is commanded by a man of character, especially if every little mishap is carefully handed out to the gentlemen of the press, indicates that the "outs"—the "grafters"—have determined to give the honest superintendent so much trouble that he will voluntarily withdraw. Failing in this, they continue their trouble-making in the expectation that continuous turmoil will lead the governor of the State to interfere and give him the pretext to appoint a political friend who will keep the institution in a state of quiet—exceeding quiet. When there is friction with noise and also when there is repose with hidden gain, it is time for the State Medical Association to spend a week probing into the subsurface life of the institution. We venture to predict that any State Association which adopts this plan, can, in one or two years of honest and effective work, almost wholly abolish institutional dishonesty.

"The universal specialist" is the latest showing of quackery. It seems that there is an organized attempt being made to teach those of the itching palm how to focus all the quackeries in one practice. There have been many failed schemes to unite many different specialists in one company, "ring," institution, or college. The success of Mrs. Eddy and many similar minded all-curers has suggested that one person may be capable of all medical science and art. Ignorance, greed, and egotism are encouraged to learn the superficialities, at least the pretenses of skill in all departments of medicine and surgery. Why send or let your patients go to the proctologists, aurists, electricians, ophthalmologists, opticians, gynecologists, cancer cranks, "stomachalists," "sexual anesthesiasts," dentists, Keeleyites, rheumatism doctors, private retreats, etc? You can learn, say the circulars and books and letters, all the knowledge and arts of these men; you can save your patients much trouble; and, best of all, you can yourself make all the money of which these specialists now rob you. It is an alluring new field thus opened up to the hungry, ambitious, and waiting young physician. And then, by the plan, you can get the better of the bad quacks and downright nostrum vendors by circumventing them, imitating them, and out-quacking them. Only the worst of these pretend to be absolutely universal specialists, and by throwing modesty to the dogs, and covering ignorance and incapacity with a smattering of knowledge, by buying a lot of showy instruments, memorizing a lot of big words, and pretending to a mastery of mysteries and diseases the all-round specialist may throw a glamor of professionalism over the most arrant humbuggery. It is a new danger to be met.

Principles of Relief.—So long as inexperience and feeling dictate the actions of the benevolent person, he or she continues to make the blunders of selfish charity. The self-satisfaction of ministering is to the selfish a temporary blessing, a permanent injury, and a double crime. Experience soon teaches sensible people that this course is not real relief even of the individuals supposedly bettered, and if the almsgivers have intellect and good business acumen, they soon learn that the relief of the individual, even if actual and permanent, is not the prevention of the evils that afflict the community. They then recognize that disease is at the bottom of most of these evils and that the cure of disease is well attended to by the medical profession. What all wise benefactors, whether professional or lay, must wish, is the stopping of the causes of disease, the prevention of sickness. In the reaction that follows this enlightenment there is likely to be a going over to selfishness and cynicism, an acceptance of the barbaric theory of natural selection and the elimination of the unfit, a shutting up of the heart and of the pocketbook, and a letting the unfortunate go to the dogs. And this is also neither kind, just, nor politic. What is wanted is the union of sympathy and intellect in genuine prevention, a systematization and rationalization of combined charity and science. Few, of course, are capable of realizing this; fewer still of carrying it into practice. But their number is growing. The great mechanism whereby the truth is being brought to recognition is the charity-organization societies and their allies, the settlement workers, the institutions of preventive medicine, schools of philanthropy, the societies for the prevention of cruelty to children, juvenile courts, reformatories, etc. A noble textbook for the guidance of all interested in this work is *The Principles of Relief*, by that veteran leader, Edward T. Devine. Every physician should add it to his library and try to get it into the hands of his patients. If Mr. Carnegie would distribute a million copies of it he would do more good thereby than with all his libraries.

The National Recognition of Eyestrain Reflexes.—Some years ago a paper was published[1] on the comparative recognition of the morbid systemic results of eyestrain, by the profession of different countries. There was no desire on the part of the authors of that paper to disparage one nation's reception of medical truth, but the inevitable result was to show that the practical American had recognized and put to use the theoretic knowledge discovered, but elsewhere unutilized, by Germany, and least of all by Germany herself. This indirect criticism aroused some protests, and it was said that the German physicians were fully and practically aware of the influence of eyestrain in producing cerebral, nutritional, and systemic functional diseases. The protests, however, fell flat, because not warranted by facts; they did not even lead to any modification of German practice, and the malignant myopia of school children and students, their migraines and other diseases have since continued to frighten pedagogs and vital statisticians. In the opening number of the new periodical, *Ophthalmology*, there is a noteworthy article by Professor Dr. Wilhelm Schoen, of Dresden, Germany, from which we quote two or three sentences:

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[1] Annals of Ophthalmology, viii, p. 520.

> Concerning the national recognition of eyestrain reflexes, it is not unjustly remarked that in Europe there are very few oculists who recognize the intimate connection of optical anomalies with the general nervous economy, and lay the proper stress on the importance of correcting these defects, as this is done in America.
>
> Some pages further on, an exception, not at all uncomplimentary is made in favor of the present writer. The remark joined to it that the teachings of the writer regarding the anatomic changes caused by eyestrain are far from being universally recognized in his country, is not without foundation.
>
> The way by which the knowledge that eyestrain works on the nervous system has been arrived at was a direct one in America, the observation of patients suffering from such disturbances leading on.
>
> Old opinions are tough, and very naturally toughest in the country where they have taken issue and shape.

These admissions from a professor in the heart of Germany are of manifold significance. All light is not from the East; theory, even when true, may remain utterly without useful results, the European textbooks on refraction, etc., being wholly satisfied with the statements of theoretic and mathematic optics; clinical observation and desire to relieve suffering leads to the true benefits of successful treatment. "*Grau ist aller Theorie.*"

The anatomic results of eyestrain, is the special subject of Dr. Schoen, and his great merit lies in emphasizing them. He says that though we have in America recognized the morbid nervous and subjective disturbances caused by eyestrain, we have failed to recognize the other side of the truth, the anatomic changes. In italics he adds:

> *If serious nervous symptoms, as migraine, neurasthenia, nervous troubles of the heart and stomach,* are put without hesitation to the credit of ophthalmic errors, must it then not appear very likely that the latter might also produce some anatomic consequences?

These anatomic changes in Dr. Schoen's article concern those in the eye itself, and he has no trouble in showing that those of glaucoma, myopia, disseminated choroiditis, cyclitis, etc., may be the results of eyestrain. One is most glad to agree with Dr. Schoen in his contention, and welcome his help, but as to priority, there must be some modifications. In 1867 Dr. John Green,[1] of St. Louis, first showed that astigmatism is an active cause of myopia, and since then a large number of American oculists have reiterated the truth, that eyestrain causes many anatomic diseases of the eye. Many references could be cited. In 1890, and often since, Gould has written in advocacy of the theory that choroiditis, choroidoretinitis, cataract, etc., may be caused by eyestrain, and this writer has done what he could to give credit to Schoen for his great work in showing that glaucoma is often due to eyestrain. Thus in 1899,[1] in an article on "Massage and the Relief of Eyestrain in the Treatment of Glaucoma," he wrote:

> To Schoen we are undoubtedly indebted for the theory that eyestrain may be a prolific source of glaucoma. The ophthalmic world preferred to ignore, as it often does, the truth that does not suit its Zeitgeist. If it be a truth the ignoring can be only temporary, though the fact is not flattering to the acumen of the ignorers. I believed that Schoen's contention is essentially true, but it cannot be proved true by the sorry art that passes for refraction in much of the over-sea world. No better proof of this could be found than in the slighting allusions to the theory of modern monographs upon glaucoma. Not only is Schoen not mentioned, but the very terms used in speaking of the suggestion make an American oculist smile derisively. Can there be a more fundamental law in pathogenesis than that morbid function sufficiently long continued inevitably ends in morbid organic change? In pathology, the primal command is to seek for the ultimate not the secondary causes. Etiology and prophylaxis are the two greatest medical words. No man of sense, at the present time, would say that eyestrain is the sole cause of glaucoma and cataract, nor would he deny that other causes may be operative, but to delay any longer the general acknowledgement of eyestrain as a subtle, far-reaching, and potent cause of ocular and systemic disease, and to ignore this in practice, is a sin not only against science, but against humanity. I believe that a vast majority of the cases of glaucoma and cataract are preventable. I have never seen these diseases arise in eyes cared for by a skilled and conscientious refractionist prior to and during the cataract and glaucoma age.

An Unusual Form of Senilism.—Last year we were indebted to Mr. Hastings Gilford for an admirable description, with report of cases, of a peculiar disorder of development, or dwarfism, known as ateleiosis. Recently he has just as thoroughly described[2] two undoubted cases, and a third one not so clear, of a curious admixture of infantilism and premature senility; to this condition he at first applied the name of micromegaly, but later discarded it for the term progeria—prematurely old. Ateleiosis and progeria appear to be related, but are sufficiently different to be classed as distinct diseases. The detailed description of the two cases of progeria is accompanied by photographs of the patients at different ages, the latter showing remarkably well the progressive aging of the subjects. Both were males, and died apparently from senile decay, the one at 17, the other at 18. In stature they were children, but in other respects looked like old men. Their intelligence was possibly slightly precocious, their sexual development as much retarded. Postmortem examination of one subject showed the viscera to possess an extraordinary association of the characters of youth and seeming old age. Atheroma, and calcification of the arteries and heart valves was especially prominent. Classification of the various features of the patients under those indicating old age, delayed development, and normal development shows the presence of all three groups but the preponderance of the first. Mr. Gilford sums up the condition as one of retarded development combined with premature old age, and with indications of some attempt to attain the normal. The etiology of the disease is unknown; it evidently is not of fetal origin, as the clinical history of both patients is that normal growth and development continued up to the time of the first dentition. One of them was seen by Mr. Hutchinson when 3½ years old, and described by him under the title, "Congenital absence of hair and mammary glands, with atrophic condition of the skin and its appendages in a boy whose mother had been almost wholly bald from alopecia areata since the age of six." No particular organ in the subject examined appeared to be affected. The pituitary body was examined only superficially; this is to be regretted, as the notable features of the cases were almost exactly the opposite of those found in akromegaly, with which the condition may possess a certain relation. The thanks of the profession are due Mr. Gilford for his admirable presentation of these two series of cases. It seems strange that similar ones have not been described. As the author suggests, others may be reported now the disease has been "discovered"; ere the path be formed someone must blaze the way. The following extract from the *St. James' Gazette*, subjoined by the editor of the *Practitioner*, possibly alludes to two cases of the condition:

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[1] Arch. Ophthalmol. and Otol., 1869, 1, No. 1, pp. 17 and 21.

[1] Canadian Journal of Medicine and Surgery, November, 1899.

[2] The Practitioner, August, 1904.

> A quaint old advertisement of the year 1754 reads as follows: "March 19, 1754, died in Glamorganshire of mere old age and a gradual decay of nature, at 17 years and 2 months, Hopkins Hopkins, the little Welshman, lately shown in London. He never weighed more than 17 pounds, but for three years past no more than 12. The parents have still six children left, all of whom no way differ from other children, except one girl of 12 years of age, who weighs only 18 pounds, and bears upon her most of the marks of old age, and in all respects resembles her brother when at that age."

BOOK REVIEWS

Clinical Diagnosis by Laboratory Methods.—By L. NAPOLEON BOSTON, A.M., M.D. Philadelphia, New York, and London: W. B. Saunders & Co., 1904.

The clinical examination of urine, feces, sputum, blood, etc., has assumed such an important place in practice that a thorough knowledge of the significance of the chemic and microscopic laboratory findings becomes absolutely necessary to successful therapeusis. Dr. Boston here presents a practical manual of the clinical and laboratory examinations which furnish a guide to direct diagnosis, giving only such methods, however, that can be carried out by the busy practitioner in his office, as well as by the student in the laboratory. Special attention has been given to outlining in progressive steps the various procedures in clinical technic, such steps being illustrated whenever possible. Beside the detailed descriptions of methods of examination, the diagnostic significance of the clinical findings is given under special headings, and is frequently accompanied by tables of differentiation. All the more recent methods for the examination and staining of blood are described and illustrated by original drawings, and the subject of serum diagnosis is very carefully considered. The newer methods for the estimation of sugar, Bence-Jones' albumin, uric acid, and purin have received thoughtful consideration. The subjects of animal parasites, diseases of the skin, transudates and exudates, and secretions of the eye and ear have received an unusual amount of space. This work being the latest on clinical diagnosis, includes the most recent advances along that line.

Diseases of the Stomach and Intestine.—By BOARDMAN REED, M.D. New York: E. B. Treat & Co.

The need of a modern treatise on the newer methods available in the diagnosis and treatment of diseases of the digestive system is evident by reason of the limited literature specially devoted to this subject and to the increasing demand for such literature. This volume of lectures by Dr. Reed is a plain and unpretentious, but practically complete, clinical guide to the diagnosis and treatment of the diseases in question. It embrace an account of the simplest reliable tests and least disturbing methods for determining the character of the motor secretory and excretory work of the principal organs having a part in the processes of digestion and metabolism by examinations of the stomach contents, blood, urine, feces, etc., together with a full exposition of the subject of diet and the therapeutics of the digestive disorders in general, including indications for the various forms of electricity, massage, röntgen rays, hydrotherapy, gymnastics, and medical and surgical treatment. Not only general practitioners, but also specialists in other lines, who find it necessary to keep informed in a general way with regard to digestion and nutrition, will find this work of great value.

Bright's Disease and Diabetes.—By JAMES TYSON, M.D. Including articles on Ocular Manifestations in Bright's Disease and Diabetes, by G. E. DE SCHWEINITZ, A.M., M.D. P. Blakiston's Son & Co. Second edition, Philadelphia, 1904.

The second edition of this valuable book has been in large part rewritten and much enlarged. It contains a good deal of matter from the first edition which is not new, but little that is not directly illustrative of the subjects treated. Entirely new sections have been added on acute interstitial nephritis and on the dietetic treatment of Bright's disease. Under the dietetic treatment of diabetes mellitus is included an analysis of some of the more usual foods, more particularly with regard to carbohydrate constituents. Separate sections have been prepared by Professor G. E. de Schweinitz on the ocular manifestations of Bright's disease and in diabetes. These have been illustrated by colored plates of eye grounds from his own patients. Dr. Tyson's wide experience in the treatment of such cases specially fits him to write a book on this subject.

A Manual of Experimental Physiology.—By WINFIELD S. HALL, Ph.D., M.D. Lea Brothers & Co., Philadelphia and New York.

This book of 240 pages represents the experience gained by the author during 10 years' presentation of experimental physiology to medical students. The illustrations are not numerous and are confined almost wholly to instruments, the tracings and other results to be obtained from them being left entirely to the student to work out. Hall rightly states that laboratory manuals should be scantily, textbooks fully, illustrated. Part I, Experimental General Physiology, deals with cytology and the general physiology of muscle and nerve tissue. Part II, Special Physiology, contains chapters on the Circulation, Respiration, Normal Hematology, Digestion and Absorption, Vision, Nervous System, and Muscular System. An appendix contains description of instruments. The aim of the book throughout is to lead the student to find out things for himself instead of being told; in this the author has been very successful and the Manual should prove very helpful to students and to laboratory instructors. The shape of the book and the type employed make it convenient for reference.

International Clinics.—Edited by A. O. J. KELLY, A.M., M.D. Vol. iii. Fourteenth series, 1904. Philadelphia: J. B. Lippincott Company.

The latest number of this wellknown publication opens with a series of articles dealing with various phases of syphilis, among the contributors being Ohman-Dumesnil, Spiller, Chauffard, Ballantyne, Gottheil and Fournier. Under the head of Treatment are papers dealing with tuberculosis, chronic constipation, and diabetes mellitus. Leading articles under Medicine are on Indigestion and Diseases of the Liver. Surgery includes Umbilical Hernia, Foreign Bodies in the Bronchi, Lumbar Puncture and Osteomyelitis. Gynecology includes papers on the Menstruation, Hemorrhage at the Menopause, and also a general consideration of remedial agents. Paralysis Agitans, by Palmer, is the contribution to Neurology. Numerous plates illustrate the papers on syphilis; some of them are very good while others show details of the lesions very indistinctly. The contributors to this volume are all men of recognized ability and their statements may be considered authoritative.

A Philosophy of Therapeutics, the foundation of which rests upon the two postulates: 1. That it is the human organism that is the active factor in the healing of the sick, and not drugs. 2. That there are two therapeutic laws.—By ELDRIDGE C. PRICE, M.D. Nunn & Co., Baltimore, Md., 1904.

This thoughtful book is well worth reading, even by those who will dissent at almost every point from the author's views. It is evidence of the working of the leaven of that true view of the nature of recovery—found now in nearly every medical book, but very rare only 10 years ago—that the organism cures itself, the agents employed by the physician helping or hindering, as they are well or ill chosen. There are two "principles of therapeutics," "antipathy and homeopathy." The author believes that "allopathy" is a useful palliative method under some few conditions, principally when derivative elimination is desired. "Antipathy" he regards as a necessary practice frequently, as when a cathartic is employed to overcome constipation or morphin to relieve pain—and believes that concomitantly with this relief of distress, recovery may occur in an unexplained way; or an infinitesimal dose of an antipathic remedy may start the organism on the right curative direction. Homeopathy, according to his view "cures" by exciting a drug affection, similar to, but not identical with the disease present in the patient, and thus either suppressing the disease because of the supposed inability of two morbid processes to coexist, or awakening the natural recuperative force to an action similar to that necessary to cure the disease. This similar reaction cures in an unexplained way. The book well illustrates the tendency of homeopathic teachers to substitute argumentation for observation, theorization for experimentation, and the contradictions which such methods involve. Its ethical principle that the physician is bound "to try to do the greatest good to the patient," demands universal approval.

A Textbook of Operative Surgery.—By WARREN STONE BICKHAM. Second edition. Published by W. B. Saunders & Co., Philadelphia, New York and London.

The fact that a second edition of this work has appeared within a few months of the first edition, is sufficient evidence that the work has been much approved by surgeons. In this volume the general scope of the first edition remains unchanged and, as the author states, advantage is taken in the present edition for the correction of some typographic errrors and to introduce a few minor changes in the text. We can only reiterate the thought we sought to convey in our former review of this splendid work, namely, that it is excellent in scope, contents, execution and arrangement. It contains more than 500 illustrations, nearly all of which are of high artistic value. Every operation which the general surgeon is likely to be called upon to perform is depicted in terse graphic terms, and in many instances reinforced by illustration. It is one of the notable works in surgery which has appeared within the past year.

The Clinical Study of Blood-pressure and a Guide to the Use of the Sphygmomanometer.—By THEODORE C. JANEWAY. Published by D. Appleton & Co., New York and London.

This is a volume of some 300 pages devoted entirely to the subject of blood-pressure and its clinical significance. The author gives ample illustrations of the various sphygmomanometers, and clinical tests and comparisons of each. The Riva-Rocci apparatus, especially with Cook's modification, is the one which is most commonly used in this country. Janeway speaks approvingly of this instrument in comparison with others, and also presents an instrument which he himself has devised, with particulars as to use. The whole is a splendid array of the effect which may be deduced by a bedside investigation in this interesting field of research. Much has been done within the past few years in the field of blood-pressure, and this work by Janeway gives a synopsis of that which has been accomplished, and its particular bearing in clinical medicine. The volume is well illustrated, highly instructive, and scientific. We recommend it to those interested in this particular phase of research.

The Art of Compounding. A Textbook for Students and a Reference Book for Pharmacists at the Prescription Counter.—By WILBUR L. SCOVILLE, Ph.G. Third edition, revised and enlarged. P. Blakiston's Son & Co., Philadelphia, 1904.

This admirable manual having reached a third edition needs now no special praise. Intended for pharmacists primarily it contains much of interest and value for physicians. If medical men paid more attention to the technical details of prescribing they would be less liable to the deceptions practised by nostrum makers, and would have little need to fall back upon the ready-made concoctions of manufacturers. This volume will be helpful to any physician desirous to do his own prescribing, but needing aid and instruction in the avoidance of incompatibility and inelegancies.

The Surgical Treatment of Bright's Disease.—By GEORGE M. EDEBOHLS, A.M., M.D., LL.D. Frank F. Lisiecki, publisher, New York, N. Y. 1904.

There is perhaps no one topic at present before the medical profession which is exciting such widespread interest and so much discussion as the surgical treatment of Bright's disease. There is a great demand for such facts and information, especially as regards results, as may at present be available concerning the new treatment of this common and fatal malady. As far as is possible this demand has been met in this publication. The first part or about two-fifths of the book presents the history of the origin, the development, and the present status of our knowledge of the surgical treatment of chronic nephritis, in a series of papers contributed by the author from time to time to medical literature. The remaining three-fifths of the book is entirely new matter, never before published, and deals almost wholly with the results. The author gives in detail the history of every case in which he has operated for Bright's disease.

Clinical Vibration Charts.—By M. L. H. ARNOLD SNOW, M.D. The Scientific Authors Publishing Co., New York.

Chart I shows the relation of the ganglions of the sympathetic nerve to the vertebras, the localization of the functions of the various segments of the spinal cord, and gives a table of referred pains. This chart is printed in colors. Chart II shows the relation of the spinal cord segments to their respective vertebras, combined with a table of spinal stimulation. The charts are 62 cm. by 70 cm. (25 in. by 28 in.) in size, and very well executed on heavy paper; although intended primarily as guides for local stimulation and inhibition by electric currents of various types, they furnish in a graphic manner much information that is useful to the general physician.

Quiz-Compend of Medical Latin.—By W. T. ST. CLAIR, A.M. Second edition, revised. Philadelphia: P. Blakiston's Son & Co. 1904.

This book is designed to aid in the elementary training of medical students. To those who have had no Latin the work will be a help, although necessarily too brief to explain thoroughly the branch. Those who find it essential to review the rudiments of the language will find in small compass many helpful points.

A Manual and Atlas of Medical Ophthalmoscopy.—By Sir WILLIAM R. GOWERS, M.D., F.R.C.P., F.R.S. Fourth edition. Edited by the author and MARCUS GUNN, M.B., F.R.C.S. Pp. 318. Philadelphia: P. Blakiston's Son & Co. 1904.

In preparing the fourth edition of this standard work, Dr. Gowers has had the advantage of the help of the wellknown British ophthalmologist, Mr. Marcus Gunn. Since the first appearance of the book, 25 years ago, conditions have so changed that its chief audience is now found among ophthalmologists. The chromolithographic illustrations have been omitted, and in their place are inserted reduced facsimiles of sepia drawings. The absence of color in the present plates is more than compensated for by the greater attention to detail.

AMERICAN NEWS AND NOTES

GENERAL.

Insane Woman Wins Prize.—Recent news from St. Paul states that a woman inmate of the State Insane Hospital has won a prize offered by a Boston magazine for the solving of a rebus and a short essay on an assigned topic. The prize was a trip abroad or $250. She has applied to the State Board of Control for permission to make the trip, but the board does not deem it safe to allow her to go. The afflicted woman submitted her solution of the rebus and manuscript in such good form that the publishers never questioned the mental ability of the prize winner.

To Clean Cuban Streets.—The Cuban House of Representatives on December 14 passed the bill appropriating $190,000 for the sanitation of the streets of Santiago, Cienfuegos, Cardenas, and Matanzas. The work is to be done in connection with the request of the United States and the recommendations of President Palma, under the direction of the general government. While the representations of the United States were concerned essentially with the sanitary conditions of the principal ports, it is expected that President Palma's recommendations for supervision of sanitary matters in all the towns will be embodied later in a comprehensive law.

Deaths in Mexico from Famine and Fever.—It is stated that the State of Sinaloa, in northwestern Mexico, bordering on the Gulf of California, is being ravaged by famine and fever. More deaths have occurred within the last few weeks from starvation and disease than during the outbreak of bubonic plague. A dispatch from Guasaye, a city surrounded by 15,000 people, says: For weeks both a scourge of malaria and starvation has been sweeping over the town and surrounding country. Scores have died, and the deaths now average 15 to 20 a day. There is practically no means of relief at hand, as the town supply in both provisions and medicines long since has been exhausted.

World's Fair Medal for Hospital Designs.—An exchange announces that a gold medal has been awarded to Meyer J. Sturm, architect, and Dr. A. J. Ochsner, both of Chicago, for hospital plans exhibited at St. Louis. The notification has been received from the president of the superior jury. The plans were entered under charities and corrections, class 139, and consist of complete plans of four hospitals—a city hospital, a country hospital, a hospital for towns, and a hospital for the treatment of contagious diseases. The latter plan presents a radical departure from any existing hospital structures now in use. Dr. A. J. Ochsner is head surgeon of St. Mary's, of Nazareth Hospital, and the Augustana Swedish Hospital.

Hospitals on the Isthmus of Panama.—The following is the clause relating to hospitals in the agreement between this country and Panama, recently signed by Secretary Taft: "The United States will construct, maintain, and conduct a hospital or hospitals, either in the canal zone or in the territory of the republic, at its option, for the treatment of persons insane or afflicted with the disease of leprosy and any indigent sick, and the United States will accept for treatment therein such persons of said classes as the republic may request, but this order shall not be operative unless (1) the Republic of Panama shall furnish without cost the requisite lands for said purposes if the United States shall locate such hospital or hospitals in the territory of the republic; and (2), that the republic shall contribute and pay to the United States a reasonable daily per capita charge in respect of each patient entering upon the request of the republic, to be fixed by the Secretary of War of the United States."

Examination for Medical Officers for the Panama Canal.—On January 18, 1905, examinations will be held in various towns and cities throughout the United States, for the selection by the Civil Service Commission of the United States of surgeons, physicians, pharmacists, hospital internes, and trained nurses, to be sent to Panama during the construction of the Panama Canal. Surgeons are to be under 50 years of age and will receive $250 per month, physicians must be under 50 years of age and will receive from $150 to $250 per month, hospital internes (male) are to be under 30 years of age and will receive $50 per month, trained nurses (male or female) must be under 35 years of age and will receive $50 per month, pharmacists must be under 40 years of age and will receive from $900 to $1,200 per annum. For full particulars as to the various places of examination, subjects to be examined in and the relative weights given to each subject, the prospective candidate should apply to the United States Civil Service Commission, Washington, D. C.

International Medical Congress.—Dr. J. H. Musser, president of the American Medical Association, at the request of the secretary of the International Medical Congress, which meets in Lisbon in 1906, and on approval of the House of Delegates, has appointed the following members of the American Committee of Arrangements: Drs. Frank Billings, Chicago; Herman M. Biggs, New York; Herbert L. Borell, Massachusetts; William T. Councilman, Boston; Wm. H. Carmalt, Connecticut; Richard C. Cabot, Massachusetts; N. S. Davis, Jr., Illinois; Chas. H. Frazier, Philadelphia; R. H. Fitz, Massachusetts; W. E. Fischel, Missouri; Chas. Lyman Greene, Minnesota; Ramon Guiteras, New York; H. A. Hare, Pennsylvania; L. Hektoen, Chicago; Edward Jackson, Denver; E. J. Janeway, New York; A. Jacobi, New York; George B. Johnston, Richmond, Va.; W. W. Keen, Philadelphia; Howard A. Kelly, Baltimore; Charles Kollock, South Carolina; L. S. McMurtry, Louisville, Ky.; James H. McBride, California; A. T. McCormack, Bowling Green, Ky.; K. A. Mackenzie, Portland, Ore.; John Herr Musser, Philadelphia; J. B. Murphy, Chicago; R. Matas, New Orleans; William Osler, Baltimore; Chas. Powers, Colorado; J. B. Roberts, Pennsylvania; W. L. Rodman, Pennsylvania; M. H. Richardson, Boston; Chas. A. L. Reed, Ohio; H. M. Sherman, San Francisco; Frederick C. Shattuck, Boston; Geo. H. Simmons, Chicago; Chas. G. Stockton, New York; Geo. Sternberg, Washington, D. C.; Victor Vaughan, Ann Arbor; John A. Witherspoon, Tennessee; J. Collins Warren, Massachusetts; J. C. Webster, Chicago; Wm. H. Welch, Baltimore; John A. Wyeth, New York. The Surgeons-General of the Army, Navy and United States Public Health and Marine-Hospital Service. The presidents of the American Ophthalmological, Otological, Gynecological, Physiological and Pediatric societies. The presidents of the American Dermatological, Laryngological, Surgical, Climatological, Neurological, Medico-Psychological and Orthopedic Associations. The presidents of the Association of American Anatomists, Association of American Physicians, American Association of Genitourinary Surgeons, American Association of Pathologists and Bacteriologists, New York Academy of Medicine, College of Physicians, Philadelphia; Cook County Medical Society, Chicago, and the Society of Medical Improvement, Boston.

EASTERN STATES.

Rutland Railway Surgeons Meet.—At the meeting of the Rutland Railway surgeons at Burlington, Vt., on December 15, the following officers were elected for the ensuing year: President, W. M. Bryant, Rutland, Vt.; vice president, C. A. Pearse, Burlington, Vt.; secretary and treasurer, S. S. Eddy, Middlebury, Vt.; executive committee, C. A. Pearse, Burlington, Vt.; T. R. Stoddard, Sheldon, Vt.; S. E. Maynard, Burlington, Vt.

State care of the insane has become an accomplished fact in Massachusetts. With the recent removal of 100 insane patients from the Worcester Almshouse to the Worcester Insane Asylum, the work of transferring the insane from the various almshouses throughout the State to the State Insane Asylums has been gradually carried on until finally the last of these insane patients is now housed in State institutions. This is considered a great advance in the treatment of these afflicted people, in that the State assumes entire charge of the insane, being responsible for scientific care, and expense of the same. There are over 200 almshouses in Massachusetts. A great many of them had no insane in them, as they had already committed them to the hospital. So that the number of almshouses from which the State Board has actually made removals under the new law has been only 67; that is, there have been only that number that have come under this technical legal status.

NEW YORK.

Plenty of Poor Milk in New York.—Inspectors from the Health Department testified in court recently that more than 10% of the milk daily received in the city was below the standard required by law. A much larger percentage, they said, was adulterated with chemicals that were a menace to health. Hereafter dealers convicted of adulterating milk will be punished with imprisonment instead of fines.

Dispensary for Tuberculosis.—The New York Throat, Nose, and Lung Hospital has opened a dispensary for the special treatment of patients suffering from pulmonary tuberculosis. Patients, who will visit the dispensary three times weekly, will receive treatment, advice, medicines, where it is necessary food and clothes, and will be carefully instructed how to live hygienically. This will enable them to remain at home, and in many cases to continue in business.

The Eastern Medical Society.—At the annual election of the Eastern Medical Society, held on December 9, the following officers were chosen for 1905: President, Ephraim K. Browd; first vice-president, A. Hymanson; second vice-president, Charles Goodman; treasurer, A. Ronginsky; recording secretary, M. M. Stark; corresponding secretary, Emil Altman; chairman committee on ethics, A. A. Himowich; chairman committee on library, S. S. Jacobs; chairman house committee, I. Grushlaw; trustees, A. E. Isaacs, and David Robinsohn; chairman committee on membership, John A. Price.

Mosquito Convention.—Dr. Quitman Kohnke accepted the invitation of the National Mosquito Extermination Society to deliver an illustrated lecture on "The Mosquito," December 16, at its second annual convention, held at the New York Aquarium, December 15 and 16. The lecture was illustrated with colored lantern slides and living specimens in glass jars. Major Ronald Ross, M.D., of Liverpool, England, recipient of the "Nobel prize" for discoveries of the relation between the mosquito and malaria fever, was among the speakers at the convention. Dr. E. Porter Felt, New York State Entomologist, lectured on "The Diversities among New York Mosquitos." Dr. Thomas Darlington addressed the convention, his subject being: "What New York is Doing and Might Do to Kill Mosquitos."

PHILADELPHIA, PENNSYLVANIA, ETC.

The Groszmann School for Nervous and Atypic Children, situated at Plainfield, N. J., held Christmas exercises on December 23, at which an exhibit of pupils' work was placed on exhibition to visitors.

Forced to Fight Smallpox.—News from York, Pa., states that Judge Bittinger recently issued a writ of alternative mandamus against the Conewago township school board to compel it to take such steps as may be necessary to prevent the spread of smallpox in that township. The disease had prevailed for some time and it appears the authorities had done nothing to combat it.

In Memory of Dr. Daniel E. Hughes.—A mural tablet in memoriam of the life work of Dr. Daniel E. Hughes has been purchased by friends who desire to perpetuate his memory, and will be erected in the insane department of the Philadelphia Hospital. Doctor Hughes, who devoted the greater part of his life to the study and relief of the destitute insane, devised many new ideas for their care, and to his skill and energy largely is due the success that has attended the work at Blockley. The tablet will be unveiled in a few weeks.

Railroad Sends Out Medical Boxes.—Medical boxes to be used for first aid to the injured by the Pennsylvania Railroad are being sent out to various points from Altoona. The boxes are wooden and oblong in shape, eight by five inches. Each is sealed, with written instruction on the outside. Inside is a tin box, securely sealed, with more instructions. When the inner box is once opened, it must not be used again, but must be returned to Altoona to be fumigated and additional materials inserted. The box contains rubber bandages, compressors and other materials used in the first aid process.

The Pasteurized Milk Society.—This society in Philadelphia has for its object the distribution of pasteurized milk to needy children throughout the city. It has a chain of nine supply stations and is one of the few charities engaged in the work of saving human lives. The society must depend for its support upon voluntary contributions, unsolicited by personal appeals. The work of the charity, the amount of suffering that is lessened and the number of lives that are saved depends entirely on the amount of contributions. Half of the milk distributed by the society is given away free to applicants who present a physician's certificate that the milk is needed and who are unable to pay for it. The other half is given at a nominal cost, less than the cost of pasteurization, which, while meaning a loss to the society, puts it within the reach of all.

SOUTHERN STATES.

Educational Requirements for Southern Medical Students.—The Southern Medical College Association, composed of a majority of the medical colleges of the South, met at Birmingham, Ala., December 12, in annual convention. The most important matter under discussion was the fixing of educational requirements of students who apply for admission to medical colleges.

New Tuberculosis Building.—The new tuberculosis building at the Johns Hopkins Hospital, adjoining the general dispensary, will be formally opened about January 15. It is the gift of Mr. Henry Phipps, of Pittsburg, who gave $20,000 last winter, through Dr. Osler, for a separate dispensary for tuberculous patients. The building is two stories high. It will be equipped with a special library on tuberculosis. The walls are of brick and are painted with white enamel paint, and the floors are treated with a nonabsorbent preparation. The Laennec Society will have charge of the exercises at the opening. For several years special provision has been made in the general dispensary for the treatment and visiting of tuberculous patients through the generous gifts of two Baltimore ladies.

Railroad Surgeons Meet.—The surgeons of the Atlantic Coast Line System of Railways met at Savannah, Ga., December 12, in annual convention and elected officers of the association of surgeons for 1905. Sixty-five surgeons were present, representing the territory from Tampa to Richmond. The officers elected for next year were: President, Southgate Leigh Norfolk, Va. First vice-president, C. R. Oglesby, Waycross, Ga. Second vice-president, T. E. Toole, Bainbridge, Ga. Third vice-president, W. A. Monroe, Sanford, N. C. Secretary-treasurer, T. W. Baker, Montgomery, Ala. Executive committee, G. Thompson, Wilmington, N. C.; V. G. Culpepper, Portsmouth, Va.; James Evans, Florence, S. C.; W. W. Bacon, Albany, Ga.; Thomas Chason, Donaldsville, Ga.; John E. Boyd, Jacksonville, Fla.

WESTERN STATES

Michigan College of Medicine and Surgery.—The laying of the corner stone of the new building for the Michigan College of Medicine and Surgery took place on December 13, at Ann Arbor, Mich.

Homeopathic Colleges Combined.—It is stated that the Hahnemann Medical College and the Chicago Homeopathic College, both of Chicago, are to be combined under the name of the Hahnemann Medical College of Chicago, under the presidency of Dr. George F. Shears.

Would Abolish Sunday Funerals in Cincinnati.—The effort of union labor organizations to abolish Sunday funerals was formally endorsed recently by the Evangelical alliance, representing the Protestant ministers of Cincinnati, in response to an appeal from the cab drivers' union. The drivers now will ask owners and managers of cemeteries to refuse to permit burials on that day.

To Test Cereal Food Values.—News from Minneapolis, Minn., states that Prof. Harry Snyder of the Minnesota experimental station is making a series of investigations embracing all cereals now in use. He is not confining himself to a chemic analysis of their nutritive value, but is experimenting with the digestions of three young men, a student, a laboratory worker, and a farm hand. The trial will continue four days. The results will be published.

State Hospital for Epileptics at Parsons, Kansas.—The first biennial report of this hospital has been made by the superintendent, Dr. M. L. Perry, to the board of trustees of the State Charities and Corrections. It covers the two years ending June 30, 1904. The report covers the various expenditures of the institution, gives the number of inmates, progress and methods of treatment, active hospital work, and enumerates the needs of the institution. It shows that much care has been taken in the management of the institution.

Michigan Charities' Report.—The Michigan State Board of Corrections and Charities held a meeting in Bay City recently. J. P. Hamilton, superintendent of the Michigan employment institution at Saginaw, gave an account of the work accomplished. J. P. Montgomery, superintendent of State public schools at Coldwater, said there was only one dependent child in the State to each 12,500 of population. Chaplain McAlpin, of the State prison at Jackson, declared that Michigan leads the United States in providing for dependent and incorrigible children.

Mortality of Michigan during November, 1904.—There were 2,415 deaths returned to the Department of State for the month of November, corresponding to a deathrate of 11.6 per 1,000 population. This is a decrease from the preceding month, whose rate was 12.0. By ages, there were 382 deaths of infants under 1 year of age, 121 deaths of children aged 1 to 4 years, and 807 deaths of elderly persons over 65. Important causes of death were as follows: Tuberculosis of lungs, 166; other forms of tuberculosis, 24; typhoid fever, 56; diphtheria and croup, 44; scarlet fever, 4; measles, 1; whoopingcough, 6; pneumonia, 157; diarrhea, enteritis, under 2 years, 70; meningitis, 25; influenza, 18; cancer, 128; accidents or violence, 186.

United to Combat Tuberculosis.—News from Chicago states that the plan has carried to concentrate the efforts of the State Board of Health, the Illinois Medical Society, and the committee on tuberculosis of the Visiting Nurses' Association of Chicago. The first work of the new society will be to try and secure a $250,000 appropriation for a State sanatorium where researches can be conducted and tuberculous patients treated. The next step will be to establish branches. Particular attention will be devoted to out-of-door camps. The make-up of the preliminary committee appointed is as follows: Arnold C. Klebs, chairman of the committee on tuberculosis of the Visiting Nurses' Association; William E. Quine, president of the State Medical Society; C. L. Mix, of the faculty of the Northwestern Medical College; J. W. Pettit, chairman of the committee on tuberculosis of the Illinois State Medical Society; George W. Webster; N. S. Davis, professor of medicine of the Northwestern University; Ludwig Hektoen, pathologist at the Rush Medical College; Frank Billings; W. A. Evans, of the committee on tuberculosis of the Visiting Nurses' Association; Robert H. Babcock, of the College of Physicians and Surgeons; N. A. Graves, of the Eclectic Medical College; E. P. Bicknell, superintendent of the Bureau of Charities; Sherman C. Kingsley, superintendent of the Chicago Relief and Aid Society; N. B. Delmeter; Mrs. Ellen M. Frake, president of the Federation of Women's Clubs.

CANADA.

Red River Fever Epidemic.—According to reports from Winnipeg, Man., under date of December 6, consternation has been caused in the city through numerous deaths from what is believed to be typhoid fever, but is generally thought to be a revival of the epidemic, frequently fatal, which in the early days of the country was familiarly known as Red River fever. Nine deaths were reported Sunday and thirteen today.

FOREIGN NEWS AND NOTES

GENERAL.

Prize Awarded.—Dr. Catto has been awarded the Craggs prize of the London School of Tropical Medicine for his discovery of a new schistosomum parasite of man. The Craggs prize, of the value of $250, was founded some years ago by Sir John Craggs, and is awarded annually in October to that student of the London school who is considered to have carried out the best piece of research work or made an important discovery in tropical medicine during the preceding year.

Preserving Wood.—On account of the scarcity of timber in Great Britain and on the continent, a number of plans have been tried for applying a preservative to wood, in such a manner as to be commercially practicable. One of the latest of these is the treating of wood with a compound solution of saccharin. The timber, either seasoned or green, is boiled in this solution till the sap is coagulated and the latent air driven out. After cooling in the solution, the timber is dried at a high temperature. The process is sufficiently cheap to be applied to railway ties, paving blocks and other similar uses, where the wood is necessarily of the cheapest and the life short. There is a proposal on foot to organize a company in eastern Canada to treat timber before shipment.

Pure Foods in Italy.—There was established in Genoa, Italy, some five years ago by private parties an enterprise called the Controllo Permanente Italiano, the Italian Society of Permanent Chemical Inspection, for the analysis of food products and official certification of their purity, according to a recent consular report. The commercial firms subscribing to it stamp their food products with its guarantee, and a purchaser has at any time the right to request free an analysis of any sample he may send in. The enterprise has obtained the adherence of a very considerable number of the best houses, and controls food preparations to the number of 500 different kinds. It is expected that the confidence thus aroused will give the subscribers a great advantage over others in the market, and should the system become general, it would also greatly smooth the way of the inspection of Italian food products in the United States.

Italian Red Cross Society.—A report of the transactions of the Italian Red Cross Society for the year 1903 has been recently published. The society, in addition to sending a liberal supply of hospital comforts to the Russian and Japanese Red Cross societies, extended aid to 296 soldiers returned from Africa and China, furnished 10 new mountain ambulances, and assisted at the military maneuvers at Venice with an ambulant war hospital of 50 beds and an accessory mountain ambulance. In the form of service in time of peace the society has assisted in the antimalarial campaign in the Roman Campagna, in the first care to the sick and wounded in the ordinary port service at Genoa, and in medical relief to laborers in the Sicilian sulfur mines. In the month of September of the present year this branch of the Red Cross Society furnished at seven sanitary stations prophylactic treatment with quinin to 1,843 persons in addition to individuals whose treatment was begun in previous months. In the area under surveillance there were in September, 122 cases of malarial fever, of which 96 were relapses and 26 primary attacks. These attacks occurred almost exclusively among individuals who had not undergone prophylactic treatment or in whom such treatment had been incomplete. Incidentally 84 persons not suffering from malarial disease were furnished relief. Fifty-one sick persons were transported to the hospitals at Rome. [*Public Health and Marine Hospital Service Reports.*]

OBITUARIES.

William E. Carroll, aged 57, of Newark, N. J., December 2, from pneumonia, at St. Michael's Hospital; a graduate of the College of Physicians and Surgeons, New York City, in 1884; member of the American Medical Association of the State of New York, and various local medical societies. He was surgeon to the Woman's Hospital. Newark, and a prominent physician in his home city.

Levi Curtis, aged 82, December 12, at his home in Philadelphia, from rheumatic affection of the heart. He graduated from Jefferson Medical College in 1847, and had for more than 50 years practised medicine in the city of Philadelphia. During the Civil war he was surgeon to the hospital barracks established near Broad and Cherry streets, Philadelphia. He was a member of the County Medical Society, and the Northern Medical Society, Philadelphia.

Fred. C. Cluxton, on December 16, committed suicide at his home in Bradford, Pa. He shot himself with a revolver, the bullet passing through his brain. He practised in Bradford since 1881, and was a graduate of the University of Victoria College, Cobourg, Ont., in 1871.

Louis J. Steuber, aged 36, December 8, from heart disease, in San Antonio, Tex. He formerly lived at Lima, O., and was recently appointed chief medical officer of a sanatorium at Sour Lake, Tex. He was a graduate of Rush Medical College, in 1891.

John T. Wills, aged 41, December 2, from tuberculosis, at his home in Sulphur Springs, Colorado; a graduate of the Kentucky School of Medicine, in 1890; member of the American Medical Association, and of various local medical societies in Colorado.

James D. Tatum, aged 48, of Trenton, N. J., December 18, at the German Hospital, in Philadelphia, where he had undergone a surgical operation. He graduated from the University of Pennsylvania medical department, in 1875.

Carlos L. Chambers, of Kasson, Minn., December 6, after an operation for appendicitis in a hospital at Minneapolis. He was a member of the American Medical Association, and a graduate of Rush Medical College, in 1882.

Martin L. Gerould, aged 63, December 4, from heart disease, at his home in Kirkwood, Mo.; a graduate of Harvard Medical School in 1866. He was acting assistant surgeon of the United States Navy during the Civil war.

Sherman C. Troxell, of Gallitzin, Pa., on December 15, sustained a stroke of apoplexy while preparing to perform a surgical operation; he died the same evening. He was a wellknown surgeon in the community.

B. L. Winston, aged 49, December 11, at his home in Hanover, Va. He graduated from the medical department, New York University, in 1885. He was formerly a member of the Virginia State Legislature.

Caswell J. Graves, aged 77, December 4, from angina pectoris, at his home in Payne's Depot, Ky.; a graduate of Transylvania University medical department, Lexington, Ky., in 1848.

Charles O. Belden, of Litchfield, Conn., November 27, at the Hopeworth Sanatorium, Bristol, R. I.: a graduate of the College of Physicians and Surgeons, New York, in 1882.

Martha Cornelia Holmes, December 5, after a brief illness, at her home in Waterbury, Conn.; a graduate of the Woman's Medical College of Pennsylvania, Philadelphia, in 1886.

James E. McClellan, aged 68, November 24, from diabetes, at his home in DeRuyter, N. Y.; a graduate of Long Island Medical College Hospital, Brooklyn, N. Y., in 1868.

Andrew J. McGaughy, aged 49, November 29, from typhoid fever, at his home in Linton, Ind.; a graduate of the University of Louisville medical department, in 1884.

Dennis O. Doneghue, aged 74, December 3, from pneumonia, at his home in Charlotte, N. C.; a graduate of the medical department of the University of Alabama, Mobile, in 1874.

John T. McColin, November 27, after a brief illness, at his home in Gravity, Ia.; a graduate of the College of Physicians and Surgeons, Keokuk, Ia., in 1877.

John Davis, aged 67, December 4, at his home in Gomer, Ohio; a graduate of the University of Michigan medical department, Ann Arbor, in 1863.

Joseph Fuqua Bass, aged 62, December 6, at his home in Richmond, Va., after a long illness; a graduate of Jefferson Medical College, in 1860.

Wilford Hickman, aged 46, November 23, at his home in Spencer, Ind.; a graduate of the Medical College of Indiana, Indianapolis, in 1883.

Claude H. Burke, of Burketown, Va., November 30, after a long illness, at Abiquiu, N. M.

L. Whitney, aged 60, December 16, at his home in Chicago, from heart disease.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 16, 1904:

	SMALLPOX—UNITED STATES.		Cases	Deaths
Illinois:	Chicago	Dec. 3-10	7	1
	Danville	Dec. 3-10	1	
Kentucky:	Louisville	Dec. 1-8	3	
Louisiana:	New Orleans	Dec. 3-10	4 2 imported	
Maine:	Cape Elizabeth	Nov. 1-30	1	
	Eagle Lake Plantation	Nov. 1-30	1	
	New Sweden	Nov. 1-30	1	
	St. Agatha	Nov. 1-30	1	
	St. Frances Plantation	Nov. 1-30	1	
Michigan:	At 75 places	Nov. 26-Dec. 3	Present	
Missouri:	St. Louis	Dec. 3-10	15	2
Nebraska:	Omaha	Dec. 3-10	1	
Ohio:	Cincinnati	Dec. 2-9	3	
	Toledo	Nov. 26-Dec. 10	3	
Pennsylvania:	Johnstown	Dec. 3-10	3	
	Philadelphia	Dec. 3-10	1	1
South Carolina:	Greenville	Nov. 26-Dec. 3	2	
Tennessee:	Nashville	Dec. 3-10	5	
Wisconsin:	Milwaukee	Dec. 3-10	18	

Smallpox—Insular.

Philippine Islands:	Marinduque Province	Oct. 29	Epidemic	
	Siguijor Province	Oct. 29	"	
	Surigao Province	Oct. 29	"	

Smallpox—Foreign.

Austria:	Vienna	Nov. 19-26		1
Brazil:	Bahia	Oct. 29-Nov. 12	36	3
	Para	Nov. 15	Epidemic	
Denmark:	Copenhagen	Nov. 5-12	1	
France:	Lyons	Nov. 19-26	1	
	Paris	Nov. 19-26	11	
Germany:	Munich	Nov. 19-26	2	2
Great Britain:	Glasgow	Nov. 25-Dec. 2	1	
	Manchester	Nov. 19-26	1	
	Newcastle-on-Tyne	Nov. 19-26	4	
	South Shields	Nov. 19-26		1
India:	Bombay	Nov. 8-15		7
Italy:	Palermo	Nov. 12-26	36	9
Mexico:	City of Mexico	Oct. 1-Nov. 19	15	5
Russia:	Odessa	Nov. 19-26	1	
	St. Petersburg	Nov. 12-26	8	1
	Warsaw	Oct. 22-29		9
Spain:	Barcelona	Nov. 20-30		7

Yellow Fever.

Mexico:	Merida	Nov. 20-Dec. 3	2	
	Texistepec	Nov. 20-Dec. 3	21	2

Cholera.

India:	Calcutta	Oct. 29-Nov. 5		11
Persia:	Gilan Province	Nov. 26	Epidemic	
	Mazonderom Province	Nov. 26	Epidemic	
	Resht	Oct.	10 daily	
	Tabriz	Oct.	400 daily	
Russia:	Baku	Nov. 4-8	6	
	Balachany	Nov. 4-8	5	
	Erivan	Nov. 4-8	132	62
	Samara	Oct. 17-24	65	14
	Tiflis	Nov. 7	1	
Turkey in Asia:	Mesopotamia	Oct. 22-29	96	89

Plague—Insular.

Hawaii:	Honolulu	Dec. 10		1

Plague—Foreign.

Arabia:	Aden	Nov. 4		1
Argentina:	Salta	Nov. 9-15	Epidemic	
Brazil:	Bahia	Nov. 5-12		8
Egypt:	Achmun District	Nov. 5-12	1	1
	Tukh District	Nov. 5-12	4	1
India:	Bombay	Nov. 8-15		75
	Calcutta	Oct. 29-Nov. 5		[illegible]
	Karachi	Oct. 31-Nov. 6	11	9

Changes in the Medical Corps of the U. S. Army for the week ended December 17, 1904:

Mason, Major Charles F., surgeon, will proceed to Fort Terry for the purpose of investigating and reporting upon the water-supply at that post, and upon the completion of this duty will return to Washington, D. C.

Mearns, Major Edgar A., surgeon, leave on surgeon's certificate granted November 17 is extended one month on account of sickness.

Hays, Melville A., contract surgeon, leave granted November 18 is extended one month.

Ives, Major Francis J., surgeon, is granted leave for three months from about December 20.

Stark, Captain Alexander N., assistant surgeon, is granted leave for two months, to take effect upon the expiration of his present sick leave.

The following changes in the stations and duties of assistant surgeons and contract surgeon are ordered: First Lieutenant William W. Reno, when his services at the Louisiana Purchase Exposition are no longer needed, will proceed to Fort Myer for duty. Contract Surgeon S. Chase de Krafft will proceed from Washington, D. C., to St. Louis, Mo., and report to the commanding officer, Philippine scouts, for duty with that command, to relieve First Lieutenant Carroll D. Buck. Lieutenant Buck will proceed to Fort Des Moines for duty.

The following named officers are detailed to represent the medical department of the Army at the fourth meeting of the Pan-American Medical Congress, to be held at Panama, January 3 to 6, and upon the adjournment of the congress will rejoin their proper stations: Colonel William C. Gorgas, assistant surgeon-general; Major Louis A. La Garde, surgeon.

Ashford, Captain Bailey K., assistant surgeon, is detailed to represent the medical department of the Army at the meeting of the American Public Health Association, to be held in Havana, Cuba, January 9 to 13. Captain Ashford will proceed from San Juan, P. I., to Havana, in time to arrive at the latter place on or before January 9, and upon the adjournment of the association will return to his proper station.

The following changes in the stations and duties of officers are ordered: First Lieutenant William P. Banta, assistant surgeon, is relieved from duty at Fort Sam Houston, and will proceed to San Francisco, Cal., and report for assignment to duty as surgeon of the U. S. Army transport Sheridan during the next voyage of that transport to the Philippine Islands, relieving First Lieutenant Matthew A. De Laney, assistant surgeon, of that duty. Upon arrival at Manila, Lieutenant Banta will report to the commanding general, Philippines Division, for assignment to duty. Lieutenant De Laney will repair to Washington, D. C., and report to the surgeon-general of the Army for duty as assistant to the attending surgeon in that city.

Brooks, Robert R., sergeant first class, Fort Myer, will be sent to Fort H. G. Wright to relieve Sergeant First Class Benjamin T. Raikes. Sergeant First Class Raikes will be sent to Fort Myer for duty.

Brewer Isaac W., contract surgeon, leave granted for one month is extended fifteen days.

Brewer, Isaac W.. contract surgeon, leave granted November 9 is extended fifteen days.

Raymond, Thomas U., surgeon, is granted leave for one month, to take effect December 1.

Wilkins, Archibald M., contract surgeon, will report at depot of recruits and casuals, Angel Island, Cal., for duty, relieving Contract Surgeon Alvin M. Guittarg, who will return to the status of leave.

Maus, Lieutenant-Colonel Louis M., deputy surgeon-general, is granted leave for four months on surgeon's certificate, to take effect upon the expiration of his present leave.

Ffoulkes, Bruce, contract surgeon, is relieved from duty in the department of the Columbia, and will proceed to his home, San Francisco, Cal., for annulment of contract.

Ffoulkes, Bruce, contract surgeon, is granted leave for one month.

Tuttle, George B., contract surgeon, leave granted July 30 is extended to include December 29.

Ewing, Major Charles B., surgeon, is granted leave for twenty-one days from about January 2.

Changes in the Medical Corps of the U. S. Navy for the week ended December 17, 1904.

Babin, H. J., medical director, retired from active service, December 15, 1904, upon which date he reached the age of 62 years, under the provisions of Section 1,444, Revised Statutes, with the rank and three-fourths the sea pay of the next higher grade, under the provisions of Section 11, Navy Personnel Law—December 9.

Foster, T. G., acting assistant surgeon, detached from the Michigan and granted leave until January 3; then to report at Washington, D. C., for examination for appointment as assistant surgeon in the Navy—December 9.

De Valin, H., acting assistant surgeon, ordered to the Michigan—December 9.

Harmon, G. E. H., medical inspector, detached from duty in charge of the Naval Laboratory, Brooklyn, N. Y., and ordered to duty in command of the Naval Hospital, New York, December 15—December 10.

Bertolette, D. N., medical inspector, detached from the Marine Barracks, Washington, D. C., and ordered to duty in charge of the Naval Laboratory, Brooklyn, N. Y., December 15—December 10.

Nelson, H. T., assistant surgeon, ordered to additional duty at the Marine Barracks, Washington, D. C.—December 10.

Kennedy, J. T., passed assistant surgeon, detached from duty at the Louisiana Purchase Exposition, St. Louis, Mo., and ordered to Annapolis, Md.—December 13.

Rothganger, G., surgeon, detached from the San Francisco, ordered home and granted leave for one month—December 13.

Evans, S. G., surgeon, detached from the Cleveland and ordered to the Illinois—December 15.

Holcomb, R. C., passed assistant surgeon, ordered to the Illinois temporarily and thence to the Cleveland—December 15.

Changes in the Public Health and Marine-Hospital Service for the week ended December 14, 1904:

McIntosh, W. P., surgeon, granted leave of absence for one day, December 10—December 9, 1904.

Stoner, J. B., surgeon, to proceed to Delaware Breakwater Quarantine and assume temporary charge during absence, on leave, of medical officer in command—December 14, 1904.

Wertenbaker, C. P., surgeon, detailed to represent the Service at meeting of American Public Health Association, at Havana, Cuba, January 9-13, 1905—December 7, 1904.

Blue, Rupert, passed assistant surgeon, granted leave of absence for five days from December 13—December 12, 1904.

Oakley, J. H., passed assistant surgeon, granted leave of absence for one day, December 13—December 12, 1904.

Wickes, H. W., passed assistant surgeon, granted leave of absence for one month from December 23—December 14, 1904.

Greene, J. B., passed assistant surgeon, granted leave of absence for fourteen days from December 19—December 14, 1904.

von Ezdorf, R. H., passed assistant surgeon, granted leave of absence for six days from December 12—December 12, 1904.

Anderson, J. F., passed assistant surgeon, detailed to represent the Service at meeting of the Laboratory Section of American Public Health Association, at Havana, Cuba, January 9-13, 1905—December 8, 1904.

Bahrenburg, L. P. H., assistant surgeon, granted leave of absence for twenty-one days—December 14, 1904.

Burkhalter, J. F., assistant surgeon, granted leave of absence for twelve days from December 24—December 9, 1904.

Jackson, J. M., Jr., acting assistant surgeon, Department letter of October 10, 1904, granting Acting Assistant Surgeon Jackson leave of absence for thirty days from October 26, amended to read thirty days from November 26—December 8, 1904.

Keatley, H. W., acting assistant surgeon, granted leave of absence for eighteen days from December 10—December 7, 1904.

Primrose, R. S., acting assistant surgeon, granted leave of absence for eighteen days from December 5—December 7, 1904.

Henrath, F. H., pharmacist, relieved from temporary duty at Cleveland, Ohio—December 13, 1904.

Resignations.

Acting Assistant Surgeon B. Y. Harris resigned, to take effect December 15, 1904.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

THE MATERNAL IMPRESSIONS OF A MILITARY SURGEON.

BY

MAJOR CHARLES E. WOODRUFF,

Surgeon U. S. Army.

To the Editor of American Medicine:—In your issue of February 8, 1902, there is a letter from Dr. Joseph Jeffrey, of Chicago, Ill., which, among many other intensely interesting statements, contains the innuendo, that as I am "an army surgeon of several campaigns," my opinions on obstetrics and such allied topics as maternal impressions are about as valuable as his opinions on camp sanitation. As this is a direct charge that I am not competent to perform the duties of a post surgeon by reason of competency in military matters, it is but justice to the very capable men of the two boards which have examined me, and pronounced me competent, that I should reply. I am quite sure that Dr. Jeffrey would not have made such an insinuation had he realized that there is nothing in a name, and that army surgeons are really obstetricians. They are supposed to be official experts in the specialty of military medicine, including all the branches of camp and barrack sanitation, relations to health, of clothing, climate and food, modifications of civil surgery found necessary in the same classes of cases far from modern operating-rooms, whether found on the battlefield, lines of communication, or in temporary sheds in dirty surroundings, where a modern surgeon would not dream of operating, diseases peculiar to troops, anthropology as related to the selection of recruits, and a host of other subbranches about which a civil physician never bothers. But, legally, army surgeons are specialists in only one thing—obstetrics. Practically most army surgeons are experts in the foregoing specialties, though during the late war with Spain many had no opportunity to practise their specialty to any dangerous extent, but ornithologists, veterinarians, bacteriologists, pathologists, gynecologists, and other ologists guided and directed them. A surgical operator is needed of course, so is a pathologist, and a chemist and a cook, but none of these in the absence of expert knowledge of military medicine is any more fit to be put in charge of the medical department of a large army than an expert bridge riveter is to take charge of all engineering work of a railroad system. Indeed, a great American surgeon has made military suggestions which would be simply murder if carried out on a battlefield. I have a keen recollection of a boyish-looking doctor coming to me early in the Spanish war, with a request that I would tell him something to do. He would have liked to work, and there was plenty to do, God knows; but he was idle. I was astounded to find that he was my superior officer, recently appointed—and I, after 22 years of preparation, was to tell him how to issue orders to me. But he was an able obstetrician, barring a trifle of morphinomania, which is a qualification not permitted in the regular army obstetrician.

In the century and a quarter that this great nation has found it necessary to employ professional and highly trained experts to help its military officers keep the soldiers well enough to fight, it has only once defined the duties of these experts, who are called officers of the medical department. It employs experts to prepare weapons and ammunition, and defines their duties, and highly trained specialists to do all the engineering, and defines their duties, but nowhere does it define the duties of the far more numerous class which keeps the soldiers in health, except once, when Congress passed a bill declaring it the duty of officers of the medical department to give gratuitous professional services to the families of officers and soldiers when practicable. Formerly army surgeons were only too glad to give these services as a courtesy, and took the greatest pride in them, as they do yet for that matter. The relations between surgeon and patient were confidential as in civil life, but the law changed all this. Formerly the post commander could not inquire into such private affairs, but now it is his right and duty to inquire why it was that the surgeon spent so much time with Lieutenant and Mrs. X, instead of being at the hospital; and the surgeon will have to explain the details of the obstetric case if required. It is an official military duty, and all confidential relations between physician and patient are destroyed by law. All family secrets which in civil life are sacredly guarded by the family doctor are, in the army, a proper matter for official record of an official duty. We have the proud distinction of being the only obstetricians officially employed by this great nation, and army ladies are the only ones entitled to have the details of their obstetric trials recorded in the national archives. A new specialty has been created—military obstetrics.

There is another law which permits the Secretary of War to place medical officers on any duty that he thinks best. He can put us to making shoes, gunpowder, or pills, and it will be lawful; he can order us to duty as clerks, druggists or librarians, and we do it; but nowhere is any duty explicitly stated by law—except obstetrics. Of course the law was passed at the solicitation of some unknown genius, who considered it more important to define our obstetric duties than our sanitary duties, and who considered the lives of our soldiers less important than the babies.

How our dreams are shattered on joining the army! Instead of campaigns and caring for soldiers, we are confronted with obstetrics! If we leave the post for a short practice march, we are wired to return to see Mrs. X—more obstetrics. If we desire a vacation Mrs. Y asks us to postpone it so as to arrange for her obstetrics. If I am a member of a board or court, I must occasionally ask them to adjourn for the day on account of Mrs. W's obstetrics, and away off in this remote part of the Pacific, what do I find my first duty? Obstetrics! In the first rush of the Spanish war, when organization was being considered, when civil obstetricians were tumbling over themselves in the wild scramble for army commissions, what were some of the army surgeons practising? Obstetrics. It is like "Alice in a Looking Glass"—the warlike were peaceful, and the peace-loving were warlike.

In our professional examination for promotion from assistant surgeon to surgeon, in what do we find the most searching questions? Obstetrics and gynecology. It is even rumored that a medical officer failed in his examination and was declared unfit to treat soldiers, because he could not tell properly how to remove a woman's ovaries through her vagina. Truly, then, until Congress shall by law define our duties with troops, our titles should be changed to correspond with our duties with the ladies as defined by law—colonel and chief obstetrician; major and obstetrician; captain and assistant obstetrician.

The army ladies would be proud to know that they are the only women in the country who have their labors lightened by commissioned officers, whose obstetric duties are defined by the laws of the land. It would be a good plan to have a professor of military obstetrics in the army medical school to teach the only things specially ordered by Congress—obstetrics, gynecology, and pediatrics in military life.

Is it any wonder, then, that after watching for 15 years the official debut of military babies, our minds in accordance with the law should run to maternal impressions?

Dr. Jeffrey should collect data, proving that maternal impressions really do affect the fetus. He should study the work of his former illustrious townsman, Jacques Loeb, and in the words of another writer, find from it most wonderful proof of the fact, that "After the union of the two (germ and sperm) cells, the influence of either parent seems as slight as that of a hen brooding over its nest of eggs. An incubator may replace it, a fact the wide significance of which seems somewhat to have escaped those who prattle of maternal influence." Only recently these claim to have found a baby cutting yellow teeth as a result of maternal impressions, the mother having had a gold tooth put in her mouth during pregnancy. I suppose military babies ought to be born with spurs on. Some recent cases reported are just as sensible. Philippine women are firm believers in maternal impressions and are ardent admirers of blond American babies. A gentleman of my acquaintance was much astonished at first, to find a lot of pregnant Philippine women leaning on his fence for hours every day, gazing on his beautiful baby, so as to have one like it through maternal impressions. What a fine way to settle the Philippine question! Send an American baby to each village for the women to gaze on. Then nothing but American babies will be born, and in 100 years the Philippine will be wholly blond American. Simplicity itself!

The history of the United States shows that there are few rewards for the army doctor who becomes an expert in his specialty of military medical science, except the consciousness of duty well done. Rewards, honors, renown, and promotion are reserved exclusively for those who drop their calling and take up something else; one man is renowned for his work in stomach digestion, another as a librarian, others as writers and investigators of fevers, others as leaders of troops, others as writers of unsigned editorials, anthropologists, ornithologists, bacteriologists, chemists, and what not. Military surgeons who have done wonderful work go home unknown, but one who has caught a smuggler is highly praised.

The two great American military surgeons, the greatest in the world, indeed, whose methods have revolutionized field work and have been copied by all civilized nations, are unsung, unhonored, and unknown. This topsy-turvy condition could be brought home by imagining neither honors nor rewards to Flint until he had stopped a runaway horse, nor to Gross until he had led a sheriff's posse in capturing a burglar, nor to an obstetrician until he had done something in astronomy, nor to a pathologist until he had worked at a catalog of books. No one is to blame for the state of affairs in army legislation. It is inevitable, and a result of combining scientists with warriors, and doubtless can be remedied only by very slow degrees, if ever. Indeed, there are practical advantages in the present, for it enables us to do legally any duty beside obstetrics which circumstances may occasionally render necessary, though it would be decidedly better to have our military duties defined and our obstetric duties omitted. Then, again, no soldier should ever be given extra rewards for doing his duty, or it will be equivalent to announcing that he is not expected to do his duty. It is the basis of military life that extra rewards are for extra duty only—outside of the strict line of duty, whether it is original work with microscopes or babies, or anything, except military medical science. Nevertheless, it is disheartening and discouraging to know that a great military surgeon goes on the retired list as a colonel, without a word of praise or any reward for duty well done, while the only one rewarded by the people, gets his reward for civil medical work wholly disconnected from military medical duties.

If an army surgeon is successful with the babies, he is considered by the army a good military surgeon as a rule, even if he be so ignorant of sanitation as to permit soldiers to sicken in the field. One surgeon was court-martialed once on suspicion of neglecting a baby, but has any one ever heard of punishment dealt out to any of the surgeons suspected of neglecting sanitation in the camps of 1898? What, then, can be a more happy selection of a specialty for a military surgeon than obstetrics and maternal impressions? We stand by the babies and ladies in accordance with law, and let the soldiers take second rank in our professional affections. Then again, we formerly had a curious habit in all armies—when a man distinguished himself in any way, we promoted him to another position where he cannot possibly do it again. Who knows, then, but that in the next war the military obstetricians may pick some of the plums seized by the civil obstetricians in 1898?

Poor military surgeon! If he doesn't learn all about maternal impressions, he is not competent to fulfil the law, and he meets the displeasure of the army. If he does become learned he offends Dr. Jeffrey, of Chicago, Ill.

At present, our obstetric duties necessitate a larger medical department in proportion to the number of troops than any other army in the world. There is a crying need for a great increase in personnel, for we are constantly shorthanded. At most posts, I have frequently spent more time with the families than with soldiers.

Formerly, officers were induced to marry and were furnished houses and obstetricians. Scandals were so few that when one did occur, the yellow press had a juicy prize to which they devoted a half page daily. This is all changed now, as this, the richest nation in the world, cannot afford to build houses for all its officers out on the cold frontier, and wants to brigade them. Hence, marriage has to be frowned upon, and the military obstetrician will be a thing of the past, as officers will be too old to have babies when they reach matrimonial rank. Then the law will be moribund, and the yellow press take a new lease of life, and Dr. Joseph Jeffrey will be happy.

Since the beginning of the Spanish war, about a thousand young men have been made officers, and they are marrying as young men always have and always will, and military obstetricians are in more demand than ever in the history of the army, to look after the present flood of military babies. We will stand by them in accordance with law, even if we have to offend all the mere civilian obstetricians in the country.

FILTHY MONEY.

BY

ALBERT H. FRIDENBERG, M.D.,

of New York City.

The profession, individually and collectively, can render a great service to the community, in a matter of daily concern, at no loss of time and with little effort.

We have all noticed how frequently we are obliged to receive, handle and pass along currency that is so dirty and dilapidated as to be unfit for circulation. The condition of much of our paper money, the bills of lesser denomination especially, is such, as to constitute a direct and daily menace to health, to say nothing of the annoyance and disgust the unavoidable contact with the "filthy lucre" engenders.

It is a matter of notoriety that, as regards decency of appearance, our United States money cannot compete with most foreign money. Abroad, with the exception of the fractional currency of Italy and Austria, it is a rare thing to find oneself in the possession of banknotes that are not fresh, clean and crisp. I am informed that in England the public is so indulged in this particular, that it is the custom of the Bank of England to cancel, destroy and reissue all notes, soiled or not, that are presented for payment.

I want to interest the members of our profession, who should be leaders in all good examples, in a simple scheme to relieve the community of such paper money as has outlived its youthfulness (if not its usefulness), and, to this end, I make the following suggestion, based on a practice I have been pursuing consistently for some time.

Let each and every one save up, put aside, hoard all such bills when received, resisting the temptation to use them to pay even the "cabby," headwaiter, or the office boy. When a sufficient quantity has accumulated—twenty, thirty, forty—assort and label them, take them to the bank and ask the teller to exchange them for clean bills, fresh from the mint, with the earnest request that the old bills be forwarded to Washington to be cancelled and destroyed. In my experience this request has always been most cordially acceded to. Let it once become known that physicians, as a class, are addicted to this hobby, that it is, so to say, one way of expressing their protest against uncleanliness in any form, and their faith in the germ theory, in addition, and it will not be long before the idea will find acceptance in other walks of life, and finally be taken up by the great unwashed.

I trust this little contribution to a sensible object may not appear too insignificant to your readers to merit their favor and cooperation, through which alone it can achieve some measure of success.

Texas Fever in the Philippines.—An interesting report by Drs. Jobling and Woolley, on Texas fever of cattle in the Philippine Islands, is published by the Bureau of Government Laboratories, Manila. Some imported American cattle, after inoculation for rinderpest with the blood of native animals, rapidly died with all the symptoms of Texas fever. Investigation proved that Texas fever was endemic among the native cattle, which, however, had acquired an immunity and suffered but little from the disease. The species of tick in the islands was found by Mr. Banks, government entomologist, to be the Australian variety.

ORIGINAL ARTICLES

RÖNTGEN RAYS IN THE TREATMENT OF LEUKEMIA: A STUDY OF REPORTED CASES.

BY

GEORGE DOCK, M.D.,

of Ann Arbor, Michigan.

To the list of agents that may reduce the number of leukocytes in leukemic blood we must add röntgen rays. Senn first drew attention to this, in August 1903, a case previously reported by him under a misleading title, as well as one or two others, having had little or no influence. Brown's patient was under treatment seven weeks before Senn's article was published. Reports are now rapidly appearing in medical literature. They show many things that are at present difficult to understand, but emphasize the interest and importance of the subject. Having had occasion to examine the available reports in connection with two patients I am now treating, I thought it might be useful to publish the results of my analysis now, for my own cases cannot be in condition to report for some time.

It would seem that efforts to treat leukemia by röntgen rays were first prompted by the results of the treatment of certain tumors—tumors that have many resemblances to leukemic growths; but Senn, in his second report, denied the value of röntgen rays in carcinoma and sarcoma. He thought the röntgen rays destroyed microbes, whose relation to leukemia he did not doubt. "It appears to me," said he, "that the microbes of splenomedullary leukemia are very susceptible to the destructive action of the röntgen ray, as the response to this treatment is very prompt and often violent, followed by a speedy return to normal of the spleen, medullary tissue and the histologic constituents of the blood." Considering the wide dissemination of leukemic processes in the body it does not seem likely that at the time the disease is usually recognized direct but local antimicrobic treatment could be of much value. In Senn's report, however, a different action was suggested as possible. He spoke of "high temperature and other symptoms of intoxication," and one might suppose that the absorption of broken-down cells or their products, following the röntgen ray exposures, acted upon the blood in the same way that substances produced in certain diseases do.[1] It was not until much later that certain experimental investigations made this supposition more probable. Heineke has reported a selective degenerative action of röntgen rays on the lymphoid elements of the spleen and other tissues, and has suggested the use of the röntgen rays in such diseases as leukemia, pseudoleukemia, malignant lymphoma, enlarged thymus, etc., for that reason. Perthes, Scholz and Exner had already shown that röntgen rays cause irritant effects on connective tissue. As experiments on animals are now being made by my colleagues, Drs. Warthin and Morris, I shall not discuss this part of the subject further, but merely emphasize their importance in helping to explain the changes under consideration.

Cases Reported.—I have studied the original reports of 29 cases. Beside these there are perhaps others not clearly indicated by titles. Many other patients have doubtless been treated without being reported up to this time. S. S. Cohen,[2] in an editorial note, speaks of personal experience with the röntgen ray treatment of leukemia. A news item[3] states that Dr. Bozzoli, of Turin, says he "has cured by röntgen rays a supposedly incurable case of leukemia." Philip King Brown mentioned a case in the discussion of Cheney's paper. Taylor briefly mentions a second patient doing well under treatment. Chester speaks of two cases verbally reported to him and Dr. McCrae writes me that two patients have been treated at the Johns Hopkins Hospital. At the Fourteenth Congress of the Italian Society for Internal Medicine,[4] Colombo reported three cases with a primary fall of red cells and rise of leukocytes, followed after prolonged treatment by a rise of the red corpuscles and diminution of leukocytes.

Cases of leukemia should be classified as accurately as possible according to peculiarities of blood picture and changes in the hematopoietic organs. I have considered the cases under groups that may not be entirely satisfactory, but seem to answer the present needs fairly well.

Two cases were of the acute lymphatic form, and both patients died. Churchill's, with streptococci in the blood in the beginning of röntgen ray treatment, died too early to consider. As Capps and Smith's patient died within 10 days, I think it, too, should not be considered. Capps and Smith may be right in saying that in acute cases the patients are not proper subjects for röntgen ray treatment. On the other hand we have at present nothing better. Such cases, if recognized early, and especially before dangerous secondary infections occur, would seem to be most appropriate for careful attempts at treatment. In the earliest stages they will sometimes be difficult or impossible to distinguish from various other forms of lymphoid neoplasm, so that the most careful blood-examinations should be made in all cases of socalled lymphosarcoma, etc., in which the patients are under treatment by röntgen rays. Two subacute lymphatic or lymphocythemic cases have been reported by Capps and Smith. One patient was under treatment 10 months, the other 6 weeks. Both died. In the one longest under treatment the spleen was very much reduced, the glands returned to nearly normal size, the leukocytes fell from 70,500 to 25,000. In the other case there was no effect.

Of the chronic lymphatic cases, five in number, Senn's patient, whose case was reported in April, 1903, was still alive in March, 1904, having been much improved. It seems to have been the same patient reported as dead in Capps and Smith's table, October 1, after 16 months' treatment. Full details of the condition between the first publication and the end should be very valuable. In the case of Pusey, the patient died after eight months' treatment, having had a marked reduction of the spleen and glands and of the number of leukocytes (74,000 to 12,000). In Grad's case the patient improved. Details are lacking. In one of Capps and Smith's cases, after five months' treatment, the spleen and glands were much reduced, the leukocytes fell from 150,000 to 4,200. In the other, the spleen and glands, after eight months' treatment, were nearly normal size; leukocytes 295,000 to 6,800. Obviously, so far as the facts go, there is every reason for further efforts in this class of cases.

There are 21 reports of mixed-celled, myelogenous, or splenomedullary cases. Some of them are impossible to utilize. Pusey's first patient was not treated long enough. The cases of Guilloz and Spillmann and Guerra cannot be analyzed with the others. In the first, said to be a splenic leukemia with severe anemia, there were only 11,200 leukocytes and no details are given by which to confirm the diagnosis. The leukocytes were lessened after each exposure, the red cells increased, and the leukocyte formula was modified. The spleen, general symptoms, and epistaxis improved, but the red corpuscles numbered only 1,560,000 at the end of treatment. Guerra's case was not accessible to me in the original. According to an abstract, there was great improvement, but the blood retained its leukemic characteristics. The number of leukocytes became almost normal, but later increased.[*]

In 11 patients under treatment the leukocytes fell to normal, or near it, as shown by the table:

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[*] This is perhaps the same case reported by Bozzolo and Guerra, with a case of lymphatic leukemia, in the *Giornale della R. Accad. di Torino*, Nos. 7 and 8, 1904. Abstracted in *La Riforma Medica*, No. 34, 1904, p. 942.

Senn	64,000 to	normal
Brown	800,000 to	7,130
Bryant and Crane	176,000 to	4,500
Weber	828,000 to	7,200
Ahrens	1:1 to	1:525
Grosh and Stone	252,000 to	10,600
Evans (2)	250,000 to	12,600
Taylor	147,000 to	7,480
Eastman	1,110,000 to	normal
Chester	244,500 to	12,600
Fried	89,285 to	6,785-22,500

In seven cases the reduction was less marked, as follows:

Aubertin and Beaujard	124,000 to	52,000
Krone	1:8 to	1:20
Dunn	128,000 to	37,000
Cheney	126,000 to	45,000-70,000
Evans (1)	240,000 to	132,000
Capps and Smith	409,000 to	46,500
Fried	185,000 to	31,400

That is, in 11 cases the leukocytes reached a normal point, in 7 ·they remained high enough to suggest leukemia in the absence of any other cause for leukocytosis. I have made an arbitrary division between patients with 12,600 or less and those with 31,000 or more leukocytes per cubic millimeter. While 12,600 is too high for an average normal, it is within a normal range. For an exact classification I think we should require a count of not more than 9,000 leukocytes some part of the day. At present this is not of great importance. The important fact now is that in only two-thirds of the cases was there such a fall in the number of leukocytes as to justify a claim of marked improvement *so far as the number of leukocytes can be used for that purpose.*

The differences challenge our attention at once, and some explanations may be considered before going on to the more detailed study of the cases. The results might be supposed to depend either upon differences of dosage, that is, of intensity of treatment, or in mode of administration, or to the earlier or later stage of the disease in which treatment was instituted. I do not think the true explanation can be deduced from the cases now available. The estimation of the duration of leukemia is often impossible, because patients cannot give statements by which we can recognize the onset within many months. Most of the cases seem to have been of relatively long standing.

Technic of Treatment.—There are marked and at present unavoidable differences in the mode of administration. Some patients were treated only over the spleen, others over the spleen, epiphyses of the long bones, or the long bones themselves, and the sternum. None, so far as I can learn, have been treated over the bones alone. I am making observations in this with disappointing results, but would urge others to add to our knowledge. Oliver, in Cheney's case, saw less effect by treating the bones than the spleen. Good results have followed the treatment of the spleen alone. (Cases of Evans and Weber; in that of Taylor there was great improvement in the leukocytes, but the patient died.) Others, as Evans and Dunn, did not have as good results, but quite as good as several who treated the bones as well as the spleen.

Differences in the length of single exposure in different cases do not seem to have been very great. This factor, like the other one of frequency of exposure, must often be determined by the subjective or objective reactions in the skin. Exposures of 10 minutes to 20 minutes in one place, or a total exposure of about that duration in different places, have been most frequent, and these have been given every day, every other day, or still less frequently. Aubertin and Beaujard treated their patient only once a week. Colombo, whose results do not seem to have been unusually good, exposed for 40 minutes, over spleen, sternum, elbows, and knees.

The dosage of röntgen rays is also impossible to estimate, because in many cases no special details are given, but there are contradictions in the results, even when the treatment seemed similar. The points that should be considered in reference to dosage are, the degree of vacuum of the tube used, the distance of the anticathode (better than that from the outside of the tube) from the part exposed, the time and frequency of exposure, and the value of the exciting current. We do not know the relative or absolute importance of the various factors. Some of the measurements, as of vacuum, are imperfect in general, others, as of potential, amperage, and interruption, may not be easy to estimate in single cases. All these things should be as fully described as possible in future reports of cases if we are to put the matter on a basis approaching the exact. The advantage of following the progress of invention in instruments for measurement, as the various radiochronometers, needs no special remark.

Duration of Treatment.—There are differences in the results compared with length of treatment that cannot, apparently, be reconciled in the present state of knowledge. Brown and Weber took respectively 6 and 5 months to bring the leukocytes to normal; Bryant and Crane, 1 month; Ahrens, 40 seances, at long intervals of 5 or 6 days; Taylor, 40 seances; Grosh and Stone, 6 weeks; Chester, 10 weeks. The cases of Brown and Weber had more leukocytes in the beginning than the others, but this does not account for the difference.

As examples of the present difficulty in arriving at a conclusion, among the cases that reached a normal count, tubes of low, medium and high vacuum were used. More are described as medium (5) or hard (1), but Weber, who used a low tube, had one of the best results. Exposing over the spleen, 15 minutes daily or 3 times a week for 5 months, he saw a fall of from 328,000 to 7,200 leukocytes, with spleen to the margin of the ribs, general condition good, and no myelocytes. Evans, with a medium tube, 15 to 20 minutes daily, had a fall of from 250,000 to 12,000 in 61 treatments (3½ months), but in another case, with a similar vacuum, he got a reduction of only 240,000 to 77,000 in 4 months, rising in another month to 117,500.

The two cases of Fried can be compared better than others, because the conditions of exposure were identical. The tubes were medium hard, at 30 cm. distance, with "slow" motor interrupter, 1 ampere, 80 to 120 volts, with a gradual increase of tension and strength, and applied for 3 to 15 minutes. Both patients were treated about the same length of time (1 month). One had a fall of from 98,500 to 7,685, increasing in two days to 22,500, the other a fall of 185,000 to 31,400.

Using a hard tube, Ahrens had a fall to normal in 40 seances, exposing spleen, epiphyses and sternum; while Dunn, with a hard tube also, over the spleen alone, in 75 seances had a reduction to 37,000.

Theoretically, a hard or high vacuum tube should be better in the treatment of internal organs, like spleen and bone marrow, because the rays are supposed to traverse the superficial tissues and affect the deeper ones. With hard tubes, too, there is less danger of burns; but these things are, as yet, not absolutely settled. Careful experiments and exact measurements are needed.

Qualitative Changes in the Blood.—Of course, in the improvement or recovery of leukemia, it is necessary to consider not merely the number, but the kind of leukocytes. The reports are not as full in this as could be desired. In the cases of Ahrens and Taylor, details are lacking. In those of Senn, Brown, Bryant and Crane, Weber and Eastman, the leukocytes are either said to be normal, or myelocytes are explicitly said to be absent in the stage of apparent recovery. In the case of Grosh and Stone, there were 2% of myelocytes at the end, or 212 per cm.; in that of Evans, 15%, or 1,512; in Chester's, 1%, or 126; Fried, 2,500 at the lowest count. Among the less favorable cases, Dunn's had 15% of myelocytes, or 5,550; there were 27% in Cheney's, or 18,900; in Fried's, 11,571 (highest 27,857). Other details, as the variations of the eosinophiles, basophiles, degenerated leukocytes, and nucleated red corpuscles, are not fully enough described to permit analysis.

Aubertin and Beaujard were the only authors to make careful studies of the effects of the röntgen ray treatment upon the leukocytes. They treated usually over the spleen for 18 minutes, using a tube of a vacuum corresponding to No. 6 on the radiochronometer of Benoist, or No. 5 of the chromoradiometer of Holzknecht, at 25 cm. from the anticathode. They observed a rise of leukocytes beginning soon after the treatment, and reaching its height in about six hours, followed by a fall to a lower point than before. The changes were less marked in the later seances. There was an increase of polynuclear cells and decrease of myelocytes after each treatment, returning to the original formula. There were no differences of structure, no modifications of the granulations, the degenerated cells, or karyokinesis. The nucleated red cells did not vary appreciably. The authors thought the röntgen ray caused the polynuclear cells to emigrate by some action on the myeloid tissue. Several reporters state that the improvement continued during temporary suspension of treatment, but Cheney noted an increase of leukocytes with cessation of treatment.

Red Blood-corpuscles.—The changes in the red blood cells do not receive as much notice as those of the leukocytes. Out of 12 of the myelogenous cases, a gain was observed in all but one, Evans' less favorable case. In some others the gain was not very great. So, in Evans' other case there was a rise of from 2,450,000 to 3,600,000 in 3 mo.; in Grosh and Stone's case, 2,464,000 to 3,578,000; Taylor's, 1,575,000 to 2,976,000. In the cases of Weber and Cheney no medicine was administered during röntgen ray treatment; in Brown's, none in the later part; in some others, arsenic, iron; and in Grosh and Stone's case iron, arsenic, and mercuric chlorid were used. Cheney's remarks may be quoted in full: There was "a remarkable improvement since röntgen ray treatment was begun. The red corpuscles promptly rose during the first two weeks from 2,608,000 to 3,250,000. Then while treatment was suspended, they remained stationary about that point, but when treatment was resumed, they again increased until they numbered 4,000,000. They have practically never since fallen below this point, and have been as high at one period as 4,750,000."

Nucleated red cells have often been seen to disappear, but notes on this point are incomplete. The hemoglobin has usually increased with the red cells.

Effects on Glands and Spleen.—The effect of the treatment on the diseased organs is sometimes most striking. I have already mentioned the results in the two cases of subacute lymphatic leukemia. In all the chronic cases the glands diminished. In Pusey's and one of Capps and Smith's they reached normal size or very near it. In Pusey's case the change was very rapid, followed closely after the röntgen ray treatment, and had not been intimated in 15 months before. In the patients with splenic enlargement the effects on the spleen were by no means uniform. Among patients with a normal number of leukocytes, the spleen diminished markedly in eight, moderately in three. In the others the spleen was much reduced in one, moderately in four, little or none in two. I have considered as markedly decreased only those spleens that could be felt not far beyond the margin of the ribs. In Senn's second case according to the photograph, the spleen was still larger than normal. In Brown's case it was not palpable, even in the deepest inspiration. In the case of Ahrens the spleen was not palpable after 50 seances. Forty days later a "relapse" occurred, following exertion and a "cold." There was pain in the splenic region, and a tumor appeared there next day, extending to the iliac region. In 11 seances the spleen went down again, but after the onset of dyspnea, fever and sweating, death occurred, and the spleen postmortem weighed six and a half pounds. In Evans' most favorable case, the spleen diminished, was not palpable after 36 exposures, and after 45, normal in size and position. In Taylor's case the spleen became scarcely palpable; in the cases of Weber and Chester it was palpable at the margin of the ribs. In the case of Grosh and Stone, the spleen became smaller, but not much so; in that of Eastman it was at the best a fifth above normal. In Fried's case the spleen extended two fingers' breadth below the ribs and the area of dulness measured 13 cm. long. Both statements indicate enlargement. Among patients with less marked improvement of the blood, the spleen was moderately reduced in the cases of Dunn, Evans and Krone, "much" in that of Capps and Smith. In the case of Aubertin and Beaujard, the spleen was not changed, though the patient thought it smaller after each treatment. In Cheney's case, the spleen did not become smaller.

It has been shown by a number of writers that complete reduction of the enlarged spleen cannot always be expected. Connective-tissue overgrowth may prevent the organ from resuming its original size. At the same time I cannot assume, with some writers, that in no case has the leukemic spleen reached normal size under röntgen ray treatment. From a clinical standpoint, this seems to have occurred in some cases.

General Effects.—Leukocyte count and size of spleen are relatively easy to determine and state. The general condition is not so easy to describe in exact terms, but so far as subjective sensations are concerned, these were improved in most cases, while such symptoms as edema often quickly disappeared. The general improvement was sometimes marked when the blood and spleen were but little altered.

One of the cases most obviously benefited and most carefully reported is that of Cheney:

> The patient was first discovered to be leukemic in April, 1902, and was treated in various ways up to October 1, 1903. The condition then was worse than when the disease was first recognized, and "the outlook was for a fatal termination within a few months at most." The marked symptoms were pallor, weakness, shortness of breath, and abdominal distention. They had kept the patient from doing any work for the previous six months. The spleen was very large; there was ascites. Red corpuscles, 2,508,000; white, 126,000; hemoglobin, 47%. Röntgen ray treatment was begun in October, 1903. A soft or low vacuum tube was used, with static or street current. The duration was 12 to 15 minutes; the distance usually 10 inches from the body, rarely 8. The site was the spleen, except when there was dermatitis, when the thighs, legs or sternum were exposed. At first the treatment was given every day, but it was soon found the skin would not tolerate it, and it was then given every other day, except once or twice, when, on account of dermatitis, it was interrupted for a week. In nine months 144 applications were made. At the end of a week the patient felt much better, did not tire so easily, could walk farther, and could eat without abdominal distress. By the end of two months he felt perfectly well, had lost his pallor, looked well, had gained 10 pounds in weight, and felt none of the old symptoms of weakness, dyspnea, and abdominal distress. From the end of November to July, the date of the report, "his invariable report has been that he feels perfectly well and would not know anything was the matter with him, except for his enlarged abdomen and his blood-counts. He worked every day continuously after December 1."

But although the improvement here may be credited to the röntgen ray treatment, and had not been approached by other measures used, it should not be forgotten that many patients with leukemia have gained as much under arsenic and other drugs, and a few very much more. For it is interesting to note that in this case the spleen was not "materially changed in contour;" the leukocytes fell once to 45,000, but most of the time fluctuated between 70,000 and 90,000. The myelocytes at the lowest were 27%. The red cells rose to 4,750,000, the hemoglobin to about 75%. Nucleated red cells disappeared in about a month. So that when the author speaks of the patient as symptomatically cured, he uses the word symptom in a narrow sense and leaves out of consideration the cardinal symptoms (or signs) enlarged spleen and leukemic blood. "Greatly improved" would seem a better term, and the result seems rather such as might be due to general stimulation, as by suggestion, rather than to a specific process. The duration of improvement can not be given in average figures, as statements regarding it are rare. It is much to be desired that the condition of the patients in all the cases hitherto reported, who were alive at the time of publication, be reported in full at death, or if alive at intervals of a year or so.

Deaths and Toxic Effects.—The improvement often observed is in striking contrast to the fact that relapses and even deaths have occurred among patients apparently most improved, not only generally, but as regards the blood. Of the splenomyelogenous cases four patients have been reported dead and I have recently heard of the death of another—that of Brown. In itself, the death of 5 out of 18 patients with leukemia within 18 months is not remarkable, and would not be ground for reflecting upon the treatment carried out, but some of the patients died under circumstances that warrant more particular consideration. Toxic symptoms have been noted in several. In Pusey's case of chronic lymphatic leukemia, after the eighteenth exposure, "symptoms which resembled miliary tuberculosis" occurred after a dry dermatitis. These symptoms subsided, the glands became smaller or disappeared and the general condition improved. In five and a half months a new group of glands became enlarged, but grew small after four exposures to röntgen rays. A few weeks later they began to enlarge again, and death followed soon, "in an acute, apparently septic attack. In Senn's first case toxic symptoms began after 15 treatments, with loss of appetite and increase of anemia. Toxic symptoms recurred after dermatitis, but were followed by great improvement. An increase in the size of the spleen Senn attributed to absorption of the products of degeneration of the tissues. In his second case, Senn described toxic symptoms when the spleen began to grow smaller, about three weeks after beginning treatment. In Ahrens' case the patient seemed to be well, and thought himself able to neglect treatment and to work, but after overexertion and "cold" a relapse occurred, with renewed leukocytosis and though the spleen became smaller again under treatment, toxic symptoms came on, with death from "suffocation." In Grosh and Stone's case dermatitis developed about the time the blood showed an almost normal leukocyte count. "Suddenly, *i. e.*, within a few days, the patient began to fail in strength, and died from general asthenia. The superficial burns were healing nicely. No evidence of an intoxication caused by the rays, such as rise of temperature, seroalbuminuria, etc., had been noted at any time."

Taylor's case is one of the most instructive, both in the improvement of the patient and in the death.

> The disease was of at least two years' standing. The spleen reached one and a half inches to the right of the umbilicus, and to the level of the ilium. The skin and mucous membranes were very pale and muddy. Emaciation was extreme. For months, diarrhea had been almost uncontrollable and vomiting was a very troublesome feature. The slightest exertion brought on dyspnea and fainting. Epistaxis was common. Red blood-corpuscles 1,575,000; leukocytes 147,000: hemoglobin, 24%. "Patient was confined to bed by weakness and had involuntary stools and urination." Daily röntgen ray treatment over region of spleen was begun. On the third day vomiting stopped, and on the sixth the patient gained control of her bowels. In a month the blood showed: red, 2,976,000; white, 67,000; hemoglobin, 32%. The spleen had diminished more than half; patient was able to sit up most of the day. By the fortieth day the leukocytes became normal, the spleen barely palpable. Five days later, with 6,820 leukocytes, the patient had intense frontal pain, "meningeal symptoms," and in two days was dead.

Bryant and Crane's patient had mild toxic symptoms in the early part of the treatment, and Evans' first patient had mild toxic symptoms, chills, fever and anorexia, such as often occur in leukemic patients under various conditions, and may be due either to accidental infection or to absorption of broken-down cells. Since a rather large proportion of patients had dermatitis, 9 out of 25 of all kinds, 6 out of 18 myelogenic cases, it is necessary to consider this more closely. The effects differed in degree, from a dry, slight dermatitis to a severe burn. (I have not considered bronzing, loose skin or loss of hair as of special interest.) In four cases there were toxic symptoms that might have been due to the dermatitis. (Senn, both cases, Pusey, Taylor). In three there were toxic symptoms without dermatitis (Grad, Bryant and Crane, Evans). Toxic symptoms are so common in leukemia under any form of treatment, or without treatment, that it is impossible to tell how much the symptoms in the cases mentioned were dependent upon the röntgen rays. Since the best results were sometimes observed in patients without dermatitis (Weber, Evans, Eastman, Chester) or without toxic symptoms (Cheney) it is clear the improvement does not depend upon the irritant effects of the rays upon the skin. All the patients with dermatitis were treated with soft or medium tubes. In Evans' first case some exposures were made with a soft tube. Chills, vertigo, headache and loss of appetite promptly followed, with fever and tenderness on pressure in the splenic region. The spleen became somewhat larger than before. The author leaves the cause of this unsettled.

CONCLUSIONS.

Under treatment with röntgen rays some cases of leukemia undergo marked change for the better. The leukocytes fall to normal numbers and sometimes show no more pathologic cells, the red blood-corpuscles improve, the enlarged spleen and lymphatic glands resume normal proportions, the general health seems restored. In some cases the effects are imperfect.

In no case has observation been carried out long enough to speak of cure. In several cases death has occurred while the symptoms seemed to indicate improvement. The mode of action of the röntgen rays is not known. It probably consists in affecting the tissues that produce the pathologic leukocytes, either directly or more probably through the production or setting free of substances that affect cell formation, or degeneration, or chemotaxis, or all of these processes; but further investigation is necessary. At present the improvement must be considered functional and not affecting the original cause, nor in a permanent way the morbid histology of the disease. The improvement of the red blood cells may be due to general stimulation of nutrition, in which suggestion may have a part, or by diminution of lymphoid or myeloid tissue, and thus permitting development of red cells, as suggested by Ahrens.

Though the change seems a functional one, it is possible that treatment in very early stages may be more effective than it has hitherto been.

Röntgen ray treatment of leukemia is dangerous on account of the usual risk of dermatitis and burns, but probably also on account of toxic processes as yet impossible to explain. No stronger claims can be made for it than can be made for arsenic and certain serums and bacterial toxic substances, but it may prove more certain in its action than arsenic and can be more readily applied in practice than the injection methods. Careful observation and recording of all cases in which the treatment was followed promise advances in our knowledge of leukemia, with the possibility of gains in practical therapeutics.

No special rules can be laid down at present for treatment with röntgen rays. Great care should be taken to avoid burns. Methods should be as fully described as possible in each case; the blood should be carefully examined as fully and as frequently as possible, and if possible, urine examinations should be made, to throw additional light upon the metabolic changes.

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TWO CASES OF BOTHRIOCEPHALUS INFECTION, ONE OF THEM SHOWING PROFOUND ANEMIA.

BY

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Bothriocephalus latus is undoubtedly a rare parasite in the United States; but there has perhaps been too much stress laid upon its infrequency in this country, many of the statements made concerning it being, I think, based upon past conditions, rather than upon those that exist at present. American literature does not provide a sufficient number of cases to indicate that the parasite is by any means common, but the authentic reports that I have found, together with a few reliable cases personally described to me, indicate that those whose hospital services or private practices bring them into contact with many foreigners—especially Russians (and particularly including Finns), or Swedes—are more likely to meet this parasite than the customary statements would lead one to believe. At any rate, they are sufficiently likely to run across such cases to make it important for them to bear the parasite in mind as being more than a mere rare curiosity.

I shall append to this paper a brief statement of the total number of American cases of which I know. At this point I would say only that, including my own, they number 22. This is not a large group, but when it is considered that 13 of these have been reported during the last three years, and that about half the observers that have had their interest in the parasite excited by finding it once, have discovered it in more than one case, and when it is also remembered that a large proportion of practitioners are content with the diagnosis of tapeworm, without identifying the parasite, I think one is justified in believing that the traditional statement so often made as to the great rarity of *Bothriocephalus latus* in this country is at present not wholly correct.

The changes in this regard are very clearly indicated by the fact that until 1879 Leidy, with his vast experience with the parasites of this country, had never seen a case in the United States, while within the past few years at least seven authentic cases have been observed in Philadelphia alone. This may be due to the recent interest in and consequent frequent search for parasites, but with tapeworm this seems an improbable explanation, and the figures given certainly suggest that the parasite is now more common in this country than it was, and has grown to be of some real importance—a fact that would seem to be readily brought into relation with the influx of foreigners into this country within the past few decades. Probably foci of native infection will be developed here in the future, through the agency of foreign immigrants, but at present there is no evidence that such foci exist. Berkeley drew attention to the point that all the authentic cases that he was able to find were of foreign origin, an observation that had been made by previous writers also, and one that is true of all the further cases of which I have knowledge. One case of infection in this country has been reported, but the description of the parasite indicates that it was *Tænia*. While special interest would attach to the discovery of a reliable case of native bothriocephalus infection, the parasite is at present likely to be met only in foreigners, though it is worth while to remember that it is not only in those that have but recently arrived in this country that it is likely to be found. In one case (Hagelstam) in which there was a nearly fatal anemia, the patient had been in this country for seven years. He was, however, a foreigner, and had almost certainly brought the parasite with him from his native land. It is known that persons may harbor the parasite from childhood to advanced years (Schauman, et al.); and McFarland in this country, has reported a case in which the worm had apparently been present for at least 16 years.

My own cases occurred in foreigners that had just arrived in this country. One of them is of interest on account of several striking features, the most important of which is the anemia. This patient, indeed, showed anemia of a severity that, so far as reports indicate, has been exceeded, or even equaled, in but a small number of cases of any kind in which the patient regained entire good health, and in very few cases of bothriocephalus anemia that ended in recovery. Furthermore, so far as I know, it is the only recorded case of severe anemia due to this parasite that has been observed in this country, except the two seen by Hagelstam, a Finnish physician, while he was temporarily in the United States. He had, however, no opportunity to study the blood in his cases.

My cases were seen in my wards at the Episcopal Hospital. On June 11, 1903, three Finnish sailors that had just arrived in port were admitted on account of severe diarrhea. They had been on a long voyage and attributed their digestive disturbance to the wretched food that had been served them and to exposure and excessively hard work. One man was evidently extremely anemic; and this, together with the fact that they were Finns, at once suggested the possibility of bothriocephalus infection, this suspicion becoming, of course, greatly increased when we learned that two of them had recently been passing portions of tapeworms. I at once asked for an inspection of their feces for segments or ovums of this parasite. Dr. Keely, then pathologic resident, reported that in the two cases with a history of tapeworm there were large numbers of bothriocephalus ovums; and Dr. Ghriskey and I confirmed this report on many subsequent occasions, extremely large numbers of eggs being constantly found in both cases, until anthelmintic treatment was finally successful. In only one case, and then on but one occasion, were segments discovered—a point of practical importance, to which I shall briefly refer later. The third sailor showed no segments or eggs at any time and was soon discharged entirely well. The details of the two cases of bothriocephalus infection were as follows:

W. S., aged 19, gave a negative family history, and previous personal history, so far as we could communicate with him. On questioning him, he stated that he had noticed pieces of a tapeworm in his stools about six weeks before and several times since then. He had been growing weak and had had diarrhea, which had recently been quite profuse, but not painful, and not associated with tenesmus. For several days before the end of his voyage he had been unable to work because of weakness.

Physical examination showed the patient to be well developed, with a rather generous amount of subcutaneous fat. He was profoundly pallid and had with the pallor a yellowish tinge to the skin and conjunctiva, his appearance being typically that of marked pernicious anemia. He was languid and weak. The pupils were very much dilated; the sclera had a strong bluish tinge: the mucous membranes were very pale. There was no enlargement of the superficial lymphatic glands. The lungs were entirely clear throughout. Cardiac dulness was normal; the impulse, weak; the apex beat, ill-defined, but in normal situation. There was a marked systolic murmur, heard over the whole precordia, most clearly at the base of the sternum; not transmitted into the axilla, but well heard in the vessels of the neck. The second pulmonary sound was slightly accentuated. There was a loud hum over the cervical veins. The liver was of normal size. The spleen was decidedly enlarged, and readily palpable an inch below the edge of the ribs, descending well below this upon inspiration. The abdomen was soft, not distended or tender, and showed no other abnormality.

The blood-examination showed hemoglobin, 23%; red blood cells, 1,200,000; leukocytes, 5,300. Examination of stained smears showed only a very moderate degree of poikilocytosis, but very marked differences in the size of the corpuscles, there being an extremely large number of megalocytes. The red cells were very pale. After a long search, Dr. Ghriskey found one megaloblast, but no normoblasts. Recently, during a search of over an hour, of some smears made at the time of admission, I discovered two megaloblasts and two normoblasts. The former were both polychromatophilic, but I saw no other polychromatophilic cells. During this search I found one myelocyte. A differential count was not made, but the leukocytes were largely polymorphonuclear. I saw extremely few eosinophiles.

Examination of the feces showed a great many bothriocephalus eggs, but no segments. The urine showed a slight trace of albumin, but no other abnormality. There was no urobilinuria.

On the day of admission the patient had 11 bowel movements, all of which were offensive, but contained little mucus and no blood. The diarrhea continued for 10 days, and then gradually improved.

I did not give him an anthelmintic for more than a week after his admission, because it seemed advisable to wait until he had had food and rest after his exhausting voyage. He was, however, put on arsenic at once. On June 19, 3.75 cc. (1 dr.) of oleoresin of male fern was administered in the usual manner. No segments were passed in the subsequent stools, and eggs remained present. On June 20, the temperature, which, except at the time of admission, had never been above 100°, rose to 101.4°, and the man felt weak and generally miserable; on the same day, it fell to 99°. This point is of some interest in relation to the subsequent fever.

On June 24, the blood-examination showed the following: Red cells, 1,100,000; hemoglobin, 20%; leukocytes, 6,400. The ovums still persisted in the stools.

On June 27, I gave the patient Tanret's pelletierin, but only a half dose, on account of the symptoms following the administration of the male fern. The next subsequent stool contained eight segments, which were soft and gelatinous in appearance, and of a greenish-brown color. They were becoming disorganized, and it was impossible to make out the details of the segments with any accuracy, except that it could be readily determined that they exhibited one of the most characteristic points, *i. e.*, that the opening of the pore was in the median line, and not along the side. No other segments were ever discovered.

As was ultimately shown, the pelletierin cured the man of the bothriocephalus infection, for the time, at least, but he nearly died as the result of the treatment. The anthelmintic was administered at 7 a.m., and was followed by epsom salts. The patient was kept recumbent and entirely quiet; but he vomited about an hour afterward, and at 11 o'clock had a violent chill, which lasted for about an hour. He was much cyanosed, the pulse became extremely weak, and the temerature rose rapidly to 105.4°, remaining at this point until 10 o'clock at night. The man became so weak that he could hardly speak; he was persistently cyanotic, and his pulse remained extremely small and feeble. He was stimulated energetically throughout the day and night. During the night he improved. His temperature fell, and at 7 a.m. it was 101°. There were no abnormal physical signs except weakness of the heart sounds, and weakness and rapidity of the pulse; and the man was decidedly stronger. He remained better throughout the day; but early next morning the temperature again rose, reaching nearly 104° at 8 o'clock, and continuing very high all day. He was again much prostrated, and energetic stimulation, including hypodermoclysis, was given.

After this his general condition was much better, although he was still exceedingly weak, and his temperature ran a high, irregular course for several days. Subsequently it fell gradually, and for a long time ran an irregular course between normal and 100.5°.

Examination of the stools on June 30 showed many eggs still present, although the number was smaller than it had been. The urine contained a few hyaline and granular casts, and also a trace of albumin. On July 2 the blood-examination (Dr. Keely) showed hemoglobin, 15%; red cells, 722,000; and leukocytes, 3,200. On the day following Dr. Ghriskey reported the red cells at 662,000.

At this time a fatality seemed almost certain. He could take but little food without nausea, and for several days he repeatedly vomited.

Dr. Van Pelt examined the eye grounds, and reported swelling of the optic nerve head, tortuous retinal vessels, and many hemorrhages in the retina. The hemorrhages were large, and were situated both about the disc and in the periphery of the fundus. The optic disc was pale, and the whole retina had an anemic appearance.

For four days after this, the patient retained no food except a little albumin water; otherwise, he seemed to be somewhat better. On July 7, he was able to take albumin water freely, but could take nothing else. On July 9, examination of the blood showed hemoglobin, 28%; red blood cells, 1,176,000; and leukocytes, 6,400. On July 11, it was reported that bothriocephalus eggs were absent from the feces. The patient's improvement after this was continuous and very rapid. On July 14, the hemoglobin was 38%; the red cells, 1,456,000; and the leukocytes, 7,200. On July 17, it was noted that the spleen was no longer palpable. The smears made at this time showed, after a long search, neither megaloblasts nor normoblasts. The megalocytes were much fewer, and the anisocytosis was much less marked. There was also less poikilocytosis. The cells showed more hemoglobin, and there was no polychromatophilia,

On July 18, Dr. Van Pelt reported that the hemorrhages in the right eye had been almost entirely absorbed, and that the disc margin was clearly outlined. In the left eye there still remained two hemorrhages, but the disc could be well outlined. The vessels were less tortuous, and the general appearance was decidedly improved. Repeated examinations for bothriocephalus ovums had shown them to be regularly absent.

On July 22, the blood-examination showed hemoglobin, 42%; red cells, 2,128,000; and leukocytes, 4,400. The cardiac murmur was extremely faint, and the heart action much stronger. There was still a faint venous hum in the neck. The spleen was not palpable. The man's general improvement was very marked. Blood smears showed absence of nucleated red cells, and very little poikilocytosis or anisocytosis.

On July 29, the hemoglobin was 48%, the red cells 2,444,000, and the leukocytes 6,200. On August 10, the hemoglobin was 60%, the red cells 3,784,000.

On July 20, Dr. Van Pelt had reported that the appearance of the retina was improved. The retinal hemorrhages had been entirely absorbed, and the swelling was much decreased. The edges of both discs could be clearly outlined, but there was still some haziness of the retina—most marked in the macular region.

The patient was discharged at his own request on August 27 in excellent general condition. At that time hemoglobin was 72% and the red cells, 3,945,000.

The improvement in his general condition had been astonishingly rapid, and his red cells during one period of 12 days showed an average increase of 112,000 a day. This striking figure is far from establishing a record, however, as one of Schauman's cases showed an average increase of over 214,000 daily for five days, and Laache's case of cryptogenic pernicious anemia, in which there was for seven days an average increase of 211,000 cells per day, is often referred to, while other cases approaching these are on record.

My patient was heard from about two months after his discharge. He was then feeling entirely well and had noticed no tapeworm links.

The second case was of interest solely on account of the patient's very severe intestinal disturbance, which was, perhaps, due partly to the parasite, but was certainly largely the result of bad food and hygiene.

Y. G. S., aged 21. We could elicit no family history or previous personal history of importance, except that he had always had a delicate digestion. He said that for three years he had occasionally passed segments of tapeworm. He came to the hospital on account of severe diarrhea, which had lasted about a week. He had a moderate amount of abdominal pain and tenesmus and frequent stools—from 10 to 20 a day.

Physical examination of this man showed nothing, except that he was weak, thin, and generally ill-nourished. His thoracic organs were normal, and physical examination of his abdomen showed nothing. He had no abdominal distention or tenderness. The urine showed nothing abnormal.

Examination of the man's stools at once revealed a large number of bothriocephalus eggs. On the second day after admission, two doses of the oleoresin of male fern, were given to the patient at an interval of two hours, preceded and followed by the usual measures. His temperature, which had been running between normal and 100°, rose, within the next 24 hours, to 101°; but rapidly came down. The only other effect of the medication was to cause still further disturbance of the bowels. On the next two days he had, respectively, 14 and 25 bowel movements. A few days later male fern was again given him, and again without success.

I hesitated to administer pelletierin on account of the effect that it had upon the other patient; hence, I tried thymol, giving 2 gm. (30 gr.) in two doses. This treatment was successful. The eggs, which had been present in large numbers, disappeared from the stools within three days after this, and remained absent for the three months that he was under observation. At no time while under observation did the patient pass segments of the parasite.

The blood showed, upon admission, 4,071,000 red cells and 68% of hemoglobin, with 4,400 leukocytes. There were no noteworthy changes seen in stained specimens. The eosinophiles exhibited no increase.

The patient's intestinal disturbance was exceedingly rebellious; but it was finally controlled before the bothriocephalus eggs had disappeared from the stools. He was treated with various forms of medication by the mouth and with flushings of the bowel with solutions of silver and of other substances without success, even opiates and active astringents not controlling the diarrhea. Finally, however, argyrol enemas were given, with persistent and almost immediate improvement.

An interesting feature of this man's case was the extreme irregularity of his temperature, even for a long time after the intestinal disturbance had subsided and bothriocephalus eggs had disappeared. No cause for this was discovered. The temperature rarely remained normal throughout 24 hours. It was occasionally subnormal, but usually a little elevated; and there were wholly irregular, transient elevations of temperature to points between 100° and 102°. Once the temperature went as high as 103.4°. This irregularity persisted until July 25, after which time the temperature rather suddenly became regular and normal.

Persistent search for the cause of this peculiarity was, as previously stated, quite fruitless. The rise of temperature that I have noted as having occurred after the administration of male fern was, I think, merely a coincidence; as equal or greater rises occurred subsequently, without any recognizable cause. The patient was discharged in good condition, having gained considerable weight, and his bowels having for some time been normal.

Our knowledge of bothriocephalus anemia is due chiefly to the careful and extensive work of Schauman. Among the points that he has noted there are a few which may be referred to. He particularly emphasized the great variation in the size of the red cells, and especially the fact that there is an extremely large number of megalocytes present, this being, perhaps, even more striking than in ordinary pernicious anemia. This observation has recently been confirmed and emphasized by Strauss and Rohnstein, and was pronouncedly true of my case of anemia. The conditions in regard to nucleated cells are more variable than in most cases of ordinary pernicious anemia. While these are not infrequently present in considerable number, Schauman found many instances in which they were very hard to discover; and this was true of my case, in which it took quite a long search to find any nucleated red cells.

The hemoglobin has a tendency to be relatively lower than it is in pernicious anemia.

Strauss and Rohnstein have particularly insisted upon a point noted, but not emphasized by Schauman, namely: That the polymorphonuclear leukocytes are much more abundant than are the mononuclears. This is in contrast with the conditions considered by Strauss and Rohnstein to be characteristic of essential pernicious anemia, in which they have found the mononuclears to be usually present in much larger number than is normal; often constituting more than half the leukocytes. While observers in general do not agree with these authors that the last mentioned condition is constant in essential pernicious anemia or is a reliable characteristic of that disease, it is undoubtedly true that in a large proportion of cases of bothriocephalus anemia the polymorphonuclears are present in much greater number than the mononuclears. Hence the average blood picture in bothriocephalus anemia is slightly different from the average picture in ordinary pernicious anemia. The differences are not, however, sufficiently marked or constant to make it possible to recognize the two conditions from the appearance of the blood; nor are they sufficient to make any definite distinction between the two conditions. The slight differences are probably due to the fact that different toxic agents are at work, it being highly probable that both conditions are essentially forms of toxic hemolysis. A point of some interest is the fact that, contrary to the conditions in many other instances of parasitic infection, the eosinophiles are not found increased.

To the nature of the anemia in bothriocephalus infection and its exact cause, I need refer but briefly, as I have little new evidence to offer concerning this point, and what I have is negative. As is well known, it is generally accepted that the anemia is the expression of a toxic hemolysis; and that this blood destruction stands in some direct relation to the presence of the parasite in the intestine. The anemia is not, however, due merely to the presence of a bothriocephalus in the bowel, some other element being necessary to produce the blood destruction; for only about a tenth or a fifteenth of those that show bothriocephalus infection in Finland or other parts of Russia exhibit anemia, even though many of those that show no anemia have carried the parasite for years.

The most satisfactory explanation of the occasional occurrence of anemia is that the parasite itself becomes sick or dies, and that the products of its disordered health or of its putrefaction are absorbed and produce hemolysis. This view is supported to some extent by the frequent observation that the parasites passed by patients with anemia have undergone more or less disorganization; and in occasional instances have apparently been completely destroyed in the intestine, no portion of the parasite having ever been discovered in these cases. This is not wholly satisfactory proof that this view is correct, however; as Schauman and others mention instances in which persons with anemia have passed apparently healthy parasites, or in which persons that were not anemic have passed parasites more or less disorganized. There are also occasionally observed, as in my second case, instances in which, in persons without anemia, a parasite is apparently entirely destroyed in the intestinal tract without producing evidences of toxemia.

That the anemia is dependent upon the presence of some toxic product of the parasite itself, rather than upon some secondary disturbance of digestion set up by the parasite, is rendered probable by the observations of Schauman and Talqvist, who were able to produce marked hemolysis in dogs by injecting emulsions of botheriocephalus, and also by the recent work of Isaac and von den Velden, who were able to demonstrate a precipitation in the blood-serum of a patient with bothriocephalus infection and of a rabbit injected with bothriocephalus extract. While the experiments of these authors are not entirely convincing, they constitute the most direct and, as yet, the most satisfactory evidence that we have in regard to this matter. A suggestive point in these observations is the fact that Schauman and Talqvist found marked differences in the toxic effects of different specimens of bothriocephalus, and this strongly suggests that the occasional toxic effects of the parasite are due to disorders of the bothriocephalus itself that are obscure to us. It seems to me possible that these effects are the result of some peculiar infection of the parasite, which may be of a specific nature.

The claim that the anemia in these cases is due to a secondary disturbance of digestion, and that, therefore, the parasite acts only in an indirect manner, seems to me to be a very unsatisfactory hypothesis, and one in favor of which there is no evidence—except the fashion that existed a few years ago of attributing most obscure conditions to autointoxication resulting from gastrointestinal disturbance.

Dr. J. S. Evans, at my request, kindly attempted to demonstrate a difference in the hemolytic and bacteriolytic powers of the blood of the three Finns who were admitted together and who had been under similar conditions, one of whom, however, showed, as I stated, only digestive disturbance; one, digestive disturbance, with bothriocephalus infection, but not anemia; and one, disturbance of digestion with both bothriocephalus infection and anemia. Blood was withdrawn from an arm vein in each of these patients. Unfortunately, owing to an accident, so much of the blood-serum from the two nonanemic patients was lost that bacteriolysis could not be studied; but the blood-serum of the anemic patient was found normal in this respect as compared with normal human blood. The observations on hemolysis were entirely negative, the results being practically the same in all three cases. It is somewhat unfortunate, however, that rabbits' blood was used in these studies, as Schauman and Talqvist have shown that emulsions of the bothriocephalus have no hemolytic effect upon rabbits' blood—a fact with which Dr. Evans and I were not at that time acquainted. Dr. Evans had intended to study the influence upon human blood, also, but was prevented from doing so by a temporary illness.

So far as these observations go, then, they show no evidence of the presence of a hemolytic substance in the blood-serum, or of any substance influencing bacteriolysis, in this case of anemia. The same observation regarding hemolysis has been made several times by others in cases of profound anemia of various sorts, especially in grave cryptogenic pernicious anemia. This is, of course, not actual evidence that such a hemolytic substance does not exist, as the methods of studying hemolysis are, at best, somewhat crude.

The remarkable symptoms produced by the anthelmintic in the case of anemia, in my opinion, probably stand in direct relation with this question of the hemolytic effect of the parasite, rather than with any toxic effect of the drug itself. In cases of infection with other parasites, as well as in bothriocephalus infection, anthelmintics may produce more or less marked digestive disturbance, and even severe general toxic effects, particularly when given in large doses; but they certainly rarely, if ever, produce, as they did in my case and in a number of Schauman's anemic cases, a severe and prolonged febrile reaction. The latter was in my case associated with rapid hemolysis, the blood count falling within a week from 1,100,000 to 662,000, and in some of Schauman's cases, febrile reaction was apparently associated with rapid hemolysis, in one fatal case the taking of the anthelmintic having been followed by a drop in the blood count from 939,000 to 651,000, when death occurred. Schauman's blood counts were not carried out with any referance to this point and were not sufficiently frequent to demonstrate whether this was always the case; but the evidence seems to indicate that the febrile reaction, in some cases at least, is due to the absorption from the digestive tract, as a result of the use of the anthelmintic, of some severely toxic and hemolytic substance. In view of the known general facts concerning bothriocephalus anemia, it seems to me to be probable that this is due to the influence of the anthelmintic upon the parasite itself, accentuating in it, perhaps, the disturbance that probably causes the production of the hemolytic poison.

This tendency of the anthelmintic to cause severe febrile reaction is evidently a matter of some clinical importance. Marked reactions have been reported by Schapiro and Podwissotsky, and Schauman observed several cases in which the febrile reaction was severe and lasted several hours; although, except in one fatal case, in which there was apparently a rapid progress toward death after the administration of the vermifuge, the reaction in his cases seems to have been much less severe than in mine. As already stated, it nearly produced a fatal issue in my case. The possibility of such an occurrence in these cases makes it necessary to be prepared for very active treatment after the use of the vermifuge. As mentioned, in my case I had used only a small dose of the drug.

A fact that is, as I have said, of considerable clinical importance is that it is often difficult and sometimes impossible to find segments of the bothriocephalus, even when the patient is still harboring the parasite, and many eggs are present in the stools. It is comparatively well known that the bothriocephalus tends to break loose readily, and that very few segments may come away together. This makes them more difficult to find than is the case with the *Tœnia*, large portions of which are likely to be passed. It is not so well recognized that it is sometimes impossible to find any links, for a long period, at any rate; and the patient may have definite bothriocephalus infection and recover from it while under observation, and yet no segments be found in the feces at any time. This has repeatedly been observed in patients that have recovered, as it was in my second case, and clear proof of the possibility of its occurrence is afforded by several fatal cases described by Schauman, in which, although large numbers of eggs were present in the feces, no worms could be found postmortem in the intestine. Similar observations have been made by Schapiro, Dehio, and Eckert, and Schauman noted one case of profound anemia in which the patient recovered spontaneously from the anemia and the stools became entirely free of ovums, although no segments were ever found in the feces. It appears, therefore, that this parasite has a much greater tendency than have *Tœnia* to be destroyed in the intestinal tract. As already noted, this probably has some important relation to the production of anemia. It is also important in that it emphasizes the necessity, in suspected bothriocephalus infection, of depending upon a search for the eggs rather than upon a search for the bothriocephalus segments.

AMERICAN CASES.

Author	No. cases	Date	Nativity	Place where observed	Reference
Walker (Leidy).	1	1879	Sweden	Philadelphia	Phila. Med. Times, April 12, 1879.
Packard	1	1891	Finland	Philadelphia	Trans. Phila. Path. Society, 1891.
Hagelstam...	2	1896	Sweden	New York Michigan	N. Y. Med. Jour., 1896, p. 287.
Stengel.........	2		Sweden	Philadelphia	Personal communication. Exhibited at Phila. Path. Soc.
Dock............	3		Europe	1 Colorado 2 Texas	American System of Practice of Med.
Riesman	1	1902	Russian	Philadelphia	Medicine, February, 1902.
McFarland ..	1	1902	Russian	Philadelphia	Trans. Phila. Path. Soc., March, 1902.
Wilson	1	1902	Russian	Philadelphia	Amer. Jour. of the Med. Sci., August, 1902.
Berkeley	4	1903	Russian	New York	Med. News, August, 1903.
Ewing	1	1903	Sweden	New York	Ibid discussion.
T. Janeway..	1	1903	Europe	New York	Ibid discussion.
Edsall	2	1903	Finland	Philadelphia	
Tileston	2	1903	Russian	Boston	Personal communication.

Descriptions of *Bothriocephalus latus* may readily be found in almost any of the works upon clinical laboratory methods, or on the practice of medicine. It would therefore not be fruitful to discuss the diagnostic points at length. I shall merely direct attention to the fact that the segments are chiefly characterized by the rather small, central rosette-shaped uterus; and particularly by the fact that the sexual pore opens in the median line, and not, as is the case with *Tœnia*, on the side. The points concerning the size of the segments, the character of the head, etc., I shall not discuss. As to the eggs, it is important to remember that they are quite large, measuring about 0.07 mm. by 0.045 mm., in many specimens oval, and have an operculum, or lid, at one end. In fresh eggs, this operculum is sometimes very hard to see; but it may often be made much more evident by allowing the stools to stand for a day or two, when the lid may be found partly lifted.

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THE MILITARY IMPORTANCE OF MILD TYPHOID INFECTIONS, SUCH AS MOUNTAIN FEVER.

BY

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Our national existence depends upon our military strength, for no independent nation can exist unless able to defend itself, and fight for its expanding needs. It is the part of wisdom for every nation to manage its affairs so that it will be able to exert its whole strength when needed. It must keep in a condition of training—not the training to exhaustion seen in Europe, which reminds one of the training of pugilists, but the moderate training which strengthens as well as increases skill. Nevertheless, the oppression which standing armies exert is so hateful to Americans that it is our settled policy for all time to prevent the development of our military strength. Hence we are always unprepared for war, and every war is full of preventable disasters. Our common sense should lead us to learn the lessons of war, but it does not, and we witness the same pitiful conditions every time a big army is called into existence. Even the warning of experienced military experts at the very time has no effect, as we all saw six years ago.

It is astounding that every thinking man has not learned the chief lesson, so important as to overshadow all others—the lesson of our Civil war, of our war with Spain, and of the war in South Africa—that disease is the real enemy the soldier must fight, as it has the most victims—sometimes in the ratio of ten to one. This fact is always forgotten, and when the campaign opens and disease begins its slaughter the public is as surprised as though it were something new, and the newspapers become hysteric and make very unwise comments. It is a patriotic duty then for every physician and every medical journal to keep constantly pounding away at this one topic, so that there will be less likelihood of forgetfulness. Every one should know that soldiers in camp must live in a primitive way, with little or no sanitary equipment, and under ideal conditions for spreading infectious diseases. Each such case is far more dangerous than at home, where there are permanent sanitary arrangements to prevent the spread of infection.

In no infection are these truths more evident than in typhoid, and this little bacillus can be looked upon as the real enemy of our soldiers at home and occasionally in the tropics, for they are at the most susceptible age. Investigations by Widal's test have shown that typhoid infection can exist in myriad forms even without intestinal lesions, and the atypic forms thus assume a great military importance. Every such case introduced into a crowded camp may infect the whole army so as to disable it, even though the original patient is not bedridden.

In the Spanish war practically every regiment was infected at home—some of the worst not even leaving their home camps, proving what should have been known before, that the bacillus flourished in every part of this great country. It is man's constant companion, living a commensal existence, but liable to be taken into the intestine at any time and take on a parasitic life. There is no part of the country where we can afford to ignore Osler's rule, "Learn to suspect typhoid in every fever of six or seven days, resisting quinin." If camp physicians coming from parts of the country where they claim that there is no typhoid had only followed this wise rule there would now be fewer dead soldiers. That disgraceful record of 50% to 80% of typhoid fever unrecognized, even 100% in one regiment, would not be held up as a blot upon the medical profession, or as Peabody, of New York, contemptuously put it, an indictment of the military surgeon.

The serious typhoids with abdominal symptoms are of no military importance, for every one recognizes them. The real danger is in the short mild cases in which the patients are allowed to run about, spreading the infection broadcast—the cases which local pride or fear of public condemnation leads so many physicians to call a "touch of malaria" or "biliousness" or any other noncommittal diagnosis. Feelings of regimental pride no doubt led many a surgeon to ignore these cases to his own undoing after he had let the infection spread. Long before the war these aborted forms had received ample recognition,[1] and there was no excuse for blunders.

Not less dangerous are the atypic cases without abdominal lesions, but having the infection confined to the lungs, kidneys, meninges, bones, or indeed any other part, for no tissue seems to escape. It is believed that these cases constitute a large proportion of all the infections.[2] Osler[3] reports a case of an old man who died of pneumonia, from whom pure cultures of the typhoid bacillus were obtained from the lungs, spleen and other organs, and yet there were no intestinal lesions.

There is no inhabited part of this country where these atypic forms have not occurred, nor is there any place where there have not been cases so mild as to be practically afebrile. Since Widal's test has been made practically universal, there is no excuse for failure to recognize these cases. Osler, in mentioning an account from Sahli's clinic at Bern, of an asylum outbreak, where Widal's test was positive in many patients not sick enough to go to bed, says: "I am sure that a widespread application of the test will restrict, within very narrow limits, the cases of socalled simple continued fever."[4] As an actual fact, we find that in medical literature there are fewer and fewer reported cases of fevers of unknown origin.

There may be paratyphoids, closely resembling typhoid, and due to a bacillus midway biologically between the typhoid bacillus and the colon group, and which do not agglutinize the typhoid bacillus, as shown by Kurth, Meltzer and Schottmüller.[5] But there are no diseases which cause Widal's reaction with the typhoid bacillus except infections with this bacillus. In a recent discussion, a large number of statistics is reported, yet there are only three cases in which the reaction was positive in other diseases, one each of tuberculosis, malaria, and pneumonia; but even in these a prior or coincident infection with the typhoid bacillus is not excluded.[6] There is full justification for the axiom that a positive reaction proves that the patient has typhoid, or has had it.[7]

Though there are still reports of continued fevers of unknown origin, neither typhoid nor malaria, such as reported by Preble[8] and by Weill and Peary,[9] yet we are justified in considering such as typhoid, or paratyphoids, unless Widal's test is persistently negative, even through convalescence, for a positive reaction is rarely found in the beginning of a case, and may be deferred until very late, facts which are even being found to have some relation to relapses. In negative cases, and until the case is proved to be due to some other infection, it is a duty to consider it typhoid, and take measures to protect the community. The disasters of our late war show how essential it is in military life to consider every case contagious until we know its cause.

These rules apply to every part of the country, and are being recognized everywhere except in one locality —our western plains and mountains, where many of the physicians still refuse to accept recent advances. Their atypic cases differ in no respect from such cases all over the world, yet the silly practice still exists of calling the mild cases "mountain fever." As these patients nearly all recover, there are no postmortem records; fatal cases are called typhoid and the section shows the lesions. If in these mild cases repeated Widal tests are made, a positive reaction is sure to be obtained in very nearly all cases, even if we have to wait until some time after the fever has disappeared, as shown in a series of cases in the Journal of American Medical Association, April 2, 1898. The old typhomalaria, neither typhoid nor malaria has long been buried, and double infections with both malaria and typhoid are so extremely rare that we can ignore them in diagnosis.[10] It would be a fatal mistake to consider these mild western fevers as anything else than typhoid.

It is incredible then that the Surgeon-General of a western State should refuse to call these mild cases typhoid, even after he found a positive reaction in over a third of them. His paper[11] is perhaps the most dangerous one which has appeared in recent years, and to those who for 25 years have been clamoring for the recognition of the typhoids of the West, it comes as an evidence of the hopelessness of submitting further proof. From the published discussions of our war experience, it seems to be the unanimous opinion that if any military surgeon should find a positive Widal reaction in a third of his cases in a camp and then refuse to call them typhoids and take no proper steps to check the spread of the infection, he should be dismissed as a dangerous man. It is high time that the medical profession of the West should throw off this disgrace of refusing to recognize mild typhoids—a disgrace which has been fully acknowledged in eastern medical discussions.

Medical officers of the regular army are too few in number even in time of peace, so that in time of war, when so many of them are occupied in executive work, nearly all the professional work is done by men hastily called from civil practice. In this respect, therefore, it depends upon civilian physicians to prevent a repetition of our military disasters should we ever go to war again.

It is frequently reported that, as a general rule, civilian physicians fail to diagnose 45% of the typhoids in the United States. When war occurs and these physicians take the field with troops, we must expect them to fail in the same proportion, though they should not fail in such large numbers as they did. But they will fail, and fail worse than before, as long as there are such dangerous men as the author of the paper quoted.

Dr. C. L. G. Anderson[12] discussing the inexcusable failure of camp surgeons to diagnose typhoid, and who thus helped to spread the infection, says: "It should be a golden rule that every case of continuous fever be considered typhoid until proved otherwise. When not shown to be a malarial fever, treat as a typhoid." He wisely mentions nothing like mountain fever, and criticises the Spanish surgeons who pretended with assinine audacity to recognize "paludal," "acclimation," "ground," and "miasmatic" fevers in addition to malaria and yellow fever. It was the same error of mountain fever—spreading infection by ignorant diagnosis and attempts to make new classes of fevers.

Civilian physicians, even of the highest grade, are very dangerous when called into the service of the country, if they are not confined to work in the line of their special abilities and requirements, such as surgery, for instance, but even here they may be too dangerous to be trusted, as in the case of one surgeon who advocated certain operations in the battle-field where the dirt and filth and impossibility of asepsis render such interference next to murder. Many of our finest and best practitioners are also densely ignorant of military topics, even if they play at soldiering in their leisure hours. But when a surgeon-general, the chief military surgeon of the State forces, refuses to consider as typhoid those cases which give a Widal reaction, we are sure to court disaster when that State's forces are called into the service of the country.

It is necessary to refer to another matter which was a great stumbling block both here and in Africa. In the field, transportation is always insufficient, and it is an axiom that it is wholly impossible to carry along the necessities of life; even the food must be of such a character that it will invariably sicken all except the most hardy if persisted in too long. Hence all equipment is reduced to a minimum, and the sick must be more or less neglected, even abandoned now and then. If the commanding General cannot get wagons enough for the food for the soldiers, he would be very foolish to carry along a full hospital equipment of nurses to feed. The nursing of typhoid requires considerable paraphernalia and foods never found in camp, and they cannot possibly be cared for in the movable camp hospitals, which therefore become mere collecting stations from which we transfer the sick to the nearest fixed hospital at the base. For this purpose we had general hospitals all over the country, and in the islands too. This axiom of military surgery was wholly unknown by the vast majority of medical officers in the Spanish war, who thought that as a few tents were called a hospital, it was the proper place for the sick, and they made no efforts to remove them to proper habitations. Many even objected, and used political influence to prevent their sick being cared for. It makes no difference whether a fixed hospital is temporary and built of rough boards or whether it is permanent and built like a palace, it is the only place for typhoids. The British experience, as well as our own, justifies the rule that no movable hospital shall allow its sick to collect to such an extent that it cannot be packed up so as to move on with the troops on a few hours' notice, and that it should hold no infectious cases for which there is not ample means of disinfection. The axiom of field service should be that of the vessels of war—*get rid of the sick.* If a fever is of unknown origin and is even so mild that the soldier does not want to go to bed, he must be sent out of camp within a few days. This rule was applied to regimental hospitals which sent their cases to brigade or division hospitals, but the rule should be universal, for these hospitals have to be as movable as the army, and the army must be mobile if it is to fight. In Africa the British allowed their field hospitals to become crowded with typhoids, and when orders came to move, the sick were virtually abandoned. It would be better to emphasize these facts by calling all field hospitals "ambulances," though our wheeled ambulances have monopolized the term. If it were known that the field hospital is only an ambulance after all, for the temporary use of the sick or for trivial cases, we would not have seen patients dying of typhoid in dirty tents within a mile of half empty, well-equipped civil hospitals.

Dr. Alfred Hill,[13] Medical Officer of Health in Birmingham, England, shows that 24% of typhoid patients die if kept at home, but only 12% of those taken to hospital in his district. Nearly the same relative rate exists in other places, where it is of a less fatal form. He shows that the removal and hospital is also better for the community, as the isolation lessens the spread of the disease, markedly, no doubt. This applies to military practice also.

Separate fixed or base hospitals for each moving army are more necessary than ever before. Widal's test, by showing us the awful dangers of mild typhoid infections, has made this change in military methods. This test requires an equipment impossible to carry into the field in an ambulance hospital, and in addition does not give a reaction until after the first week, by which time the patient should be out of camp.

The extremely long time—months and sometimes years—after recovery, that bacilli are found in the body, the urine, or feces, and which is now making sanitarians stand aghast at this new problem of disinfection, shows also that convalescents are not to be returned to camp for at least three months, and preferably six, even discharge for disability would be justifiable. This is no doubt the reason a regiment could not be rid of the infection by changing camp. The convalescents at once infected the new site, and in a few weeks there would be a new outbreak.

Our record in the Spanish war was better than that of the same period of the Civil War, and also better than the record in Africa, though it received more comments from the yellow press. It will be far better in the next war if the medical profession will be able to recognize the importance of the mild infections. The first step is to frown upon everything which obscures the diagnosis, and the first term to be abolished is mountain fever—and the sooner the better. The danger of the retention of such terms as mountain fever is seen in the case of an army officer, responsible for the water-supply of a western post, in which typhoid was raging. He denied that the water had anything to do with it, as the disease was "mountain fever," and boiling the water he said was all nonsense. As long as the chief military surgeon of a State uses such a term, and refuses to consider Widal's reaction as proving typhoid, he will have followers, so that future wars may be just as deadly from typhoid as those in the past. The recent experience in New Haven, with 455 cases and 54 deaths, due to the infection of the water-supply by one family,[14] is as bad as that of any camp in our late war, or in Africa, and is an example of what we must always expect in peace or war, until the real dangers of typhoid are recognized by every physician and layman.

In a recent number of the *Therapeutic Gazette*, there is an article on the prevention of water borne enteric fever among soldiers, and several points are brought out which show the necessity of removing such infections from camp, instead of trying to disinfect. It shows that in the African campaign, as in most civil epidemics, the infection comes through the water, and that (1) disinfection of excreta is practically impossible, and (2) it is impossible to prevent soldiers drinking polluted water. Even if we boil water, it is not done properly as a rule, and many soldiers will not drink it if they can get unboiled. Filters, likewise, are inefficient, if they work easily—*i. e.*, the pores which are small enough to keep back bacteria are so small as to require much pressure; the filters are thus too cumbrous to be transported, as a rule. In permanent camps, distillers are infinitely better than filters, and it is said they saved us from much typhoid in the 1900 China expedition, in which the Germans, so boastful of their army methods, had a frightful morbidity, far worse relatively than the British in South Africa.

No sensible military commander can dare to encumber himself with the sick, any more than he can keep his broken-down wagons, mules or guns. All are sent to the rear for repairs or abandoned. Hence the very basis of the management of a medical department in the field is the establishment of base hospitals in buildings (not in tents which might kill them), and arranging for transportation. These hospitals may or may not be under the control of the general who uses them—that is immaterial, for he will get his soldiers back as soon as they are well, and that is all he wants. The first thing to do in camps, maneuvers, etc., is to arrange base hospitals, where we can send the sick and get them away from the troops, the first old principle to abandon is the one followed in the 1898 camps, that each force or camp, or even regiment, must care for its own sick in tents. I myself have seen sick soldiers in tents, covered with flies, with scarcely any nursing, within an eighth of a mile of a half-empty brick modern civil hospital, and there was not a soul but believed that those sick men had to remain in the camp hospital. It is no more possible to cure men properly in field hospitals than it is possible to repair all the broken wagons and guns—in each case it requires more equipment than can be carried into the field, and requires permanent buildings.

This very first new principle, then, of future field work is not only imperative by reason of our knowledge of infections, but is practicable by reason of the excellence of modern transportation. No great army is ever far from railroads. Recently a prize was given for the best essay on the field organization of the medical department. It is greatly regretted that this remarkably able exposition of the details of field work in the past should touch so lightly upon the basic principle of the present, neglect of which by many volunteer organizations resulted so disastrously in 1898. A board which, after 1898, made up a new equipment for field hospitals has also ignored this necessity, and has arranged a bulky equipment which will always be left behind for the very simple reason that there will never be an army with sufficient transportation to carry it along. Even detached forces, like Younghusband's in Thibet, which cannot send back their sick and must care for them in camp, will be utterly unable to transport it. It is a splendid equipment to be ordered sent by rail to the nearest point to the troops for a base hospital. Our Philippine campaigns gradually settled themselves on the plan of base hospitals, and practically nothing was taken into the field. Soldiers had to abandon even the stretchers, and to expect any bulky equipment in the field where it was not possible to carry along enough food, is evidently wrong. Our next war will see us start out as before, with the idea of field hospitals with the army, and then gradually come to the system of base hospitals. It is the first duty of a chief surgeon to arrange for places where he can send his sick to be properly cared for. It is not his first duty to arrange for keeping them with the army. The former was the system used in the Chinese campaign in 1900. Our base hospitals were the admiration of all the foreign armies there, but the equipment was sent by boat and rail. The other armies had a half-breed equipment, of which they were ashamed, as it was not complete enough for the proper care of the sick, but too bulky for a mobile force. Our field equipment with the marching troops was quite small. Japan has evolved the right system, and has it organized to an exquisite degree.

We can not repeat too often that a tent is no place for a sick man. Before we knew anything of asepsis we learned that the surgical cases in clean tents did better than those in dirty houses, and the idea grew up that hospitals should be temporary wooden structures, to be burnt down in a few years. Although we now know why the tent cases did best in our Civil war, and now know how to treat the patients in permanent buildings, there are some physicians who still hold to the curious idea that a tent is better than a comfortable house. They would be disabused if they would be taken to a tent the next time they are sick themselves. I have been informed by a most capable officer, who was a division quartermaster in an important campaign, that in a long march or prolonged campaign it is so difficult to obtain and supply forage that transportation is usually limited to 61 teams for a division of 10,000 men, and as most of these have to be used for rations, cooking utensils, and ammunition, it is never possible to allow more than 10 to the medical department for wagons, and such a number would transport but a fraction of our brigade hospitals and supplies for the hospital corps. The equipment will have to be very simple, and as before explained, dependence placed upon base hospitals, established at the nearest point on a railroad or coast—never more than a few miles away. The very basis of field organization, then, is a system of ambulant hospitals of very simple and primitive equipment—mere collecting stations in battle, march, or camp—for the real hospitals at the base.

Our medical department was organized for the sole purpose of treating the sick and wounded, and it worked along those lines for nearly a century before it was discovered that there could be such a thing as a science of prevention, so that these new duties became secondary and cannot be properly performed under the old system. The line of the army naturally and properly objects to revolutionary innovations. The Japanese, on the other hand, organized their medical department after sanitary science was a fixture of civilization, and they are working along those lines primarily without the least objection from the line as far as known, and with results which for efficiency are a revelation to western nations. If the people of the United States wish us to do the same, they must direct it by law, and increase the corps to the point where it can be done. At present it is impossible to do as the Japanese, and, without the change demanded by modern warfare, the laymen who read this article must rest assured that if they go to war they cannot get the protection from disease now said to be given to the Japanese soldier by his government. Why not then be sensible and direct the change through your representatives? Let us have no more criticism of the medical officer for neglect of duty until it is arranged so that he is permitted to do what he is able to do, and anxious to do, but which gets him into trouble if he insists upon doing. At present we are ordered to recommend sanitary measures, which may or may not be carried out or even received, but the Japanese medical officer is apparently not ordered to recommend a measure, but to go and do it.

Dr. J. B. Briggs has a splendid article in *American Medicine*[15] on the extreme importance of recognizing and isolating the mild typhoids. Recent literature tends to the view that the best methods of early diagnosis are to demonstrate the bacillus in the blood, eruption or excretions, and this requires apparatus wholly impractical in a mobile army in the field, so that every suspicious case must be sent away from the troops for diagnosis, or we may infect the camp while waiting for the case to clear up. Major Robert Caldwell[16] asserts that the spread of epidemic sickness in the field is largely the result of the presence in *the field hospitals* of patients suffering from communicable disease, and because it is practically impossible to sterilize their excreta. The British Commission, which investigated the dysentery and typhoid which devastated the armies in the Boer war, found that flies were the bearers of the infection from these cases in the camp, and our commission which investigated conditions of like nature in the Spanish war is said to have come to a similar conclusion. Our regulations call attention to this matter of flies, and require us to be careful to disinfect the discharges of patients with typhoid, "camp diarrhea," or cholera, but from the trend of current military opinion, there is no doubt that this will be changed in the future to an order to the medical officer to remove such cases from camps rather than attempt an impossible disinfection in the primitive collecting stations which we call field hospitals.

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THE PROBLEM OF THE PREVENTION OF MEASLES AND WHOOPINGCOUGH.*

BY

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We are wont to congratulate ourselves on the success which preventive medicine has attained in recent years. We are warranted, in fact, in viewing with some pride our achievements in the prevention of disease. Most of our worst dreaded and fatal diseases, like diphtheria, scarlet fever, smallpox, yellow fever and the plague have been quite largely shorn of their terrors. While our minds have been so fully occupied with these infections and tuberculosis, pneumonia and other diseases of large fatality, we have lost sight of some of the minor infections, which include measles and whoopingcough, and they have flourished and steadily added to our deathrates, even as in premicrobic times.

The deathrates from many of the worst old time scourges, and the general deathrate, have everywhere been on the decline, but these socalled "children's diseases" figure as formerly, often more than formerly, as causes of death. Waves of measles and whoopingcough periodically sweep over our States, and each succeeding generation is considered legitimate prey for their ravages. Such measures as are taken against them are half-hearted and ineffective, and oftener than otherwise they die out simply because the supply of the nonimmune is exhausted.

My apology for taking you back to this kindergarten department of medicine on this occasion is that the attitude of the profession toward these diseases is not in harmony with the times, because we appear to be overlooking these diseases as causes of death and ill-health, because we are not preventing what is known to be preventable.

I say they are preventable. We do not, to be sure, know their bacteriology, nor have we discovered their prophylactic serums, yet we have the same homely weapons against them, viz., notification, isolation, and disinfection, as are still effective against scarlet fever.

1. *Importance of the Problem.*—To appreciate what the present practically uncontrolled prevalence of measles and whoopingcough means, I must give you some figures. For purposes of comparison, let me use scarlet fever, a disease, in respect to our knowledge or lack of knowledge of which, closely analogous to measles and whoopingcough.

The *British Medical Journal*, January 24, 1903, says that the deathrate of London for the year 1901 from measles was .43 per 1,000 living; from whoopingcough, .35; from scarlet fever, .13. The last census returns of the United States give, for this country, during the census year, 12,866 deaths from measles, 9,958 from whoopingcough, and 6,333 from scarlet fever.

In Michigan[1] there were, on an average, during the five years, 1896–1900 inclusive, 8.18 deaths from measles per 100,000 living each year, 8.38 deaths from whoopingcough, and 5.95 deaths from scarlet fever.

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* Read before the joint meeting of Windham County (Vt.), Cheshire County (N. H.), Franklin County (Mass.) and Connecticut River Valley Medical Societies, September 13, 1904.

From the same source we learn that during the five years, 1869–1873 inclusive, there were in the same State 11.14 deaths annually from measles per 100,000 living, 12.04 from whoopingcough, and 49.39 from scarlet fever. In other words, the scarlet fever mortality was reduced in 30 years from 49.39 deaths per 100,000 living to 5.95, while the deathrates from the other diseases, measles and whoopingcough, were only slightly reduced in comparison. The number of cases of scarlet fever reported to the Massachusetts State Board of Health,[2] during the decade 1891–1900 inclusive, varied little from year to year, while the number of cases of measles was twice as great during the last three years of this decade as during the first three. The figures for whoopingcough are not given. An examination of the registration reports of Vermont, shows that during the first five years of these reports, viz., 1857–1861 inclusive, there were on an average 179.6 deaths annually from scarlet fever, while for the five years, 1897–1901 inclusive, 40 years later, the corresponding figures were 15.8.

These figures, the population remaining practically stationary, show about a twelfth the deathrate from this disease now as formerly. How about measles and whoopingcough? The earlier deathrate from measles was 23.4 per year, the present, 25.6, an actual increase. For whoopingcough the earlier rate was 38.2, the later 24.2, a decrease small compared with scarlet fever.

In the reports recently made to the secretary of the Vermont State Board of Health, under the statute, by local health officers for the years 1902 and 1903, there were reported 6,621 cases of measles and 1,723 cases of whoopingcough during the biennial term. That these reports were short of the true number is shown by the reports themselves, many health officers saying that they could not keep track of these diseases, or that there had been general outbreaks with only a fraction of the cases reported. It is safe to estimate the number of cases of measles at 10,000, and of whoopingcough at a quarter of that number.

From figures furnished me by the secretary of the New Hampshire State Board of Health, I find there were on an average during the last five years, ending with 1903, 14 deaths per year in that State from measles, 39.2 deaths from whoopingcough, and 22 from scarlet fever.

Dr. Schamberg,[3] in a discussion of this subject before the American Medical Association, in 1900, said that in Paris the average mortality from measles during the past five years had been greater than from diphtheria and scarlet fever combined.

The figures I have given are from sufficiently wide sources to indicate conditions the world over, and they are near enough home to give us a personal interest in them. These two diseases actually cause more deaths at the present time than any other of the common infections of childhood.

In fact it is probably true, as stated by W. Naylor Barlow, M.R.C.P.,[4] that measles and whoopingcough kill more every year than all other infectious diseases put together. These figures measure in a way the importance of the problem of their management.

2. *Its Difficulties.*—Peculiar difficulties beset the way of the health official who would seek to stop either measles or whoopingcough. Probably the greatest obstacle he encounters is the indifference of the public to them. This indifference is not always passive; párents frequently invite them; they deliberately expose their children to the contagion. There is a deeply-rooted impression abroad that these diseases are necessary parts of a child's education. Unfortunately this feeling does not seem to be confined to the laity. Dr. C. F. Wahrer,[3] before the American Medical Association, advanced the idea that during a "mild epidemic" it would be as reasonable to expose children to measles as to vaccinate them. The discussion evoked by this paper developed strong dissenting views from such well-known pediatrists as Dr. J. P. C. Griffith, Dr. Louis Fischer and Dr. Schamberg.

The same ground is evidently shared by Eichhorst,[5] who says: "As almost all persons are attacked by measles, it is, under favorable conditions, not undesirable for children to acquire the infection in order thereby to be protected against the disease in the future." Against this view, again his editor, Dr. A. A. Eshner, adds in a footnote: "It may be legitimately objected to such advice, in the first place that all individuals are not necessarily attacked at some time by measles; and in the second place, that the complications of the disease and the possibility of a fatal issue are not lightly to be invited, apart from the fact that each case must obviously add to the avenues of infection."

With regard to whoopingcough, Hare[6] says: "The act of some parents on the assumption that their children must some time have the disease, and might as well have it one time as another, of knowingly permitting their exposure to it, is little less than a crime. Susceptibility decreases with age, and if a child can be spared till the tenth year, he is likely to escape through life, or if he does acquire the disease, its dangers will be greatly reduced."

Probably all of us see cases of measles in adults under peculiarly trying circumstances, especially to the patient, when we may be inclined to agree with the argument that it is better to have the disease young. That these diseases increase in severity with age, is a popular [illegible] Yet such figures as are at hand, hardly bear out this opinion. Koplik[7] quotes Breyer to the effect that the greatest mortality is during the first year, and the general mortality, both in dispensary and private practice, in infancy and childhood, is 8%.

Corlett[8] refers to Williams' figures for the number of deaths in England and Wales during 40 years from measles. Of the total number of 367,602 deaths, 335,874 were in children under 5. The greatest mortality was from 1 to 2.

Holt[9] says: "Except in children under 3 years, the deaths from measles are few." He shows from figures from several large Continental hospitals that the general mortality varies from 4% to 6%. Corlett[8] quotes Gaunelon, of Paris, whose figures show a mortality from measles in one of the Paris hospitals for five years quite in keeping with other authorities, being much greater for the first two years of life than at later periods, and during the second decade nil. While the greatest mortality from measles in children is everywhere stated as occurring in infancy and young childhood, reliable figures as to the case mortality at all ages, children and adults, are not accessible.

No age is exempt, yet there does not seem to be any reason for considering it more fatal in adult life than in childhood. Such statistics as are at hand seem to point to a contrary conclusion. Whoopingcough is generally agreed to be more fatal in young infants, and after the second year the mortality from this disease rapidly decreases.

All things considered, there would seem to be as good reason for exposing children to scarlet fever or the present mild type of smallpox as to expose them to either measles or whoopingcough.

One attack of either generally (not always) confers immunity against future attacks, but measles and whoopingcough endanger life and health quite as often as scarlet fever or smallpox.

As a natural result of the indifference of the public to measles and whoopingcough, many patients have no physician. There is always difficulty in the way of health officials in keeping track of diseases that do not come under professional care, even though our laws may require them to be reported by heads of families. There is a considerable fraction of the community usually who will not, either through ignorance or from other motives, make such reports, and unless reported no disease can be successfully prevented.

Again, these diseases are contagious at a time when their recognition by either parents or physicians is extremely difficult. They are "children's diseases," yet all ages are susceptible to them. The range of age is greater in measles than in whoopingcough. Measles may be found in all the grades of the public schools, while whoopingcough is usually found in the earlier grades. Age furnishes little help in detecting either.

The incubation period of measles is more definite than that of whoopingcough, and the case may be anticipated with more certainty, provided we know of the exposure. This does not help us, however, in the *first case*, usually imported from a distance, and often the product of an unknown exposure. This proverbial first case frequently does the damage in the home and at school.

Both these diseases present innocent initial symptoms. They are the symptoms of a "cold." This similarity between the early symptoms of these diseases and those of an influenza deceives everyone, and enhances the difficulty of preventing their spread.

The early examination of the buccal mucous surfaces for Koplik's spots, seems to offer the only reliable test of measles at an early date, yet this symptom is usually looked for too late to protect the family or school. Coryza, photophobia, and cough are too common symptoms, both at home and at school, to attract attention. This is unfortunate, but true.

The early contagiousness of these diseases and the vagueness of their initial symptoms, complicate the problem of their management. Another difficulty is the variable length of time these diseases remain virulent. Whoopingcough may last four weeks, or the proverbial 100 days; measles may be dangerous to the public one week or four weeks; the time that either may be communicable is apt to be lengthened by any of their numerous complications.

Health Board regulations vary widely as to the length of quarantine in these diseases. Some cities adopt an arbitrary period; as, for instance, Detroit requires one week,[10] Buffalo and some other cities, two weeks in measles; while others fix no definite figures, but make the time elastic enough to fit the case, as Brookline and Fall River, where the time measles is quarantined is "two weeks after the eruption fades," and Boston, where whoopingcough is quarantined "as long as the cough lasts." At best there is always apt to be a difference of opinion between the family and the physician or health officer as to the length of time that a case of either disease needs to be quarantined. The result is frequently a compromise that permits the half-cured patient to mingle with healthy children.

These are some of the practical difficulties in the way of managing measles and whoopingcough. There are others less serious, like the danger from infected clothing, furniture, and third persons; the atypic or anomalous cases; the sequels and complications; and those unexpected second and third attacks.

3. *Powers of Health Officials in Dealing with these Infections.*—Wherever there has been public health legislation there has been authority given someone to deal with communicable diseases that are dangerous to the public health. Either by statute or by regulations promulgated by health boards, the public is safeguarded against this class of diseases. There has been some difference in practice in the interpretation of what diseases fall under this name.

The Conference of State and Provincial Boards of Health has given us a list of these diseases, and measles and whoopingcough are included. However roughly our preconceived notions as to the reasonableness or practicability of restrictive measures against these diseases may be jarred by experience, it is true that they are everywhere regarded officially as legitimate objects for restrictive measures. From facts here produced it must be acknowledged that this position is warranted.

The public health statutes of Vermont, which probably do not differ materially from those of other States, require a report from both the head of the family and the physician of all diseases which are contagious and dangerous to the public health. Measles and whoopingcough are notifiable.

Aside from notification what is required? The State Board of Health of Vermont, recognizing the peculiar difficulties in the way of enforcing the same rigid quarantine against measles and whoopingcough as are enforced in some other infections, some time ago made a regulation with reference to some of the minor infections which was designated the "Modified Quarantine," dealing only with the case and the nonimmune. This modified quarantine notice, which local health officers are directed to use in cases of measles and whoopingcough reads as follows:

MODIFIED QUARANTINE NOTICE.

FOR USE IN CASES OF MEASLES, WHOOPINGCOUGH, MUMPS, CHICKENPOX, AND GERMAN MEASLES.

To . . . .

. . . . having been reported as being in your family, you will see that no person now in your family, who has not had this disease, is allowed to leave the house or premises occupied by you, and that no person who has not had this disease is allowed to enter your house or premises until further notice, under penalty of the law.

. . . .
Health Officer for
Town (or City) of . . . .
. . . . , 190 . .

The house is placarded with the name of the disease.

There is no reason to think the health officers of our State are less energetic in the enforcement of sanitary laws or regulations than those of other States, yet 10,000 cases of measles and 2,500 cases of whoopingcough in two years do not speak well for the enforcement of this regulation. You will not wonder that a doubt is forced on us as to its wisdom. Do we make a mistake in not treating these diseases as rigorously as diphtheria or scarlet fever, or shall we abandon all restrictive measures against them?

The New Hampshire board has a regulation against measles, which reads as follows:

> Any person having measles, however mild the case may be, and all persons in the family where measles exist, *except those who have had the disease*, are forbidden to attend school or any public or private gathering, or to mingle with persons who have not had the disease.
>
> Persons who have not had measles are prohibited from entering these premises.
>
> All persons are strictly forbidden to remove this card without orders from the Board of Health.
>
> Any violation of these regulations will be punished to the full extent of the law.

This notice is placarded on the house.

The New Hampshire board has no regulation relative to whoopingcough, but the public statutes provide that no child having a communicable disease shall attend school, which is supposed to exclude that disease from the schools.

The regulations quoted perhaps represent fairly the extent to which State officials have considered it wise to attempt isolation of measles and whoopingcough. Public opinion would probably seldom bear more rigid rules.

4. *Deductions and Suggestions.*—The universal prevalence and fatality of these diseases give them importance to the sanitarian and physician. The public attitude toward them is based on false conceptions of their dangers. There is not entire unanimity within our profession, even as to the necessity of preventing these diseases.

The difficulty of making an early diagnosis and the early contagiousness of these diseases baffle the health official and physician in applying preventive measures before there is widespread exposure. This is so chiefly because the early symptoms of measles and whoopingcough are the same as those of other common diseases, less contagious, perhaps, and less fatal; and because of the popular indifference to "colds." The schools offer the best opportunities for spreading these as well as all children's diseases. Laws and regulations against measles and whoopingcough, though modified to meet the popular attitude toward these diseases, are not interpreted seriously by the people, physicians, or even health officers.

The suggestions I have to offer, based on the foregoing are:

(*a*) This subject should receive enough professional attention so that there may be no difference of opinion among physicians as to the desirability or necessity of preventing these diseases.

(*b*) The public, primarily of course parents, should be taught that measles and whoopingcough at any age are never devoid of danger. They should learn that they are preventable, in childhood and later. This is work for the general practitioner.

(*c*) Furthermore the public should learn something about "colds." There must be a change of popular sentiment toward all those symptoms of diseases of the mucous membranes in the upper air spaces, eyes and ears, that go under this general name. A coryza, a sore throat, photophobia, and cough should always receive attention, for while they may mean only a simple "head cold," they may also be symptoms of tonsillitis, diphtheria, contagious ophthalmia, tuberculosis, as well as the diseases we are considering.

The public must learn these things from the doctor.

(*d*) School teachers should receive special training along these lines. They must know that it is not necessary that the child acquire measles and whoopingcough along with a knowledge of the "three R's." There has been of late, as you know, a general awakening of public interest in the health of school children. Sanitarians are agreed that the schools are the most important factor in the spread of the children's diseases. In many of the larger cities the school physician or inspector is a recognized adjunct of the school system. His duty is to seek out cases of incipient communicable disease, for the protection of the school as a whole. Medical inspection of the public schools does not yet reach to our rural communities. Here the teacher must do all that is done toward recognizing and removing this form of danger from the schools. To this end school teachers should be instructed as to the nature of these infections, and be prepared to detect the evident signs of disease. They too should be on their guard against "colds."

It lies with the sanitarian and the physician to impress the importance of this upon the school authorities, and to educate, as opportunity offers, the teachers. The State Board of Health of Vermont has taken advantage of the summer schools for teachers held each year to emphasize the importance of these things to the teachers.

Laws and regulations against measles and whoopingcough, requiring them to be reported and isolated, must come to naught as long as the apparently innocent "cold" is allowed to associate freely with the healthy at school.

(*e*) The physician and health officer must exercise great care in determining the time that a patient should be isolated.

Children with measles or whoopingcough must not be allowed their freedom until thoroughly *well*. Sequels and complications must be considered. There is so great elasticity in this matter that each case must be decided separately. The decision usually rests with the family doctor, who must never for a moment forget the large duty he owes the public under pressure of impatient clients.

(*f*) Finally, we must carefully frame our laws and regulations to fit the situation. On the one hand we must remember the insidious nature of these infections and their dangers, and at the same time consider the attitude of the public toward them. These laws and regulations must not be so rigid as to be impossible of enforcement, and they must not be so mild as to encourage contempt of the diseases to which they apply.

Regulations respecting these diseases should everywhere be as uniform as possible. Laxness in the regulations and their enforcement is too apt to be felt beyond the limits of the city or State where they are made to apply. There is need of general attention to this subject by all our State health authorities. There is probably now law enough on this subject. What we chiefly need is an awakened sentiment in favor of the enforcement of the laws and regulations we have.

As I have indicated, we in Vermont have deemed it wise to go no further than the "modified quarantine." We have considered that it was practical to do no more than endeavor to control the case, and to a certain extent the nonimmune. The agency of infected things and persons are practically negligible factors in the spread of these diseases. The greatest danger in the "modified quarantine," well enforced, is in determining who are really immune from previous attacks.

In all this you will detect an appeal to the medical profession. Public sentiment must uphold any law that is effective. In medical matters the profession moulds that sentiment. Medical men are in direct contact with the cases, and they may, by word and deed, influence the public toward respect for regulations, or the opposite. The problem of the prevention of measles and whoopingcough is large and full of difficulties, and health officials need the intelligent cooperation of the whole profession in solving it. I venture the hope that we may not longer allow the ravages of these diseases to remain a blot on our record as practitioners of medicine, preventive as well as curative, for the solution of the problem certainly lies with us, as medical practitioners.

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THE PITCH OF THE NORMAL PULMONARY VALVE SOUND, AND THE PRACTICAL SIGNIFICANCE OF ITS CHANGES IN ACUTE LOBAR PNEUMONIA AND IN EMPHYSEMA OF THE LUNGS.[1]

BY

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As indicated by the title of this paper, there are three points to be considered, based essentially upon one physical attribute of sound: The first pertaining to the normal pulmonic sound, as to pitch, the others pathologic. The former is fundamentally related to the other two; the latter can have no practical or dependable significance or value without an inductively established basis in the former. Indeed, the concrete, logical importance of this proposition is analogous to that of the minor premise of a syllogism.

Unless the pitch of the normal pulmonic second sound can be shown to be a physical sign so invariable in the average healthy adult of early and middle life, that a probable or positive judgment can be formed whenever that normal is affected by diseased thoracic conditions, its reliability as a criterion in prognosis and treatment, as well as in diagnosis, must be disregarded.

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[1] Read before the American Climatological Association, June 4, 1904.

In studying this sign, therefore, the purpose is to give it a proper emphasis; not, of course, as an independent, pathognomonic factor, a *sine qua non*, but in connection with the general objective status and progress of the given case.

1. *The Normal Pitch.*—In the consideration of the physiologic and pathologic variations of the second sound at the pulmonary valve region, as well as at the aortic, accentuation or intensification, and the opposite are more or less fully referred to by writers and clinicians; but the element of pitch is virtually and implicitly untouched. That this is so because of an apparent acceptance of the diagnostic sufficiency of changes in the loudness of the sound, rather than because of any physical or psychic inability to distinguish or discriminate on the part of the auscultator, seems to me quite probable. Nevertheless, it appears singular that the characteristics of pitch changes should have been unrecognized, when one realizes that in the practice of percussion alterations of the quality of sounds are determined much more often and precisely by noting the changes of pitch than of intensity—of elevation or lowering of tone more than of exaggerated loudness or softness.

Obviously, the pitch of the normal pulmonic sound must be a relative term, based upon a comparison with that of the aortic sound, as the respective valves of production are morphologically and functionally homologous. My deductions are founded upon a careful, comparative auscultation of the pulmonic and aortic second sounds in 470 healthy individuals, unselected as to age, sex, or occupation. The majority were not younger than 23, nor older than 44, although the range was from 18 to 55. Approximately 2% were women. In 77% of the persons examined the pulmonic second sound was distinctly and absolutely lower in pitch than the aortic sound; in about 10% additional no perceptible difference in the pitch could be detected. In the remainder (13%) the pitch of the pulmonary valve sound was a perceptible trifle higher than that of the aortic. Of the latter, however, it should be noted that while the individuals were seemingly and presumably healthy, without any evidence of thoracic or interrelated organic disorder elsewhere whatsoever, about 5% manifested sufficient physiologic, temperamental, or psychic exaggeration of cardiac action to justify their elimination from this class, strictly. Thus, the effects of temporary excitement or nervousness attending the examination, whether emotional or subconscious; and of physical exertion just previous to examination, were frequently observed in connection with some increased rapidity and force—a sort of physiologic irritability—of the heart action, and simultaneous elevation of pitch of the second sound, with relatively higher pitch of the pulmonic sound.

Broadly stating it, therefore, in about 80 out of every 100 normal adults the pitch of the pulmonary valve sound is slightly, and yet so much lower than that of the aortic second sound, that a degree of elevation of the former corresponding to that of the latter, and perforce, exceeding it, should be considered sufficient grounds for surmising an abnormal condition of the heart or lung, acute or chronic, however incipient or latent, mild, or obscure. Right here, to avoid the possibility of any misunderstanding, we need to differentiate clearly between pitch and loudness as affecting the pulmonic second sound; for example, elevation of pitch and accentuation or intensification are not synonymous. Strengthening or weakening of the sound is commonly referred to in indicating its physiologic or pathologic variations. Whether it be true or not, as Cabot[2] rather sweepingly asserts, that, to repeat that the aortic second sound is normally louder than the pulmonic sound is one of the "well-worn myths," the fact here insisted upon is, that as regards the relative pitch of the two sounds in the average individual, that of the aortic is surely higher than that of the pulmonary valve.

Generally speaking, anything which stimulates a hypertrophy of the right ventricle, by increasing the resistance to the flow of blood through the lungs, causes an accentuation of the sound of the controlling valve of the pulmonary circulation. According to the degree of back pressure and of the compensatory, right ventricular response will be also the height of the pulmonic sound pitch. Nor does this statement involve a contradiction of the wellknown physical law of acoustics, namely, the louder the sound the lower the pitch, other conditions being equal; for, in most instances, the intravascular pressure is so greatly increased that pitch is more influenced than is intensity of sound, in obedience to a supervening law that, the greater the tension the higher is the pitch. In other words, it is a question of conditions predominating in which the law concerning pitch operates over that concerning intensity—a partial eclipse of the latter, as it were—although both are affected by exaggerating factors. Again, the conditions are not actually the same, at any rate, as the normal cardiac pressure and vascular tension of the left ventricle and the systemic circulation are relatively more marked than on the right side, so that, as regards the relation of loudness and pitch, each side is governed by the law given, according to the changes happening; but not necessarily or always as compared with altered conditions on the opposite side of the heart.

In my experience, accentuation or increase in intensity of the pulmonic second sound is more noticeable when the evidences of hypertrophy of the right ventricular myocardium are prominent—when the *vis a tergo* is specially marked, while extreme elevation of pitch accompanies those affections associated with excessive obstruction to the flow through the pulmonary capillaries—when the *vis a fronte* predominates.

2. *The Pulmonic Sound in Acute Lobar Pneumonia.*—It is hardly necessary to reiterate, and certainly not to elaborate upon the fact and rationale of the great stress and strain under which the right ventricle labors, and aided or unaided, must exert itself against, in this very dangerous and mortal disease, if the patient is to recover. If to this we add the triple handicap of a muscular wall and strength less powerful naturally than the left ventricle, and the depressing and disintegrating influences of the toxemia and of the fever, directly and indirectly, we have an enormity of inexorable conditions to face and combat that might be likened to the appalling consequences one should expect to befall a person of deficient and weak muscular development, no physical training, and partially drunk, who should attempt to run a 550-yard dash. Is it not of the first importance, then, that any diagnostic danger signal or warning should be understood and promptly heeded by the engineer—the attending physician?

One thing I am constrained to urge in this connection, and that is the vital and momentous significance of changes in the pitch of the pulmonic sound. The primary effect of the consolidated lung upon the pitch of this sound being to elevate it to a degree above that of the aortic sound corresponding to the amount of increased tension in the pulmonary circulation, we know, that so long as the heightened pitch is maintained, the right ventricle is meeting the compensatory requirements of the case for a favorable outcome. Of course, the critical point is to detect as immediately as possible any, and the first evidence of weakening of the right ventricular force, for prognostic and therapeutic reasons. In my judgment there is no more prompt and positive sign of the impending danger than a slight lowering of the vicariously accentuated pitch of the pulmonary valve sound; and I repeat, that such change in pitch to the trained ear may be recognized earlier, since it occurs earlier than any diminution in the intensity or loudness of the sound.

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[2] Physical Diagnosis, Preface.

If, as is not infrequently an associated feature in severe cases, with extreme intraventricular and vascular pressure and tension, reduplication of the second heart sound is heard because of the quicker closure of the pulmonary valve cusps, the depression of the previously and favorably elevated pitch is accompanied by a restoration of synchronism. The more rapid and decided the lowering of the pitch of the pulmonic sound, the more imminent the danger of sure and speedy dissolution.

The relation which the normal pitch of the pulmonic sound, as here considered, bears to an accurate and timely estimation of the course taking by a case of pneumonia is evident enough, doubtless. An accentuated sound (as to pitch) lowered to a degree consonant with the aortic sound is manifestly not as immediately dangerous as when it reaches the still lower pitch of normal degree. It is the spiteful, high-pitched snap of stubborn resistance that one wishes to hear until the crisis is over. The partial yielding of an aortic pitch of resentment makes one anxious, but still hopeful; the soft, flabby, unconditional surrender to a pitch that in health would be normal is now fatal; at once a flag of distress, and a flag of truce with death.

Conversely, an elevation of pitch at the outset or throughout most of the fastigium of the disease that does not rise perceptibly above that of the adjacent aortic sound, augurs unfavorably for right venticular capacity, unless the case be a mild one.

3. *The Pulmonic Sound in Vesicular Emphysema.*—In this affection, a type of the chronic pulmonary disorders, we have a nice illustration of the fact that the condition of the right ventricle is determined by the attribute of pitch, and not by accentuation of mere loudness, as the heart sounds generally are weakened on account of the damping, buffer, nonconducting effect of the enlarged and border-extended lungs.

Myriads of pulmonary capillaries diminished in caliber because overstretched by the permanently distended vesicular walls; and at the same time more or less affected with fibrosis, perhaps, mean on the whole, a large area of increased resistance to the onflow of blood, and consequent strain upon the right ventricle, and increased tension upon the pulmonary valve leaflets.

As in the case of pneumonia, analogous and relative changes of pitch serve as indicators of the cardiac condition, of the approach of forming complications, as the various passive congestions, etc., in a most satisfactory way.

Finally, in the recurrent attacks of bronchitis, or "winter cough" of old people, and of paroxysms of asthma, the physical diagnostician recognizes in persistent and progressive elevations of pitch, especially during the intervals of suffering, the incipient development of emphysema, with its augmenting reaction upon the tension of the right-sided cardiovascular apparatus.

AN UNUSUAL CASE OF ADDISON'S DISEASE.

BY

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Although many authorities speak of the occasionally rapid development of the clinical manifestations of Addison's disease, cases like the following are sufficiently rare to be of interest:

W. A., aged 33, a Swedish laborer, was brought to the County Hospital on January 25, 1904. He was unable to speak a word of English, and the following history was subsequently obtained from a Swedish medical student, who had given him some attention before he came to the hospital:

With the exception of erysipelas nine years ago and pneumonia two years later, the patient had never been seriously ill until the onset of his present disease. He denies syphilis, has been only a moderate drinker, and has never been in the tropics. He worked constantly, and, with the exception of a slight cough, was perfectly well until two months ago, when he got constipated and suddenly became very weak. He thinks he had slight fever at that time. After resting a week or so he felt much better and resumed work, but was soon obliged again to give it up on account of weakness. For the last month his chief complaint has been constipation and a condition of great debility, which has made him very unsteady on his feet.

This history was not obtained until after his death, January 31, and during the six days that he was in the hospital, including a clinic which was held on January 29, those of us who saw him were dependent almost wholly on his physical condition as regards a probable diagnosis.

He appeared to be in an excellent state of general nutrition, and we managed to learn that he did not think he had lost weight. There was no discoloration of the skin—but little sunburn, even, on the face or hands. There was also no noticeable degree of anemia. The tongue was slightly dry and brown, but his temperature was only 99.5°, pulse slow, and respirations 24. The mind seemed clear, though decidedly apathetic. He attempted to indicate by gestures that his trouble was in the abdomen, and that his bowels had not moved for some time. His pulse when I first saw him was of poor strength, but regular and only 88. The physical examination was otherwise negative though we were, of course, stimulated to especial thoroughness by the absence of history and by what impressed us all as an apparently grave condition. This impression was probably chiefly due to a certain anxiety of expression, to the dryness of the tongue, and also to an attack of semicollapse which the patient developed at the time he was put to bed when the pulse became exceedingly feeble and he showed an alarming degree of general depression without actual syncope or noticeable dyspnea. The lungs and heart, except for the weakness of the pulse, gave no evidence of any abnormal condition. The liver was not palpable—indeed, it seemed on percussion to be rather smaller than normal since there was no hepatic dulness in the epigastrium. The spleen was not palpable. The abdomen was sufficiently soft to permit of satisfactory deep palpation, particularly in the region of the pancreas and kidneys; nothing abnormal could be felt, though sensitiveness seemed somewhat increased. The urine was pale amber, 1,012, acid, and without albumin or sugar. The blood count showed only a moderate leukocytosis—whites 29,532 to 4,952,000 reds; no normoblasts or megaloblasts were found and the whites were chiefly polynuclear neutrophiles. There was no disturbance of vision or of speech, nor was there anything to suggest any possible affection of the brain. There was no edema.

During the six days which elapsed between his entrance on January 25 and his death on January 31, there was but little noticeable change in his condition. On the second day he gave emphatic indications of pain in the right hypochondrium and there was considerable apparent tenderness on pressure over the whole slightly distended abdomen. But this soon passed away, the bowels were moved regularly without much difficulty, and he vomited but once during his stay in the hospital. There was almost complete anorexia, and he could be induced to take only small quantities of liquid food. His pulse-rate remained quite constant throughout, of poor strength and volume, but running steadily between 80 and 90. The temperature reached 100.3° on the last day, but its usual range was between 99° and 100°. Toward the end his weakness increased rapidly and the condition of the mouth and tongue became like that of a severe typhoid. He was conscious to the last and had not lost perceptibly in flesh. Death came suddenly and unexpectedly from simple asystole.

The postmortem examination by Dr. J. A. Wilder, which did not include an examination of the brain, gave the following record:

Body was very slightly emaciated and skin shows no pigmentation. Lungs were negative except a few firm adhesions at both apices. A single mediastinal gland was found enlarged to the size of a pigeon's egg and pink on section. Heart and pericardium were normal. Nothing was noticeable in the condition of the stomach, intestines, liver, and gallbladder. There were no enlarged mesenteric glands. Spleen was very slightly enlarged, rather soft, and dark-colored on section; small area of perisplenitis. Kidneys were rather dark on section, otherwise of normal appearance and size. Bladder was negative.

The suprarenal capsules are each about three inches long, two inches wide, and three-fourths of an inch thick. They are surrounded by dense fibrous tissue which cannot be stripped off. On section, a white caseous nodule a half inch in diameter is found at the anterior extremity of each body, and numerous smaller caseous nodules are scattered throughout each. Both organs are very firm and cut with considerable resistance. Microscopic examination of the glands shows a fibrocaseous tuberculosis.

The foregoing case of Addison's disease presents two striking features: An entire lack of the usual pigmentation of the skin; and a course which was extremely acute. This latter statement applies only to the clinical manifestations, since the adrenal tuberculosis was undoubtedly chronic and of very slow development.

Neither of these features is extremely rare, and both are mentioned by most recent authorities. But though the nonpigmented cases are said to be usually of more rapid course, it must be very exceptional for the physican to be confronted with a combination of conditions which suggested so little as to the real nature of the disturbance. The diagnosis in the present case was not made before death. At the clinic mentioned I was obliged to confess my absolute inability to give any reasonable explanation of what seemed to be a rather grave condition. The thought of some severe infection, from which the patient had partly recovered but which had left him greatly debilitated, was uppermost in my mind; this did not, however, accord with his excellent state of general nutrition, nor with other less important details of the case. It would appear, therefore, that the disease, in its acute form, is not so likely to be confounded with other affections as it is to be quite overlooked as a diagnostic possibitity; this was certainly my own error, and had the thought of Addison's disease occurred to me at all I am quite sure that it would at once have appealed to me as the only satisfactory explanation. A rapid diminution of strength without any corresponding degree of cachexia or emaciation, accompanied, perhaps, with rather indefinite gastrointestinal disturbances, and possibly a typhoidal condition without much fever, is the combination which would appear to be characteristic. Especially suggestive are an otherwise inexplicable inability to walk or even stand upon the feet, together with feebleness of the pulse and occasional attacks of syncope or collapse.

THE COMPRESSION CYLINDER IN SKIAGRAPHY OF CALCULI.

BY

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From the very beginning of skiagraphy until the present time it has been the ambition of every röntgenologist to develop a technic for the negative as well as the positive diagnosis of calculi.

As a pioneer no one deserves more credit in this country than Charles L. Leonard, of Philadelphia, yet his method, necessitating a 10 to 15-minute exposure with a particular make of tube of an arbitrary degree of penetration, as measured by a parallel spark gap, leaves something to be desired. It is too inflexible, the exposure is too long, and the results, though brilliant, are still too doubtful to be entirely satisfactory with the means even now at our disposal.

There are few operators who have not endeavored to overcome one or more of the difficulties of skiagraphing calculi. Not many of us, for instance, now spend 10 minutes on making the exposure. A few seconds to two minutes is quite sufficient, and the shortening of the time of exposure constitutes one real improvement. But the main difficulties lie in the thickness and density of the parts to be penetrated as compared with the size and density of the stone to be pictured, and in the disturbing effects of troublesome secondary rays.

Our Mr. Caldwell,[1] of interrupter fame, describes a technic which shows that he has a clear conception of these difficulties. Rumpel[2] also labors hard to overcome them. Some inflate the colon or the bladder. Dessauer's and Wiesner's[3] procedure amounts to squeezing the subject between two boards, the upper one of which is diaphragmed. Comas Llaberia and Prió Llaberia,[4] of Barcelona, deem it expedient when the diameter of the abdomen is over 25 cm., "cases which present extraordinary difficulty," to constrict the body by means of a gauze abdominal binder. But it was reserved for Dr. Albers-Schönberg to present the "Kompressions-blende," which has done more than anything else to make skiagraphy of difficult stones easy.

Last year, at Philadelphia, I called attention to my modification of this instrument and incidentally pointed out some of its advantages. Since then the "Kompressions-blende" of Albers-Schönberg has been brought more generally to the notice of our American profession, and considerable interest has been aroused as to its value. Unfortunately, the apparatus is both complicated and costly; moreover, until recently nothing of the kind could be bought here. This led me to design, for my own work, the instrument whose photograph you will pardon me for showing you once more. It embodies the principle of the Albers-Schönberg "Kompressions-blende," though it differs from it somewhat in certain details of construction. "For one accustomed to work with this instrument, the difficulties of röntgenography are reduced to half," says Albers-Schönberg,[5] and I may add that in the skiagraphy of calculi I believe this to be true in my own work also. I have no doubt that you will be convinced of the advantages to be obtained from the use of a similar instrument as soon as you have familiarized yourselves with it practically.

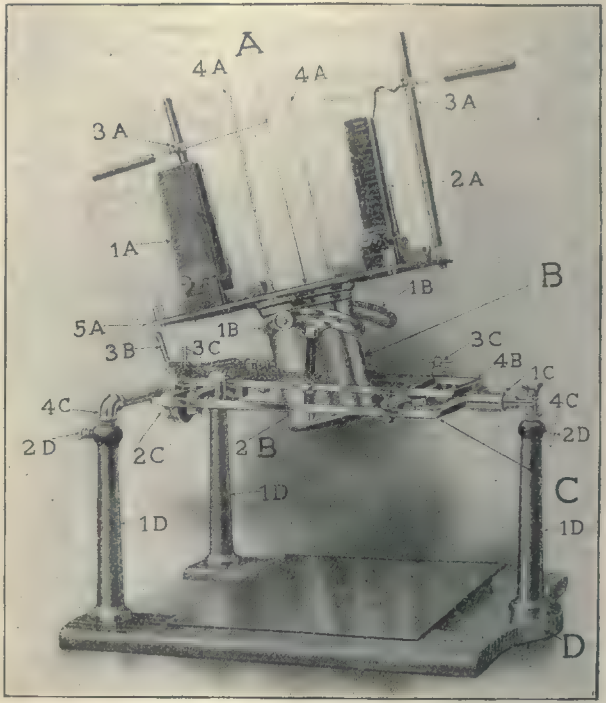

Fig. 1.—Compression cylinder for stereoscopic work. *A*, Canopied tube holder; *1A*, sliding adjustable and graduated negative tube clamp; *2A*, sliding adjustable and graduated positive tube clamp; *3A*, adjustable spark gap for wires from coil or static; *4A*, sighting rods for centering tube over opening in diaphragm of cylinder; *5A*, lead-covered canopy Case with circular opening; *B*, stereoscopic compression cylinder proper on sliding Case; *1B*, quadrants for obtaining stereoscopic effect; *2B*, lead lined cylinder, 5 inches in diameter, with insulation on the end; different sized diaphragms are used in the cylinder; *3B*, handle operating chain and sprocket device for fine adjustment of cylinder; *4B*, sliding Case; *C*, adjustable carriage; *1C* universal joint for tilting carriage; *2C*, joint for rocking carriage; *3C*, clamps; *4C*, rods sliding in columns of Case; *D*, plate holding Case; *1D*, columns containing rods for raising or lowering upper works; *2D*, set screws.

Most authors attach much importance to the chemic composition of the stones, as far as their skiagraphy is concerned. Rumpel, on the contrary, insists that this is a comparatively negligible factor, inasmuch as stones are seldom chemically pure. But even small pure uric acid calculi in heavy subjects do not escape him, so that he boldly maintains, "Every kidney stone can be demonstrated, provided the technic be up to the standard, so that a negative skiagraphic result excludes the presence of stones." His largest patient had a compressed diameter of 28 cm. "Much larger patients," he remarks, "are not likely to be encountered." Permit me to show you a few prints from negatives obtained with the aid of my compression cylinder. To two of these I venture to call your special attention. They are more interesting than the others from the fact that the patient weighed 220 pounds, and that he had a large abdomen, which I could not compress to less than 33 cm. Five pictures, taken at two sittings, after thorough flushing of the bowels and fasting, showed the same characteristic shadow, which in the light of the symptoms present, induced me to give a positive diagnosis of stone of the kidney, and to advise operation. The patient was examined also by Professor Hickey, of Detroit, and Professor Nancrede, of the University of Michigan, and was operated upon by Dr. Carstens and Dr. Kennedy, of Detroit. The stone was removed, and the patient recovered. Considering that the compressed anteroposterior diameter of this patient was 33 cm., as compared with 28 cm. of Rumpel's largest patient, it ought to be a fair test case of the value of the compression cylinder method. To be sure there are larger people—I once skiagraphed the hip of a woman weighing 350 pounds—but they are rare, and I am confident that with a little extra care on the part of the operator, none are too large for a positive and negative skiagraphic diagnosis of kidney stones not smaller than a pea.

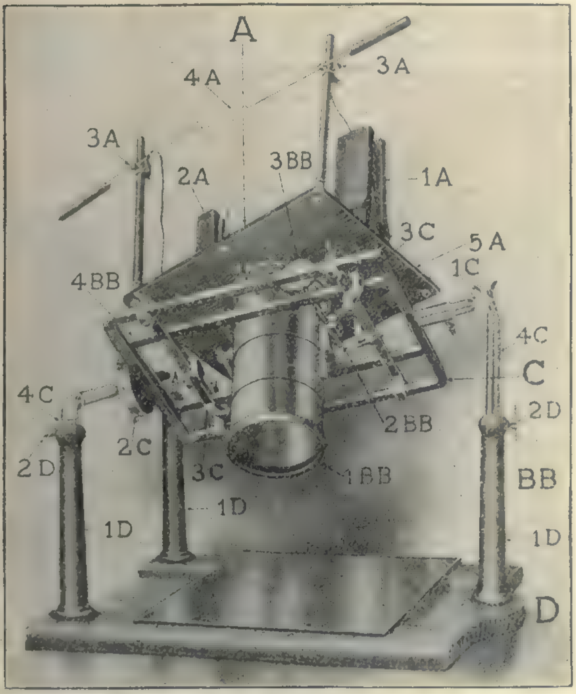

Fig. 2.—Plain extensible cylinder. All parts as shown bear the same description as those of Fig. 1, excepting those marked *BB*, which are designated as follows: *BB*, Plain extensible vertical cylinder on sliding Case; *1BB*, lead lined cylinder, 5 inches in diameter, with insulator on end; different sized lead diaphragms are used in the cylinder; *2BB*, rack and pinion for raising or lowering cylinder; *3BB*, key handle; *4BB*, sliding Case.

After preparing the patient by high oils and fasting I make from two to three exposures on each side of the spine, so as to show the last two or three ribs, the sacroiliac synchondrosis and part of the spine, and one over the bladder; in all five to seven exposures to search both kidneys, both ureters and the bladder. If anything resembling a calculus is found, the process is repeated a few days later, except that the compression cylinder is now centered directly over the shadow found before. If all the negatives thus obtained show the same well-defined shadow, the diagnosis is positive. If none are found the diagnosis is negative. The developer which I use for exposures of one second or less in chest work I use for calculi as well. It is as follows:

Potassium carbonate, dry	48 gm. (12 dr.)
Sodium sulphite, dry	24 gm. (6 dr.)
Potassium bromid (10% sol.)	59.2 cc. (2 oz.)
Hydrochinon	16 gm. (4 dr.)
Water	1 liter (1 qt.)

If the high lights begin to show before 40 seconds, from two to four ounces more of the potassium bromid solution are added. Development should be complete in four minutes.

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December 17, 1904. [Vol. xliii, No. 25.]

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13. Dengue in the Isthmian Canal Zone: A Preliminary Report. Richard Lightburn Sutton.

2.—See *American Medicine*, Vol. VII, No. 26, p. 1007.

3.—See *American Medicine*, Vol. VIII, No. 2, p. 50.

4.—Management of Acute Stages of Abdominal Inflammation.—G. E. Shoemaker groups those cases in which the treatment is operative but which should be relieved in the acute stage if possible by simple drainage, radical operation being done when the primary stage of infection is past. To this type belong salpingitis, and cholecystitis, except the fulminating or gangrenous forms. The group in which operation is indicated at the earliest minute includes appendicitis, intestinal obstruction, perforation of all viscera, and strangulated hernia. When it has been decided not to operate, vomiting is best controlled by withholding food, and giving lavage, and rectal feedings. Tympany may be relieved by eserin salicylate gr. $\frac{1}{100}$ hypodermically. Normal salt solution by skin or rectum assists elimination of toxins. The ice-bag with flannel and ichthyol intervening may be used two out of every three hours. There are stages of growth in which organisms vary greatly in their power to produce toxemias. It is the treacherous character of the infection of the appendix that furnishes the keynote for management. Second to the colon bacillus the streptococcus is most formidable. The cardinal principle in infection by this is to avoid opening the general peritoneal cavity. Gonorrhea is the least dangerous but is not favorable for partial operations aiming to preserve organs. [H.M.]

5.—See *American Medicine*, Vol. VII, No. 25, p. 971.

6.—See *American Medicine*, Vol. VII, No. 26, p. 1008.

7.—See *American Medicine*, Vol. VII, No. 25, p. 971.

8.—See *American Medicine*, Vol. VII, No. 24, p. 925.

9.—See *American Medicine*, Vol. VII, No. 25, p. 972.

10.—See *American Medicine*, Vol. VII, No. 24, p. 925.

11.—Septic Thrombosis of the Cavernous Sinuses.—E. C. Ellett calls attention to the great mortality of the condition, only 14 out of 182 collected cases having recovered. The cause is any infected lesion in the area drained by the ophthalmic vein. The general symptoms are those of sepsis. The local symptoms are those due to venous obstruction and those due to pressure on nerves. The first causes edema of the orbit, skin of the nose, forehead, cheek, and sometimes fauces, pharynx, and neck. The nerves involved are the second, third, fourth, sixth, and the ophthalmic division of the fifth. There are visual disturbances from pressure on the optic nerve and edema of the retina. The trouble is unilateral at first, but soon spreads to the other sinus. The diagnosis must be made from tenonitis, orbital cellulitis, and facial erysipelas. Since the prognosis otherwise is absolutely bad it seems proper that operation should be tried. [H.M.]

13.—Dengue in the Canal Zone.—R. L. Sutton finds that persons who have resided in a temperate or cold climate are especially susceptible. The type in Central America differs from that in Cuba and the Orient. In many instances there is absence of the primary eruption. In some the face is exceedingly pale. A hyperemia or catarrh of the pharyngeal mucosa is absent in many. There is a predisposition in these instances to diarrhea. Jaundice is extremely rare. Severe pain in the back is almost invariably present. Frontal headache is frequent. The clinical picture reminds one of influenza. Quinin has no effect. The coaltar products and cold applications afford great comfort. In uncomplicated cases the mortality is practically nil. [H.M.]

Boston Medical and Surgical Journal.

December 15, 1904. [Vol. CLI, No. 24.]

1. The Value of the Physiologic Principle in the Study of Neurology. JAMES JACKSON PUTNAM.
2. A Case of Diffuse Encephalitis, Showing the Pneumococcus. W. N. BULLARD and F. ROBERTSON SIMS.
3. Flies and Tuberculosis. FREDERICK T. LORD.
4. Innocent Cases Reported as Diphtheria. HIBBERT WINSLOW HILL.
5. Remarks on the Jurisprudence of Civil Malpractice, Based Principally on the Decisions Rendered by French Courts. (Concluded.) CHARLES GREENE CUMSTON.

1.—Value of the Physiologic Principle in the Study of Neurology.—After an interesting article on this subject, J. J. Putnam concludes in part as follows: Every organism presents itself as a web of interwoven energies which, under tendencies which ages of evolution have established, are woven into a mechanism of interlocking functions, forming an endurable and relatively stable equilibrium which we call health. This equilibrium is, however, but relative. The processes of mutual modification and adjustment through which such an organism seeks to gain and to maintain this equilibrium, under the ordinary conditions which we classify as health, are the only means which it possesses to meet the more serious needs created by the unusual conditions that we call disease. In order to give aid and guidance to the more favorable elements of these processes of readjustment, we, as physicians, need to bend all our powers to a better understanding of the resources which each organism has at its command for compensation, for continued life on the old lines, or for gaining a new and more stable life, no matter at what sacrifice. In the accomplishment of this task we need all the help that anatomy can furnish, but as it is the organism *in activity* that we seek eventually to understand, it is necessary that the splendid services of anatomy should be supplemented by physiology, and the physician—above all the neurologist—needs to be trained more thoroughly than at present, to work and reason in accordance with physiologic conceptions and methods as applied to the problem of disease. [A.B.C.]

2.—Diffuse Encephalitis Showing the Pneumococcus.—W. N. Bullard reports a case following a severe bronchitis. The autopsy showed diffuse encephalitis and bronchitis, with bronchopneumonia (pneumococcus). The pneumococcus was found by culture, free in the tissues and within the phagocytes of the cerebral lesion. The lesions were related to the cortical arterial system, the areas involved being marked by edema and punctiform hemorrhagic foci. The lesions consist of accumulations within and surrounding the adventitia of phagocytic cells and small numbers of lymphoid and plasma cells. The large cells contain vacuoles, detritus of myelin, and an occasional pair or short chain of diplococci. [H.M.]

3.—Flies and Tuberculosis.—F. T. Lord finds from personal observation that flies may ingest tuberculous sputum and excrete tubercle bacilli, whose virulence may last for at least 15 days. The danger of human infection is from ingestion of the specks on food. Tuberculous sputum, pus from sinuses, fecal matter from cases of intestinal tuberculosis, etc., should be carefully protected from flies. During the fly season hospital wards containing patients with tuberculosis and laboratories where tuberculous material is examined should be carefully screened. [H.M.]

5.—The Jurisprudence of Civil Malpractice, Based Principally on the Decisions Rendered by the French Courts.—Cumston concludes an interesting article on this important subject. It consists for most part of a recitation of various decisions which have been rendered, principally by French courts, in suits for malpractice, together with appropriate comment thereon. The historic review of the various decisions is interesting and instructive. In reviewing the various decisions it is apparent that the law requires only reasonable skill, care, and attention on the part of the medical attendant. In the doctrine of French jurisprudence, Max-Lecomte says: "Physicians are liable for damages committed in the practice of their art when these mistakes are proved, independent of the medical doctrines, and based upon the rules of prudence and common sense to which the exercise of every profession is subjected." The paper should be read in full by members of the profession. [A.B.C.]

Medical Record.

December 17, 1904. [Vol. 66, No. 25.]

1. Alcohol in the Tropics. MAJOR CHAS. E. WOODRUFF.
2. Twenty Years' Experience with Manual Dilation of the Os and Cervix Uteri to Effect Immediate Delivery in the Latter Months of Pregnancy, with Presentation of a New Obstetric Uterine Dilator. PHILANDER A. HARRIS.
3. An Interesting Case of Tuberculosis of the Larynx. E. HARRISON GRIFFIN.
4. The Transmission of Syphilis by Barbers. WM. T. BELFIELD.
5. Report of a Case of Tetanus Following Labor. A. STRACHSTEIN.

1.—Alcohol in the Tropics.—Chas. E. Woodruff earnestly urges a reconsideration by the profession of the long-established dictum that total abstinence is an essential to the preservation of health in the tropics. This is a conclusion without logical foundation, and the statistics of our army in the Philippines show that in that climate the moderate drinker is better off than the total abstainer. The enervating effect of tropical climates requires the stimulus of a certain amount of alcohol to counteract it, and it is a serious error to denounce its use in moderation by those compelled to live in such latitudes. Total abstinence among the people of the country at large is the ideal condition, and everything should be done to encourage it, but with the army in the Philippines alcohol is a necessity. The W. C. T. U. has played into the hands of the liquor dealers in causing the canteen to be abolished, and in the horrible dives which have sprung up about all the barracks, drunkenness flourishes to a degree far in excess of what was formerly the case.

2.—Manual Dilation of the Os and Cervix Uteri to Effect Immediate Delivery in the Latter Months of Pregnancy, with Presentation of a New Obstetric Uterine Dilator.—P. A. Harris, after 20 years' use of his method of manual dilation of the cervix in obstetric cases, details the results obtained, and some cautions which experience has shown necessary. He also describes a simple multilever dilator, the application of which offers some advantages over the manual procedure. The general conclusions arrived at may be abridged as follows: The strain upon the cervical ring should not be too strong, and as nearly equable and constant as possible. The greatest strain, possibly 15 to 20 pounds, is needful in acquiring the first four or five inches of dilation. As the cervical ring enlarges beyond this point, the strain should be gradually diminished, for it is at this time that the danger of producing lacerations becomes more serious. Fifty minutes may be taken as the average time required to dilate safely the os and cervix uteri from the size of one's finger to a circumference of 12 inches. Twenty-five minutes should be the average time for rupture of the membranes and delivery of the child and placenta. The use of the unaided hand has the advantage that it is always with the operator, but it is inferior to the author's mechanical dilator, because, owing to the inevitable fatigue, its action is more or less irregular, it cannot be sterilized by boiling, the hands must frequently be alternated to rest them, so that 12 or 15 introductions into the vagina, with loss of time, and some risk of infection, may be necessary; some vaginas are too small to admit the hand without laceration, and it is difficult to gauge accurately the amount of force being exerted. The instrument is one that the general practitioner might not use very often, but it possesses the advantages of being ample in force, continuous in action, and showing exactly the degree of strain in pounds on the cervix, by means of a dial; it may be boiled, usually requires but a single introduction, and every vagina should admit it without injury.

3.—Tuberculosis of the Larynx.—E. H. Griffin describes a case of tuberculous laryngitis, which began five years ago, and was remarkable for the fact that three attacks of the local lesion, each time going on to the stage of ulceration, were promptly relieved by sending the patient out of the city to Colorado or the Adirondacks. Each time the throat healed, and the patient is still alive, has gained weight, and is able to attend to business. The internal treatment consisted in the use of creasote and small doses of morphin. The author believes in treating the throat as little as possible in these cases, as violent spraying into the larynx tends to inflame and spread the ulceration. Morphin is less objectionable than any other drug, and the author prefers it to cocain. Hygiene is all important, and open windows day and night, proper clothing, not too warm, cold bathing and sponging with alcohol or cold water during the fever, and forced feeding, are the best aids to nature in combating the infection.

4.—The Transmission of Syphilis by Barbers.—W. T. Belfield gives a list of cases in which syphilitic infection was conveyed by barbers or hairdressers. The data were obtained by addressing inquiries to 25 prominent syphilographers, and the list includes two cases which came under the author's own observation. The razor seems to be the least likely source of infection, while the alum stick, clipper and forceps are the most frequently culpable. The author calls attention to the frequency with which sore throat and fever, especially in women, are the first discovered symptoms of syphilis. The disease could be minimized, if not virtually eradicated, far more quickly, surely, and easily than can tuberculosis; not by licensing prostitutes nor by educating youth to chastity, but by making the acquisition of syphilis practically impossible through the general practice of circumcision. Subjects of the disease should be urged to take antisyphilitic remedies for two months in every year after the termination of active treatment, and to inform any physician subsequently consulted for any obscure chronic ailment, of the earlier syphilitic infection.

5.—Report of a Case of Tetanus Following Labor.—A. Strachstein describes a case of tetanus occurring in a woman of 34, two weeks after a normal labor. The disease began with sacral pain and lumbar rigidity, but soon developed the typic symptoms. Recovery followed the injection of 720 cc. of tetanus antitoxin during a period of about 14 days.

New York Medical Journal.

December 10, 1904. [Vol. LXXX, No. 24.]

1. A Comparative Study of Idiopathic Epilepsy in Animals and Man. L. PIERCE CLARK.
2. Superannuated Trolley Cars for the Tuberculous. WILLIAM H. PETERS.
3. The Elective Line of Renal Incision. The Natural Division of the Kidneys. Hyrtl's Exsanguinated Renal Zone. (Zona Exsanguinata Hyrtlii.) BYRON ROBINSON.
4. My Method of Dealing with Circumrectal Infections: Case Reports and Illustrations. J. L. JELKS.
5. Some Observations upon the Nonoperative Treatment of Squint: The Worth Amblyoscope. WILLIAM CAMPBELL POSEY and H. MAXWELL LANGDON.
6. Ultimate Results of Mechanical Treatment of Pott's Disease in Dispensary Practice. HENRY LING TAYLOR.
7. Public School Children and Preventive Medicine. J. S. LANKFORD.

1.—A comparative study of idiopathic epilepsy in animals and man has been made by L. P. Clark. It is interesting to note the occurrence of epilepsy and convulsions in animal experiments, by the aid of certain wellknown toxic agents. Morphin is said to have more epileptogenous power than any other drug used in experimentation. Abstracts of interesting cases of acquired epilepsy in animals are given from medical literature. Féré states that epilepsy exists in many species of animals (goat, horse, ox, pig, cat, rat, dog, etc.). Many kinds of birds are also affected by epilepsy, especially some of the parrot tribe. As far as the literature goes, epilepsy in the lower animals appears to be limited chiefly to the mammals. However, there are a few good accounts of epilepsy in birds. Clark adds the clinical history of epilepsy in a canary bird, which shows: 1. Apparent idiopathic epilepsy in a bird. Nearly all previously reported cases of animal epilepsy, and especially in the bird, where autopsy was made, proved to be Jacksonian traumatic epilepsies. 2. Postepileptic exhaustion paralysis, motor and vasomotor. 3. Status epilepticus and death analogous in many clinical respects to that seen in man. 4. Pathologic findings in the cortex, similar to those in man. [C.A.O.]

3.—Elective Renal Incision.—Byron Robinson outlines with great care and gives cuts illustrating this natural division of the kidneys. This zone he names in honor of its discoverer, Hyrtl's exsanguinated renal zone. It is practically the vascular kidney equator located between the smaller dorsal, and larger ventral, renal parenchymatous segments. It is the elective line of exploratory renal incision with minimum hemorrhage, and it lies a half inch dorsal to the lateral longitudinal renal border. [C.A.O.]

4.—Circumrectal Infections.—J. L. Jelks says that as soon as he is able to elicit fluctuations he opens freely, down to the bottom of the abscess, parallel with the rectum and usually transverse to the folds. He then irrigates with a formalin solution, through an irrigating curet, until the fluid comes away clear, thus making sure that he will not infect healthy tissues, he fearlessly curets away all the abscess walls, thereby converting the cavity into a surgical wound. The cavity is then packed with iodoform gauze. On the second day after operation, a weak solution of formalin is used, and every day thereafter, in irrigating these cavities. The cavity is packed after the second day with gauze saturated in balsam of Peru, castor-oil, and ichthyol. Should large cavities remain unfilled after repeated cureting, these cavities may be closed with 20-day catgut as in an interesting case reported. [C.A.O.]

Medical News.

December 17, 1904. [Vol. 85, No. 25.]

1. Diagnosis of Disease in Children. J. MADISON TAYLOR.
2. Symmetric Enlargement of Parotid and Lacrimal Glands: Nodular Iritis. COLMAN W. Cutler.
3. Overlapping the Aponeuroses in the Closure of Wounds of the Abdominal Wall. CHARLES P. NOBLE.
4. The Association of Cancer and Tuberculosis. W. A. BASTEDO.
5. The Minin Ray. WILLIAM GRAY SCHAUFFLER.
6. Tropic Malaria. JOHN V. SHOEMAKER.

1.—Diagnosis of Disease in Children.—J. M. Taylor emphasizes the importance of differentiating physiologic variations between the young and the adult. Growth is a colossal force. The child of rapid growth usually fails of symmetric development in several directions. There is poor thoracic capacity, tendency to glandular engorgements, etc. In diagnosis one should try to recognize the onset of functional derangements. We should give special attention to morbid mental phenomena. The physician should aim to rectify the evil effects of environment, training, and inheritance. He must possess clearly defined standards of growth, proportion, activities, sensitiveness, functional competence, intelligence, and capacity for endurance, with permissible variants. Larger children, except in extremes, are superior to others. Small children evidence delayed development, often with degenerative phenomena. Taylor discusses the significance of clumsiness, deformities, mental, moral, and sense defects. Next to trained observation in value is skill in palpation. Estimation of tone, resistance, temperature, and the like, are of deeper significance than in the adult. Much can be learned by the hand in all parts of the body. He applies the teaching of physiologists as to the reading of visceromotor and other activities through knowledge of the vasomotor mechanisms and spinal segments, from whence a viscus is controlled, and through observation of the nutritional and sensory reactions of the erector spinæ muscles, etc. This method of diagnosis he considers at length and touches on the information afforded by the röntgen rays. [H.M.]

2.—Symmetric Enlargement of Parotid and Lacrimal Glands: Nodular Iritis.—C. W. Cutler thinks it obvious from the limited number of similar cases reported that symmetric swelling of the tear glands and parotids occurs in a group by itself as an idiopathic condition, and states that Mikulicz and Häckel believed that this disease is infectious, although no organisms have been found. In the case reported, iritis is an additional and apparently a conclusive argument in favor of the bacterial origin of the disease, whether we classify the condition as pseudoleukemia or not, which is, after all, a mere begging of the question. [H.M.]

3.—The Closure of Abdominal Wounds.—Charles P. Noble says since 1897 he has closed approximately 1,150 abdominal incisions by overlapping the fascias from a third to a half inch, and hernia has occurred in but three cases, so far as known. The method has been used in the closure of ordinary incisions of the abdominal wall, for closure of incisions of the inguinal canal when opened to shorten the round ligaments, in all operations for the cure of hernia, whether umbilical, inguinal, or ventral (postoperative); and for the cure of diastasis of the recti muscles. Illustrations and description of the technic are prominent features in the paper. Briefly the peritoneum, when incised, is closed by fine catgut; muscular tissue is approximated by chromic catgut; and edges of corresponding fascia are overlapped by a continuous chromic catgut suture, run in after the manner of the Lembert suture in intestinal anastomosis. [A.B.C.]

4.—Association of Cancer and Tuberculosis.—After a somewhat exhaustive article on this subject, W. A. Bastedo concludes as follows: 1. Cancer and tuberculosis not infrequently occur together in an active state, and may be intimately associated in the same tissue. 2. There is probably neither specific favoritism nor specific antagonism between the two types of disease. 3. There are a few reported cases in which one of the affections seems to have exerted a modifying influence on the course of the other. 4. Lupus favors the development of epithelioma. 5. Cancer is more common among those with latent tuberculosis than among others at the cancer period of life. 6. The common age for cancer is not the common age for active tuberculosis (Cruveilhier, 1828). 7. The common sites of cancerous involvement are mostly not those of tuberculous involvement and vice versa (Rokitansky, 1838). 8. A family history of tuberculosis is more frequent in the cancerous than in the general community, and there may be some hereditable tion between the two. 9. A latent tuberculous wero physicians, -node may become active when a cancer understanding of the reshorhood. 10. Lymph-node enlargement command for compensationer is not always cancerous (Claude, or for gaining a new and morrculous. [A.B.C.]

sacrifice. In the accomplishmenG. Schauffler states that he has help that anatomy can furnish, but two years with the socalled *activity* that we seek eventually to undeing which was brought that the splendid services of anatomy shoul a commercial house. by physiology, and the physician—above all tadescent lamps of needs to be trained more thoroughly than at preith suitable re- and reason in accordance with physiologic concepade of dark methods as applied to the problem of disease. [A.B.C.] lost much

2.—Diffuse Encephalitis Showing the Pneumoted. That —W. N. Bullard reports a case following a severe broassert, is The autopsy showed diffuse encephalitis and bronchitice when bronchopneumonia (pneumococcus). The pneumococcuys on a found by culture, free in the tissues and within the phagoresults of the cerebral lesion. The lesions were related to the cores, ivy arterial system, the areas involved being marked by edema serted punctiform hemorrhagic foci. The lesions consist of accum tions within and surrounding the adventitia of phagocytic c char- and small numbers of lymphoid and plasma cells. The la after cells contain vacuoles, detritus of myelin, and an occasiotypic pair or short chain of diplococci. [H.M.] vari-

3.—Flies and Tuberculosis.—F. T. Lord finds from peture sonal observation that flies may ingest tuberculous sputum anach- excrete tubercle bacilli, whose virulence may last for at least 15in-testinal symptoms were marked in many cases. In many the yellow discoloration of the skin was noteworthy, in some with vomiting and diarrhea it was suggestive of yellow fever. The main reliance in treatment was on quinin, given by rectum when vomiting was incessant. [H.M.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Rare Forms of Rheumatism and the Areas Involved by Preference.—J. Schreiber[1] reviews the literature and discusses the various theories concerning the causation of rheumatism. He objects to the term "muscular rheumatism," and states that it should be replaced by the term "rheumatism;" joint rheumatism should be called articular rheumatism. The term "rheumatism" should include all rheumatic conditions of the periosteum, muscles, and ligaments. Rheumatic patients need not fear a constant, or even a very cold temperature, but rather overheating of the body and sudden cooling off. The quickest and most unfailing remedy for rheumatism is exercise; of course articular rheumatism must be excluded. Chronic rheumatism can only be cured by mechanotherapy, that is active and passive motion. The author reports the following rare forms of rheumatism and cites a number of cases: 1. Rheumatism of the periosteum of the ribs, of the ensiform cartilage and of the sternum. 2. Rheumatism of the diaphragm. 3. Rheumatism of the tuberosities of the ischium of the pelvic ligaments. 4. Isolated unilateral rheumatism of the muscles of mastication. The favorite seats of rare forms of rheumatism are: (1) The supraspinatus fossa of the scapula; (2) the mastoid process of the occiput; (3) the galea aponeurotica of the cranium; (4) the temporal muscles and the ligaments that lead to the zygoma; (5) the external border of the scapula and the tendons which insert in the upper part of the humerus; (6) at the origin of the sacrolumbar and gluteal muscles in the sacrum; (7) muscles that arise from the os pubis; (8) muscles that insert in the external and the internal condyles of the femur; (9) muscles that arise from the fibula; (10) the muscles, ligaments, and tendons around the elbow-joint. It is of importance to know these various areas of preference in order to differentiate between rheumatism and neuralgia, neuritis and neurasthenia. [W.E.R.]

Inflammation of the Muscles with Especial Reference to Two Cases of Infective Myositis.—John Hill Abram,[2] physician to the Liverpool Infirmary, reports that in the last two years he has seen two cases in which an inflammatory process in a muscle was a distinctive feature in the symptom-complex. In spite of their rarity, muscle inflammations are important from their deadly character. Out of 17 cases of infected myositis, alluded to by Lorenz, seven were found to have died in from 4 to 16 days; in one of the cases now reported by Abram, death occurred on the sixth day. In 15 cases of true dermatomyositis, death occurred in 11 days and in five cases of polymyositis hemorrhagica, all died. The most recent work shows that microorganisms play a large part in the etiology of muscle inflammation, especially in the suppurative varieties. Staphylococcus, pneumococcus, streptococcus, the *Bacillus typhus* and the *Bacillus mallei* have been demonstrated. Brunson's list of muscles affected in infective myositis runs as follows: Pectoralis major, deltoid, triceps and biceps, psoas, quadriceps, and the gastrocnemius. In both of the cases reported by the author the pectoralis major muscle was the one affected. The cases are reported in detail, one dying and the other recovering. [A.B.C.]

The Greenland Fjords for the Treatment of Tuberculosis.—F. Sohon[3] gives many reasons why the fjords of Greenland almost perfectly meet the indications for the treatment of tuberculosis, principal among these being the fact that in the Arctic region catarrhal inflammations are unknown and septic bacteria are not native. The natives of northern

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[1] Berliner klinische Wochenschrift, November 21, 1904.
[2] British Medical Journal, November 19, 1904.
[3] Washington Medical Annals, November, 1904.

Greenland do not have tuberculosis. During the short summer the quick recovery from the anemia of the winter and the increase in weight, strength and health of all who voyage there, are the subject of comment. To utilize this region, Sohon suggests chartering a small steamer, furnished after the sanitary manner of a hospital ship, and really differing from sanatoriums only in being movable. Cruising about for the entire four months of the summer is not necessary, for the steamer can, at many points, be brought to anchor in bays which are quiet as mill ponds. The expense to patients of such a sojourn could probably be made not more than $400 for the four months, which is not greater than at first-class self-supporting institutions at home. Sohon believes this to be a worthy object for the aid of philanthropy. At least some way should be opened to permit of the utilization of this region. [A.G.E.]

Channels of Infection in Tuberculosis in Childhood.—L. Kingsford[1] has studied the source of the channel of infection in 330 cases of tuberculosis in children. These were among the poor of London. He states that if we regard the middle-ear cases as infected by inhalation, the tonsil cases as an alimentary infection, and the remaining pharyngeal cases as doubtful, since it is not certain whether the infection has entered by the tonsil or the nasopharyngeal adenoids, then inhalation would account for 216 cases in his series, or 63.7%; and ingestion for 65, or 19.1%; the remainder being of doubtful origin. So far as can be judged from the methods of investigation, the danger from inhalation far exceeds that from ingestion of tuberculous material. With regard to the importance of tuberculous material, however great the potential danger, the real danger is in many instances greatly exaggerated, probably owing to the child not drinking the tuberculous milk of the toxicity, and in the quantity usually affirmed. But whether or not the danger be exaggerated, the fact that nearly 20% of the cases of tubercle among children in the larger towns in Great Britain is primarily alimentary, makes out a good prima facie case against tuberculous milk, and he holds that it will be shown that one of the chief differences between the conditions of life at home and abroad, which could have any effect in producing tubercle, exists in the greater frequency of tuberculous milk in Great Britain. While precaution against tuberculous milk is important, it is chiefly in instilling the ideas of cleanliness, ventilation, disinfection, and better housing that we must hope for, to produce diminution in tuberculosis. [A.B.C.]

A Method of Measuring the Diastolic Blood-pressure.—J. Strasburger[2] describes a method of determining the diastolic blood-pressure by means of the Riva-Rocci manometer. The latter instrument is applied to the brachial artery, and as the pressure is increased, that point is noted at which the radial pulse begins to diminish in volume. This corresponds to the diastolic blood-pressure. The difference between the diastolic and systolic pressure corresponds normally to about 30 mm. Hg. This is termed the "pulse pressure" by the author. It has a definite relation to the heart's action and the resistance of the bloodvessels. Strasburger proposes to express the relation of the pulse pressure to the maximal pressure by the term "blood-pressure quotient." This gives the relation of the heart's action to the vascular resistance; if the quotient is above normal, the resistance is relatively small, and vice versa. Normally this quotient is about 0.254. The author details the behavior of this blood-pressure quotient under various pathologic conditions. He also gives a table, setting forth the various combinations of systolic pressure and blood-pressure quotient, with the conclusions which may be drawn from each combination. [B.K.]

Cerebrospinal Fever and Its Treatment with Ergot.—From a study of eight cases of cerebrospinal meningitis C. Chase[3] emphasizes the acute preceding rhinitis as a symptom important in its relation to the etiology of the condition, as well as giving a clue to the preventive treatment; he considers Kernig's sign most valuable and says that ergot, if given at all, should be given in full doses. Improvement followed every case in which he employed it except in the fulminating cases; complications and sequels were absent in all. The dose for an adult he considers three grains of ergotin (equivalent to 30 gr. of ergot) hourly and expects the effect, which consists of a gradual remission of all the symptoms, in from 24 to 48 hours. [E.L.]

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[1] The Lancet, September 24, 1904.
[2] Zeit. für klin. Med., Bd. liv, p. 373.
[3] Brooklyn Medical Journal 1904, xviii, 401.

Vaccination in Red Light.—Hugo Goldman[1] vaccinated 40 children in red light, after which the arm was dried and a red bandage applied thick enough to exclude daylight from the site of vaccination. In 20 of these cases the bandage was not removed for three weeks; in 10 more, one arm was vaccinated in a red light, and the other in daylight. In five children the red bandage was allowed to remain in place two days, and the pustule then exposed to daylight. In the other five cases the arm was exposed to daylight until the vaccination took, and then wrapped in a red bandage. In another child the pustule was covered by a bandage until the pustule on the control arm had reached its acme, and then exposed to daylight. In those cases in which the vaccinated arm was exposed to daylight the usual appearances of vaccination were seen. In the cases vaccinated in red light, the sites of vaccination showed no inflammatory reaction, but instead, the appearance was that of a small, round wart, elevated above the normal skin around it. In the cases exposed to daylight for three days, a pustule developed, but its course was mild. There was absence of enlargement of the glands in the axilla. The author was able to demonstrate that vaccination under these conditions was protective. [J.H.W.R.]

Treatment of Chronic Renal Disease.—Professor von Noorden,[2] in the present paper, reiterates some points which he has heretofore announced. The first is concerning the difference between white and dark meat in the treatment of chronic nephritis. He believes that neither clinical experience nor chemic analysis or investigation or metabolism authorizes us to give a preference to white meat. Recognizing this fact the dietetic treatment of Bright's disease is greatly simplified. Too great an allowance of meat should never be allowed, but if an unlimited choice as to different meats is permitted, treatment is easier. Another point held is that it is unnecessary to flush the body of the patient by giving greater quantities of liquid. He holds, on the other hand, that only the ordinary amount of drink taken by a patient in health should be permitted to the patient suffering from chronic Bright's disease; if a change is made it should be a diminution rather than an increase. Restriction of liquids not only has a favorable result on the dilated heart, but on the asthmatic condition which frequently attends this affection. Another point of importance is the influence of the systematic muscular exercise on the course of the disease. Most practitioners advise the patients to refrain from exercise in chronic Bright's disease. Von Noorden holds that while an extra amount of exercise is harmful, an ordinary amount is, on the other hand, beneficial. At first the amount of albumin may be increased, but this is only temporary, and on the other hand the heart is greatly improved by the muscular exercise. In the training it will be found best to adopt the rules Oertel has given for the treatment of heart disease, and it will be found that the results in Bright's disease are equally as favorable. A fourth point concerns obesity, which is one of the most frequent and dangerous complications in Bright's disease, because both conditions throw an extra amount of work on the heart, care should be taken not to remove the obesity too rapidly. While in health obese persons may be reduced without danger, by 4 kilos to 6 kilos in four weeks, equally as many months should be required for an equal reduction in case an obese person is suffering from Bright's disease. [A.B.C.]

Lesions and Nature of Pancreatic Diabetes.—Lanceraux[3] reports four cases of diabetes, which he studied antemortem and postmortem. The first was ill with the disease five years, dying ultimately of infectious pericarditis. There was atrophy, periacinous sclerosis and fatty degeneration of the pancreatic lobules; the islands of Langerhans had totally disappeared. The second patient died of pulmonary tuberculosis; his diabetes had not existed so long. The autopsy revealed diffuse periacinous sclerosis of the pancreas, hyaline degeneration of the parenchyma and great reduction in the size of the islands of Langerhans. In the third case death was due to the same cause; he had been ill longer and the pancreatic lesions were more advanced. In addition to the atrophy and periacinous sclerosis there was pancreatic lithiasis and disappearance of most of the islands of Langerhans. The fourth patient died in coma; in his case no Langerhans islands could be found at all. The author sees in these lesions the cause of the diabetes and concludes that the islands of Langerhans are the seat of the production of the internal secretion of the pancreas and that a diseased state in them will invariably produce diabetes. [E.L.]

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[1] Wiener klin. Woch., No. 36, 1904, p. 971.
[2] British Medical Journal, October 8, 1904.
[3] Bulletin de l'Academie de Medecine, 1904, ii, 558.

The Pathogenesis of Transitory Aphasia in Typhoid Fever.—Bernhard Hahn[1] cites a case of transitory aphasia occurring in the course of typhoid fever in a boy of 12. He is of the opinion that this condition has not a stable gross anatomic basis on account of the paroxysmal appearance and disappearance, and of the short duration of the symptoms; on account of the frequent appearance during convalescence—a time when restitution of all pathologic conditions is established; and also on account of the intermittent character of the difficulty. The cause is probably of a passing nature, and of vasomotor origin, the result of the action of a toxin which calls forth a localized edema, a condition which is called by Hahn, hydrops hypostrophos. [J.H.W.R.]

Treatment of Chronic Bright's Disease.—Sir Wm. H. Broadbent[2] states that in regard to the use of water much depends on the time when it is taken. A tumblerful given night and morning is more effective as an eliminant than larger amounts in connection with food or soon after. White has exploded the idea that the amount of albumin is a measure of the severity of the disease, a much more important observation is the specific gravity. As indication in regard to prognosis and treatment to which he directs attention, is the pulse tension. A remedy which in his experience has been efficient in reducing high pulse tension is the employment of a mild mercurial aperient. The effect of purgatives on the tension is not proportionate to the amount of purgation, and the effect on the arterial tension of a single grain of mercurial preparation with slight aperient action, is much greater than repeated liquid motions induced by salines. In mercury there appears to be an eliminating effect, in addition to its aperient action. There is some antecedent cause of the renal affection, some impurity in the blood which acts as an irritant, and by eliminating this the renal disease may be prevented. The calomel may in some way act favorably on this irritant substance. Broadbent believes that uremic convulsions are caused by the cortical circulation of the brain being interfered with. He frequently orders venesection in uremic convulsions, but when uremia is only threatened the preventive treatment he orders is free purgation by calomel. This effects reduction in pulse tension, and the symptoms usually disappear. [A.B.C.]

Scurvy Rickets with Spontaneous Fracture of the Long Bones.—N. Raw[3] says the term "scurvy rickets" is not strictly scientific as the condition is in reality one of scurvy in its nature but often superadded to rickets. He reports a case occurring in a child of 2 years, which had been fed since birth on proprietary foods. The case was important because of fractures of the left humerus, left femur, and right tibia and allegations of neglect and injury on the part of the nurse had been made. The postmortem speedily cleared up the condition and satisfied the relatives. Over each fracture was a large swelling due to extensive subperiosteal hemorrhage. A point of additional interest in the case was almost complete postmortem digestion of the stomach. [A.G.E.]

Primary Intestinal Tuberculosis in a Calf.—A. Treutlein[4] reports an instance, where a calf four weeks old, without the slightest lesion of the lungs, showed extensive abdominal tuberculosis. The tonsils, cervical, and bronchial glands were perfectly normal; the mesenteric glands were markedly diseased; the mucous membrane of the intestines, however, showed no signs of disease, with the exception of a loop of small intestine in the neighborhood of the ileocecal valve, where numerous ulcers were found; Peyer's plaques were cheesy and in part calcareous, the mesenteric glands very much enlarged and also in part calcareous. This point the author considers the portal of entrance in this case, especially as the mother cow reacted positively to the tuberculin reaction, had a suspicious tumor on one of her teats, and had previously given birth to a calf which, upon investigation, was also found to be tuberculous as far as the abdominal organs were concerned. Milk from this cow produced tuberculosis in a guineapig. This case supports Behring's theory of primary infantile intestinal tuberculosis, even though it was the mesenteric glands which were affected first and not the cervical, as claimed by Behring. [E.L.]

Ateleiosis and Progeria.—Hastings Guilford[1] states that these are the names, respectively, which have been given to two opposite forms of disorders of development. In ateleiosis, the development of the body is delayed or arrested. In progeria, it is accelerated. In both, the interference with the normal course of development is so extreme and so rapid as to characterize disease, in some, variation within the limits of health. Both make their appearance without apparent cause, and give rise to characteristic physiognomies; they are, therefore, quite distinct from ordinary systematic infantilism and senilism. In ateleiosis, there are apparently two varieties: 1. Asexual, in which there is conspicuous delay of development of the whole body. Some organs or parts are affected more than others, the sexual organs being the most backward of all. 2. The sexual variety, in which in early life a slight delay of the development of the body as a whole until puberty is reached; the sexual organs then ripen, fusion of the epiphyses takes place, and the individual affected becomes set into a being, who is, in some respects a child, in others a mature man or woman. An illustrative case is reported. In progeria, there is accelerated development or senilism, as shown in the facial and general appearance, attitude, loss of hair, muscular and fatty emaciation. Two illustrative cases are reported. In one, the patient died at 18, of angina pectoris, and the other at 17, of syncope. Necropsy showed the tissues to have all the appearance of a person dying at advanced age. [A.B.C.]

A Case of Acute Poisoning by Chrome Salts, with Spontaneous Glycosuria.—In reporting this case Lohr[2] maintains that the patient had taken in solution an equivalent of about 70 gr. of potassium bichromate. She was seen two hours after the substance was taken, the stomach was at once washed out with a 0.1% solution of silver nitrate and followed by a mixture consisting of 10 eggs. The urine contained albumin, (0.08% according to Brandberg), sugar (0.15%, polarization) red blood cells, squamous epithelial cells but no casts. He attributes the recovery largely to the therapy instituted. [J.F.]

A New Symptom in Graves' Disease.—S. Jellinck[3] describes a symptom of exophthalmic goiter, which he claims has not hitherto been referred to. It consists of a pigmentation of the skin of the eyelids. It is found in both lower and upper eyelids, and is brown in color. The upper limit of pigmentation is the eyebrow, the lower limit, the infraorbital margin. The conjunctiva is not affected. This appearance belongs to the early symptoms, and is absent only in rare cases. [J.H.W.R.]

A Healed-in Iron Body in the Wall of the Left Ventricle.—In the clinical history of the case Koch[4] notes a blowing systolic murmur, the aortic sound is snappy and arythmic, the pulse is irregular; he regarded the condition as due to a myocarditis. The patient was 72 years old, and was a turner by occupation. His left eye had been destroyed by a foreign body. At the postmortem Koch found projecting from the anterior wall of the left ventricle of the heart, a body which emits a metallic sound when struck with a knife. The body was covered with a grayish-white substance the thickness of which varies; it is thickest near the ventricle wall and gradually thins toward the end of the body which is 4 cm. from the heart wall. The body penetrated the heart wall obliquely and projected into the cavity for some distance along the ventricular septum; it was held in place during life by the fibrous band which bound it to the columnar carnæ. Koch could not trace the man's previous history to get a clue to the cause of the presence of the foreign body in the heart. An awl is the only instrument which is used by a turner, and which bears any resemblance to the foreign body removed. Koch cannot in any way determine whether it entered the wall of the heart from the esophagus, stomach, or through the anterior chest wall.

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[1] Wiener klin. Woch., November, 1904, No. 46, p. 1230.
[2] British Medical Journal, October 8, 1904.
[3] The Practitioner, December, 1904.
[4] Münchener medicinische Wochenschrift, 1904, li, 1246.

[1] British Medical Journal, October 8, 1904.
[2] Berliner klin. Wochschrf, 1904, Bd. xli, No. 28.
[3] Wiener klin. Woch., No. 43, 1904, p. 1145.
[4] Berliner klin. Wochenschrift, 1904, July 11, No. 28.

Hydrotherapy in Scarlet Fever.—R. W. Marsden[1] believes nephritis in scarlet fever is not so wholly independent of the severity of the febrile attack as is usually supposed. His experience in hydrotherapy as a prophylactic includes a number of cases treated by the lukewarm bath, but without the use of the ice-pack or the regular administration of quinin. The baths were given every four hours for 15 or 20 minutes at a temperature of 90° F. Of 14 patients thus treated, 9 were under 5 years of age; one death occurred, a child of 3. This cannot be claimed a percentage mortality for the series, as only selected cases were employed. The most striking feature showing the action of the baths was the sedative influence, they often acting similar to baths in typhoid fever, the patient falling asleep directly after removal from the bath. Marsden believes that short, cold baths give the greatest benefit in case there is no danger of producing cardiac failure. In doubtful cases, in young or weakly patients, the lukewarm bath is to be preferred, though the duration of it should also be short. [A.G.E.]

Fever in Children Caused by Indigestion from Carbohydrate Foods.—Henry Davy[2] quotes at length from Eustace Smith concerning the fevers in children. Smith has said that he does not attribute the fever to the irritation of fermenting food, though this may be excitative, but more particularly to a catarrhal condition, including a deranged liver. Davy, while expressing great respect for the opinions of Smith, and those who hold to his views, believes that the fever is due to indigestion from the products of fermentation of particular mixtures of starchy foods. The temperature shows that the attacks are more like an autosepsis than catarrh. Their more or less sudden onset and quick decline after a profuse perspiration, appear very like what would be expected after absorption of septic material from the alimentary tract. The fact that these attacks cease when the particular foods which disagree are withheld, although all the other conditions of life remain the same, seems to show that these particular foods are the actual cause of the attacks. It is well known that young children cannot well digest starchy foods, owing to the nondevelopment of the pancreas at an early period, and observations have been lately published in which at a much later period of life deficient pancreatic digestion has been observed. Starchy foods are not properly digested, especially certain starchy foods which by their structure (such as potatoes and carrots), or by their composition (such as combinations of sugar and starch in milk, pudding, and jams), are especially difficult of digestion as a result of undue fermentation. All these effects take place in the alimentary canal, and cause the fever. As the child grows older, the power of his pancreatic digestion increases, and so the cause of the fever gradually ceases. The fact that a dose of mercury much assists these cases is in favor of the hypothesis. [A.B.C.]

The Value of Röntgen Rays for the Medical Expert.—Immelmann[3] describes some new uses for röntgen rays of value to the medicolegal expert. It often becomes of great importance in criminal law cases to determine the exact age of a premature fetus. The epiphyses of all of the long bones permit the passage of the röntgen rays until after birth, excepting that of the femur, which casts a shadow at 30 weeks. This is the legal age at which the fetus is considered to possess life. Thus by determining the presence or the absence of this epiphysis it is possible to decide the age of the fetus. A skiagram may also determine whether or not a child has breathed; lungs that have been filled with air give a much lighter shadow than those which remain unexpanded. The latter give a shadow like that of muscular tissue. The röntgen rays are also of inestimable value to life insurance examiners. Their use may detect the beginning stages of a serious disease which by the ordinary methods are not discovered until the disease is more advanced. This is particularly true of aneurysm and pulmonary tuberculosis. [W.E.R.]

Congenital Dilation of the Colon.—L. Cheinisse[1] reviews the literature on this subject. The condition consists of an enormous distention of the large intestine, with a thickening of its walls. The whole colon or only a part may be involved, in the latter case the pelvic segment being the one usually affected. The condition is an idiopathic one, no causative obstruction being demonstrable. The intestinal wall is thickened, the hypertrophy affecting all coats, but especially the muscular layer, with a marked predilection for the circular fibers. The mucous membrane is never normal, and in advanced cases ulceration may occur. The symptoms of the dilation begin to develop soon after birth, and consist principally of an obstinate constipation with enormous distention of the abdomen, the latter being caused chiefly by accumulations of gas. The fecal impaction may give rise to a colitis, the constipation then giving way to diarrhea. This condition makes the prognosis bad, as a fatal ulceration usually supervenes. Many patients with congenital dilation, however, live for a long time. Some authorities refuse to consider the dilation as congenital, it being ascribed to a congenital constipation; the weight of the evidence, however, seems to be in favor of the theory of prenatal malformation. The treatment should consist of daily irrigations with large quantities of water, together with a diet containing a minimum of waste. Purgatives are to be strictly avoided. Electricity and strychnin may be employed as muscular tonics. Finally, operation is to be considered. [B.K.]

Clinical Nature of Splenic Anemia.—W. Mitchell Stevens[2] reports a series of eight cases, which briefly summarized are as follows: 1. *History.*—In none of the cases was there any evidence of the recognized causes of splenic enlargement, or in other words the splenomegaly was primitive, primary or idiopathic. 2. *Duration.*—At the time of publication with one exception the patients were all alive. In most cases the disease was chronic, and in several there was a very long duration of the illness. Some cases are acute and the disease is essentially chronic. 3. *Anemia* is always present though it may not be a marked symptom, nor does it seem to bear any direct relation to the size of the spleen. 4. *Splenic enlargement* varies in degree but has a tendency to become marked, and in one of the reported cases was enormous. Splenic enlargement takes place slowly and diagnosis should be made before great enlargement takes place. This is important when we consider that splenectomy has been attended with good results. 5. *Hemorrhages.*—In three out of the eight cases there was hematemesis, the liver was enlarged in two cases, ascites was present in one case, which was not considered due to hepatic cirrhosis. Condition of the blood: The average count of the red cells was 3,150,000, the lowest being 1,168,000 and the highest 4,920,000. Leukocytosis was absent in every case. The leukocytes were normal in three cases, in 2 diminished, being markedly diminished in three cases, the lowest being 5,000. [A.B.C.]

Feeding with the Essential Fat of the Tubercle Bacillus.—D. MacDonald[3] says that hydrous cholesterin fat (wool fat) gives the essential test of the tubercle bacillus. The importance of this discovery is that when patients are fed upon this fat there is a marked increase in weight and favorable influence on the progress of various chronic wasting diseases. More than a half pound has been administered daily with excellent results. The fat can be administered by enema; by hypodermic injection; by friction over the armpits, back, and abdomen; and by ingestion. It can be administered in food before or after it is cooked, or taken alone. The weight of the patient goes up by one, two, or three pounds per week. A table of 25 cases so treated with good results accompanies the article. [A.G.E.]

Analysis of 150 Cases of Death from Bronchopneumonia in Children.—Percy Hardy[4] analyzes 150 cases of fatal bronchopneumonia, no cases of acute miliary tuberculosis being included. All of the children were under 13 years of age, and 138 were under 4 years of age. As to sex, 85 were males and 65 females. Account was taken of the method of feeding and it was found that the ratio of mortality among bottle-fed children is as 69 is to 9; that is, that the mortality from bronchopneumonia is 7.7 times as great in bottle-fed as in breast-fed children. There were marked signs of rickets in 25 of the 150 cases, or 16.7%. 1. Acute specific fevers: In 15 cases the disease occurred during or following immediately an attack of measles; 12 cases occurred during an attack of diphtheria; 7 cases occurred in which the child was suffering from whooping-cough. 2. Meningitis: Eight cases occurred during an attack of meningitis, and of these, 5 were of the epidemic cerebrospinal type, while 2 were of suppurative meningitis secondary to suppurative otitis media. 3. There were 5 cases of suppurative otitis media. 4. In 3 cases the bronchopneumonia was part of a general pyemia. 5. In 3 of the cases the bronchopneumonia was brought on probably from the administration of an anesthetic, which preceded the attack. 6. In 2 instances the children were suffering from typhoid fever. 7. In 2 instances severe burns preceded the attack of pneumonia. In the entire series the right lung only was affected in 9 cases, the left lung only in 9 cases, and both lungs were affected in 132; there were 15 examples of suppurative bronchopneumonia, 4 being associated with suppurative otitis media, 4 with empyema, 2 with peritonitis, and 3 were part of a general pyemia. [A.B.C.]

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[1] Pediatrics, November, 1904.
[2] The Lancet, September 24, 1904.
[3] Berliner klinische Wochenschrift, October 24, 1904.

[1] La Semaine Médicale, November 16, 1904.
[2] British Medical Journal, October 8, 1904.
[3] Medicine, November, 1904.
[4] The Lancet, September 24, 1904

GENERAL SURGERY

Martin B. Tinker
A. B. Craig C. A. Orr

REVIEW OF LITERATURE

A Further Series of 57 Prostatectomies.—P. J. Freyer,[1] in 1902, published his first series of 23 cases of total extirpation of the prostate; in 1903 he published an additional series of 32 cases. In the present paper he reports another series of 57 cases operated on between the date of last publication and the end of June, 1904. The cases are published in detail. Details of the first 20 of these have already been published. Concerning the remaining 37, he states that among those there were three deaths, one from heart disease and two from septicemia. These are the only instances of septicemia that have occurred among 110 cases operated upon. These three were hospital patients occupying adjacent beds, and Freyer is disposed to regard the septicemia as due to external causes. Among the 110 cases thus far operated upon, the patients varied from 53 to 84 years old, with an average of 68 years, and the prostates weighed from ¾ oz. to 14¼ oz., with an average weight of 3¼ oz. In three instances the disease proved to be malignant, though in one instance only was the nature of the disease suspected before operation. Excluding the carcinomatous cases, we have 107 cases of removal of the adenomatous prostate, 97 of which were completely successful. Of the ten deaths that took place in connection with the operation, at most only five could be attributed to the operation, the others being due to disease incident to old age, and accepting all the deaths as due to operation there is a mortality of only 9% in comparison with a deathrate of 33½% from lithotomy in the corresponding ages. Among Freyer's last 28 cases of operation there was no mishap, and all were completely successful. [A.B.C.]

Röntgen Ray Diagnosis of a Paraesophageal Diaphragmatic Hernia.—H. Eppinger[2] reports the case of a man who was subject to attacks during which he could swallow only liquids. These attacks would last a few days, and then suddenly cease. During them, the esophageal sound met with an obstruction at 34 cm. (12½ in.) from the teeth. Between the attacks the patient could swallow any kind of food, and the sound readily entered the stomach. A röntgen-ray examination of the patient's thorax revealed a light, evidently air-filled, area immediately behind and under the apex of the heart and above the diaphragm. By the passage of sounds and the swallowing of bismuth it could be determined that this space was not connected with the esophagus. At autopsy it was found that this skiagraphic appearance was due to a diaphragmatic hernia, which had occurred through the esophageal opening in the diaphragm. A careful examination of the anatomy of the parts showed that the hernia was due to a congenital absence of the inner part of the left median diaphragmatic muscle, which passes from right to left around one side of the esophageal opening. [B.K.]

Sacculated Aneurysm of the Aortic Arch Treated by Wiring and Electrolysis.—Hamilton A. Ballance[1] reports that a man of 44 complained of a bulging tumor on the right side of the sternum, involving the third and fourth costal cartilages from their sternal joints outward for a distance of 7½ cm. (3 in.). From the symptoms presented, and from an examination, aneurysm of the aortic arch was diagnosed. From the history it was evident that the aneurysm was steadily increasing in size, and wiring was determined upon. Eight feet of silver wire having been previously wound around a towel rolled in the form of a cylinder and sterilized, were introduced into the sac through a hollow needle. Before cutting the wire the electric current was turned on for 45 minutes. During this time there was some irregularity of the pulse, but on the whole the patient stood the operation well. After four weeks the patient was discharged from the hospital much improved. The tumor was distinctly firmer and smaller. Six months later the patient returned to the hospital complaining of dyspnea, but after a few weeks rest he rallied and again left the institution, to return four months later with all the signs of cardiac failure. Death resulted after a few days. Necropsy showed the sac to have sprung from the ascending part of the arch. A white clot occupied the sac, while the wire was not only in the sac, but in the arch as far as the origin of the left subclavian artery, and stranger still, a loop extended past the aortic valves, and to the depth of the left ventricle. [A.B.C.]

Cause of Enlargement of the Prostate.—Herbert T. Herring[2] has instituted a series of investigations to determine, if possible, the etiology of prostatic enlargement. The investigation undertaken comprises: 1. Examination of serial microscopic sections of definitely diseased organs, comparing them with sections of healthy prostates removed from persons of all ages, and also with diseases of similar nature occurring in other organs of the body. 2. To demonstrate, by inoculation of suitable mediums, that microorganisms are present in the enlarged prostates which have been removed by operation, and to determine what varieties of organism, if any, are present. 3. To detect the organism microscopically in stained sections of the glands among the debris and in the tissues. 4. To investigate the cause and formation of the innumerable calculi which are so frequently seen, and which, when they occur in other organs, are now usually accepted as the result of microbic activity. 5. To examine more fully the debris, which, in many cases can be expressed from the enlarged prostate during life. 6. To make further experiments by injecting fusible metal into obviously enlarged prostates, to establish whether all diseased glands are directly connected with the urethra by ducts and also the structure, shape and size of such glands. At the time of publication the investigation had not been carried sufficiently far to enable Herring to form definite conclusions, but he states that the investigation to the present time gave much evidence in the favor of the septic origin of enlarged prostates. [A.B.C.]

The Absolute Sphygmogram and Its Clinical Significance.—Sahli[3] says that the ordinary sphygmogram is defective, in that the height of the ordinates is independent of any standard of measurements; it depends upon various extraneous factors that have little or no connection with the qualities of the pulse. Another uncertainty lies in the fact that the length of the descending curve depends upon the frequency of the pulse. A combination of the sphygmogram with measurements of the blood-pressure is the only means of obtaining a true insight into the functions of the circulation. The author uses the Riva-Rocci manometer in connection with Jaquet's sphygmograph.

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[1] British Medical Journal, October 29, 1904.

[2] Zeit. für Heilkunde, Bd. xxv, 1904; Abth. für Int. Med., Heft 4, p. 364.

[1] The Lancet, October 1, 1904.

[2] British Medical Journal, October 29, 1904.

[3] Deut. Archiv. f. klin. Med., Bd. lxxxi, p. 493.

The maximal blood-pressure is the pressure noted when the pulse curve becomes a straight line. The minimal blood-pressure is observed by noting the pressure at that moment when the pulse curve first begins to get smaller. From these data the author constructs a socalled "absolute sphygmogram." A single pulse-wave is plotted on ordinary millimeter paper, the abscissas representing the periods of time, and the ordinates the blood-pressure. The minimal pressure occurs at the beginning and end of the wave, and the maximal pressure at its summit. The secondary waves are disregarded, and the various points are connected by straight lines. The secondary elevations need only be regarded when they occur on the anacrotic limb of the curve. Other variations of this simplest form are also suggested by the author. The absolute sphygmogram gives certain information concerning the pulsus celer and pulsus tardus which cannot be obtained from the ordinary sphygmogram. It also gives the relations between the amount of blood thrown out by the heart and the expansibility of the arteries. Further investigations are necessary to establish the typic behavior of the absolute sphygmogram under the various conditions of health and disease. [B.K.]

Remote Results of Operations for Varicose Veins of the Lower Extremities.—Robert Kennedy[1] records 27 cases operated upon for varicose veins. In these, varicosity appeared in 6 at the age of 10 or earlier, in 11 between the ages of 11 and 20, in 8 from 21 to 30, and in 1 at 35. Three of the cases could not be traced. Summing up, his results are as follows: (1) Two cases in which the varices only were removed, namely, 8 inches and 9 inches of dilated veins, respectively, below the knee; both recurred completely within a year; (2) 7 cases in which the dilated veins were removed from the leg below the knee and the internal saphena from the lower part of the thigh, the portion excised above the knee varying from 4 in. to 8½ in.; the patients were examined at periods ranging from 3½ to 7 years after operation, and in only one was the result perfect; (3) 1 case in which the varices below the knee were not interfered with, but in which the internal saphena was removed entirely from the thigh to the extent of 16 in.; the patients examined 4 years later showed an imperfect result; (4) 14 cases in which the chief varicose tributaries below the knee were removed, together with a large portion of the internal saphena in the thigh, those portions from the thigh measuring from 10 in. to 13½ in.; these were examined at periods ranging from 1½ to 5 years after operation; in none had recurrence taken place. All were free from exhaustion and pain, even after prolonged standing. He concludes, therefore, that the operation which gives the best and most permanent results is that in which not only the varices are removed, but also the trunk of the internal saphena in the thigh. The greater the length of the internal saphena that can be removed, the better. [A.B.C.]

Removal of a Vesicle Calculus, the Nucleus of which was a Goose Quill.—The patient of whom V. Kubinyi[2] writes suffered as result of a severe cold, great pain in the lower extremities when 19 years old. She found it very difficult to void urine at that time. For two months she was confined to bed and during which time discovered anesthesia of the gluteal region and the inner surface of the thigh. At the end of two months she improved so that she was able to work although the difficulty of voiding urine and the constipation persisted. One and a half years before v. Kubinyi saw her and after a profuse menstrual discharge she took a laxative which confined her to bed for two weeks with diarrhea and pain in the lower portion of the abdomen. During this time she was unable to void urine and in order to empty the bladder the patient attempted to catheterize herself with a goose quill which was too short and slipped into the bladder. She finally succeeded with a longer quill. The other remained in the bladder for 11 months when it first gave rise to symptoms. Upon the introduction of a sound he felt what was thought to be a calculus; examination per vaginam revealed nothing owing to the thickened bladder wall. The urethra was dilated, the stone crushed and the quill which was 5 cm. (2 in.) long and 6 mm. (¼ in.) in thickness was removed. The particles were then washed out of the bladder. The bladder at the time of the operation held 50 cc. (1⅔ oz.) only, but three days later it had a capacity of 300 cc. (10 oz.). [J.F.]

Etiology of Prostatic Enlargement.—P. L. Daniel[1] pathologist to the Charing Cross Hospital, in making an investigation of the pathology of prostatic enlargement in association with Herbert T. Herring, gives the results so far, of his pathologic examinations. He states that it is evident that one of the important factors likely to cause changes in the prostate and to give rise to symptoms, or to increase to a larger size is the constant superaddition of fresh organisms into an already diseased urethra and gland ducts. Other factors are the nature of the organisms present; the condition of the lesion itself; the presence of unhealthy conditions in the penile and bulbous urethra, or in the kidney and bladder; and the general condition of the patient and his freedom from toxins generated elsewhere. It is highly probable that the etiology of prostatic enlargement must be brought into line with those diseases lately shown to be the outcome of septic infection. Much investigation remains yet to be done. [A.B.C.]

Treatment of Chronic Leg Ulcer.—O. F. Blankenship[2] anesthetizes the patient, scrubs the ulcer and surrounding parts with a stiff nail brush and soap, and thoroughly curets with a sharp curet down to the hard cicatricial base. Crossed incisions through the ulcer and edges of the fibrous tissue are made with a scalpel. If there is hemorrhage it is stopped by hot water and pressure with a mop of absorbent cotton. The entire surface is later touched with pure carbolic acid followed immediately by alcohol, the wound is filled with boric acid in powder, and a sterile dressing applied. It is left on for two days, unless there is much oozing. Subsequent dressing consists of cleansing with hydrogen peroxid and a dry dressing of a powder composed of dolomol with ichthyol. The ichthyol is preferred in a dry form, healing being more rapid than with ointments. Cure is usually complete in from four to six weeks, the patient being allowed to walk around the house after three or four weeks. [A.G.E.]

Aseptic Treatment of Wounds.—Frederic F. Burghard[3] discusses this subject at length and concludes about as follows: Agreeing that the method without antiseptics may possess the balance of advantages when perfectly carried out, those who use antiseptics assert that this can be done only under exceptional circumstances by skilled bacteriologists, and then it is doubtful if it can be carried out with success, even under the most advantageous circumstances. In private practice, especially in the country, this elaborate technic is practically impossible. Those advocating the antiseptic methods feel that the limited use of antiseptics, in addition to such aseptic precaution as is practicable, adds a second line of defense, which may minimize any defects that may occur, if it does not completely counteract them. The method (antiseptic) is simpler and more nearly within the reach of the surgeon in everyday practice, who has not at his command all the facilities of a well-equipped operating amphitheater. The teaching of the antiseptic method in no way conflicts with the scrupulous attention to cleanliness that underlies the simple sterilization method; it in fact actually supplements it. A long experience with the antiseptic method, says Burghard, leaves nothing to be desired as to results, and he prefers not to abandon the tried method in favor of one possessing theoretic advantages, which are so difficult to carry to perfection. Burghard believes that while the antiseptic method is not the popular one at the present time, yet further experience in the surgical field will cause a reaction in its favor. [A.B.C.]

Endothelioma of the Carotid Body.—H. Gilford and K. L. H. Davis[4] report 3 cases of endothelioma of the carotid body. The patients were men, aged 52, 62 and 74 years. In the first the tumor was on the left side, of 6 months' duration, and was increasing rapidly in size. The tumor was removed and with it 6 cm. of the common and internal carotid arteries, the vagus and descendens noni nerves and internal jugular vein. The patient died on the seventh day of hemiplegia and pneumonia. In the second case a tumor on the left side, noticed for 3 months, was increasing slowly in size. It was dissected away from the carotid arteries, but 3 cm. of the internal jugular vein was adherent and had to be removed. Six weeks later the tumor recurred in the scar and the patient finally died from exhaustion 5 months after operation. In the third patient there was a tumor on each side, fairly similar in size and shape. Owing to the age of the man, and the size of the growths, operation could not be performed and he died from exhaustion 18 months after the first appearance of the growth. Postmortem showed numerous nodules of tissue similar to the primary tumors scattered throughout the liver. The writers believe these tumors are quite often looked upon as tuberculous lymphnodes. The best treatment is complete removal at the earliest possible date. It is probably better to remove a section of the carotid artery because of the origin of the tumor. It is likely that a temporary ligature placed around the common carotid a week or more before the removal of the growth would aid in assuring a sufficient blood supply to the cerebral centers. [A.G.E.]

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[1] British Medical Journal, October 29, 1904.

[2] Centralblt. f. Gynäkol, 1904, No. 47.

[1] British Medical Journal, October 29, 1904.

[2] Southern Medicine and Gaillard's Medical Journal, December, 1904.

[3] British Medical Journal, October 1, 1904.

[4] The Practitioner, December, 1904.

Resection of the Stomach for Cancer.—R. Leriche[1] reviews recent statistics on this subject, principally from German sources. He claims that about a quarter to a third of all cases of gastric carcinoma are found at autopsy to have been operable. The average duration of life after pylorectomy was 12 to 18 months for the majority of surgeons, but a number of patients had survived more than two years. The mortality of the operation has progressively diminished within recent years. The author arrives at the conclusion that pylorectomy is an excellent operation, giving good results with relatively small risks. It is to be preferred to gastroenterostomy, since it gives a longer expectation of life, with a more complete relief of the general conditions. It should be done whenever possible, even though all the infected glands cannot be removed. Mere inflammatory adhesions should not contraindicate the operation, unless they be too extensive. Gastroenterostomy should be performed only when the other operation is impossible. [B.K.]

Perforation of the Bowel in Typhoid Fever.—F. Foord Caiger,[2] in his Bradshaw lecture, dealing with many phases of the treatment of typhoid fever, says, in reference to perforation of the bowel, that he is in entire accord with those who hold that a moribund condition should be the only contraindication to operation in suspected perforation of the bowel. He says that probably, under exceptional circumstances, a more or less localized peritonitis of perforative origin may be recovered from, but this is so rare as not to be taken into consideration. In regard to the time for operation, he says: There is no time like the present. The accumulated experience of the past few years has shown that if surgical treatment be postponed until reaction has set in, the time for hopeful interference has probably passed. Early diagnosis is, therefore, of the greatest importance. Among symptoms indicative of onset of perforation, the occurence of sudden pain at some particular spot in the abdomen is most suggestive; if this be followed by local tenderness and constitutional disturbance, the suspicion is greatly strengthened. But in about 20% of cases, the access of definite pain is wanting, in which case, of course, early symptoms are absent; but slight muscular rigidity, newly arisen, must be regarded as an indication of much value. This is much strengthened if an increased pulse-rate is concomitant. It must be remembered that perforation may occur, and yet every local symptom be absent. The author holds, however, that it is better to subject an occasional patient to an unnecessary laparotomy than to let those die for want of operation. Caiger holds that the medical attendant should make it an absolute rule to subject every typhoid patient to a daily abdominal examination; only in this way can new symptoms be readily discovered. [A.B.C.]

Socalled Empyema of the Antrum of Highmore in Infants.—A. B. Kelly[3] gives a brief epitome of recorded cases and adds a case of his own. A section of the superior maxilla of an infant makes it evident that empyema of the antrum while theoretically possible could not cause the grave symptoms reported. It is much smaller than the dental sac and the latter has probably been mistaken for it. The disease in these cases is caused by traumatism or infection acting on the alveolus. The most vulnerable parts of the latter are the dental sacs, especially of the first molars, on account of their size and prominence, and the inflammation subsequently may involve more or less of the superior maxilla. The clinical features are extension of the crown of the rudimentary tooth, which may be attributed to pressure within the sac; exophthalmus, swelling and sinuses on the cheek or palate, pus in the nose, and caries of the spongy bone around the sac. The early treatment is free drainage, followed by regular syringing. The passage of pus into the mouth must be guarded against to prevent general infection. The expulsion of sequestrums may be aided, but it is doubtful whether radical operation should be attempted. [H.M.]

The Surgical Treatment of Gastric Ulcer.—J. A. Blake[1] says he has not lost a case of gastric or duodenal perforation that has come to him within 20 hours after the accident has happened. His personal experience is limited to six cases, two being in women. Recovery in the cases operated upon within 12 hours was rapid and exceedingly satisfactory. In stenosis due to ulcer, gastroenterostomy, with or without pylorectomy, appears to be the operation of choice. Blake has operated upon five cases for hemorrhage, with two deaths. He believes a single large hemorrhage without previous symptoms referable to ulcer should not be operated on, but when there have been antecedent symptoms operation should be at once performed. In these cases excision of the ulcer combined with gastroenterostomy is the method of choice. The vicious circle, owing to imperfect methods, is no longer to be feared. Blake found excellent results by limiting the long loop of intestine and using the very commencement of the jejunum where it naturally lies in relation to the posterior wall of the stomach, as in the Petersen operation. [A.G.E.]

Cysts in the Median Line of the Neck.—G. H. Edington[2] says these cysts are of interest both from a clinical and an embryologic point of view. They are usually due to errors in development. He classifies them into: (1) Thyreoglossal (*a*) infrahyoid, and (*b*) suprahyoid; (2) ranula; (3) dermoid; and (4) sebaceous. One case illustrative of infrahyoid thyreoglossal cyst is reported, occurring in a youth of 17. Another case is reported in which a cyst occurred in the median line of the neck in a man of 61. Removal and microscopic examination showed it to be a distended bursa. A third case is reported, in which a cyst occurred in the median line of the neck, in a soldier of 19. There was a fistulous opening leading to the surface in the median line. Operation and subsequent microscopic examination led to the belief that the cyst arose from an accessory thyroid. The failure of operation to cure the condition is illustrative of the difficulty the surgeon often encounters in these cases. Several operations may be necessary before all the secreting wall is finally removed. A fourth case is reported, in which a child of 4 months had had a "double chin" from birth. There was also bulging in the floor of the mouth, but this was not marked nor was the mucous membrane bluish, as is seen in ranula. This led to a diagnosis of cyst in the remnant of the upper part of the thyreoglossal duct (suprahyoid), and on operation this was found to be the case. A fifth case was peculiar in that a child of 5 years was presented by his parents. He had a large, translucent, noninflammatory swelling under the chin. A year before a wellmarked ranula in the floor of the mouth had been widely opened, emptied of a glairy contents, and swabbed out with pure carbolic acid. He remained well for eight months, when the cyst developed below the chin. Operation (external) showed the same glairy contents, and the cyst probably arose from some outlying part of the sublingual gland. A sinus persisted for months, but the child finally recovered. Cases are also reported illustrative of both sebaceous and dermoid cysts in the neck. [A.B.C.[

The Management of One-sided Collapse of the Thorax.

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[1] Lyon Médical, November 27, 1904.
[2] British Medical Journal, November 26, 1904.
[3] Edinburgh Medical Journal, October, 1904.

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[1] American Journal of the Medical Sciences, December, 1904.
[2] British Medical Journal, October 1, 1904.

—In order to relieve the sound side in the performance of its function, v. Criegern[1] has devised a support. He slips a ring over the leg of the diseased side as high as the groin; the ring may be made of wood, or even of iron. When made of the latter it is necessary to pad it well. A long strap with a buckle at one end is carried from the sound shoulder across the chest and abdomen, through the ring, then around the hip, across the back, over the sound shoulder of the sound side to the starting point, where it is fastened by means of the buckle. Transverse straps are fastened to the long, obliquely-placed strap, known as the "stand girth," and buckled in the axillas; the transverse straps compress the whole chest. These latter straps must not be sewed to the "stand girth," because that would induce an unsought for elasticity in the obliquely placed belt, so that compression would not be properly carried out. Under such condition the elasticity may be overcome by strengthening the "stand girth" with Spanish reeds. When the apparatus is applied the patient is allowed to expirate deeply and then to breathe superficially until everything is in perfect order and the exact degree of compression is attained; the breathing should be done in as erect position as possible. The length of time necessary to wear this apparatus varies, but should not be removed until the exudate disappears, or the process of repair is well advanced. [J.F.]

Total Absence of Patellas in a Young Child.—H. F. Senftner[2] briefly reports a case, with skiagraphs, of a child of 4 years in whom both patellas are completely lacking. The family history is negative regarding syphilis, rheumatism, and tuberculosis. The remaining seven of a family of eight children are well and in good health. The child is capable of participating in the usual games of childhood, but when flexion of the knee-joint is called for, as ascending a pair of stairs, she finds it impossible to accomplish the feat. Aside from the peculiar anatomic features presented by the case, it is interesting as suggesting the possible influence of maternal impression. During the entire period of pregnancy the mother was compelled to pass, daily, a man of 50 who had been unable to walk since early childhood, although apparently possessing both lower limbs in normal condition, nothing being known regarding the man's disease. [A.G.E.]

The Operative Treatment of Hernia in Young Children.—Harold J. Stiles,[3] surgeon to the Royal Hospital for Sick Children, reports his results in 360 consecutive cases; 36 (1%) were in girls and the remainder in boys. Only one case of femoral hernia was met with—in a girl. In boys the hernia was on the right side in 3 cases out of 4, and in girls it was right-sided in 2 out of 3 cases. This, in boys, is ascribed to the later closure of the vaginal process on the right side, due in turn, most probably, to the later descent of the testicle on that side. Zuckerkandl examined the bodies of 100 infants, up to 3 months old, and found the vaginal process patulous on both sides in 20 cases, upon the right side alone 12 times, and upon the left side alone 5 times. In boys 78% of hernias was first observed during infancy, while in the girls only 20% occurred during that period. The exact type of sac was noted in 300 consecutive operations on boys; in only 5% did it communicate with the tunica vaginalis testis. Stiles says he has never met with the typic infantile hernia, as described in the textbooks. Of the 360 cases, 30 were sent into the hospital as urgent, the hernia being irreducible and attended with acute symptoms; of these 15 only were actually strangulated, and but one of these was over 18 months old, the youngest being 14 days old. The worsted truss, formerly so extensively employed in infants is worse than useless. In 5 out of 36 cases in girls, the sac contained the ovary and fallopian tube, these were removed in three instances. In 360 operative cases there was a mortality of 5 patients (1.4%). In the 15 cases of strangulation the mortality was nil; 26% of his operations was on children under 12 months. Stiles prefers to operate just before teething, if a preference is given. [A.B.C.]

Fracture of the Base of the Skull; Symptoms Relieved by Lumbar Puncture.—M. Latarjet[4] reports the case of a man who fell on his head, and later developed symptoms of severe contusion of the brain. These symptoms included severe headache, general hyperesthesia, vertigo, persistent vomiting, and dyspnea without respiratory embarrassment. There were no localizing symptoms whatever, and no fracture of the cranium could be discovered. Lumbar puncture was performed, mainly for diagnostic purposes; 20 cc. of fluid was withdrawn. The operation was followed in 15 minutes by considerable amelioration of all the symptoms, progressing to complete recovery. The fluid was found to contain considerable blood. A few days later an ecchymosis appeared in the right mastoid region, leaving no doubt as to the presence of a fracture at the base of the skull. There had evidently been a hemorrhage into the cerebrospinal fluid, increasing the tension of the latter, and thus producing many of the symptoms. The author believes that lumbar puncture should be more frequently considered as a therapeutic measure in cranial injuries, but it is likely to be of benefit only in selected cases. [B.K.]

Gigantic Renal Calculus.—A. Marmaduke Sheild[1] reports the case. A man, aged 39, was admitted to the hospital February, 1904. He was in apparent previous good health, but now complained of severe pain in the abdomen, and there were signs of collapse. The previous history of the patient showed so early as 1890 that he had an attack of pain in the left loin, attended with hematuria. There were several similar attacks subsequent to this, but none of them confined him to bed until in 1903, when in a severe attack he was admitted to the hospital. In this case the hematuria lasted seven days, the urine was acid and contained pus. The symptoms abated without operation, and the patient was discharged after 14 days. There was no further trouble until near the time of admission, early in 1904. At this time there was no hematuria, but there was great pain in the left renal region, and a large swelling was then apparent in that situation. Diagnosis inclined to a large malignant tumor with intrarenal hemorrhage. Operation was performed by an interior incision, and a large abscess containing pus and two small stones was immediately opened. There was localized peritonitis, and a greatly enlarged and adherent kidney. An enormous stone, which on being removed weighed 19 oz., was located and extracted. During operation pus was disseminated within the abdominal cavity, and after irrigation the wound was closed with drainage, and a counteropening in the lumbar region. The patient made a good recovery. The dried stone weighed 16½ oz. [A.B.C.]

Nerve Blocking to Prevent Amputation Shock.—H. B. Gessner[2] reports two cases with very satisfactory results both were amputations at the thigh. In the first the great sciatic nerve, before section, was edematized with 25 mm. of a 2% cocain hydrochlorate solution. After amputation the great sciatic and internal saphenous nerves were edematized when drawn out for shortening, 25 mm. and 10 mm. being used respectively. In the second case 75 mm. of a 1% cocain solution was used in a similar manner. In one case no evil results followed the blocking. It is possible that the patients would have fared as well without the nerve blocking, but the after-condition was such that Gessner is encouraged to employ the method again; he would feel it his duty to do so whenever shock is specially to be feared. [A.G.E.]

Present Position of Aseptic Surgery.—W. Watson Cheyne[3] says the principles underlying aseptic surgery are to exclude bacteria from wounds altogether or admit them in as small numbers as possible, and at the same time to place the tissues under as favorable circumstances as possible to destroy bacteria should they enter. In the early days the chief stress was laid on the exclusion of bacteria rather than on keeping up the resistance of the tissues, and the results, on the whole, were excellent. No doubt there are many objections to the lavish use of antiseptics in wounds, such as irritation by and absorption of the antiseptics, and unless the methods are intelligently employed bacteria may enter in spite of the antiseptics, and proliferate more rapidly than would otherwise have been the case. At the present time the pendulum has swung to the other extreme, and more attention is being paid to the avoidance of injury to the tissues than to the complete exclusion of bacteria. Already there are signs that the pendulum is beginning to swing back, and that some of the extreme surgeons are having so much trouble with stitch-abscess, ligatures, etc., that they are beginning to take more care in the exclusion of bacteria. Cheyne believes the truth lies between the two extremes and that the best results will be obtained by the judicious use of all the means of sterilization at our disposal, aiming on the one hand at exclusion of bacteria, and on the other hand at avoiding injury to the tissues, as far as possible, by chemic antiseptics or mechanical violence. [A.B.C.]

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[1] Berliner klin. Wochenschrift, 1904, No. 29.
[2] Archives of Pediatrics, November, 1904.
[3] British Medical Journal, October 1, 1904.
[4] Lyon Médical, November 27, 1904.

[1] The Lancet, October 15, 1904.
[2] New Orleans Medical and Surgical Journal, December, 1904.
[3] British Medical Journal, October 1, 1904.

GYNECOLOGY AND OBSTETRICS

WILMER KRUSEN FRANK C. HAMMOND

REVIEW OF LITERATURE

A Case of Ruptured Vagina.—P. L. Townley[1] reports that he was called a distance of 90 miles to a patient in labor. The patient was not reached until the following day. On arrival it was learned that the labor commenced three days previously, and, 48 hours before she was seen by Townley, during the pain she had felt a tearing sensation in the pelvis, and after this the labor pains had ceased; she had not been interfered with in any way. The patient's abdomen was now enormously distended, tender, hard, tympanitic, and she was evidently dying. A blood-stained malodorous thin discharge came from the vagina; a loop of pulseless funis was protruding from the vulva. Chloroform was administered, and the introduced hand found the placenta in the vagina; this was delivered. Further examination showed the uterus firmly contracted, empty, and unlacerated. Following up the cord, the hand passed into the peritoneal cavity through what had been the anterior vaginal wall. At the other end of the cord was a dead fetus among the intestines. Matters could not be made worse and attempt was made at delivery. A foot was seized and an effort made to extract the child through the lacerated vagina. This was unsuccessful, so the fetus was divided through the upper part of the thorax, but the woman died two hours afterward. The child was about full term and in no way abnormal. [A.B.C.]

Opitz Glands of Pregnancy.—Of the 41 preparations made from the products of curetment of the mucosa of the uterus Schwab[2] found these glands five times. In one case they were an evidence of the expiration of pregnancy and in four others their development was dependent upon the menstrual epoch only. Schwab agrees with the conclusion attained by Hitschmann that all the forms that they regard as Opitz glands of pregnancy can be induced not only by "nidation," but also by menstruation. Schwab adds that this change in the form of the gland is not a rare occurrence. [J.F.]

Experiments on the Dissemination of Tuberculosis in the Female Genital Tract.—P. Baumgarten[3] experimented with 50 rabbits to determine the progression of tuberculous infection in the female genitals. In his various tests he used the bacillus of bovine tuberculosis. The bacilli were applied to the parts in emulsion or in bits of tissue which were removed from tubercles of infected animals. The areas infected included the upper and lower parts of the vagina, the horns of the uterus and the fallopian tubes. In another series of experiments, tubercle bacilli were introduced into the pouch of Douglas. This was followed by a severe pelvic tuberculous peritonitis, which in time involved the whole peritoneum, but which during months of observation failed to enter the fimbriated extremities of the fallopian tubes to involve the genital tract. The author believes the bacilli were prevented from doing this by an early inflammation and consequent sealing of the ends of the tubes. The other tests all tended to prove that the tuberculosis process always traveled in the direction of the natural currents, and was limited to the system in which it began. Thus tuberculosis of the genital regions is not likely to be communicated to the urinary system and vice versa. It was found that infection of the uterus or of the tubes readily traveled downward, but never in the opposite direction toward the distal ends of the tubes. Infection of the vagina never passed upward, but always downward. An infection of any part of the urinary system always tended to spread in the direction of the flow of the urinary current. Baumgarten is convinced that tuberculosis of the urogenital tract does not follow infection of either one of these two tracts, but rather that the two systems were separately infected. His tests also disprove the idea that tuberculosis of the peritoneum may and often is followed by tuberculosis of the genitals. All of the animals developed a fatal general tuberculosis, which was disseminated by involvement of the lymph-glands and vessels. [W.E.R.]

The Treatment of Obstructed Labor Caused by Impaction of Tumor in the Pelvis.—Thomas H. Morse[1] reports in detail four cases, and recommends if a tumor is impacted in the pelvis in case of gestation, that the patient be treated as detailed in an illustrative case, which is as follows: A vaginal examination made during the eighth month of pregnancy in a multipara of 30, revealed a tumor occupying the whole of the Douglas' pouch, leaving just room for the fingers to pass close down the pubis to the os uteri, which could be reached with difficulty. The tumor appeared to be firmly fixed, and rectal examination showed it was not attached to the sacrum. At the end of the eighth month of gestation, laparotomy was performed, and through an 11-inch incision the whole fundus of the pregnant uterus was delivered and kept wrapped up in hot sponge cloths, and by passing the hand behind the uterus the tumor was enucleated from its position in the pelvis. It was the right ovary, its pedicle having been twisted upon itself, and the whole drawn from left to right. This was ligatured and the tumor removed. The uterus having been outside the abdomen a space of five minutes, was with some difficulty returned, and the abdominal wound closed. This was rather difficult. The whole operation lasted 25 minutes. The after-history contained no complications, the wound healed quickly and soundly, and on the twenty-fifth day after operation, the patient was delivered of a full-sized child by forceps. The mother made a good recovery. [A.B.C.]

Mittelschmerz.—J. M. Cameron[2] reports a case of this somewhat rare ailment, intermenstrual pain. The regularity with which the pain begins is one of the most prominent symptoms; it is constant for the individual, but varies in different patients. It may last for a day or two or continue till the ordinary menstrual period begins. It is generally in the ovarian region, but sometimes extends across the lower abdomen or into the groin. It may alternate from month to month from right to left ovarian region. This suggests the improbability of association with inflammatory changes. The character of the pain is different also from that of a salpingo-oophoritis; posture, too, has no influence on it. During or following it there may be some discharge, blood-stained, mucous, or watery. Frequently in cases of mittelschmerz, thickening in the region of the ovary and broad ligament can be felt. Hydrosalpinx may cause those cases in which a watery discharge is a prominent symptom. It has been suggested that an intermonthly cycle is present. It has been found that the tubes often contain fluid during menstruation. May not some cases of mittelschmerz owe their origin to this condition, the pain being due to muscular contraction of thin walls, as in some cases of tubal abortion? As a rule, these patients are sterile. In the writer's case there was a full-term pregnancy, therefore he considers that radical operative treatment should be postponed in order not to interfere with this possibility. [H.M.]

The Symptomatology of Retroflexio Uteri Mobilis.—W. Nacke[3] maintains that in retroflexion with a uterus of normal size, with normal pelvic relations, with an elastic ligament apparatus and with no adhesions, annoyances are rarely elicited. The symptoms when they really do occur cannot be explained. He suggests that a possible explanation may be found in fine changes occurring in the tissues and nervous apparatus of the gynecologic domain as suggested by W. A. Freund, in his pioneer work, "Of the Hysteria Induced by Parametritis Chronica Atrophicans." [J.F.]

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[1] The Lancet, October 1, 1904.
[2] Centralblatt f. Gynäkol., 1904, No. 47.
[3] Berliner klin. Woch., October 17, 1904.

[1] British Medical Journal, November 19, 1904.
[2] Scottish Medical and Surgical Journal, October, 1904.
[3] Centralblatt f. Gynäkol., 1904, No. 47.

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Unsuspected Dangers of the Modern Industrial Arts.—The wonderful developments that have taken place during recent years in the industrial arts have brought with them a train of unsuspected dangers. Habits and methods that were innocuous with old-time products take on a dangerous aspect when continued with their modern substitutes. The wide substitution of celluloid for other materials is accompanied by the danger of explosion and fire; "outing flannel," unlike ordinary flannel, is intensely inflammable; not long since a death was recorded from the use of a shoe-blacking containing nitrobenzol; anilin as a dyeing material for articles of clothing, and the use of arsenic in wall papers, have each called for special investigation. In a recent number of *The Lancet*, Dr. P. G. Harvey narrated a case of anilin poisoning, seemingly due to the formerly innocuous, if objectionable, habit of sucking pencils. The modern anilin copying-ink pencil, though in appearance as harmless an object as its predecessor, the "lead pencil" of old is, in point of fact, bristling with danger. In the case quoted by Dr. Harvey, the physical evidences were principally manifest in the mouth, and this fact led to the inquiry which elicited the source of the poisoning.

Tuberculosis in Prisons.—In Prussian prisons the deathrate from tuberculosis is from 45% to 50% of the total mortality; in French prisons, from 30% to 50%; in Austrian prisons, 61. Dr. Bennett, prison physician of the Western Pennsylvania Penitentiary[1] finds that in 15 American prisons the lowest tuberculosis rate is 26, the highest 62.8, the average being 42.8. The reasons for this high mortality are confinement and indoor life; a relatively high proportion of those with the disease, 50%, it is estimated upon entrance; heredity; previous vicious life; despair and loss of morale from the sentence; the unsanitary and overcrowded conditions of the jails; the lowered vitality of the negro. Concerning the last, Dr. Bennett shows that the actual deathrate of colored prisoners is far higher than that of the whites. The best remedy suggested for this deplorable condition is open air, colony or farm life. This is carried out in Texas on the Wynne State Farm, and instead, as elsewhere, of an increase of the disease, it is recorded that it is actually steadily decreasing in the prison since the establishment of the colony. The total number thus treated has been 180, and of this number 37 are pronounced "virtually cured;" 50% of those discharged or pardoned, in good physical condition; and the majority on hand improving. Moreover, the farm is self-sustaining. Compare this fine showing with our Pennsylvania, for example, the deathrate from tuberculosis in the Eastern Penitentiary being 62.8 of the total mortality. How slow the old, stupid, and malignant penology dies! In sentencing a prisoner to Moundsville, Va., Sing Sing, or the Eastern, the judge should add to his order: "We do not care for your reformation, or your life, nor for the germs of disease you scatter through the community, and we consign you to death by disease so soon as our barbaric laws and prisons can kill you."

The financial problem of hospitals is obtruding itself with increased desperation and emphasis. It is much the same everywhere, but in New York City the crisis of the disease is present. The total annual deficit of the private institutions is about $1,000,000. In two years the deficit of the Presbyterian Hospital has amounted to $152,000, and it has been compelled to devote $45,603.46, received in legacies during the last year, to current expenses. Roosevelt's deficit in 1902 was $6,208.83; St. Luke's $27,566.13; the Postgraduate's $44,103.81; the German's $9,841. The Ruptured and Crippled Hospital ran behind $55,675.27, and the Woman's Hospital $10,700.59. Several institutions have been on the point of closing their doors not once, but several times, while one, at least, has definitely come to an end. The benevolent have been appealed to until it seems impossible to increase the private contributions. The remedies proposed are: 1. City and State aid. 2. Stronger appeals to the benevolent rich. 3. Let the hospitals die, because of their trend toward institutionalism. In *Charities*, Mr. Tucker appeals for an endowment fund of $10,000,000, the income to be devoted to supplementing the income of private hospitals, by an independent body of administrators, men and women selected for their knowledge of social conditions. But where is the $10,000,000 to be got? If it is possible to secure it, then Mr. Tucker's proposal seems altogether commendable. Unification, in any event, seems necessary, as there is at present a vast waste in the duplication of administrative machinery; fewer plants might do the work at far less expense than at present. We now have neither effective public control nor sufficient private supplies. A radical and enduring solution of the pressing problem is highly advisable.

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[1] Bulletin Iowa Institutions.

Therapeutics of Ametropia by Massage.—One of the most amusing and illuminating of controversies in reference to eyestrain has lately been going on in English medical and lay journals. It was sprung by an antivivisectionist "ophthalmic surgeon" of London, who announced that he could extinguish ametropia by some sort of massage of the eyeball. Mr. Stephen Smith thought he had discovered something new, and as he had no knowledge of the history or science of ophthalmology, he was perfectly sincere in his belief. But for many years a French oculist, Dr. Domec, of Dijon, has advocated this theory, and at the 1899 Ophthalmic Congress at Utrecht, Professor Darier approved Dr. Domec's contention. The results, of course, have been *nil*. Any oculist with knowledge of his science can see that whatever may be the influence of massage in changing the dimensions and shape of the eyeball must be temporary. "The last days" and "the doom of spectacles" are simply funny or melancholy titles to him. Moreover, so far as priority goes, our American cranks have long been furiously advertising the same cure of ametropia by massage. The foreign crank cannot beat the American variety in devising absurdities in therapeutics. A London optician at once challenged Mr. Antivivisection Smith, agreeing to furnish ametropes for a public trial of the method under trained experts and judicial conditions. There is no hope, or danger, that the challenge will be accepted.

Ophthalmic Quackery the Result of Inaccurate Refraction.—The amusing contention of the quacks that massage can produce permanent emmetropia has its melancholy side. It is caused by the same unscience which is widespread in our own country, to the effect that ametropia is the consequence instead of the cause of systemic disease. In the same numbers of the English medical journals, which editorially, indeed, take a proper stand against ophthalmic quackery of the Stephen Smith type, there are abundant evidences that the fundamental source of the quackery is the common professional inattention to astigmatism, anisometropia, and low degrees of ametropia generally. For instance, Mr. W. T. Gairdner, in the *Lancet*, describes his own case of high myopia; he found that in presbyopia no spectacles were required, and reading was best done without lenses and at four or five inches from the page. Soon, however, he had detachment of the retina in one eye and cataract in the other. He consequently advises the use of a tube in reading to shut out peripheral light and images! Pathos and pathology are thus combined with an amazing ignorance. All over the world, indeed, the rampant growth of ophthalmic delusion and humbuggery is the direct and inevitable result of the generation-long ignoring of the optical and physiologic conditions of accurate refraction. The small errors of refraction, the astigmatisms, and the anisometropia, which are almost the sole cause of eyestrain with all its serious results to eye and system, are ignored, and there is a seizing out of the air of absurd theory, irrational therapeutics, and brazen quackery. When the profession awakens to the extent and gravity of the evil and demands accuracy of its oculists, there will be an end of all the shams and nonsense.

Poverty is the title of a noteworthy book by Robert Hunter, lately published by the Macmillan Company. By the term he means "the inability to obtain those necessaries which will permit them to maintain a state of physical efficiency"—a capital definition if the adjective is allowed. By several methods the number in this condition in the United States is estimated to be at least 10,000,000. In 1899, 24% of the inhabitants of New York were compelled to apply for relief, not including those aided by such other means as unions, clubs, private alms, etc. In 1901 more than 2,000,000 male wage earners in the United States were without employment from four to six months. And this in a time and country where prosperity is much bragged about. The numbers of the poor who are so by their own fault and choice, such as the tramp class, are not to be estimated but are perhaps not over 10% of the total. Mr. Hunter holds that child labor is in great part the price we pay for cheap goods. To reform, child labor must be stopped, factories and tenements made sanitary, dangerous trades supervised, some sort of insurance for old age, sickness, injury, etc., devised. The relation of sickness to poverty is admirably set forth. It is contended that at least a fourth of the distress which is manifested in the poor is due to sickness. In New York City it is estimated that 250,000 are constantly sick, two-thirds of whom are disabled. The higher the class of workmen, the less the sickness, while in the lowest classes sickness in some form is almost constantly present. The reduction of the deathrate in New York in 1903 from 20 to 18.75 per thousand meant the saving of 4,500 lives and the prevention of 10,000 cases of severe illness. Preventive medicine is therefore the best means of preventing poverty.

A Layman's Notes on the Tuberculosis Problem.—Whenever American universities undertake to supply the several thousand health offices of this country with trained men, traveling scholarships in public hygiene will be worth considering. After the wantonness of political sanitation is no longer tolerable, when well-schooled health officers have established respectable standards of efficiency and opened a vista of preventive medicine ampler than the schools now perceive—in short, when the infant science is quite dry behind the ears—this suggestion will be heard again. At the present time one can name but two itinerant students of the subject whose rewards seem special to their method and at the same time valuable. While neither of them is a physician or a hygienist, both have acquired kinds of information which the hygienists need but have not. They are Mr. Frederick L. Hoffman, of Newark, N. J., and Mr. Samuel Hopkins Adams, of New York. Mr. Hoffman's published studies are chiefly statistical, offering not the least suggestion that the author is a field worker, but his memorandums concerning sanitary conditions and sanitary government in various parts of the country are true field notes and are of great variety and value. Mr. Adams has been traveling about the country for more than a year studying some of the more important problems of practical hygiene. The first of his series of papers is published in *McClure's Magazine* for January, 1905, and is a popular article on tuberculosis. The article is based on the author's personal observations in some twenty-five American cities, and justifies, we think, our introductory remark on the itinerant methed.

Professional Opposition to Registration.—Physicians can afford to skip the first two pages of Mr. Adams' article; should do so, indeed, lest they may be prevented from reading the remainder. It might be better still to read the article backward, unless one can stand the tinnitus which may be excited by the author's caustic comments on a certain phase of professional virtue. A sense of personal rectitude will hardly keep one comfortable when Philadelphia physicians, or the physicians of New York, Chicago, Baltimore, Kansas City, Louisville, Pittsburg, Cincinnati, New Orleans, Buffalo, Indianapolis, and Cleveland are charged with selfish delinquency in an important preliminary step toward the restriction of tuberculosis. Professional opposition to the registration of tuberculosis probably is, as Mr. Adams says, "one of the most potent allies of the disease," but this professional prejudice is neither blind nor bitter. It would soon disappear if Boards of Health were generally fit to be trusted with such information. But Boards of Health in general, and city Boards of Health in particular, do not command either public or professional confidence, and cannot do so while they remain subject to the vicissitudes of politics. Where health departments are free from this thraldom, as in Boston, and where a wise policy has a fair chance to survive an election, as in New York, the practice of registration is established. In his remarks on the surprisingly small number of health officials who have done noteworthy work against tuberculosis, Mr. Adams shows just appreciation, but he criticises the idle and fettered officials more gently than the obstructionists in private medical practice. He understands very well the political duress which governs many office holders, but he is probably less informed about the subtler influences which rule medical practice.

The Political Fences of Tuberculosis.—Official delinquencies receive, however, a good share of Mr. Adams' attention, and on the whole it is better for a health officer not to have been on Mr. Adams' itinerary. He says that but two American cities regularly employ disinfection against tuberculosis. These two cities are New York and Boston. A library student could amplify this list about ten times, for recent literature on the subject counts some 20 cities whose health officers testify that disinfection is included in their armament against tuberculosis. Perhaps 20 cities have, on rare occasions, disinfected apartments vacated by tuberculous patients, and if an inquiry on the subject must be answered "yes" or "no," the affirmative may be used without falsehood. But Mr. Adams is, no doubt, right in saying that among American cities only New York and Boston employ disinfection with any appreciable effect. He is but partly right in excusing health departments, on the ground that their disinfecting forces are too small. They are, in fact, as large as they should be, considering the character of the men employed. Public disinfectors are, as a rule, so ignorant and so obviously unfit for any dignified employment that their presence in the homes of intelligent people is hardly to be tolerated. They do as much as any other class of public servants to bring contempt upon their departments, and in respect not only to tuberculosis, but to infectious disease in general, they do no more than a tenth of the work which the public would gladly require of competent men. In this connection, the author recalls the recent message of Mayor Harrison, in which it was proclaimed that Chicago spends less money per capita on her health department than any other large city in the country, "as if a man should contemplate himself admiringly in a looking-glass and say, 'I'll bet I spend less money on soap than any other fellow in town.'" "The municipality saves money and spends lives." The tubercle bacillus exerts its strongest political pull, however, through the owners of bad tenement houses. The most conspicuous of such landlords are great corporations, such as the Trinity Church Corporation, whose records of bitter fighting against sanitary reform have enriched the law reports, and the University of Chicago, whose disgraceful hovels are pictured in the article, though no serious protest has ever been made against their existence. Less conspicuous, but not less dangerous, are the Salvation Army lodging houses, and the rookeries owned by policemen, dead animal and garbage men, and other petty politicians, who not only collect exorbitant rents, but control the votes of their miserable tenants, and easily intercept or pigeon-hole all complaints.

An astonishing phase of death registration is exposed in Mr. Adams' article. We are unhappily familiar with the falsification of medical certificates of death, which occurs oftenest in connection with insurance claims and diminishes the apparent mortality of tuberculosis, but we did not suppose that in any American city a physician could wholly evade the death certificate. It appears, however, that in one of the three great American cities a large part of the information concerning current mortality is obtained from undertakers. "It is on the undertakers' and not on the physicians' returns that the authorities rely." This, if true, solves a puzzling question arising in connection with the reported mortality of the city. In 120,000 consecutive deaths the Health Department has charged not one death to unknown causes. To say nothing of the true cause of death, the probable cause of death could not be discovered in 120,000 consecutive cases, even with unlimited liberty of medical examination *intra vitam* and postmortem. But if the physician's certificate may be substituted by the undertaker's certificate, and especially if undertakers' records are in general more reliable as to certain causes of death, this unparalleled feat of mortality registration is no longer mysterious. The striking merit of the article is its description of the political entrenchments of tuberculosis. These must be carried in the course of the campaign, and that perhaps early. Some of us knew a little of this phase of the subject, but no one has made public a reconnaissance as thorough as this of Mr. Adams.

As the Jester Sees Us.—Since it seems impossible for us ever to attain the happy fulfilment of Burns' wish "Ah wad some power the giftie gie us, to see oursels as ithers see us," perhaps the next best thing is to see ourselves and our serious occupations through the clarifying spectacles of a jester "amang us takin' notes" and then "prentin' 'em." The *Münchener medizinische Wochenschrift* gives its subscribers this opportunity once a year, and the last annual scherznummer (joke number) which is as usual gotten out without any collaboration on the part of the distinguished staff who lend their names to the editorial announcement of our Munich contemporary, is quite as good as usual. There are some lessons that the general practitioner and many more that the specialist can take home to himself in its pages. There is a good example of an especially complicated fracture of the metacarpus which has not as yet taken place! illuminated by a röntgen radiogram, which fails to throw any more light on the subject than is so often the case with bona-fide röntgen-ray illustrations taken from difficult and delicate surgical cases. This one is presented as a solid black block. There is an excellent take-off on the ever increasing number of chemic agents that may be used for the production of narcosis, and the new substance is not praised any more highly in joke than are many of its genuine congeners in the actual articles written to introduce them. For those who realize poignantly how much nepotism means for the destruction of good feeling, the hampering of medical education and the overloading of faculties with dead wood, there are some paragraphs of cordial consolation in this number. Undoubtedly, however, the article that will be most appreciated is that on the rights and duties of the physician's wife. The suggestion with regard to the number of useful instruments in a physician's office that may, in case of necessity, be employed for household purposes, is especially likely to bear fruit. Corns may be pared with scalpels, kindling wood may be cut with an amputation saw, and finally the doctor's head and throat mirrors may be made to replace with decided advantage the ordinary hand mirrors for most toilet purposes. We congratulate our distinguished contemporary on the never failing source of wit which enables it to treat the medical world every year to such a feast of humor and flow of soul in which our foibles and weaknesses are so happily mirrored. *Ridentum dicere vera quid vetat.* Why should we not say the truth, at least in joke.?

The World's Oldest Man.—Stovan Zikitsch, who was recently interviewed in his home in Nish, Servia, is said to be 117 years of age, and not a little of his prominence is due to the fact that he remembers Byron, who has been dead exactly 80 years. Zikitsch, who is generally believed to be the oldest person in the world, is remarkably vigorous, has a clear memory, good eyesight, and a strong, hearty voice. From the fact that he is photographed with a bottle in his left hand, it is probable that he is not unduly abstemious.

AMERICAN NEWS AND NOTES

GENERAL.

Increase in Pneumonia.—During the first six months of 1904, the percentage of deaths from pneumonia compared with the total number of deaths in the city of New York was 19.5, an increase from 14.7 in the first half of 1898. This is the highest rate recorded, the next being 19.4 in 1900. In no other year has it risen above 17. The same increase is shown by decades, the rate per thousand of the population from 1864 to 1874 being 2.20; from 1874 to 1884, 2.57; from 1884 to 1894, 2.98. A much greater increase is expected for the decade now ending. Pulmonary tuberculosis is excluded from these statistics.

The testimonial to Dr. Osler, which was inaugurated some time ago, and which has been mentioned before in the news columns of *American Medicine*, has grown in importance. About $10,000 has already been raised, and it is hoped that the fund will reach $100,000 or more. It is planned that the testimonial shall take the form of a building, to be erected in Baltimore, to become the receptacle of the library of the Medical and Chirurgical Faculty of Maryland, and to be the home of the various medical bodies affiliated with the faculty, with, perhaps, one or more national medical bodies, if they can be secured.

Uncorrected Mistakes.—A medical exchange, commenting editorially, says: It seems to us rather a curious decision or opinion of the Attorney-General of Iowa that a medical certificate obtained through a misapprehension can not be revoked. A certain osteopath received a certificate from the Board of Medical Examiners while the board was under the impression that the institution from which he obtained his diploma was one of those recognized by the Board. When the mistake was discovered it was proposed to revoke the certificate, but the power to do so was denied by the Attorney-general. The case will probably be a warning to other boards to scrutinize credentials, especially in this class of cases.

Cuba's Sanitary Condition.—Mr. Squiers, the American Minister to Cuba, in a cablegram received recently at the State Department in Washington, reports that the Cuban Government has expressed its willingness to do all that it can to improve the sanitary condition of Santiago and of other places in Cuba, but that President Palma must await an appropriation by Congress for this purpose before headway can be made. Acting under instructions from Washington, Mr. Squiers presented to the Cuban Foreign Office an emphatic communication, in which attention was called to the wretched sanitary condition of Santiago, and the hope was expressed that the matter would receive the early consideration of the Government.

Sanatorium on Shawangunk Mountain may not Materialize.—That New York City's plans for the establishing of a sanatorium on the top of the Shawangunk Mountain for the treatment of tuberculosis may fail through the vigorous opposition of summer hotel and boarding-house proprietors is a probability. The latter, fearing that such an institution would cause thousands of the summer guests to spend their summers elsewhere, are petitioning the authorities to refuse permission for such an institution. New York City is negotiating for 1,000 acres of land, which will be turned into a park. A number of buildings will be erected, an immense mountain lake built, and all kinds of outdoor amusements provided. Patients will be sent by the New York City authorities to the park in private cars, only those thought curable being eligible. The plans for the institution call for an outlay of nearly $1,000,000, and over $100,000 a year will be required for maintenance.

Pure Food Law.—The *Boston Transcript* says: Collector Stranahan has assumed the aggressive for the Government in its attitude toward the enforcement of the pure food law, with especial reference to the labeling of all imported products with a formula noting the use of coloring or preserving substances of whatever kind, such as sulfate of copper, boracic acid, glucose, etc. That the authorities have decided to show no more leniency toward importers and foreign manufacturers failing to comply with the law is evidence by the fact that a large quantity of "egg-white," a pasty preparation used extensively by bakers and confectioners found to contain a dangerous amount of boracic acid, was ordered reshipped to France. At the same time importers generally were notified that hereafter the policy of the Government would be to force the reshipment to the original point of shipment of all goods brought here without proper labels. This was the first intimation the importers had received that radical measures were to be resorted to at once to enforce the law. They quickly sought cover by cabling the manufacturers in Europe to hold up further shipments indefinitely.

The Use of Adrenalin Chlorid by Immigrants to Conceal the Existence of Trachoma.—Certain officers of the Public Health and Marine-Hospital Service have noticed for some time past on everting the eyelids of some immigrants that they presented a peculiar blanched appearance. At first it was thought that this was due to the treatment which they might have received prior to embarkation. Recently, however, several hours after the first inspection was completed and all suspicious cases had been set aside, it was decided to make a reexamination of the entire number. While this work was going on, a number of additional cases of trachoma were found. Upon following some immigrants behind a convenient inclosure, they were found to be busily engaged in instilling a substance into their eyes, which subsequent investigation showed to be adrenalin. Experiments with this drug proved that if instilled into the eyes of mild cases of trachoma, practically all evidence of the disease could be obliterated for about a half hour. To sum up, then, it seems that on arrival at port and just before the medical inspection was made they had been in the habit of instilling adrenalin into their eyes.—[*Public Health and Marine-Hospital Service Reports.*]

Census Bulletin on Sex in the United States.—A study in the proportion of sexes in the United States was published by the Bureau of the Census recently. The whole population of the continental United States was first counted with distinction of sex in 1820. During the 70 years from 1830 to 1900 the absolute excess of males was greater at each census than at any preceding census with one exception, that of 1870, when the excess of males was less than in 1850 and 1860. This reduction, by about 300,000, was doubtless due to the deaths in the Civil war and the diminished immigration during the decade. The greatest relative excess of males was in 1890, when in each 10,000 people there were 242 more males than females. By 1900 this excess had decreased to 216 in 10,000, less than the relative excess in 1890 and 1860, but greater than that at each other census.

The Great Body of Unnursed.—*Charities* states that a British journal, devoted to hospitals and nursing, is discussing a scheme for supplying visiting nurses to other than the poor people of England. Attention is called to the fact "that the middle class in England is increasing constantly in numbers, and that its needs do not receive proper consideration. If the clerk or the poor clergyman seek the shelter of the hospital, we have columns about 'hospital abuse'; if they ask to be allowed to pay what they can afford, they are told they must either pay the full fees or a nursing home, or accept the charity of the common wards, and the service of the district nurse is denied them." The scheme proposed for meeting this situation is the establishment of homes from which visiting nurses should work, charging moderate fees, working under committees, and subject to inspection. For the "many cases in which the constant presence of a stranger would only mean restraint and worry, and when the illness demands but a morning and evening visit."

Will the Canteen be Restored?—Representative Morrell, of Pennsylvania, on December 15 introduced a bill intended to restore the canteen to the army under certain restrictions. The preamble declares that the Secretary of War has submitted a report which shows that the abolition of the post exchange "has increased drunkenness, disease, insubordination, and desertion, moral, and physical degeneration"; that all the general officers in service except 2, that 10 colonels of cavalry, 7 of artillery, and 49 of infantry; 504 out of 516 officers commanding troops, batteries, and companies, have urged the restoration; that the testimony of 90% of those commanding posts declares that the abolition of the canteen "has increased drunkenness, desertion, absence without leave, and trials by court-martial 95%, saying that the condition of health has deteriorated, and all agreeing that morality and discipline have been injuriously affected," and that the reports of the Inspector-General and all the department commanders are unanimous as to the bad results which have followed abolition of the canteen.

The Nobel Prize.—The Nobel prize in physical science has been awarded this year to the English physicist, Lord Rayleigh. His coworker, Sir William Ramsay, received the prize in chemistry. The five prizes now amount to $40,000 each, and are derived from an estate valued at about $9,000,000, left by the Swedish inventor, Alfred B. Nobel, "for the encouragement of men who work for the interests of humanity." Sir William Ramsay visited this country a few months ago and made addresses at St. Louis and various other cities in this country. Lord Rayleigh is the son of the second Lord Rayleigh and was born November 12, 1842. He is the third Baron Rayleigh, and in private life is John Strutt. At present he is professor of natural philosophy at the Royal Institution in London, a position which he has held since 1887. It will be remembered that Lord Rayleigh discovered a difference in the weight of chemic nitrogen and atmospheric nitrogen, the latter being the heavier. He therefore concluded that some undiscovered and unknown element existed in the atmospheric nitrogen; this was worked out by Rayleigh and Ramsay, and they thus discovered the element argon.

Rice as Food in the Army.—Rice has been a component of the United States army ration practically since the organization of the regular establishment. At the present time 10 pounds to every 100 rations may be drawn for the use of troops in garrison. The Filipino troops may draw 125 pounds to each 100 rations, and they usually take their full allowance. The American soldier, however, prefers beans, and only a barely appreciable part of the rice ration is drawn, the saving being commuted. Rice also appears as a ration in the subsistence schemes of nearly all the European armies, but only in a small way and usually as a substitutive for dried vegetables, bread, potatoes, vermicelli, or some similar article of food appealing more strongly to the tastes of the continental soldier. Commissary officers here say that the rice is seldom drawn by the Europeans when they can get one of the substitutives. In Japan, China, and other tropical countries and Oriental countries rice is, of course, the principal article of diet and forms a large part of the ration, but experience has shown that white men, accustomed to more nutritious food, cannot keep well and do their work if any large part of their ration is rice.

Effect of Copper on Typhoid Bacilli.—In a letter to the *Journal of the American Medical Association*, J. A. Egan, secretary of the Illinois State Board of Health, gives the results of investigations made by the State Board regarding the germicidal powers of copper and its salts. The tests were made under the direction of Prof. John H. Long, of the Northwestern University, and were instituted as a result of recent statements made by Dr. Moore, of the United States Department of Agriculture and Director Martin, of Philadelphia. The investigations are said to show conclusively that typhoid bacilli may live in water in copper containers, or in water brought in contact with copper at ordinary room temperature, not only for four hours, but for 24 or even 48 hours. It is admitted that the contact with copper brings about more rapid destruction of the bacilli, but its germicidal power cannot be depended upon from the fact that the bacteria persist for over 48 hours. The disappearance at the end of even 48 hours cannot be attributed entirely to the germicidal action of the copper, as typhoid bacilli disappear from ordinary water in from 1 to 10 days and from Chicago tap-water they are, as a rule, entirely absent after 5 days. The report also carries the idea that the copper used as mentioned may render the contained water unfit for drinking purposes.

Combating Impure Soda.—All sorts of ills, especially in hot weather, lurk in summer beverages, unless the extracts are pure, and the State Pure Food Commission is going to see about it. With that end in view, it has instituted a vigorous campaign against adulterated food products. Two hundred suits have been filed. They are not alone against the dealers in extracts, but include everything in the line of adulterated food and adulterated foodstuffs. The charges on which retail dealers in Chicago and other parts of the State will be prosecuted include: Violations of the label law, selling impure vinegar, selling adulterated flavoring extracts, selling adulterated and imitation butter and process butter. During the last few months many dealers have sold to inspectors, without knowing their identity, articles on which charges are based. In each instance the question was asked: "Is this article pure?" When an affirmative reply was given the product was taken to the State office at 315 Dearborn street and analyzed. Although violations of the pure food law should be prosecuted in the criminal courts, the commission has taken the position that this would work a hardship in many cases. The milder method of bringing each case up in justice courts has been adopted. The penalty ranges from $25 to $200.—[*Springfield* (*Ill.*) *News.*]

Food Adulterations Shown at St. Louis Fair.—Novel and unique beyond anything heretofore attempted in the exposure of food adulterations in this country is the exhibit of the Pure Food Commissioners at the St. Louis World's Fair. The display, which includes the exhibits from the various State Boards of Health, shows the adulterations of foods and beverages, together with the samples of adulterants, the various tests that have been applied, and about 2,000 brands of food products that have been found by the State government laboratories to be adulterated. Minnesota and South Dakota have sent sheets of wool and silk five feet square, dyed with the artificial mineral coloring found in strawberry syrups, catsup, jellies, and port wines. It is claimed that it took only about eight ounces of this coloring matter to dye the cloth. Michigan shows samples of an extract containing wood alcohol. Kentucky has many samples of beverages which the chemists found were badly adulterated. Among the adulterated foods which it displays are 40 brands of catsup, 50 brands of baking powders, all of which have been subjected to chemic analysis. This department also shows the comparative nutritive value of many foods. Not the least interesting feature of this exhibit is the display of the Illinois Food Commission, which is a glittering array of single, double panelled, and concave bottles of adulterated flavoring extracts. The striking fraud in this exhibit is in the short measure revealed in the bottles. The socalled two-ounce bottles hold only one and three-quarters ounces, while the one-ounce bottle holds less than two-thirds of an ounce. Fancy bottles indicated in the pictures have large indentations in the bottoms and small tapering necks at the top, reducing their capacity to less than a half pint instead of a pint, which they are supposed to hold. These bottles are made in imitation of cut glass, and to the superficial observer are very beautiful and valuable. Another illustration shows candy colored with anilin.—[*From What-to-Eat.*]

NEW YORK.

Care of Crippled Children.—One of the most interesting of the annual reports of institutions for the benefit of the sick and helpless is that of the New York State Hospital for the Care of Crippled and Deformed Children, which has been sent to donors and others connected with the work. During the year ending September 30, 1904, a total of 42 patients was treated for hip-joint disease, humpback, bow-legs, clubfoot, and kindred troubles. The description given of the methods of treatment used in many of these cases is informing to laymen, and not too technical. Seventeen patients were discharged during the year, leaving 25 under treatment at the beginning of the new year.

School of Charity Needed.—John S. Kennedy, of New York, who put up the United Charities building a dozen years ago at a cost of $600,000, and who has made innumerable gifts to the Presbyterian Hospital and other institutions in which he is interested, has given to the School of Philanthropy of the Charity Organization Society what amounts to $250,000. The school has been in existence seven years, but has been run on a comparatively limited scale. Mr. Kennedy's gift, an income of $10,000 a year, will put it on a permanent basis and afford practically unlimited education for charity workers. Mr. Kennedy's offer was laid before the central council of the society at a special meeting recently, and was unanimously accepted.

Can a Teacher Inflict Corporal Punishment?—According to the decision of the counsel employed by the New York Teachers' Association, to determine whether or not a teacher can lawfully be disciplined for striking a scholar, any teacher, principal, or assistant to principal in Greater New York has a legal right to inflict corporal punishment upon an unruly scholar, provided the punishment is not inflicted in a brutal manner. The by-laws of the Board of Education prohibit the use of corporal punishment, but it is asserted that this prohibition is illegal, and, therefore, null and void, as the penal code gives a teacher authority to restrain or correct a child, provided that the "force of the violence used is reasonable in manner and moderate in degree." As many teachers in this city have been fined during the last two years for striking pupils, it is believed that an attempt will now be made to recover this money. A test case will be tried in the near future.

Politics and Charities.—In a recent address before the fifth New York State Conference of Charities and Corrections, Mr. Robert W. Hebberd, among other things said: "How sinister the significance, when we know that in every State where partisan politics is allowed to interfere with the administration of charity, the results are most unfortunate. The principles ennuciated on this subject by the two principal candidates for the office of governor at the recent election, must have been particularly gratifying to the members of this conference. Fortunately, in the State charitable and reformatory institutions, the State civil service law and the presence of independent philanthropic citizens on the boards of management have helped to preserve conditions practically, if not entirely, free from partisan influences. On the other hand, in the county and municipal service, and particularly in some of the rural communities to which the rules of the civil service have not yet penetrated, injurious political influences continue to manifest themselves in a greater or lesser degree. For a long time those interested in the welfare of these county and municipal charities outside the classified service, have hoped that some practical method would be found for extending the State civil service rules to cover this class of institutions."

PHILADELPHIA, PENNSYLVANIA, ETC.

Obstetric Society.—The Obstetrical Society of Philadelphia will be addressed by Dr. J. Clarence Webster, of Chicago, at the meeting on January 5. Following the meeting Dr. Richard C. Norris will give a reception to Dr. Webster and the members of the society.

SOUTHERN STATES.

Annapolis Naval Hospital to be Constructed.—Bids were opened at the Navy Department on December 14 for the construction of the new naval hospital to be built at Annapolis, Md. The lowest and successful bid was for $180,925.

WESTERN STATES

Bacteria of the Air Retained on the Mucous Membrane of the Lungs.—The Bulletin of Chicago's Health Department states that the department has found, after a series of experiments, that inspired air which contained several thousand bacteria per cubic meter, contained less than 50 when it came from the lungs. All the others were arrested upon the mucous membranes of the patient who breathed this air. This is important, for it shows that the normal breath contains only a few bacteria, and that the breath of the tuberculous is usually free from tubercle bacilli, which are only expelled with the sputum or spray scattered about in a fit of coughing. This also applies to other diseases, such as diphtheria, influenza, pneumonia, etc.

Pneumonia Less Prevalent in Chicago.—The Bulletin of Chicago's Health Department states that pneumonia is much less prevalent and less fatal this year than usual. During the first 11 months of 1903 there were 4,133 deaths from the disease. During the similiar period this year only 3,690 pneumonia deaths occurred. In November, 1903, there were 333 deaths, and last month only 260 from pneumonia. The present Chicago proportion of pneumonia deaths to deaths from all causes is 13.6%; from tuberculosis it is 11.3%. The corresponding figures for New York, at the close of office hours, December 3, were 11.5% for tuberculosis and 17% for pneumonia.

Milk Supply of Chicago.—The Bulletin of Chicago's Health Department states that considering the protracted dry season the quality of the milk supply has continued to be remarkably good. Of the 3,100 samples of milk and cream tested during the month—the greatest monthly number during the year—only 6% were below grade. One hundred more milk licenses were issued than during any previous month. The improved quality of the milk supply of 1904 is reflected in the 928 fewer deaths between 1 and 5 years of age—the "milk-feeding period." Last year during the same months, January 1–November 30, there were 2,747 deaths at this age; this year, only 1,819.

Rum and Bad Indians in Nebraska.—The United States Grand Jury, which ended its session recently at Omaha, made an extended report on the condition of affairs on the Winnebago Indian reservation. The report is addressed to United States Judge Munger, and recites a deplorable state on the reservation. In part the report is as follows: "That a large number of the 1,100 Winnebago Indians are in a sad and deplorable condition must be admitted. We believe that this unfortunate condition has been largely brought about by the unlawful sale of liquor to the Indians and their utter disregard of any marriage ceremony. The Homer saloon keepers and their Indian apartments, known as 'bull pens,' and the professional bootleggers and the lawbreakers who made it impossible to serve papers by a deputy marshall without calling to his assistance an unknown officer, have been under thorough investigation, and we have reported our findings to the court. The other cause of demoralization, which from the testimony is growing worse from year to year, is the marriage relation. We understand the United States holds that, as the Winnebago Indian is now a citizen of Nebraska, the marriage question is one that should be taken up by the State, but the State does absolutely nothing. It is in evidence that the conditions are growing worse, and that no legal marriages are celebrated."

State vs. County Care of Poor in Iowa.—From a detailed and careful study of this subject by Prof. F. I. Herriott, of Des Moines, published in the Bulletin of Iowa Institutions, we extract the conclusions reached: Summing up the conclusions of our study we find that there has been but little improvement in the methods of administration of local indoor poor relief in Iowa since 1840. There has been almost a steady elimination of various classes of delinquents, defectives and dependents from county institutions, such as jails and poor-houses and their transfer to central State institutions under the direct management of officials of the State, because appropriate care could not be given the wards of the State in the county institutions. A census of the population now in our county poor houses exhibits the fact that there are many classes confined in them that our laws and public policy have for many years declared should be cared for only in the State institutions such as feeble-minded, epileptics, deaf mutes, demented and insane and not an inconsiderable number of sane and normal children along with all degrees of dependents, vagrants and paupers. The returns further show that approximately 20,000 acres of Iowa's best farm land together with building equipment and working farm capital aggregating $3,000,000 in value are devoted to the care of these classes. Notwithstanding the income from the county farms the taxpayers of the counties are called upon to contribute additional revenues ranging from $350,000 to $400,000 to maintain an average population of about 2,300. Investigation also develops the fact that the methods of accounting in the country are, with a few exceptions, very meager and wholly inadequate to enable the public to realize the nature of the sum total of the real expenses of maintenance and operation. Comparisons of costs of State and local institutions where they can be made show that in the best managed local institutions the costs not only equal the expense in the State institutions, but often exceed it very decidedly; while for the State as a whole the per capita cost to the counties is from 25% to 40% higher than the expense of caring for the inmates of our State institutions. Regarded simply from the point of view of profitable investment of the people's revenue the county institutions are maintained at a serious loss to the taxpayers of the State compared with the cost of operating the State's institutions. Finally a consideration of the problems of administration and the purposes of public indoor relief compels the conclusion that the people of Iowa would do wisely to substitute one or two central institutions for the care of dependents and chronic insane solely under the control and management of trained State officials for the 95 county institutions now caring for these classes. These conclusions rest upon grounds of economy and efficiency in administration, upon sound public policy and true beneficence in public poor relief.

FOREIGN NEWS AND NOTES

GENERAL.

Deaths from Snake Bites in India.—According to Public Health and Marine-Hospital Service Reports, the Ratnagiri district is the worst infected in the Bombay presidency. During the five years preceding 1903, 1,167 persons fell victims to poisonous snakes. In 1903 there were 177 such deaths. In three other districts, *i. e.*, Hyderabad, Khaudesh, and Thana, there were a good many deaths from snake bite, but elsewhere the mortality from this cause was insignificant. No antivenene inoculations were reported.

New Food Preservatives.—News from Berlin says: The War Department is experimenting in German Southwest Africa and China with a new food preservative, a sort of jelly. Sausages, any preserved meat or butter, is dipped in this melted jelly which dries and forms a skin impervious to air. When peeled off months later it leaves the food as fresh as when prepared. The Imperial Health Office finds that the substance of meat or other foods is not affected by the preservative, which would permit of foreign food being imported in a preserved state. It costs the War Department about a cent for each pound of meat.

Human and Bovine Tuberculosis Again.—Recent news from Berlin states that the Imperial Commission appointed by the Government to investigate bovine and human tuberculosis, reports that investigation shows that bovine and human bacilli are absolutely distinct, biologically, and that one never changes or develops into the other. Of 56 bodies of persons who had died of tuberculosis, the presence of human bacilli was shown only in 50. There were bovine bacilli only in 6 of the bodies, and three of these were young children. It is believed that the latter received the bacillus from the milk of a diseased cow. Two other cases which are regarded as most important, were corpses which showed bovine bacilli in the glands and human bacilli in other portions of the body. Another important case was one of lung tuberculosis, where bovine and human bacilli were associated. The commission reached the conclusion that tuberculosis in human beings is caused by the human bacillus.

Gives Five Dollars to Babies that Live to be One Year Old.—News from London, under date of November 12, says: Among the hundreds of mayors who have been elected this week one who attracted considerable attention by a singular offer is the Mayor of Huddersfield. In returning thanks for his election, he said his desire was especially to serve the babies of his community, and that he would give the parents of every baby born in his native place, Longwood, during the year of his office a promissory note for £1 sterling ($5), to be paid when the baby reached the age of 1 year, together with a card bearing simple, homely directions for the welfare of the child. He hoped that the offer would arouse a certain measure of attention to the question of infant mortality, upon which the public conscience is now well nigh dead. He was not a plutocrat, he said, or he might make the offer apply to the whole borough, but as about 2,000 children are born in the borough within a year, it would be a large order for him.

Effects of Compulsory Vaccination in Madras, 1874 to 1904.—According to *Public Health and Marine Hospital Service Reports*, some interesting data are furnished by a report of the returns of deaths from smallpox in Madras for the last 30 years. In 1874 the deaths numbered 819. During the succeeding 10 years the numbers varied from 196 to as many as 4,064. The latter number of deaths from the disease occurred in 1884, and apparently resulted in Government making vaccination compulsory in the city. The compulsory order went into effect on June 1, 1884. From that time the diminution in the number of deaths from smallpox has been extraordinary. In 1886 only one death occurred; in 1895 but three deaths were recorded; in 1903, seven. In only three years has the number exceeded 100, *i. e.*, 1897, 1898, and 1901. For the rest the yearly deaths have been enumerated in tens, where before 1884 they were counted in hundreds and even thousands. This seems to me favorable testimony as to the efficiency of compulsory vaccination in populated areas.

Dr. Laveran Hopes to Cure Sleeping-sickness.—The London *Chronicle* states that Dr. Laveran of the Pasteur Institute claims to have discovered a remedy for the "sleeping-sickness," and states that he has already tried it with great success upon animals previously inoculated with the disease. On being interviewed, Dr. Laveran explained that it was a mistake to attribute to him the discovery of the microbe of the "sleeping-sickness," as an Englishman, Dr. Durton, discovered the first trypanosoma in 1901, and two years later an Italian doctor, Castellini, and Lieutenant Colonel Bruce, F. R. S., began the serious study of this microbe. "My researches," he said, "have been directed to finding a cure for this dread disease, and I have obtained most interesting results. Animals can be inoculated with the sleeping-sickness microbe, and I have made some very interesting experiments with rats, guineapigs, and monkeys. After trying different serums, I came to the conclusion that better results were to be obtained with ordinary medicaments. I cannot yet disclose the nature of these medicaments, but I will shortly do so in a paper I am going to read before the Academy of Medicine, and as I have already cured animals of this dread disease, I can also cure men."

Regulation of Hospital Ships in Naval Warfare.—Press reports indicate the possibility of a conference at the Hague to consider this question. The program and the date of this conference have not yet been decided. It is believed however, that it will meet toward the end of December. Its main object will be to establish the neutrality of hospital ships, which are not sufficiently protected by existing laws. M. Tissier points out that at present neither France nor the majority of other countries possesses hospital ships. Russia has the Orel, recently consecrated at Toulon, and Japan has two such vessels. These ships are distinguished by the Red Cross flag and a white band painted along the side of the vessel above the water line, divided by a horizontal green strip. When such vessels are equipped wholly or in part by private persons, this strip is red instead of green. The Turks alone are authorized to fly the crescent in place of the Red Cross. M. Tissier says the necessity of having special ships for the reception of the wounded after a battle at sea has long been recognized. This need has become more urgent owing to the growing complexity of men-of-war and the increasing deadliness of their fire. There was sufficient space in the older types of warships for the accommodation of the wounded, but the development of the present man-of-war leaves no room for them, since every corner is occupied by machinery, artillery, or torpedoes.

Hygienic Shaving in London.—An exchange states that a number of important recommendations bearing upon the conditions of barbers' establishments has just been approved by the Court of Common Council of London. The recommendations, which were suggested by Dr. Collingridge, the medical officer of health, and which have been agreed to by the Public Health Department of the Corporation and the Incorporated Guild of Hairdressers, are virtually as follows: 1. All shelves, fittings and tables on which instruments are placed to be of glass, marble, slate or other similar material. 2. Clean towels to be used for each customer, and a fresh piece of paper or clean linen to be placed on the back of chair or head-rest. 3. No general powder-puffs to be used, and powder pulverizers or cotton-wool substituted. No sponges to be used. 4. All hair clippers, razors, scissors, combs or other tools after use to be placed in a disinfecting solution. 5. Razors to be wiped on paper. 6. Perfectly clean hair brushes only must be used. 7. Shaving brushes after use to be placed in a disinfecting solution. 8. Cut hair falling on the floor to be immediately swept up and removed, and floors to be cleansed daily. 9. No general alum crystals or blocks as a styptic to be used, and a liquid powder applied on towel or cotton-wool or by spray. 10. The most scrupulous cleanliness to be observed in all that pertains to the business. In addition, the guild recommends that regular customers and subscribers should be strongly advised to provide their own toilet articles. A further proposition provides for registration—that is to say, that all barbers complying with these regulations will have a certificate to the effect that they are "fit and proper persons" to undertake the removal of hair with safety to the customer.

OBITUARIES.

Samuel S. Turner, aged 70, from Bright's disease, while on his way from his station at Fort Columbia, Wash., to Washington, D. C., December 11. He was acting assistant surgeon of the United States Army since since 1869.

Richard A. Barber, of Gardiner, Douglas County, Oregon, was drowned while making a professional call, December 4; a graduate of the Royal College of Physicians and Surgeons, Edinburgh, Scotland, in 1887.

Cary Judson Gill, aged 67, at Riverside, Cal., December 6, suddenly, from paralysis, while driving near his home. He was a veteran of the Civil war; a graduate of the Rush Medical College, Chicago, in 1866.

W. S. McMurtry, aged 86, at Los Gatos, Cal., December 8. He was a veteran of the Mexican war, and was once State Senator. A graduate of the University of Louisville, medical department, in 1844.

John W. Porter, aged 49, at Pittsburg, Kan., December 14, of peritonitis following an operation for appendicitis; a graduate of the Kentucky School of Medicine, Louisville, in 1883.

W. M. Carney, was shot six times in a street fight with his former partner, at Neave, Ky., and died a half hour later; a graduate of the Hospital College of Medicine, Louisville, in 1903.

Jessie Jackson Jacobs, at his home in Webb City, Ark., from hematuria, December 7, after a brief illness; a graduate of the medical department of Arkansas, Little Rock, in 1898.

Martin L. Yost, aged 71, one of the oldest physicians of Allentown, Pa., was struck by a trolley car and instantly killed, December 3. He was twice coroner of Lehigh county.

Joshua Bayley Gould, aged 85, in Philadelphia. He was a prominent physician in Massachusetts for half a century. A graduate of Harvard Medical School.

Aloysius G. Blincoe, aged 60, in Bardstown, Ky., after a brief illness from appendicitis, December 10; a graduate of the University of Louisville in 1868.

Howard T. Smith, aged 36, was struck by a train at Stephensville, Mich., on December 2 and died on the fourth; a graduate of Michigan University in 1900.

Francis L. Foscue, of Demopolis, Ala., was robbed and murdered, December 17. He was a graduate of Jefferson Medical College, Philadelphia, in 1884.

John F. Fisher, aged 60, at his home in Philadelphia, December 9; a graduate of Jefferson Medical College, in 1872.

Henry C. McLean, aged 55, in Brooklyn, N. Y., December 23; a graduate of Long Island Medical College.

James C. Hardin, aged 73, in Easton, Md., December 17.

THE PUBLIC SERVICE

Health Reports.—The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended December 23, 1904:

	Smallpox—United States.		Cases	Deaths
California:	Stockton	Nov. 1-30	2	
Illinois:	East St. Louis	Dec. 1-17	18	2
Indiana:	Evansville	Dec. 17	83	
Louisiana:	New Orleans	Dec. 10-17	4	
			2 imported	
Michigan:	At 70 places	Dec. 3-10	Present	
Minnesota:	Aitkin County	Dec. 5-12	3	
	Otter Tail County	Dec. 5-12	2	
	Rice County	Dec. 5-12	1	
	Todd County	Dec. 5-12	5	
	Wilkin County	Dec. 5-12	3	
Missouri:	St. Louis	Dec. 10-17	12	1
New York:	New York	Dec. 10-17	2	
Ohio:	Canton	Dec. 3-10	1	
Pennsylvania:	Altoona	Dec. 10-17	1	
South Carolina:	Charleston	Dec. 14	1	impt'd.
Tennessee:	Memphis	Dec. 10-17	1	impt'd.
	Nashville	Dec. 10-17	2	
	Smallpox—Foreign.			
Austria-Hungary:	Prague	Nov. 19-26	12	
China:	Shanghai	Nov. 5-12	2	
France:	Paris	Nov. 26-Dec. 3	15	
Great Britain:	Bradford	Nov. 19-Dec. 3	6	
	Leeds	Nov. 26-Dec. 3	2	
	London	Nov. 19-26	2	
	Newcastle-on-Tyne	Nov. 26-Dec. 3	11	1
	Nottingham	Nov. 26-Dec. 3	1	
India:	Bombay	Nov. 15-22		2
	Madras	Nov. 12-18		3
Italy:	Catania	Nov. 24-Dec. 1		3
Russia:	Moscow	Nov. 19-26	2	1
	Warsaw	Oct. 15-Nov. 5		15
Switzerland:	Zurich	Nov. 19-26		1
	Yellow Fever.			
Ecuador:	Guayaquil	Nov. 16-23		1
Mexico:	Coatzacoalcos	Nov. 26-Dec. 10	4	5
	Juchitan	Dec. 4-10	2	
	Tehuantepec	Dec. 4-10	1	1
	Texistepec	Dec. 4-10	1	1
Panama:	Panama	Dec. 5-12	3	
	Cholera.			
India:	Calcutta	Nov. 5-19		65
Russian Empire:	Baku District	Oct. 24-Nov. 19		20
	Erivan	Oct. 24-Nov 19	254	134
	Samara District	Oct. 24-Nov. 19	64	
	Serachs	Oct. 24-Nov. 19	3	
	Zaragyn	Oct. 24-Nov. 19	21	17
Turkey in Asia:		Nov. 21	84	63
	Plague.			
Arabia:	Aden	Nov. 3	Present	
Australia:	Brisbane, vicin. of	Nov. 5	1	
Ceylon:	Colombo	Nov. 3-11	6	4
	Imported on steamship Torridge from Burmese ports.			
Egypt:	Tukh District	Nov. 12-19	1	1
India:	Bombay	Nov. 15-22		57
	Calcutta	Nov. 5-19		14
	Karachi	Nov. 13-20	13	8
Mauritius:		Sept. 9-Oct. 13	101	82
Peru:	Callao	Oct. 24-31	3	
	Eten	Oct. 24-31	21	9
	Pacasmayo	Oct. 31	Present	

Changes in the Medical Corps of the U. S. Army for the week ended December 24, 1904.

The following-named officers will report to Maj. William C. Borden, surgeon, president of the examining board at the Army Medical Museum Building, Washington, D. C., January 4, for examination for advancement: First Lieutenants George W. Mathews, Wilfred Turnbull, assistant surgeons.

Smart, Colonel Charles, assistant surgeon-general, is relieved from further treatment at the Army and Navy General Hospital, Hot Springs, Ark., and will report to Washington, D. C., with a view to appearing before a retiring board.

Brown, Henry D., contract surgeon, leave granted October 13, is extended to include January 1.

Brower, Thomas E., sergeant first class, now at San Francisco, Cal., will be sent to the Army and Navy general hospital, Hot Springs, Ark., to relieve Sergeant First Class Adam Korn. Sergeant First Class Korn will be sent to Fort Lincoln to relieve Sergeant First Class Martin Rose. Sergeant First Class Rose will be sent to Angel Island, Cal., reporting to the commanding officer, depot of recruits and casuals, who will send him to Manila, P. I., for assignment to duty.

Marrow, Captain Charles E., assistant surgeon, is granted leave for three months, to take effect when in the opinion of the commanding officer, Fort Sheridan, his services can be spared.

Hartnett, Captain Eugene H., assistant surgeon, is granted leave for three months, from about January 1, with permission to go beyond sea.

Kirkpatrick, Captain Thomas J., assistant surgeon, will proceed to Camp Jossman, Guimaras, P. I., for duty.

The following-named surgeons are relieved from duty at their present stations, to take effect at such time as will enable them to comply with this order, and will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on the transports to sail from that place on or about the dates set opposite the respective names of the officers, and upon arrival at Manila will report to the commanding general, Philippines Division, for assignment to duty: Majors William P. Kendall, March 1, 1905; Francis A. Winter, March 1, 1905; Henry C. Fisher, April 1, 1905; William W. Gray, April 1, 1905; Paul Shillock, May 1, 1905.

Ives, Major Francis J., surgeon, is relieved from duty at Fort Sheridan and upon the expiration of his present leave will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on the first available transport, and upon arrival at Manila will report to the commanding general, Philippines Division, for assignment to duty.

Stark, Captain Alexander N., assistant surgeon, is relieved from duty with the Isthmian Canal Commission, and upon the expiration of his present leave will proceed to San Francisco, Cal., and report for transportation to the Philippine Islands on the first available transport, and upon arrival at Manila will report to the commanding general, Philippines Division, for assignment to duty.

Greenwell, Samuel A., contract surgeon, will proceed from Cleburne, Tex., to Fort Barrancas for duty.

Changes in the Medical Corps of the U. S. Navy for the week ended December 24, 1904.

Norton, O. D., surgeon, detached from the Illinois and granted sick leave for three weeks—December 16.

Geiger, A. J., assistant surgeon, ordered to the Prairie—December 16.

Pease, T. N., assistant surgeon, detached from the Hartford and ordered to the Columbia—December 16.

Tolfree, H. M., assistant surgeon, ordered to the Hancock—December 16.

Changes in the Public Health and Marine-Hospital Service for the week ended December 21, 1904:

Pettus, W. J., assistant surgeon-general, granted leave of absence for 5 days from December 27—December 17, 1904.

Stoner, G. W., surgeon, seven days' leave of absence, under paragraph 189 of the regulations, from December 16, 1904.

Carter, H. R., surgeon, detailed to represent the service at meeting of Pan-American Medical Congress to be held at Panama, R. P., January 3-6, 1905—December 15, 1904.

Carrington, P. M., surgeon, reassigned to duty as medical officer in command at Fort Stanton, N. M., to date from December 18—December 17, 1904.

Magruder, G. M., surgeon, granted leave of absence for one month, on account of sickness, from December 23—December 17, 1904.

Perry, J. C., surgeon, detailed to represent the service at meeting of Pan-American Medical Congress to be held at Panama, R. P., January 3-6, 1905—December 15, 1904.

von Ezdorf, R. H., passed assistant surgeon, granted leave of absence for four days from December 21—December 20, 1904.

Pierce, C. C., assistant surgeon, detailed to represent the service at meeting of Pan-American Medical Congress to be held at Panama, R. P., January 3-6, 1905—December 15, 1904.

Hall, L P., pharmacist, relieved from duty at Cape Charles Quarantine, and directed to proceed to Louisville, Ky., and report to medical officer in command for duty and assignment to quarters—December 16, 1904.

VanNess, G. I., Jr., pharmacist, relieved from duty at Louisville, Ky., and directed to proceed to Evansville, Ind., and report to medical officer in command for duty and assignment to quarters—December 16, 1904.

Peck, F. H., pharmacist, services discontinued, to take effect December 16—December 16, 1904.

Casualty.

Acting Assistant Surgeon D. M. Echemendia died at Havana, Cuba, December 19, 1904.

Promotions.

Passed Assistant Surgeon Alexander C. Smith commissioned (permanent) as surgeon, to rank as such from December 17, 1904.

Assistant Surgeon J. W. Schereschewsky commissioned (permanent) as passed assistant surgeon, to rank as such from November 11, 1904.

Assistant Surgeon C. W. Wille commissioned (permanent) as passed assistant surgeon, to rank as such from November 25, 1904.

Assistant Surgeon J. W. Amesse commissioned (permanent) as passed assistant surgeon, to rank as such from November 4, 1904.

Assistant Surgeon R. L. Wilson commissioned (permanent) as passed assistant surgeon, to rank as such from December 1, 1904.

SOCIETY REPORTS

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Seventeenth Annual Meeting, Held at Birmingham, Alabama, December 13, 14 and 15, 1904.

[Specially reported for *American Medicine*.]

A Method of Uniting Intestines of Very Small or of Unequal Caliber.—J. SHELTON HORSLEY (Richmond, Va.) said that there were many modifications of sutures, but all of them might be divided into two general classes, the continuous and the interrupted. Taking it for granted that each suture penetrated all coats of the intestines, he demonstrated experimentally that the continuous suture more nearly fulfilled the ideal conditions for intestinal healing than the interrupted suture. Serous surfaces united after being sutured on account of the hyperemia of repair, and this was dependent upon some slight injury to the peritoneum. In the case of an interrupted suture, union was obtained within the bite of the suture by hyperemia caused by pressure of the suture, by the trauma of the needle, and by the presence of the thread. Between the sutures the pressure from thin intestinal tissues was practically nil, so union depended solely upon extension of this hyperemia, and if this process did not extend from one stitch to another, leakage would surely occur. If continuous and moderate pressure was made on two serous surfaces, sufficient injury would be done those surfaces to cause adhesions. This continuous pressure along the entire margin of an intestinal wound could be obtained only by the continuous suture, and not by the interrupted.

Discussion.—J. M. T. FINNEY (Baltimore, Md.) said that in his experience he found that there were certain technical difficulties to the end-to-end suture which were hard to overcome. For instance, at the mesenteric border it was difficult to obtain satisfactory union; there was so much likelihood that a leak would occur there that it had been his practice for the last two years to use almost exclusively lateral anastomosis, closing both ends. This gave more satisfactory union. He was an advocate of the interrupted suture. A. PALMER DUDLEY (New York City) stated that in his experience the use ef the continuous as against the interrupted suture had been followed by fairly good results in intestinal work. SAMUEL J. MIXTER (Boston) said when one was in a hurry the continuous suture was quicker. He emphasized the absolute necessity of everybody practising these operations on lower animals before beginning to do them on patients. This was a point that was not sufficiently recognized. Every new method should be tried on some of the lower animals. So far as his experience went, very little clamping was necessary, even if there was some leakage. He did not consider that there was any great danger from septic peritonitis following, because the peritoneum was able to stand a great deal of soiling without great damage, and it could be washed off without producing any ill-effect. This was likewise true of operations on the stomach.

Intestinal Obstruction.—DYER F. TALLEY (Birmingham, Alabama), said that the subject was one which could not be too frequently presented to the profession, and one with which it could never become too familiar. It was a condition which presented many difficulties in its early diagnosis, and it was a well-recognized fact that in acute cases the life of the patient depended on early recognition and prompt surgical intervention. There were two difficulties in the way of early operation: (1) It was hard to make a positive diagnosis in the first 24 hours; indeed, in some cases it was impossible to do so unless an exploratory laparotomy was made. (2) There was a tendency on the part of the patient, his friends, and also the physician, to wait until tomorrow and see what purgatives and enemas would accomplish. He reported eight cases of intestinal obstruction that had come under his care during the last 15 months.

Discussion.—GUY LEROY HUNNER (Baltimore) stated that from a large experience with hospital and private patients showing symptoms of intestinal obstruction he had come to the conclusion that he would rather err on the side of operating occasionally unnecessarily than to commit the error of not interfering and be too late. Cases were cited in point. SAMUEL J. MIXTER said that given a patient who had had intestinal obstruction for days and was in a very critical condition, he thought many of them could be saved if too much was not attempted, and the reason so many of these patients died was because surgeons attempted too much. Take a case of gangrene following intussusception, if a simple opening was made in the most distended loop of bowel, a tube tied in and the intestine drained, a later operation could be done and the patient probably saved, whereas, if one attempted to do a resection or a serious operation at the time, the patient would surely die. A. PALMER DUDLEY said that the surgeon was at a great disadvantage when he was called in to see a patient to whom morphin had been administered for the relief of pain, for the reason that it masked the symptoms. Peristalsis was arrested and the obstruction went on more rapidly. He had not given a dose of morphin in 15 years to any patient on whom he had performed an abdominal section.

A Review of One Thousand Operations for Gallstone Disease with Especial Reference to the Mortality.—WILLIAM J. and CHARLES H. MAYO (Rochester, Minn.), said that in 1,000 operations for gallstone disease there were 50 deaths—5%—counting as a death every patient operated upon who died in the hospital without regard to cause of death or length of time thereafter; 960 for benign disease, with 4.2% mortality. More than one procedure through a single incision, only the major was counted, therefore 101 cholecystostomies, and 44 cholecystectomies in connection with common duct operations were not included. Of 673 cases operated upon by cholecystostomy there was a mortality of 2.4%. This group included most of the acute infections. In no case did the stones reform in the gall bladder. This was the operation of choice in the average uncomplicated case, and especially if there was or had been cholangitis. Of cholecystectomy, there were 186 operations, with a mortality of 4.3%. This operation was employed for special indications, such as cystic duct obstruction, thick-walled gall bladders suspicious of malignant disease, and cholecystitis without calculi. There were 137 operations for stone in the common duct, with a mortality of 11%, 7% from the operation, and 4% from secondary complications after more than three weeks. Of the patients operated upon during the quiescent period, with little jaundice and slight infection, all recovered. There were four patients with extreme icterus from obstruction, who had subcutaneous hemorrhages at the time of operation (purpura). All of these died; four cases of complete biliary obstruction in which the common and hepatic ducts were filled with clear cystic fluid and no bile, all died. Including malignant disease, 14.6% of the total were of the common duct; 40 cases of malignant disease, with 22.5% mortality; two patients with cancer of the gall bladder now alive and well more than two years after operation; two additional favorable cases of more recent date. Of the remaining malignant cases, a few received marked palliation, but the majority were but little benefited.

Enterostomy.—J. W. LONG (Greensboro, N. C.) stated that the important measures to be accomplished were: 1. The drainage of gas and feces from the intestine. 2. In mechanical obstruction, relief of distention, pain, vomiting, and toxemia. 3. In septic conditions depletion of the inflamed bowel and peritoneum, overcoming intestinal paralysis and sepsis. 4. Protection of the peritoneum as in typhoid perforation. 5. Nourishment of the patient by making an artificial mouth. He drew the following conclusions: 1. Enterostomy is a lifesaving measure and never an operation of choice. 2. Enterostomy is not indicated where a more ideal surgical procedure is feasible. 3. In the hands of an experienced, carefully trained, competent surgeon, capable of dealing with grave emergencies, enterostomy need rarely be resorted to, but the better the surgeon the more quickly he will adopt any measure which will rescue his patient. 4. Every abdominal surgeon must, according to the abundance of his material, find cases in which only enterostomy can with propriety be done. 5. When an enterostomy is indicated, to hesitate is to lose the patient; to operate promptly, dextrously and with celerity means to tide the patient over the imminent peril and spare him for future consideration.

Discussion.—I. S. STONE (Washington, D. C.) said the essayist must have gotten hold of a number of very difficult and delayed cases for operation. He thought the idea of the essayist was simply this: That rather than let a patient die from obstruction, he would catch up a loop of bowel and make an artificial anus. This was the old-fashioned way of doing enterostomy, and the essayist got as good a mortality as most surgeons would have gotten under the same circumstances.

The Abuse of Purgatives before and after Abdominal Section.—I. S. STONE (Washington, D. C.). This paper will appear in a future issue of *American Medicine*.

[*To be continued.*]

Tobacco and Illicit Stills.—According to the annual report of John W. Yerkes, Commissioner of Internal Revenue, the number of illicit stills seized during the year was 1,018. Since 1897, in the seizure of 13,624 illicit stills, seven officers and employes have been killed, 18 wounded, and 7,008 persons arrested. The report says there were 673 cigar factories in Maryland, which produced 3,793,492 pounds of cigars, or 163,004,266 cigars of the three-pound variety and 184,832,290 of the smaller cigars. The Maryland cigaret factories, which are given as two in number, manufactured 44,000 of the larger cigarets and 10,000 of the smaller ones. The States showing the greatest production of little cigars (weighing less than three pounds per 1,000) are: Virginia, 238,578,750; Maryland, 184,832,290; New York, 152,817,681. New York, Virginia, Louisiana and North Carolina, in the order named, show the greatest production of cigarets weighing less than three pounds per 1,000. New York produced 2,130,258,699: Virginia, 773,475,640; Louisiana, 225,673,500; North Carolina, 76,029,350. New York State produced the greatest number of large cigarets, showing a production of 6,040,966. Missouri, North Carolina, Kentucky and Virginia, in the order named, were the largest producers of both chewing and smoking tobacco.

CLINICAL NOTES AND CORRESPONDENCE

[Communications are invited for this Department. The Editor is not responsible for the views advanced by any contributor.]

EPIDEMIC OF TYPHOID FEVER.

BY

F. ALAN G. MURRAY, M.D.,

of Mount Savage, Md.

On July 4, 1904, a woman with typhoid fever came to Mount Savage. She had been nursing a brother who died of the disease a few days before. On July 6, I had a trained nurse assume charge of the patient, and saw that all sanitary and disinfecting precautions were properly enforced. On July 11, about 20 men and boys came to my office complaining of diarrhea, pains in the abdomen, loss of appetite, headache, chills, fever, etc., all suspicious typhoid cases. On questioning these patients I discovered that they all drank from the same spring in the brickyard where they worked, and that in all about 150 men and boys drank from that spring.

Upon investigation I found that the drainage from the house, in which the woman was ill with typhoid, ran in the direction of this spring, the house being situated on a hill about 150 yards directly above the spring. I obtained samples of the water from the spring and sent them to the State bacteriologist, who found colon bacilli present. I also sent specimens of the water to the State chemist and he reported the water as being very bad. In the meantime I closed the spring and placarded the town telling everyone to boil all drinking water and use all sanitary precautions possible.

From July 11 to August 1 there was an average of about 4 new cases of typhoid a day, and during August about 6 new cases a week.

From September 1 to September 25 about 15 new cases developed, after this time none. In all there were about 145 cases. The population of the town is about 3,000. The Widal test which was made in a number of cases was positive. There were only 5 deaths during the epidemic.

A number of the cases was very mild, in fact, some patients never stayed in bed at all, but would work a day and then rest a day or two. The average time in bed for the most severe cases was about three weeks. There were very few complications in the epidemic. In the first case, that of the woman before referred to, there was acute nephritis, with many casts and much albumin in the urine, also a slight hemorrhage from the bowels. She recovered entirely. There were two other cases of hemorrhage from the bowels; both patients recovered. One patient had a relapse, but he recovered. In two cases of massive pneumonia of one lung, both patients recovered. In two cases of femoral phlebitis, both patients recovered. In one case of neuritis in both legs, the patient recovered. In two cases of perforation of the bowels, both patients died.

The causes of death in the 5 cases were: In 2 cases perforation of the bowels; in 1 case, that of a man of 73, a hypostatic congestion of the lungs developed, and he died; in 1 case, that of a man who was a drinker, the patient died in the third week of the disease, and 1 case was a very severe case of typhoid with fatal termination.

There was only one other woman beside the first patient with typhoid, and she drank water from the infected spring.

The age ranged from a baby of 2 years to a man of 73. All the patients had very much enlarged spleens, the spleen often coming down four fingers' breadth below the edge of the ribs, and being very tender. All the patients had large crops of rose spots. All had diarrhea, pains in the abdomen, coated tongues, headache, and backache. The epidemic lasted 10 weeks, and was mild in character.

Treatment consisted of liquid diet, cold sponging, calomel, 6 mg. ($\frac{1}{10}$ gr.) every four hours, and acetanilid comp. tablets every four or six hours, as occasion demanded. In about 10 cases I used acetozone, and found it acted very well, keeping the temperature down, and clearing the tongue and checking diarrhea. These cases were shortened about one week.

The town of Mount Savage is situated on three hills, with small streams running in the valleys between the hills. All the filth and refuse is dumped into these streams, and lies there until a very heavy rain comes and flushes the streams out.

There is no sewerage system in the town, and the water-supply is from springs in different parts of the town, and these springs are all open to surface drainage. I had the water from all the springs examined bacteriologically, and in most of them the colon bacilli were present. The water was also examined chemically, and was found badly polluted.

CARBOLIC ACID POISONING.

BY

A. SZWAJKART, M.D.,

of Chicago.

A child, six months of age, swallowed a teaspoonful of pure carbolic acid. My office being across the street, only about five minutes elapsed when I was called, and found the child unconscious and blue. I administered about three teaspoonfuls of common vinegar and the little patient vomited freely. After that I gave a pint of warm milk in short intervals. The child made a perfect recovery and there were no after-effects.

The foregoing treatment was a result of my own personal experience. I attended a family in which three children were sick with scarlet fever and diphtheria. On my way home I passed a drug store and asked the clerk to put some carbolic water (2%) upon my hands. As I washed my hands with the supposed solution, I felt some oily substance, and discovered that the clerk had used concentrated carbolic acid instead of carbolic water. I called immediately for vinegar, washed my hands with it, then washed them with water, and no trace whatsoever of the carbolic acid burn remained.

ABSENCE OF THE VERMIFORM APPENDIX.

BY

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of Philadelphia.

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The specimen was obtained in the University of Pennsylvania anatomic room. The subject was a woman about 60. There were no scars on the abdomen or back and no peritoneal adhesions. The cecum was examined in situ and no appendix was found. After removal of the cecum with the lower part of the ileum, the peritoneum was dissected away so as to obviate the possibility of the appendix existing subperitoneally.

On looking over the literature, I was able to obtain notes of six authentic cases.

Dr. Thomas Dwight and Dr. John Guiteras have each seen one case; Dr. E. Fawcet,[1] two cases; Dr. Ferguson,[2] one case; Dr. John M. Swan,[3] one case.

Our Pharmacy Laws.—The *New York Times*, commenting editorially on this subject, says: The kind of changes needed in the pharmacy laws of New York is quite different from those likely to be suggested and urged by the representatives of the drug trade now in session at Albany. What is needed to redeem the business from the low estate into which it has fallen is a movement among self-respecting and honest druggists to put a stop to the thousand expedients to which the unprincipled and dishonest pharmacist has recourse for gain. The recent seizure in this city of great quantities of harmful drugs put up in cheap imitation of valuable and relatively costly pharmaceutic preparations shows that fraud is practised at the dispensing counter to an extent which should shock the moral sense of the community. It would look as if the druggists were afraid of the consequences of attacking this great evil. Some time it will be attacked from the outside in sledge-hammer fashion, and when this happens the business will be less interesting than many find it who are now engaged in it. Should this revolution begin by legislation putting a stop to the sale of narcotic poisons to the victims of morally and physically destructive drug habits, it would have a powerful support from organizations which usually accomplish what they undertake.

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[1] Journal of Anatomy and Physiology, 1900-01.
[2] American Journal of the Medical Sciences, January, 1891.
[3] University of Pennsylvania Medical Bulletin, December, 1895.

ORIGINAL ARTICLES

IDEAL METHOD OF REMOVING THE VERMIFORM APPENDIX.*

BY

HOWARD A. KELLY, M.D.,

of Baltimore, Md.

It would scarcely seem probable, in advance of a knowledge of the facts, that more than one or two methods could be devised for the removal of so small an organ as the appendix, and one so simple in its anatomical relations. A survey of the subject shows, however, that such presumptive reasoning leads us far astray, and demonstrates at the same time that the evolution of appendicitis as a surgical affection has been largely associated with the introduction of the numerous operative procedures devised for the extirpation of the organ.

The different operations for the removal of the appendix are of interest because, in the first place, they illustrate the evolution of a most important field in surgical technic, and in the second place, because we find in this microcosm, tiny as it is, an apt illustration of the tendency innate in all operators to individualize methods, and to modify to such an extent the proposals of others that each man finally feels himself justified in publishing and advocating "my operation" as the one best adapted to the purpose. I note this fact not in a vein of sarcasm nor for the purpose of condemnation, but simply by way of comment, and in order to point out one of the avenues by which surgery progresses. The study of these various operative procedures upon the appendix is further interesting because it affords evidence of the extent to which a small, and at first sight unpromising field can be developed by patient, persistent attention. The truth of this statement will be appreciated when I say that small as my present subject is, I cannot here pretend to cover its entire ground or to describe all the various operations now in use.

Disease of the appendix was first observed and reported about the middle of the eighteenth century, but it was something like seventy-five years after its discovery, before it was admitted to a definite nosological position, and even after the clear descriptions of Louyer-Villermay and the well-founded theories of Mélier, appearing in the second decade of the last century, clinicians were far from appreciating its real significance and relations. Any advance in knowledge regarding the contents of this veritable Pandora's box of ills was, in fact, retarded by two unfortunate circumstances. One of these was the crushing weight of the authority of the great French surgeon, Dupuytren, who disbelieved in the possibility of any connection between the appendix and the common phlegmonous tumors in the right iliac fossa with which the surgeons of his period were much occupied; the other was the invention by Puchelt, of Germany, and his student Goldbeck, of that convenient but misleading term "perityphlitis" which diverted medical thought into false channels, where it was led farther astray by other, later misnomers, all associated with the *tuphlon* or cecum.

From the obscurity of half a century of misconception, and from the quagmire of perityphlitis, typhlitis, and tuphlo-enteritis, our subject was first brought into the clear light of day and established on a firm basis in 1888, by Reginald Fitz, of Boston.

Since the appearance of Fitz's paper, the labors of some of our best surgeons, men whose names would have but to be mentioned to evoke applause, have been steadily directed to the establishment of appendicitis as a surgical disease, and to the perfection of means applied for its relief.

I propose now to refer briefly to a variety of methods devised for the removal of the appendix, confining myself to this single phase of the subject, and saying nothing of the various incisions which have been employed for reaching it, nor of the different plans for treating its complicated conditions.

The appendix was first removed in an operation undertaken for the purpose by R. U. Krönlein, of Germany, on February 14, 1884, and the case was reported some two years later in Langenbeck's Archives, in an article on the operative treatment of suppurative peritonitis. Krönlein dealt with the appendix after the simplest manner possible, by opening the abscess in which it lay, doubly ligating it near its base, and then amputating it. The abdomen was closed without drainage, and the patient died in about 24 hours.

Robert J. Hall, of New York, the next operator, removed the appendix at the Roosevelt Hospital, on May 8, 1886, and reported the case in the *New York Medical Journal* for June 12, 1886. Hall discovered a perforated appendix incidentally during the course of an operation for an incarcerated strangulated hernia, and after tying the organ at its base with catgut, he simply cut it off. He takes pains to remark, however, that he did not bring the serous coat over the mucous surface, because he wished to avoid spending unnecessary time. He used abundant drainage, and the patient's life was saved.

Thomas G. Morton, of Philadelphia, operated, on April 27, 1887. In this instance, also, an abscess was evacuated, the appendix tied off at the base by a silk ligature, and amputated close to the cecum. Drainage was employed, and the patient recovered rapidly. This is the first successful operation for removal of the appendix in a case of "perityphlitis." I speak from personal recollection and association when I say that Morton's interest in this subject was a consuming one, and that he labored earnestly to introduce the operation in Philadelphia, at the expense of being considered a crank by many of his associates. His lineal successor and able follower in Philadelphia is John B. Deaver.

Sir Frederick Treves operated on February 16, 1887, on a man with a globular swelling occupying the right iliac fossa. He says: "I had intended to remove the appendix, but it at once became straight on cutting away the omentum." The operation, therefore, terminated as an orthopedic one. Treves remarks at the close of his report: "In the majority of cases it would probably be wiser to remove the appendix.

"If this is done, as much care must be taken to close the divided end of the tube as would be taken to close a hole in the small intestine. A mere ligature would not be safe. Two sutures would suffice to bring the mucous membrane together, and the peritoneum should then be adjusted over this line of union by several points of Lembert sutures."

Treves was actually the first to suture the peritoneal coat over the mucosa, the case being reported in *The Lancet*, February 19, 1889. His ideas regarding the treatment of the stump are given in an article entitled, "A discussion on the surgical treatment of typhlitis" in the *British Medical Journal*, for November 9, 1889, where he says: "The appendix should not be secured by simple ligature. The mucous membrane should be united by many fine sutures, or by continuous suture; then the divided outer walls of the process should be brought together by a second row of sutures; it is practically impossible to bring the serous coat together; to secure still farther the orifice, the stump of the appendix might be lightly attached to any adjacent surface of the peritoneum."

In considering the methods adopted in dealing with these early cases two things ought to be borne in mind, first, that suppuration had taken place, and when the appendix was simply ligated and cut off, the infected stump always remained as a part of a generally infected area; second, as soon as surgeons began to deal with chronic forms of appendicitis and to perform the interval operation advocated by Treves,[1] they at once had before them as patterns the methods already adopted in dealing with wounds of other portions of the intestine, that is to say, the muscular and sero-serous sutures.

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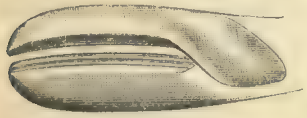
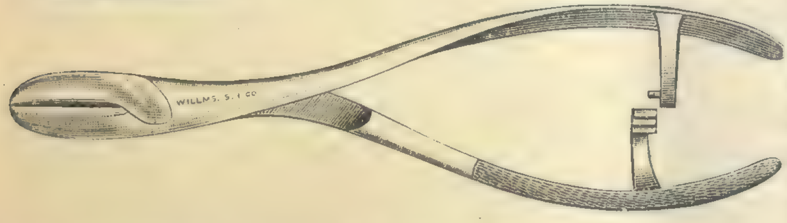
*Address delivered November, 4, 1904, to the Surgical Section of the Medical and Chirurgical Faculty of Baltimore.

Henry B. Sands,[2] the next operator, made an incision 4 inches long over the colon, afterward extending it at its lower end parallel to Poupart's ligament, and opening an abscess containing gas as well as pus. A fecal concretion was picked out of an opening in the appendix near its base, after which the margins of the opening were trimmed off with scissors and brought together with three interrupted silk sutures; a serous suture could not be used on account of the rigidity of the organ. An iodoform gauze drain was inserted and the patient speedily recovered. Sands performed this operation on several other occasions not published, and insisted strongly upon the necessity for it in his teaching. In New York, McBurney, Bull, Weir and Abbé have followed in his footsteps.

N. Senn,[3] who opened up this new field of surgery for Chicago and the West, appears to have been the first person in this country to adopt the now universally approved practice of covering in the stump of the appendix with the adjacent peritoneum.[3] He operated, on May 1, 1889, upon a man, 22 years old. The appendix was ligated near the cecum with a silk ligature and amputated about one-fourth of an inch below (distal to) the point of ligation. He says: "I deemed it necessary to prevent the possibility of a subsequent perforation from cutting through the ligature by covering the stump with peritoneum. The stump was disinfected, dusted with iodoform, and buried by stitching the peritoneum on each side over it with a number of stitches of the continuous suture." In a critique at the end of the article, he remarks: "After amputating the appendix, it has heretofore been customary to drop the stump without making any provision against the possibility of perforation subsequently taking place at the point of ligation. This I consider a great mistake . . . to obviate the possibility of such an occurrence the stump . . . should be covered with peritoneum by stitching the serous surfaces of the cecum from both sides over it by means of a number of Lembert sutures." He again emphasizes this point in his conclusions.





G. R. Fowler[4] first advocated the plan of forming a cuff of the serous and subserous tissues and then turning it back, thus allowing the amputation of the muscular and mucous coats at a level close to the cecum. At the same time he adopted the plan of sterilizing the exposed mucosa with the thermo-cautery or with fuming nitric acid, after which the cuff is turned back over the stump and the whole inverted and buried in the cecum by means of a double row of Lembert sutures.

R. M. H. Dawbarn[5] introduced the method of inverting the stump by first amputating the appendix about a third of an inch from the cecum, then enlarging its lumen by stretching it with a pair of mouse-toothed forceps, and grasping the free end, invaginating it so as to turn the outside within. The orifice is then closed by tightening a circular suture, previously laid around the base of the appendix.

G. E. Edebohls[6] describes the curious plan of inverting the entire unopened appendix into the cecum and then closing the peritoneal orifice by a suture. By this method the mucous lining turned into the cecum becomes its external coat and its former serous covering lines the lumen. Dr. Edebohls is so pleased with this scheme that he says: "Inversion of the normal appendix is so simple and easy a matter, and withal so devoid of danger, that the writer is prepared to go a step farther and advocate inversion of the normal appendix whenever for any reason the abdomen is opened, provided the site or length of the abdominal incision renders the appendix easily accessible."

J. B. Deaver[7] describes a method of amputating the appendix by cutting it completely out of the cecum with curved scissors and then closing the resulting wound in the cecum in the same manner as intestinal wounds elsewhere. Dawbarn includes this method among a number published by him in 1895, but I do not know who is its originator.

A. J. C. Skene, of Brooklyn, is, I believe, the first person who advocated the application of the thermo-cautery to the base of the appendix for the purpose of securing a thorough cooking of the tissues before they are divided and the stump inverted. This method has been ably followed up by Alexander Downes, who has introduced far better instruments, both for crushing as well as for more rapid cauterization.

In the evolution of the technic illustrated by these few methods, collected almost at random, there are three principal objects: (1) To remove the appendix without contaminating the surrounding peritoneum with any of the bacterial flora, which are often virulently infectious and always abound on its mucous surface; (2) to treat the mucosa in such a manner as to prevent any contamination while closing the opening into the bowel made by the amputation; and (3) to dispose of the stump so as to avoid any risk of infection after the closure. The ideal plan is one which meets all these indications in the simplest manner and is, at the same time, applicable to the largest number of cases. These indications are met by Skene's method, in which he uses the electro-thermic forceps, manufactured by Pignolet, of Brooklyn, and by that of Downes, who has produced a thoroughly practical electro-thermic angiotribe. The use of these instruments, however, is attended with some difficulties, inasmuch as they must necessarily be limited to the armamentarium of the specialist, they are expensive, the apparatus is delicate, an electric current of exactly the right character and voltage is indispensable, and the current must be available when it is wanted.

I have endeavored to avoid these difficulties, and at the same time meet the specified indications by devising a pair of crushing forceps with longitudinal grooves on the crushing surface and a bevel above, as shown in the figure. When this forceps is applied, it requires a force of from 25 to 40 pounds to lock the blades on the appendix, and a force of about 60 pounds to release them after the appendix has been cauterized. The only other special instrument required is the ordinary Paquelin cautery. The method of operation is as follows: The appendix is exposed, and the mesappendix is tied off. A circular suture of fine silk is then laid around its base, about a centimeter distant, but not drawn up. The appendix is then grasped at its base with the forceps and crushed, while just beyond the forceps (distally) it is seized with an ordinary artery forceps to prevent the escape of its contents. Paquelin's cautery is now used to amputate the appendix between the two forceps, when it is laid aside in the grasp of the artery forceps. The crushing forceps, which is now to be converted into a cooking, sterilizing, sealing iron, is carefully isolated by tucking dry gauze under each blade, so as to lift the end of the forceps up on a cone, away from all contact with the cecum. The next step, which is the most important one, is to keep the red-hot point of the cautery slowly travelling up and down the groove in the crushing forceps for from 40 to 60 seconds, so as to burn off every vestige of the stump, and at the same time to heat the forceps so thoroughly that the narrow ribbon of crushed appendix in its grasp becomes converted into a translucent gristle-like substance, in which the lumen of the appendix is completely destroyed. The lumen is so effectually obliterated that it never gapes. The final step is the tightening of the purse-string suture, and the inversion of the cooked base, after which the serosa is carefully united over the whole with another row of fine silk sutures. I have cut off a little piece of the cooked tissue in seven cases, and dropped it into a test-tube containing an agar medium, and in but one case was any growth obtained.

The advantages of this method are:

Its perfect simplicity.

There is at no time any exposure of the infected mucosa.

The stump is not ligated or bruised, and thus left as a culture medium for whatever organisms may have lain in it.

The appendix is amputated with the cautery and the proximal portion is sterilized and effectively sealed.

The inverting sutures are then applied over an area as free from contamination as the rest of the peritoneal cavity.

The time consumed is about six minutes in all; not more, I think hardly as much, as in most of the methods of removal now in vogue.

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TUBERCULOSIS OF THE KIDNEY, URETER AND BLADDER.

BY

J. M. BALDY, M.D.,

AND

EDWARD A. SCHUMANN, M.D.

of Philadelphia.

Tuberculosis of the female urinary tract is a condition presenting many features of interest. In the case reported below the points to be chiefly noted are the absence of symptoms of kidney involvement; the question as to whether the process was primary in the bladder with an ascending infection or *vice versa* and the marked similarity between the thickened and tortuous ureter and an inflammatory tubal mass.

The case was that of a young girl of 24 who was admitted to Dr. Baldy's service at the Gynecean Hospital complaining of some abdominal trouble.

The patient's family history was not relevant, in her past history she stated she was never very strong but had had no severe illness. Menstruation was established at 16, was always scant and recurred at irregular intervals but was not associated with dysmenorrhea. She has never suffered with chronic cough or winter colds.

The present illness began in December, 1902, with a dull heavy pain in right iliac fossa, though previous to this date she had noted some increased frequency in micturition. The iliac pain became progressively worse, backache and headache with bearing down sensations developed. There was at this time marked frequency of micturition with burning pain in the bladder region before and after the act. The urine was diminished in quantity and sometimes contained blood. She had occasional attacks of sharp lancinating pain in the right iliac fossa, low down in the ovarian region, suffered much from nervous symptoms and dyspnea and began to lose weight. There was great pain in both legs almost constantly. The bowels were uniformly regular; upon physical examination the patient was found to be an anemic and slender girl. The heart was normal in all respects; lungs were uniformly resonant upon percussion. The respiratory murmur was clear and vesicular except at the left apex anteriorly where the expiration was somewhat harsh and prolonged. Pelvic examination revealed a multiparous birth cánal, a slight laceration of the perineum and cervix. The uterus was of normal size, forward in good position. Upon the right side was a somewhat tender, dense mass presenting all the features of a chronic adherent pyosalpinx.

The mass extended apparently from the uterine cornua to the lateral region of the pelvis and was diagnosed as tubal in composition. The left tube and ovary were negative.

The urine was alkaline, contained a small amount of albumin, no casts, but considerable pus and epithelial debris; no blood, but tubercle bacilli were present. A diagnosis of tuberculous cystitis, with probable tuberculous salpingitis, was made, and the patient prepared for operation.

Operation was performed by Dr. Baldy. A median incision revealed normal tubes and ovaries on both sides. The mass in the right was a much thickened and distorted ureter running almost at right angles to its normal course and closely simulating an enlarged and adherent tube. With this ureteral condition in evidence the median incision was extended up toward the umbilicus and carried diagonally over the loin, ending immediately over the kidney. The kidney was only too evidently involved.

Through this incision the right kidney and ureter down to its vesical insertion were removed. The ureter was densely adherent throughout its whole course. The left kidney was first carefully palpated and with its ureter was normal so far as could be learned by gross examination. The abdominal wound healed by first intention and the patient made an uneventful operative recovery.

The cystitis, however, proved intractable, the bladder being studded with diffuse ulcers, revealed by cystoscopic examination.

The pathologic report, made by Dr. G. Canby Robinson, of the Ayer Clinical Laboratory, details a kidney of normal size, firm in consistency and of a grayish-brown color. The capsule is thickened and strips fairly easily, leaving a roughened pinkish surface. On section the cut surface is covered with thin yellow pus, with occasional abscess cavities 5 mm. to 10 mm. in diameter, and especially numerous in the medulla. The calices are filled with pus; microscopically examined, scarcely any kidney tissue can be made out, it being almost entirely replaced by connective-tissue proliferation.

A small number of giant cells are diffusely scattered about the section. These are in places surrounded by definite epithelioid cells and definite tubercles, surrounded by marked round-cell infiltration. In a few areas caseation has taken place.

The ureter is extremely thickened, measuring 8 mm. in diameter. The surface is covered by many dense adhesions. The mucous membrane is softened and has a yellow caseous appearance. Many tubercle bacilli were found in the pus by Gabbet's stain. Microscopically the wall of the ureter is greatly thickened. There is a marked proliferation of connective tissue through which there is a diffuse infiltration of small round cells. In one area a definite tubercle with two giant cells is seen. In other areas there is a definite growth of epithelioid cells, and several structures closely resembling giant cells are present.

In a somewhat hurried survey of the literature upon this subject, few cases of complete nephroureterectomy are found. Bovée[1] reports two cases of his own, and quotes 15 other operations of the same nature. Since this report Hunner[2] has reported 11 additional cases. Kapsammer[3] publishes two cases, but does not state definitely that complete nephroureterectomy was done.

Considering, then, the 29 fully reported cases, it is found that tuberculosis was the indication for operation in 26 of them. In the other three, papillomatous tumor of the vesical end of the ureter, hydronephrosis, and hydroureter, and calculous pyonephrosis, and pyoureter were the causes leading to operation. Whether the complete operation is indicated in tuberculous ureter, is still an open question. Bovée states that, providing the infection is an ascending one, there can be no doubt that complete removal is the procedure of election. On the other hand, if the process be a descending one without much involvement of the vesical portion of the ureter, a better chance for conservatism is afforded. It would seem that in view of the difficulty of positively determining the direction of tissue invasion by the tuberculous process, and since the remnant of ureter left subserves no useful function, but may, by becoming more involved in the disease, be a source of danger; that the radical, complete nephroureterectomy is the operation of choice in all tuberculous cases. In extreme conditions, a portion of the bladder wall may have to be excised, but this adds to the gravity of the operation and is necessary only in a small percentage of the cases. The advisability of operations in those cases in which both kidneys are affected, is a question which only careful study of the individual case can decide. While it is maintained by some that no radical procedure should be instituted unless one kidney is sound, the consensus of opinion is that when there is a marked difference in the functionating value of the two kidneys, it is justifiable to remove the badly diseased organ with the idea of arresting the general toxemia resulting from the retention of a large mass of infected tissue, in the hope that the disease may become latent or very chronic in the remaining kidney. It is obvious that should both kidneys be the seat of an advanced inflammation, no radical treatment is permissible. Simple nephrotomy, with evacuation of pus, and drainage, is the most that can be done.

The technic of the operation varies greatly with different surgeons; Kelly, who performed the first complete nephroureterectomy, used the extraperitoneal route exclusively in his earlier operations. The incision averaged about 18 inches in length, extending from the lumbar region around the loin, and practically quartering the patient. In his later work Kelly used two short incisions, one in the lumbar region exposing the kidney, and the ureter incision parallel to and about 5 cm. above Poupart's ligament, beginning about opposite the anterior superior spine of the ilium, and ending near the sheath of the rectus.

Bovée advocates the combined vaginal and lumbar route in all cases in which complete nephroureterectomy has been previously determined upon. In the case here reported the intraperitoneal route was a necessity since the abdomen had been opened in the expectation of finding a tuberculous pyosalpinx. The operation was so readily performed through the incision that in a future case a similar incision would be chosen; in this case there was nothing left to be desired, and the multiple incisions seem superfluous.

The results of complete nephroureterectomy have been uniformly good in those cases in which the remaining kidney was sound or very slightly diseased. In the cases in which both kidneys are markedly involved there is obviously little hope for recovery. Of the 29 cases here collected, two patients have died. These were undoubtedly severe cases in which both kidneys were affected. Our own patient, six months after operation is still suffering from cystitis, but is gaining in weight, and shows no evidence of kidney insufficiency or of any septicemia, and this in spite of the fact that she has married and is living a marital life (under protest from us). Whether, under these circumstances, the bladder tuberculosis can be cured is doubtful, although all trace of tubercle bacilli have disappeared from the urine.

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The Law of France and Surgeons' Fees.—*Il Policlinico*, of Rome, commenting editorially on a judgment of a court in France, concerning the suit of a Belgian physician to recover his fee which he claimed because of services rendered to a citizen of France, says: It is worthy of note that the law in France is not broken if a foreigner called temporarily in consultation should prescribe, or operate. In this case it concerned a foreigner not licensed to practise medicine, but nevertheless doing so; the suit could not lie because it involved a question of advantage to be gained in the committal of a crime under the law. The judgment is right in protecting the numerous law-abiding members of the profession, who would suffer if the mere name and fame of a foreigner were permitted to outweigh regular and proper restrictions.

PRIMARY SARCOMA OF THE STOMACH: A REPORT OF THREE CASES.*

BY

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The recorded cases of sarcoma of the stomach were reviewed and a complete bibliography given, in an article on "Primary Sarcoma of the Esophagus and Stomach," by Dr. W. T. Howard, Jr., in the *Journal of the American Medical Association*, February 8, 1902. It is my purpose in the present article to report three additional cases which have occurred in the last two years in the various services associated with the pathologic department of Western Reserve University.

CASE I.—W. D., male, aged 44, was admitted to Lakeside Hospital, October 25, 1902. Two years previous he had severe cramps while in bathing, followed by nausea and vomiting on coming out of the water, and by profuse diarrhea on the following morning. The pain, which was situated in the left inguinal region, frequently recurred, especially mornings, and would persist for two or three hours. The attacks gradually became more severe, in spite of various methods of treatment, which included an attempt by an osteopath, who withheld anodynes and used vigorous massage in the painful area. In September, 1902, a consultation was held and the diagnosis of tumor, probably sarcoma, of the spleen was made. At the time of admission to the hospital the patient complained of great exhaustion and inability to sleep on account of pain. His appetite was good and his bowels were somewhat constipated. The physical examination showed a slight increase in the area of cardiac dulness and a systolic murmur at the apex, and there was a hard nodular mass in the neighborhood of the spleen. Otherwise the examination was negative. An operation was not thought advisable and he was discharged November 10. He grew progressively worse and died in December, 1902.

At the autopsy, Dr. H. C. Bliss, to whom I am indebted for the notes of the case, found a flat tumor about 12 cm. in length, 8 cm. in breadth, and 3 cm. in thickness, situated along the posterior surface of the stomach, toward the cardiac end. The other organs, including the spleen, were of normal size and appearance. There were no metastases. Portions of the gastric tumor were sent to the laboratory for diagnosis.

On microscopic examination, the tumor was very cellular, consisting chiefly of large round cells with deeply staining nuclei. There was very little suggestion of alveolar arrangement, and everywhere the interlacing fibers of connective tissue could be readily seen in sections stained by Mallory's method for connective tissue. The mucosa of the stomach showed marked infiltration of the stroma, with cells apparently of the same character as those of the tumor. In places there were definite small areas of these cells lying near the muscularis mucosæ. In most places, however, the mucosa was sharply separated from the tumor by a marked increase of fibrous tissue. There was no evidence of glandular or liver metastases.

Microscopic Diagnosis.—Round-celled sarcoma of the stomach.

CASE II.—E. R., female, aged 44; was a patient of Dr. R. H. Sunkle, to whom I am indebted for the clinical history and for the autopsy.

Family History.—Her father died at the age of 88. He had had a "cancer of the lip" at 22, which "had been eaten out with medicines."

Of a family of 19, a half-sister died at 67 with a cancer of the pylorus, and another half-sister died at 44 with a cancer of the cardiac end of the stomach.

Personal History.—The present trouble began in November, 1901, with a burning sensation in the stomach, vomiting and diarrhea. These would last from one to three days, and then the patient would be comparatively well for from one to five weeks. She found that certain articles of food, such as fresh vegetables, especially tomatoes, would almost certainly cause an attack.

Dr. Sunkle was called in April, 1902, and the diagnosis of malignant disease of the pylorus was made. This was confirmed by Dr. F. E. Bunts, who performed a gastroenterostomy, July 16, 1902, using a Murphy button. The patient was much improved by the operation, but finally the attacks began to recur and became more frequent until death, which occurred December 14, 1903, a year and a half after the operation.

Permission for the autopsy was limited to the removal of any tumor or adherent structure which might be found. The body was greatly emaciated. The lower abdomen was somewhat distended and fluctuant, as if fluid were present, but this condition did not extend to the umbilicus, and was not present at the sides. The upper portion of the abdomen was retracted and the surface irregular. About an inch above the umbilicus was the scar of the gastroenterostomy incision, and between this and the umbilicus, and for an area about three inches in diameter around them, the abdominal wall was very dense and nodular, and the overlying skin was firmly adherent to it.

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On opening the abdomen a tumor of the pylorus was found extending 11 cm. along the entire length of the lesser curvature of the stomach, and 5 cm. in thickness at the pylorus where it extended to, and was adherent to the operative incision, and gradually tapering to the normal thickness of the stomach at the cardia. The pylorus was completely occluded, and the upper half of the edge of the gastroenterostomy opening was dense and hard, and in direct continuity with the tumor. This opening was 16 mm. in diameter. Extending downward from the lesser curvature for a distance of about 25 mm. on each side, the peritoneal surface was studded with small nodules slightly raised above the surface, and varying from a confluent mass nearest the tumor to isolated points the size of a pin head. On opening the stomach the Murphy button was found within, blackened, but still smooth. The mucosa was congested, and there were a few places from 5 mm. to 20 mm. in diameter, of acute active congestion, but there were no erosions or ulcerations present. Aside from this congestion the mucosa was normal, and there was nothing to distinguish that portion lying directly over the tumor from that of other parts of the stomach.

The liver showed no metastases, but the portal vein was surrounded for some distance by an extension of the tumor which had advanced by direct continuity of tissue. There were no glandular metastases. The ovaries were the seat of large cystic tumors, the right measuring 22 x 13 x 7 cm., and the left 17 x 12 x 8 cm. These accounted for the fulness and fluctuation observed in the lower abdomen. The uterus and tubes were normal. The other organs, on account of the limitations of the autopsy, were not removed, and so far as it was possible to examine them, showed nothing abnormal.

On microscopic examination of sections made from various parts of the tumor, it was in most places very fibrous, in others more cellular. The cellular elements consisted almost entirely of large cells with large vesicular nuclei. These were arranged in irregular spaces, separated by strands of connective tissue, small fibrils of which could be seen in sections stained by Mallory's connective-tissue stain to form a fine network between the individual cells. In other places lymph-vessels were filled with the same type of cells. In the more fibrous portions of the tumor there were numerous dilated lymph-vessels with proliferated endothelium. The mucosa in all these sections was fairly normal, except that numbers of these large (endothelial) cells had broken through the muscularis mucosæ and had infiltrated the stroma. There were no glandular or liver metastases, but the portal spaces were increased in size and filled by a tissue exactly similar to the more fibrous portions of the tumor. The outline between this tumor substance and the living tissue proper was everywhere clearly marked and there was no infiltration of the liver tissue with any of the large cells of the tumor. From the sections examined the tumor apparently arose by a proliferation of the endothelium of the lymph-vessels in the submucosa and advanced by direct extension along the lymph channels. There was nowhere any involvement of epithelial structures, no alveolar arrangement, no lymph-gland or liver metastases to suggest an epithelial origin for the tumors. On the other hand, the large cells with large vesicular nuclei were not the cells of the ordinary sarcoma and the dilated vessels with proliferated endothelium were in no case seen to contain blood.

Microscopic Diagnosis.—Primary lymph endothelioma of the pylorus.

It is interesting to note in connection with this case that of the 61 cases analyzed by Dr. Howard, 16 were at the pyloric end, only five caused stenosis, and only one case was an endothelioma. This was reported by Jungman [1], and was described as a nodular tumor the size of a child's head. The mucosa was intact and the lumen of the stomach was encroached upon especially at the pylorus. The clinical history was not given.

Case III.—The details of this case are furnished me by Dr. C. D. Selby, Resident Pathologist at St. Alexis Hospital, and my thanks are due to Dr. George W. Crile for permission to report the case in connection with the others.

C. B., female, aged 50, who had been referred to Dr. Crile by Dr. Morris of Akron, O., was admitted to St. Alexis Hospital January 12, 1904. The family and previous personal history are of no interest in this connection.

The present illness began about one year previous to admission, with a feeling of weakness and strain at the right side under the costal border. In October, 1903, the patient had a severe attack of pain at the same point. This lasted about 24 hours, and gradually became less severe and left but slight tenderness. The patient did not vomit and had no fever, but had several chills. The pain was never referred to the shoulders but through to the small of the back and occasionally to the right shoulder-blade. There was no jaundice. A week before admission the area under the right costal margin became very tender but there was no acute pain. The appetite remained good throughout.

The physical examination showed a mass 8 cm. by 5 cm. in the right hypochondrium, dull to percussion, and freely movable. The stomach analysis, after a test-breakfast, gave: Total contents, 300 cc.; free HCl, absent; total acidity, 0.25%; no lactic acid. A diagnosis of malignant tumor of the stomach was made, and a resection was done by Dr. Crile, January 16, 1904.

At operation a tumor was found involving the lesser curvature of the stomach and projected upward and backward under the gastrohepatic omentum. The surface of the tumor was smooth, and very dark in color, The mucosa overlying the growth was indurated and thinner than normal, but apparently not involved. On section the tumor was cystic, very soft, and vascular, except in one point near the stomach, where it was hard and pale. The diagnosis of sarcoma was made at the operation. On microscopic examination the tumor consisted of a large amount of connective tissue, with loosely interwoven fibrils and rather large cells of the connective-tissue type, lying in the interspaces. There were numbers of giant cells present, and the bloodvessels were numerous. The mucosa showed great increase of connective tissue, and there was no sharp demarcation between the fibrous tissue and that of the mucosa, but the cellular elements of the tumor did not extend into the mucosa.

Microscopic Diagnosis.—Giant-celled sarcoma.

Since the analysis of the 61 cases by Dr. Howard, in 1902, in addition to the three cases here described, I have been able to find record of five other undoubted primary sarcomas of the stomach, making a total of 69 cases.

Bird,[2] of Melbourne, reports a case in a male, 41 years of age, involving the pyloric antrum and a portion of the anterior wall of the greater curvature. Alessandri,[3] describes a spindle-celled sarcoma of the greater curvature, imbedded between the leaves of the gastrocolic ligament and bound fast to the transverse colon. There were no gastric symptoms. The probable diagnosis of splenic tumor was made. Sections stained by Mallory's connective-tissue method showed the interlacing fibrils of connective tissue. Morton [4] refers to a round-celled sarcoma involving the pylorus and duodenum. McCrae [5] reports a large growth, presumably primary, in the stomach, situated in the posterior wall toward the pylorus with metastatic growths in the chain of lymph-glands from the stomach to the thyroid and involving the latter, which is also the seat of an adenoma, and also involving the lung. Microscopically the tumor was a small round-celled sarcoma and the connective-tissue reticulum was demonstrated by special stains. The pylorus was stenosed but not directly involved. Ehrenderfer [6] gives an account of a case with no gastric symptoms except loss of appetite, in which there was a large tumor projecting to the pelvis. The diagnosis of ovarian tumor was made and at operation a tumor was found springing from the lesser curvature of the stomach several inches from the pylorus. The microscopic diagnosis was fibrosarcoma.

These five cases with the three here reported added to the list reported in Dr. Howard's article give a total of 69 cases recorded.

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THE REFLEXES IN THE DIAGNOSIS OF NERVE LESIONS, DUE TO TRAUMA.

BY

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The examination of litigants in personal injury suits against railroads and other corporations need differ from that given to other patients in only one respect; even greater care and thoroughness should be given to the examination of such patients, so as to accord to all of their symptoms, both objective and subjective, due weight, without prejudice in favor of either party. It behooves us as witnesses to make clear and positive the things we know, and realizing freely to admit those things that are uncertain. In this way alone can we do justice to both parties. The question of the reality of the symptoms is one which will invariably be put to the medical witness, and the full study of the objective signs of impairment of nerve function is of the first importance. A consideration of all these signs is not possible in the limits of the present paper, and I have, therefore, thought it best to limit my remarks to a few simple observations on the reflexes. In the matter of objectivity, the reflexes are well in the lead. They are not as readily simulated as are either paralysis, anesthesia, or spinal tenderness.

It is necessary in the first place to bear in mind variations in mode of response between different persons in health, and such variation is often lost sight of. Nothing is commoner than to hear physicians testify that lively knee-jerks mean nervous impairment, when a similar reaction may be found in a fair proportion of their associates and friends in the full tide of health. It should be set down as an axiom that very lively knee-jerks are common in health, as well as in neurasthenia and hysteria, and signify an organic lesion only when they are associated with true ankle-clonus and other signs of nerve injury or disease.

Absence of the knee-jerks is another matter. In my experience they are absent only in disease, although some authorities have failed to find them in one out of 500 patients whom they considered healthy. Only extended observation, however, could make it sure that the exceptional one in 500 had not had a recent masked diphtheria, or was not in the early stages of tabes or diabetes. It is not yet proved that the knee-jerks are ever absent in health.

Without the familiar test by reenforcement a failure to find the knee-jerks means nothing. Even a lively jerk may remain latent on casual tapping of the patellar tendon, but will invariably appear if the patient with closed eyes clasps his hands and pulls vigorously.

Slight differences in the vigor of response on the two sides are often thought an indication of disease. They usually mean nothing more than that the conditions of the test have slightly varied. Another trial will commonly disclose the fallacy.

The achilles jerk is quite as important as the knee-jerk, but has only recently been studied. Have the patient kneel on a chair with his arms over the back of it. Then tap the achilles tendon with a small hammer. The muscle, on the stretch from the weight of the foot, responds promptly, and the foot is extended by the action of the calf muscles. The loss of this reflex is an early and important sign of tabes; its retention means the integrity of the reflex arc of the sacral enlargement of the spinal cord. It should never be overlooked.

A noteworthy addition to our stock of diagnostic knowledge is the Babinski reflex, a variation of the familiar plantar reflex. In the normal adult, scratching the sole of the foot results in a flexion of the toes, that is, a curling downward. Babinski points out that when the toes are extended instead, this is an indication of an organic lesion of the brain or spinal cord, in the motor tract. It usually occurs with exaggerated knee-jerks and ankle-clonus. Just here there comes in occasion for a vast amount of misconception. The drawing up of the whole foot should not be mistaken for a Babinski reflex, nor should the pulling up of the leg. It is only when the toes and especially the great toe, are drawn up slowly, and slowly sink back to place, that the test has any significance, nor has the absence of the Babinski sign any value. Interesting as is the phenomenon, it must be assigned a value lower than that given to either the knee-jerk or the achilles tendon jerk.

Of the ankle-clonus, only found in organic involvement of the brain or spinal cord above the lower part of the lumbar enlargement, it is only necessary to mention the fact that the spurious ankle-clonus, a slight and brief to-and-fro movement of the foot, means nothing, and that the genuine ankle-clonus, a slow and rhythmic oscillation as long as the sole is pressed upon, has the greatest significance and value.

Of all the foregoing reflexes, as well as of the numberless ones of lesser importance, the abdominal and epigastric reflex, the jaw-jerk and others, it may be said that their significance is increased if they are found markedly different on the two sides. One caution may be noted in regard to a difference between the reflexes of the two sides. Tenderness, due to inflammation, as for instance in a rheumatic or otherwise inflamed joint, may render the reflexes of that neighborhood more lively. I have myself observed an exaggeration of the reflexes due to the tenderness of neuritis; the bearing of possible local inflammations should always be borne in mind.

The claim of impotence is one of the easiest to make, and has been, on the part of the examiner, one of the hardest to verify. Direct investigation is out of the question, but a full examination will make some elements of the problem sure, and it is necessary to have these elements well in mind to guard against fraud, as well as to safeguard the interests of the patient. Examination may prove, and it may in other cases quite disprove, the existence of organic impotence.

The cremasteric reflex, the virile reflex, and the papillas along the posterior edge of the glans penis, if all of them are present, exclude organic impotence due to nervous shock or nervous disease, in men who present no evidence that the spinal cord is cut or compressed. Of these, the virile reflex should be given the first place. To obtain it, press the forefinger against the patient's perineum, and with the other hand pinch the mucous membrane of the glans penis. At each pinch a muscular contraction is plainly felt in the perineum, due to the action of the erector penis muscle. The absence of this reaction is the strongest presumptive evidence of impotence.

Equally important are the papillas. They contain the tactile corpuscles of the venereal sense, and are analogous to the papules of taste at the back of the tongue, the organ of Corti in the ear, and the rods and cones in the retina. They are easily found at the edge of the glans, just above its junction with the foreskin.

If they are gone it may be taken for granted that sexual power has gone with them.

Of less direct bearing, but of great importance is the cremasteric reflex, a drawing up of the testicle when the inner side of the thigh is scratched. The familiar slow wormlike contraction of the dartos tunic of the scrotum should not be confused with it. When the scrotum is contracted by cool air, the cremasteric reflex cannot be noted. It is necessary to wait until relaxation occurs.

Is it possible, then, from the presence of the papillas and the virile and cremasteric reflexes to be sure that the patient is potent? It is not, for two reasons of importance remain to be considered, one organic and one functional. The return circulation from the penis may be over developed, from excessive use or laxity of the veins, so that the organ cannot be maintained erect, in spite of good nervous power. This condition does not result from accident.

Low physical vitality or mental depression may, of course, render a patient impotent for the time. Such temporary impotence may result from shock, fright, or almost any kind of illness.

From the foregoing considerations it appears that as accurate a diagnosis may be made of impotence as of any of the other nervous results of injury.

Suing for Lives Lost in the Great Iroquois Fire in Chicago.—Seven new suits, for $10,000 each, were filed recently by families of victims of the Iroquois theater fire. The Iroquois Theater Company are defendants.

ON THE CAUSE OF DEATH IN OPERATED CASES OF INTESTINAL PERFORATION OCCURRING IN TYPHOID FEVER.

BY

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The principal fact determined by the surgical treatment of perforation has been that the earlier the operation is performed, the higher the percentage of cures results. My experience with the operative treatment consists of 21 cases of laparotomy. Three cases are included which were for three conditions resembling perforation; one case was typhoid appendicitis with peritonitis; one of peritonitis from mesenteric lymph-gland infection; one of obstruction due to mass of round worms in the ileum. These patients recovered.

Of the 21 patients only 12 were operated upon under 36-hours from the onset of symptoms. Of these, 9 were for perforation and 3 patients recovered. The other three were those cited before, making a total within the 36 hour period of 6 cases out of 12, or a recovery of 50%. The remaining 9 patients were operated upon at varying periods of from 2 to 4 days after perforation; all died. All these cases were extremely toxic and apparently hopeless.

Local anesthesia was used in eight cases, all the patients were extremely weak and toxic, and all died; and for this reason it is not fair to compare the results with those of general anesthesia. The peritoneum was irrigated with normal salt solution, in all cases with especial attention to the diaphragmatic peritoneum.

In nine cases the fecal contents of the ileum were removed through the perforation or by incisions. Four patients recovered; three were operated upon for perforation and one for peritonitis from lymph-gland infection. In these cases, I found a decided amelioration of the postoperative symptoms. In the patients who died I found the duration of life was longer than in those who had the peritoneal cleansing alone. These cases, considered as a class, have an average mortality of 55%.

It was by the treatment of emptying the contents or irrigation of bowel that I learned to consider a new danger in perforation.

The primary causes of death following the operation are: (1) Shock; (2) toxemia of peritonitis; (3) devitalization of the body by the fever. The contributing or secondary causes are the effects of the anesthetic, and the conditions incident to the operation.

Shock.—While shock is the primary effect of the perforation, it is usually slight and of short duration. If we judge by the clinical symptoms, we must believe that the effect of the fever increases the internal resistance, to speak electrically, of the nervous system, and the impression and irritation of abdominal sympathetic nerves do not have the normal intensity. Shock is not marked in other operations or injuries occurring in typhoid, and death is rare from this cause alone. Shock is often given credit when death is due to toxemia of peritonitis or hemorrhage.

Peritonitis.—The first effect of perforation and peritonitis is local shock to the bowels. This inhibits the peristaltic movement, causes stasis of feces, dilation of the vessels, and increases enormously both secretion and absorption. This condition is generally called paralytic ileus. Infection of the peritoneum extends to new loops of the bowel, and each extension accentuates the paralytic ileus.

The amount of toxin absorbed from the peritoneum will at first be in proportion to the quantity in the extravasated feces, later to the quantity and kind of germs infecting.

After the operation of cleansing the peritoneum the redevelopment and perpetuation of the inflammation will depend upon the completeness of the cleansing, but more especially upon the power of the peritoneum. It has been my experience that the peritoneum is unusually active in destroying infection. In all patients who recover from such a general peritonitis some infective material must remain, which is quickly destroyed by the peritoneum. Peritonitis may frequently be the sole cause of the toxemia and death, especially when the infection is of a malignant species.

Anesthetic and Operation.—Chloroform and ether have a serious poisonous effect on even a healthy person, and a much smaller dose will injure a patient suffering from a wasting disease like typhoid fever. For this reason local anesthesia is especially desirable. Some patients require a general anesthetic on account of the severe mental effect and from pain of handling the intestines. My experience has been that in early cases ether is well borne when given with due regard to the anemia, low blood-pressure, and debility of the patient. The effect of toxemia is often mistaken for the effect of the anesthetic.

Operations for other diseases and injuries in typhoid fever are fairly well borne, but manipulations of the intestines, eventration, pressure of large quantities of saline solution against the diaphragm, produce serious inhibition of the heart. Manipulation may also increase the absorption of toxins in the bowel, and probably the cause of death ascribed to shock of operation is really due to the sudden absorption of a large dose of toxins.

Paralytic Ileus.—Having indicated in a superficial manner the various causes of death, I wish to direct your attention to the serious influence which paralytic ileus has in destroying the protective influence of the mucous membrane of the bowel. In strangulation of the bowel from any cause, such as band, or hernia, the afferent coils become distended with feces and secretions, the walls become hyperemic, and then growth of germs, putrefaction and absorption of toxins are vastly increased. Such a patient, beginning with perfect health, may die from his own poisonous contents in from three to seven days without having a sign of peritonitis or ulceration of the bowel.

Toxemia.—After operation for perforation, we leave the bowel in the state of ileus. Admitting this, we must admit the fact that toxins are absorbed. To this, we must add the contributing influence of rapid absorption from an ulcerated and weak mucosa of typhoid, and the effect in a partially devitalized patient in whom a smaller dose of toxin would produce death. At present we are without a method of measuring this toxemia of the blood, and must depend on clinical data. The beneficial effect of drainage of the intestinal tube gave me the clue as to the cause of death in many cases.

To this, I can add the results of Travers, who 80 years ago, by making an artificial anus above the strangulation in cases of obstruction of the bowel, achieved a lower rate of mortality than we with improved methods of excision, the Murphy button and the like without this drainage. How often have we all seen after a most brilliant release of a strangulated hernia, or a volvulus, or an excision of the bowel, the patient die of toxic depression? The truth is we have lost sight of an important surgical principle in the search for newer things.

While a patient may do well for a number of days, the peritonitis subside, peristalsis be resumed slightly, death may occur from the slower absorption of the same toxins.

Therefore, I would emphasize the fact that one cause has not been given due importance, which in my estimation is quite as important as peritonitis. It is the toxemia which results from the contents of the paralyzed bowel.

Longevity of Abstainers.—A number of actuaries and medical directors of New York insurance companies have been working on statistics running over a period of several years. From the records it is claimed that total abstainers as a class live longer by from 20% to 50% than moderate drinkers, so that this class of applicants will soon have to pay less for insurance than the moderate drinker.

POLYNEURITIS COMPLICATING TYPHOID FEVER WITH UNUSUAL LOCALIZATIONS.

BY

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In infectious diseases, the nervous system which presents a feeble organic resistance to toxic products, is very frequently affected. The changes produced by toxins are either profound and unalterable or only transitory. Although the characteristic feature of toxic agents consists of their special affinity for certain protoplasmic molecules and cells of certain organs, it is nevertheless difficult to realize why in a given case the brain alone is affected in a certain group of cases, or only the spinal cord in another group or only the peripheral system in still another group. It is probable that the *locus minoris resistentiæ* plays a prominent role in the localization of the infectious element. It is certain, however, that the central portion of the nervous system is more frequently affected than the peripheral. That multiple neuritis follows or occurs during typhoid fever is a wellknown fact, but the records show that the neuritis in such cases is limited to the extremities. Facial palsy in typhoid fever is certainly a rare occurrence and an association of a brachial palsy with a peripheral facial palsy on the same side is still rarer.

The case I am about to report is interesting from the standpoint that a diagnosis of an acute anterior poliomyelitis in an adult with a facial palsy may be considered, although polyneuritis presents a greater degree of probability.

In a contribution[1] published recently, I described a case in an adult in whom also a brachial monoplegia with facial palsy occurred after exposure in an intoxicated condition. The question of rarity of acute poliomyelitis in adults was discussed in detail, and the possibility of involvement of the whole lower motor neuron (cells and motor fibers) in similar cases was considered and emphasized. That case as well as the one in the present paper are almost identical in their manifestations; here and there we have a brachial paralysis with a peripheral facial palsy, but the onset, the course of the disease, and the present condition favor the view of poliomyelitis in the first case and polyneuritis in the second. Nevertheless a sharply defined border line between these two affections is almost impossible in a large number of cases. While in some the onset and course are those of anterior poliomyelitis and in others those of polyneuritis, there are a certain number in which it is difficult, if not impossible, to make the distinction, and they must be considered as intermediary forms on this basis that there is a simultaneous involvement of all segments of certain neurons. At all events, whether our case is an example of a poliomyelitis or a polyneuritis, there is one side of the question which is surrounded with mystery, namely the unilaterality of the morbid condition—paralysis of the face and arm on the same side. Unfortunately the state of our present knowledge does not enable us to determine how the infection reaches the seat of the lesion, or otherwise speaking, how and why does the typhoid poison affect entire neurons or only portions of them in the cord and medulla and both on the same side? It also belongs to future investigations to determine the duration and mode of action, quality and quantity of infectious or toxic agents when they come in contact or in chemic combinations with the sensory or motor neurons.

The case is as follows:

A male, aged 30, without a previous personal or family history of any special importance, had an attack of typhoid fever two years ago. At the end of the fifteenth day, when the fever went down to 99°, pain appeared in his right upper limb. At the same time he noticed a certain difficulty in masticating food, and fluids would run out of his mouth on the right side; he was also unable to close his right eye. There was no pain in the face, which was distinctly drawn to the left. The pain of the arm was soon followed by a gradually increased weakness, so that he was unable to hold an object in his hand for any length of time. After the acute stage had subsided, the condition began to improve.

On examination I found a slight but distinct right facial palsy; some weakness of the right frontalis, orbicularis palpebrarum, and buccinator muscles, tongue protruding to the right. The entire right upper limb is weak; the elevation, abduction of the arm, the extension and flexion of the forearm, and the grip of the hand are distinctly diminished in function. There is no spasticity, but rather a tendency to flaccidity. The musculature of the arm is flabby and small in size, but that of the forearm is in better condition. The right hand is also smaller than the left. The tendon reflexes of the right arm are diminished. There was a marked tenderness of the nerve trunks of the entire right limb; deep pressure upon the muscles provoked pain; there was no tenderness in the axilla or above the clavicle on the same side. No other objective sensory disturbances could be elicited. Patient complains of occasional lancinating pain in the right arm, but mainly of weakness and sensation of numbness.

The absence of rigidity, the condition of the reflexes, and of other motor phenomena, the course of the disease and character of the facial involvement, are facts which are not certainly in favor of a cerebral lesion.

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[1] *American Medicine*, May 28, 1904.

THE WORLD'S LATEST LITERATURE

Journal of the American Medical Association.

December 24, 1904. [Vol. XLIII, No. 26.]

1. A Summer's Experience with Infantile Dysentery. (Concluded.) J. H. MASON KNOX.
2. Bacillus Dysenteriæ (Shiga) in Its Relation to the Diarrheal Diseases of Infants: A Clinical Study of 237 Cases. L. EMMETT HOLT.
3. Some Findings in Summer Diarrhea of Children. JOHN C. COOK.
4. The Management of Summer Diarrhea. THOMAS S. SOUTHWORTH.
5. Treatment of Aphasia by Training. CHARLES K. MILLS.
6. The Control of Internal Hemorrhage by Drugs. THOMAS LUTHER COLEY.
7. A Study of Apocynum Cannabinum. HORATIO C. WOOD, JR.
8. Use of Diaphoresis and Diaphoretic Agents in Ophthalmic Therapeutics. HIRAM WOODS.
9. Diaphoretics and Diaphoresis in Ophthalmic Therapeutics. T. W. WOODRUFF.
10. The Conservative Management of Lacrimal Obstruction. S. D. RISLEY.
11. Some Injuries of the Eye in Their Medicolegal Aspect. JOHN JOHNSON KYLE.
12. Is Bilateral Operation for Cataract Ever Justifiable? And If Not, How Soon after the Operation on the First Eye Is It Safe to Extract the Second Cataract? A. W. CALHOUN.
13. A Note on the Operation of Gastroenterostomy. B. G. A. MOYNIHAN.

1, 2, 3, 4.—See *American Medicine*, Vol. VII, No. 25, p. 971.

5.—See *American Medicine*, Vol. VII, No. 24, p. 926.

6.—See *American Medicine*, Vol. VII, No. 25, p. 976.

7.—See *American Medicine*, Vol. VIII, No. 2, p. 51.

8, 9.—See *American Medicine*, Vol. VII, No. 25, p. 972.

10.—See *American Medicine*, Vol. VIII, No. 3, p. 96.

11.—See *American Medicine*, Vol. VIII, No. 4, p. 141.

12.—See *American Medicine*, Vol. VII, No. 26, p. 1008.

13.—Gastroenterostomy.—B. G. A. Moynihan describes his method by suture, having the advantages of simplicity, rapidity, absence of exposure of viscera and perfect security. The abdomen is opened 2 cm. ($\frac{3}{4}$ in.) to the right of the middle line and the fibers of the rectus split. The great omentum and transverse colon are turned upward over the epigastrium, a small incision made in a bloodless spot of the transverse mesocolon and the finger passed into the lesser sac. The left hand makes the posterior surface of the stomach appear at this opening, the right hand pulling it through. A fold of 3 in. or 4 in. is seized with a clamp sheathed in rubber tubing. The portion embraced extends from the lowest point of the greater curvature obliquely toward the lesser curvature and the cardia. The jejunum is pulled taut from the flexure and laid against the posterior surface of the stomach. This point is then clamped. The jejunum thus forms a straight line, not a curve, and regurgitant vomiting is avoided. Everything except the clamped portions is returned to the abdomen, the operation area covered with gauze wrung out of hot salt solution, and a continuous suture unites the serous and subserous coats of jejunum and stomach for 2½ in. or 3 in. An incision is made through the serous and muscular layers and the pouting portion of the mucous layer is excised. An inner suture embraces all the coats, the clamps are then removed and the outer suture continued to its starting point. Two or three stitches unite the slit in the mesocolon to the jejunum close to the suture line. Leakage is impossible. The opening should be larger in dilated stomachs. [H.M.]

Boston Medical and Surgical Journal.

December 22, 1904. [Vol. CLI, No. 25.]

1. Two Cases of Chronic Pemphigus of the Mouth. JOHN W. FARLOW.
2. Leprosy. THEOBALD SMITH.
3. Chronic Gastric Ulcers. Hour-glass Deformity of the Stomach; Report of a Case Successfully Operated. CHARLES L. SCUDDER.
4. The Decrease in the Deathrate of Pulmonary Tuberculosis. LESTER C. MILLER.
5. Pulmonary Congestion as a Cause of Sudden Death. W. W. MINER.

1.—Chronic Pemphigus of the Mouth.—J. W. Farlow reports two cases of this condition which he says is very uncommon in New England. Many cases have been considered as irregular forms of syphilis, but Farlow's cases appeared more like examples of recurring herpes, though careful study separated them from this affection. When ulcers and synechias appear on the conjunctiva they are a great aid to diagnosis. Though the external skin is not involved, Farlow considers the cases as belonging under the title of true pemphigus. Prognosis is not so grave as stated by some writers. As to treatment, cleanliness of the mouth is of prime importance. If pain interferes with eating, local anesthetics may be necessary. Arsenic internally has strong advocates. General nutrition should be carefully maintained. [A.G.E.]

2.—Leprosy.—T. Smith, on account of frequent errors in diagnosis, thinks it well to know something of this disease. He briefly reviews its history, the causal relation of the Hansen bacillus, its infectiousness notwithstanding its apparent hesitancy in invading new subjects. Some slight variation in the character of the bacillus may in part repeat the history of former epidemics if our negligence permits it. In the anesthetic type bacilli are scarce in the lesions. In the tuberculous type they are abundant and may be present in the nasal discharges even when skin ulcers are absent. Every leper should be under the care of the health authorities in some lazaretto. This isolation could be managed best by the national government here, as the victims are so few. [H.M.]

3.—Chronic Gastric Ulcers.—C. L. Scudder reports a case of ulcer producing hour-glass deformity of the stomach and stenosis of the pylorus. The patient was a woman of 38, who had dyspepsia for 10 years. Treatment consisted of gastrogastrostomy and gastroduodenostomy. Both operations were facilitated by the use of rubber-covered clamps. Recovery was rapid and perfect. [A.G.E.]

4.—Decrease in the Deathrate of Pulmonary Tuberculosis.—L. C. Miller finds a marked decrease in the deathrate, according to statistics, during the last 20 years. It is not too much to expect that tuberculosis will die out in this century. The most careful investigators agree that it is communicable; that dried sputum is a source of danger, the spray from coughing a much greater one. A hospital for those in the last stage is a necessity if we are to prevent spread of the disease most effectually. With proper precautions danger from infection may be reduced to almost nothing. [H.M.]

5.—Pulmonary Congestion as a Cause of Sudden Death.—W. W. Miner reports three cases in which autopsy revealed this as the only cause of death. One of them was a young man in vigorous health, one an elderly man in fair condition, and one a strong man who had a severe cold but was walking about as usual. This condition is frequent in animals which have been overdriven, and those quartered in damp stables, causing lessened resistance. Osler and a few others refer to it as a cause of death. [H.M.]

Medical Record.

December 24, 1904. [Vol. 66, No. 26.]

1. The Antitoxin Treatment of Tertian Malarial Infections. JOSEPH HERBERT FORD.
2. Remarks on Melancholia. JOSEPH COLLINS.
3. Report of a Case of Primary Lupus Vulgaris of the Oropharynx and Nasopharynx Treated by Röntgen Rays. H. S. BIRKETT.
4. Infant Feeding. M. J. SYNNOTT.
5. Paraphimosis in a Young Girl. M. I. BEEMAN.

1.—Antitoxin Treatment of Tertian Malarial Infections.—J. H. Ford traces the steps which led him to consider the possibility of producing an antitoxin against malarial infection, and describes the details of obtaining an agent of this sort which seemed to have a curative effect. Rabbits were injected with the blood of patients suffering from malaria, or infected mosquitos were allowed to bite them. The blood from these animals was used for treating other patients, the material injected being either the fluid serum, or defibrinated blood, or serum, or corpuscles desiccated at a temperature below 53° C. Of 9 patients treated in this way, 2 were apparently unaffected, in 1 there was a temporary disappearance of symptoms, in 1 an abscess developed at the site of injection, and 4 patients are reported as having recovered. The fever and parasites also disappeared in a fifth case, but the course of the disease in this instance so much resembled a case of spontaneous cure observed that the author regards it as inconclusive in spite of the severity of the infection and the promptitude with which the parasites disappeared from the blood after the serum was injected. The temperature charts of all these patients are reproduced. The author states that if the immunity conferred by the injection of this antitoxin should continue as long as does that which follows vaccination its value would be established, and by its universal simultaneous use throughout a community the malaria therein would be practically exterminated.

2.—Remarks on Melancholia.—J. Collins says that the status of melancholia is not very well defined by neurologists, some of whom maintain it is a very uncommon disease, while others deny its existence as an independent condition, and consider what is usually spoken of under this name merely a symptom of another condition which is the real disease process. The author agrees with these writers in acknowledging the necessity for an effort to determine the underlying disease, if there is one, but is of the opinion that there is a clearly marked form of insanity in which mental depression, coupled with moral insufficiency, is the conspicuous symptom, and which has something individual in its delineation, course, and outcome that justifies us in considering it as a separate disease. It may be said that melancholia = a percentage that has not yet been accurately determined, of general paresis, manic-depressive insanity, intoxicative conditions, involution melancholia, etc., and = x, which is as yet an unknown quantity. Of 15 cases kept under observation by the author in 1902, the cause could not be assigned in 5, and in the others the attributed cause was of moral or emotional nature; 4 of the 15 were cases of involution melancholia, 1 was later called neurasthenia, 6 developed manic-depressive insanity, general paresis or dementia præcox, and the remaining 4 were simple melancholia from start to finish, and recovered. A point worthy of note is the fact that these cases developed at a comparatively early age. The author describes three cases of simple melancholia ending in recovery, as well as others of the dependent type. The prognosis in cases of involution melancholia or of manic-depressive insanity is always serious, but is not so in cases of the type described, for in these the outlook is very favorable.

3.—Primary Lupus Vulgaris of the Oropharynx and Nasopharynx Treated by Röntgen Rays.—H. S. Birkett describes a case of extensive primary lupus of the oropharynx successfully treated by röntgen rays. The patient was a boy of 15, otherwise well, with a family history of tuberculosis. The diagnosis was confirmed by the histologic examination of excised portions of the growths, by the identification of tubercle bacilli in sections, and by inoculation of a guineapig, with positive results. An injection of tuberculin caused a general and a local reaction. Treatment of the condition by excision under ether, with subsequent curetage and local applications of lactic acid and the galvanocautery, were not satisfactory. After an interval of several months the patient returned for treatment and the use of the röntgen ray was begun. After three months of intermittent treatment the local conditions entirely disappeared and the patient was considered cured, but six months later there was a slight recurrence in the oropharynx and a small ulcer had appeared in one nostril. These are improving under the röntgen ray, and the author believes the condition will give way entirely to this method of treatment as it did on the former occasion.

4.—Infant Feeding.—M. J. Synnott discusses the proper management of breast and artificially fed infants. The question is one requiring careful study of each case, and the child must be kept under observation until there is no doubt that it is on the right track to the proper assimilation of its food. The decision whether or not the infant is to be weaned is a serious one, and is to be reached only after careful deliberation. The following conditions indicate the necessity for resort to artificial feeding: 1. Failure to gain weight, or actual loss of weight. 2. A milk supply so deficient in quality or quantity as to be beyond control. 3. Unconquerable colic and evidences of imperfect intestinal digestion, plainly manifested in the stools. 4. Consideration for the mother's health, when it is clear that the strain of nursing is too much for her constitution. The subject of artificial feeding is treated at length, and the precautions to be observed in selecting, caring for and modifying the milk are given in detail. Suitable substitutes for use in cases when milk is not well born are described, and the author deprecates the use of proprietary foods before the ninth month. After this time they may be used to advantage as an adjuvant to cows' milk, in order to increase the amount of carbohydrates in the diet.

5.—Paraphimosis in a Young Girl.—M. I. Beeman reports a case in which a girl of thirteen used a wisp of hair to tickle the clitoris, with the result that it lassoed the organ and gave rise to an edematous swelling resembling paraphimosis in boys.

New York Medical Journal.

December 17, 1904. [Vol. LXXX, No. 25.]

1. Scarlet Fever in New York, and Some of Its Therapeutic Possibilities. A. SEIBERT.
2. Clinical Observations in Scarlet Fever, with Special Reference to the Heart and Other Complications, and Therapeutic Suggestions. LOUIS FISCHER.
3. Venesection. GEORGE F. SOUWERS.
4. Traumatic Hematoma with Evanescent Aphasia and Hemiplegia, Followed in the Course of Years by Inveterate and Severe Headache: Operation; Recovery. J. LEONARD CORNING.
5. The Relation of Diseases of the Stomach to Affections of the Mouth, Nose, and Throat. ROBERT LEVY.
6. Report of a Case of Torsion of an Ovarian Cyst in a Child 13 Years Old. JOHN F. ERDMANN.

1.—Scarlet Fever.—A. Seibert discusses this disease as it occurs in New York City, and says it is evenly distributed each year among the different districts in direct proportion to the number of inhabitants. It is most common among school children, and the chief common centers for contagion are the schools. He believes the primary invasion takes place in the pharynx, from there reaches the nearest skin surface, and thence spreads locally by continuation of surface in the lymphatics of the skin. In the treatment he aims to destroy streptococci in the scarlatinal throat and skin before they can enter the blood. He uses inunctions with 5% and 10% ichthyol lanolin ointment two or four times daily, into the entire skin. Swelling and itching are thereby diminished, and, later on, the almost entire absence of desquamation, even in severe cases, proves that the inflammation of the skin is actually reduced. These inunctions also aid in preventing contagion. He disinfects the nasopharynx and pharynx with a 50% resorcin-alcohol solution as soon as the exudate begins to show itself in the throat. He says the solution penetrates the exudate, and deep into the affected mucosa, and there destroys the life of every streptococcus (or any other germ) it comes in contact with. These applications should be made by means of an applicator, daily, in mild cases, and much more frequently in severe ones. Treatment must be continued until the throat is free from exudate, and the lymph nodular swelling has disappeared. [C.A.O.]

2.—Scarlet Fever.—Louis Fischer says the greatest attention should be bestowed on the condition of the heart in this disease. The moment systemic weakness exists, it can be detected by its effect on the heart. A pulse-rate that gradually increases from 120 to 130, 140 to 150 and upward, is always a grave condition. The temperature may be a misleading factor. He says that every scarlet fever patient should be put to bed, and kept there at least four weeks. He believes it is safer to protect the body with sweet oil, lanolin, or carbolized vaselin. The diet should be liquid, and should consist principally of milk and alkaline waters. The emunctories should be stimulated. A hot saline colon flushing, one or two quarts, at a temperature of 115° F. to 120° F., should be given once a day after the first week, regardless of its necessity. The following drugs are preferred: Sulfocarbolate of sodium, 0.3 gm. to 1.3 gm. (5 gr. to 20 gr.) three or four times a day; for the kidneys, hot salines and diuretics liberally; for the heart, spartein, strophanthus, and 5 drops to 20 drops of a 1 to 5,000 solution of adrenalin. [C.A.O.]

3.—Venesection.—G. F. Souwers says he believes it a fair average rule to practise phlebotomy in acute inflammatory affections (particularly of the more vital organs), accompanied by pronounced rise of temperature, with a pulse either bounding or of that tense, whip-cord character that gives, on examination, the impression that the vessels are strained to high tension by the current within. This excellent article does not lend itself well to abstracting and should be read in the original. [C.A.O.]

4.—Traumatic Hematoma.—J. L. Corning reports the case of a young man, who, 11 years before, received a severe blow on the left side of the head. After some time he became unconscious. On emerging from the attack he had aphasia and right-sided paralysis. Subsequently he again lost consciousness for some hours, but recovered ultimately as before. The hemiplegia and aphasia persisted, however, for some time. About this time he suffered from repeated attacks of Jacksonian epilepsy, and later, and for some years, from "flightiness," the latter consisting of lapses of memory and confusional states. For a year or more before he was operated upon he had been afflicted with atrocious and unremitting cephalalgia. From morphin alone was relief to be had and that of the briefest. The left parietal region was opened and revealed a thickened dura firmly adherent to the bone. The adhesions were destroyed and nothing further showing, the flap was replaced. An uneventful recovery followed and the cephalalgia entirely disappeared. [C.A.O.]

5.—See *American Medicine*, Vol. VIII, No. 2, p. 53.

6.—Torsion of Ovarian Cyst.—J. F. Erdmann reports such a case in a child of 13. A tentative diagnosis of disease of the appendix had been made. Upon incising the peritoneum a gush of bloody serum took place. Exploration revealed a tumor, dark blue in color, which was fluctuating and pliable, and which bore resemblance to a dislocated and strangulated spleen. After breaking up the adhesions the mass was found to be a cyst of the right ovary, which had become gangrenous. It was removed and perfect recovery followed. [C.A.O.]

Medical News.

December 24, 1904. [Vol. 85, No. 26.]

1. The Alleged Use of Dum-dum Bullets in the Japanese-Russian War. GEORGE RYERSON FOWLER.
2. Renal Hematuria of Unexplained Origin: Report of a Case with Cessation after Nephrotomy. BENJAMIN R. SCHENCK.
3. The President's Inaugural Address. HENRY S. STEARNS.
4. Hysterectomy and the General Health. EUGENE COLEMAN SAVIDGE.
5. An Analysis of Twenty-five Cases of Strangulated Hernia Treated by Operation. GEORGE TULLY VAUGHAN.
6. The Significance of Pus in the Nose, with Special Reference to the Affections of the Accessory Sinuses and Their Proper Treatment. GEORGE L. RICHARDS.

1.—Dum-dum Bullets.—G. R. Fowler discusses the alleged use of these missiles in the Japanese-Russian war, as based upon a study of photographs of wounds and fragments of bullets taken immediately after the battle of Liao-Yang. The wounds of exit in some instances appear too large to have been made by ordinary bullets, but the wound of entrance shows that such missiles must have caused the damage. Photographs of cartridges, with part of their jackets cut away, said to have been found on Russian prisoners captured at the battle, are also given, but Fowler says there appears to be no proof that the wounds were made by such missiles. Most of the men were lying down, and with the opportunity for ricochet shots thus afforded and the fact that shrapnel was used in the same action, makes it almost impossible to decide if there was an infraction of the law of nations regarding the use of tampered bullets. As for the distorted fragments of the bullets shown in the photographs, it would be imposssble to say whether they had ever fitted the cartridge shells in question. From both the wounds and the fragments of shells, the evidence presented in the photographs scarcely justifies the accusation that the Russians used dum-dum bullets in the battle. [A.G.E.]

2.—**Renal Hematuria of Unexplained Origin.**—B. R. Schenck says that renal hematuria most frequently shows itself in cases of calculus and newgrowth, is not infrequent in tuberculosis, occurs in chronic as well as acute nephritis, and is sometimes seen in movable kidney. Beside these cases, there occur others but little understood and usually designated by the meaningless terms idiopathic or essential. Notes of a case are given. A woman of 46 had persistent hematuria from the left kidney. Nephrotomy with careful search failed to reveal the slightest abnormality, and microscopic examination of a piece of the kidney that was removed showed it to be perfectly normal. Some time after the operation the hematuria entirely ceased. The cause of the bleeding in this case remains a complete mystery. Schenck prefers to adopt the view, however, that there was an undiscovered cause, rather than to assert that it is an example of bleeding from an anatomically sound kidney. He says there are but two cases on record which appear to prove that hemorrhage may take place from a kidney which is not the seat of a pathologic change. It would seem better to put these aside as being yet unexplained than to admit into our classification a group under the name of idiopathic or essential. [A.G.E.]

4.—**Hysterectomy and the General Health.**—E. C. Savidge says that, in certain cases, hysterectomy is the only alternative, and must be performed whatever the after-results may be. Other cases are debatable, and he mentions many points, both for against, which must be considered before making the decision. The special psychology of woman gives great possibilities for anguish when she knows she is hopelessly barren. She may have avoided children until she realizes her barrenness, and then maternity becomes the sole yearning of life. Sterility may persist without hysterectomy, but the sustaining quality of hope remains, and no surgeon should disregard this element in his patient. Savidge strikes what he calls a distinctively American note in gynecology, meaning by this that there is necessity for a marked difference in deduction and procedure in dealing with American women. Gynecologic statistics are made up largely from hospital clinics in congested centers, or imported from Europe. The American woman is not the same as the clinic woman; the former has a more highly organized nervous system than has the English woman, correspondingly placed. As a class, the American women have latent capacities and a promise of effective longevity that we jeopardize by the "debatable" hysterectomy, with its spirit-robbing, pride-abasing, zest-exhausting, devitalizing results. [A.G.E.]

5.—**Strangulated Hernia.**—G. T. Vaughan gives an analysis of 25 cases of strangulated hernia occurring among 115 operative cases. Five were femoral and 20 oblique inguinal; all the former and 18 of the latter were on the right side, it appearing that strangulation is more apt to occur on that side. Congenital is about twice as apt to become strangulated as is acquired inguinal hernia. Of 16 cases in which the point of greatest constriction was determinable, 8 were at the external ring, 7 at the internal ring, and 1 in the abdominal cavity. The two most valuable symptoms of strangulated hernia are pain and vomiting. Pulse and temperature are unreliable as affording evidence of the condition of the bowel. There were 6 deaths among the 25 cases. Among the 16 cases in which the contents of the sac were in good condition there were 3 deaths, a mortality of 18.75%. Of the 9 cases in which the contents of the sac were gangrenous or general peritonitis existed at the time of operation, 3 died, a mortality of 33⅓%. [A.G.E.]

6.—**Significance of Pus in the Nose and Sinuses.**—G. L. Richards considers at length the indications when a patient presents himself with pus coming from one or both sides of the nose. In part his summary is: Clear the nose of all visible sources of obstruction. Examine carefully the teeth. Try to determine by inspection the origin of the pus, using transillumination, if possible. Make an exploratory puncture of the antrum; if it contain pus, endeavor to cure by washing, and then, if necessary, do a radical operation. If the antrum is free, explore the frontal sinus, removing the middle turbinate, if necessary. If pus appears to come from the frontal sinus, wash it for some time, and be guided as to future operation somewhat by the feelings of the patient; somewhat by the annoyance of the discharge; somewhat by the chronicity of the case. When there are several empyemas, it is better to clear out the nose as thoroughly as possible and then, under ether, operate on all the cavities at the same sitting. [A.G.E.]

CLINICAL MEDICINE

DAVID RIESMAN A. O. J. KELLY

REVIEW OF LITERATURE

Infusion of the Lungs for Diagnosis and Treatment of Pulmonary Tuberculosis.—To note the reaction of the lungs from the direct infusions of various medicinal substances, P. Jacob[1] experimented with a number of different animals. The capacity of the rabbit's lung he found to be 150 cc.; he also found that from 5 cc. to 15 cc. of fluid could be injected with impunity. Similar results were obtained with goats and calves. Finding the method feasible, he experimented with a number of substances in solution, injecting the infusions through a tracheotomy wound into the bronchi, below the bifurcation, of tuberculous cows. For the first 48 hours all the cows showed more or less reaction, but after that they were not in the least inconvenienced. Of all the substances tested, Koch's original tuberculin had the best effect on the tuberculous process. Next to tuberculin came creasote; hetol, methylene-blue and pyoktanin had but little effect. Tuberculous bronchopneumonic cavities after having having been irrigated for some months with the tuberculin became encapsulated with fibrous tissue in a manner seldom seen in cattle. The infusions were always followed by pronounced dyspnea, and the temperature rose rapidly; both subsided within from 24 to 48 hours; the cows' appetites remained good throughout. None of the cows was completely cured, but this was not expected owing to the advanced stage of the disease. These experiments established the bactericidal properties of tuberculin as well as its therapeutic value. A 0.1% solution of tuberculin was found to sterilize pure cultures of tubercle bacilli in 48 hours. After thus establishing the therapeutic value of the method, in particular with tuberculin, the author describes his method of treating tuberculous human patients. The epiglottis and vocal cords are anesthetized with a 20% solution of cocain by means of a laryngeal syringe. The syringe, to protect the soft structures of the larynx and trachea, is covered with a soft rubber tube; it is pushed between the vocal cords and the trachea and bronchial openings sprayed with a solution of beta-eucain and adrenalin. This effectively checks any reflex irritation, but patients with a tendency to hemoptysis are excluded from this type of treatment. An 18-inch flexible catheter is then passed between the vocal cords, through the trachea and the bronchi; this must be done under the control of the laryngeal mirror and to facilitate its entrance it may be drawn over a stiff stylet, but this must be withdrawn so soon as the trachea is reached. The syringe is fitted into the upper end of the catheter and the solution slowly injected. From 20 cc. to 30 cc. of a 0.1% to 0.2% aqueous solution of tuberculin is considered a therapeutic dose. The patient must breathe deeply and quietly as this tends to draw the fluid into the deeper parts of the lung; he must then lie down so the fluid may go to all the parts of the lung; to reach the apex, the shoulders must be depressed. More or less coughing is induced by this, but the fluid is rarely ever expelled. The whole procedure takes about 10 minutes. A second infusion is never given until the reaction of the first infusion has passed away; it takes from three to four days. The method was employed in five patients, all women, and all entering the second stage of tuberculosis. Two were clinically cured, two improved and the fifth being treated for diagnostic purposes only, gave a better tuberculin reaction, and with a tenth of the ordinary dose of tuberculin that could be produced by any other method. In cases where the tuberculous process is not in the lung, other methods of tuberculin injection are probably better. [E.L.]

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[1] Deutsche medicinische Wochenschrift, 1904, xxx, 984, 937 and 1024.

Recurrent Vomiting.—B. K. Rachford[1] defines recurrent vomiting as a symptom group closely related to migraine. It is autotoxic in origin and characterized by recurrent attacks of nausea, persistent vomiting, and great prostration; heredity is the most important predisposing factor. Both autotoxins and intestinal toxins may play a role in producing this symptom group, but Rachford does not believe it is always produced by the same toxins. The largest percentage of cases, however, he believes, is produced by toxins very closely related to, or identical with, the purin bodies. Functional incompetency of the liver is an all-important factor. As to the pathology of the disease, little is known. The belief is justified that the disease is an autointoxication produced by toxins closely related or identical with the purin bodies, followed by a secondary cyto-intoxication, which may contribute to the symptoms in the latter stages of the attack. In the treatment of the attack, normal saline solution and benzoate of soda are the important remedies. For curative treatment, change of climate is of great importance, if only for a few months during the year. Diet should be carefully restricted, particularly as children suffering from recurrent vomiting have, as a rule, abnormally large appetites in the intervals between the attacks. They must be carefully guarded against taking an excess of food of any kind, and are to be made to cultivate the habit of drinking water between meals. Medical treatment consists in relief of constipation. The drugs giving the most satisfaction are the wintergreen, sodium salicylate and sodium benzoate, put up in essence of pepsin and peppermint water. In the more severe cases such a prescription must be continued for months at a time, and after this is to be given once a day for an indefinite period. [A.G.E.]

Transitory Diabetes.—The disease apparently arose about three months before Mann[2] saw the case, when the patient was taken with a severe cramp-like pain in the epigastrium, which was followed by vomiting. The attack subsided in a few days, and the patient was well until the second attack appeared, three months later. When Mann examined the patient, the stomach and the remaining organs of the abdomen seemed normal; there was slight jaundice of the conjunctiva. The stomach contents contained poorly digested food particles, a great deal of mucus. He diagnosed the case as cholelithiasis, chronic gastritis, and beginning carcinoma of the stomach. The patient improved and gained five pounds under treatment. About one month after treatment was instituted, the patient began to complain of great thirst; the daily output of urine increased, and the temperature rose in the evening. Mann could not palpate a tumor in any part of the abdomen, the chemistry of the stomach contents remained unchanged, and the urine was free from sugar. He then decided to determine the condition of the patient's powers of assimilation, and administered 100 gm. of glucose; in the next 24 hours 3,200 cc. of urine was passed, which contained 121.6 gm. of dextrose. With ordinary diet, the quantity of sugar increased and traces of acetone appeared; with a diabetic diet the sugar did not decrease, and acetoacetic acid appeared. The patient was then placed upon an oat diet, under which the amount of sugar first decreased and then increased, when edema of legs set in, and fat appeared in the stools. About one month after the onset of the glycosuria, the urine became free of sugar, acetone and acetoacetic acid; the patient improved for a time, but later failed, and died about a week after the disappearance of the sugar in the urine. At postmortem, hemorrhage was found as the cause of death; the bleeding arose from a gangrenous carcinoma of the lesser curvature of the stomach, involving the pancreas and the retroperitoneal lymph-glands. [J.F.]

Diabetes Mellitus in Children.—F. E. Waxham[1] reports a case of this condition occurring in a boy of 2½ years, in whom there were absolutely none of the ordinary attributable causes of the disease. Associated with the diabetic condition, however, were intestinal worms, which Waxham considers undoubtedly the etiologic factor. The worms were of large size, and at least 150 had been expelled, it seeming quite impossible to get rid of them, as they persisted up to within a few days of the death of the patient. Sugar was present in the urine as high as 8%. Codein and arsenic reduced it rapidly to 3.5%, but in a few weeks it again increased to 8%, and the patient died in diabetic coma. [A.G.E.]

The Diagnosis of Pyloric Stenosis.—J. Decker[2] discusses the various signs of pyloric stenosis, which are important from a diagnostic standpoint, such as increased peristalsis, vomiting, tumor, retention of food particles, but not one of these is absolutely characteristic, occurring either in other conditions also, or not occurring in some instances of simple pyloric stenosis. There is one sign, however, which Decker has never missed in pyloric stenosis without complication; a stomach with normal muscular power will digest a meal into a fine homogeneous chyme just as a normal stomach would do. If, therefore, lavage of the stomach after a night's sleep produces a chyme worked up into a finely digested mass, we can depend upon an obstruction at the pylorus in a healthy stomach, while if coarse particles of food remain also, the stomach, in addition to its obstruction, is the seat of dilation or some other complication. The presence of hypersecretion, with or without hyperacidity, associated with copious daily vomiting and nonsuccess of appropriate treatment, he considers suspicious of pyloric stenosis. He has made the diagnosis in two such cases and had it confirmed by operation. [E.L.]

Bronchial Asthma in Infants and Children.—L. E. Lafétra[3] says that during the past two years there have come under his notice 43 cases of asthma in infants and children under 12 years of age. During the first year there was a preponderance of females over males, after that the males exceeded the females. The leukocytes are usually, but not always, increased, as in bronchitis, but a differentiation later shows what does not occur in bronchitis, that is, a constant and usually permanent increase in the number of eosinophiles. The patients examined under his direction showed an eosinophilia of from 6% to 18%. Nearly all the cases in infants, and the majority of adult cases of asthma, are explained by the theory of the contraction of the bronchial muscles. Treatment is discussed at length. The two points under prophylaxis, dealing with bronchitis and pharyngeal adenoids, which are said to be the chief predisposing causes. The prognosis is favorable if the patient can be put upon proper treatment before emphysema and the barrel chest have developed. [A.G.E]

Röntgen Rays in Internal Medicine.—W. Libensky's[4] experience leads him to conclude that in diseases of the mediastinum, either aneurysm of the aorta, or other mediastinal tumors skiagraphy is of great value in diagnosticating the early stages of disease. In aneurysms of the aorta, especially, Libensky looks upon the radiograph as a certain method of diagnosis. The skiagraphic findings are, in his opinion, pathognomonic of pyopneumothorax and limited deep condensation of the lung, whatever the cause, is readily diagnosticated. Skiagraphy is applicable especially in such cases in which there exists a doubt in the mind of the clinician as to the physical conditions present. The value of this measure in internal medicine depends upon its association with the methods employed in general examinations. [J.H.W.R.]

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[1] Archives of Pediatrics, December, 1904.
[2] Berliner klin. Wochschrf., 1904, No. 30.

[1] Colorado Medicine, November, 1904.
[2] Münchener medicinische Wochenschrift, 1904, li, 1243.
[3] Archives of Pediatrics, December, 1904.
[4] Wiener klinisch-therap. Woch., 1904, Nos. 45 and 46.

The Value of Quinquaud's Sign in Abuse of Alcohol.—P. Fürbringer[1] studied Quinquaud's sign on 468 individuals; some of them were total abstainers, others moderate drinkers, and a third class abusers of alcohol. Quinquaud and other French authors have said that this sign is characteristic of alcoholic abuse. Fürbringer found that individuals not presenting the sign are without doubt (9 to 1) abstainers or moderate partakers of the liquid. If the crepitation is present to some degree, no conclusion can be come to. In fact, 75% of the individuals in this class were abstainers. When the sign was present to a marked degree, the chances were 3 to 2 that the patient was an alcoholic. He concludes from this that while very frequent in the case of drinkers, relatively rare in the case of abstainers, and in general more marked by heavy than moderate drinkers, it still is not as good a sign nor as regular in its occurrence as the alcoholic tremor. The symptom was quite frequent in neurotic and arthritic persons. The sign is elicited by having the separated fingers placed vertically against the palm of the examiner. After two or three seconds, during which nothing is felt, slight shocks are noted, as if the bones of the fingers hit sharply against each other and against the hand of the examiner. The sign is, therefore, a crepitation of the phalanges. After long testing, the sign becomes exhausted, to return after a period of rest [E.L.]

Vaccination in Red Light.—Wilhelm Knöpfelmacher and Moritz Schein[2] were unable to verify the experience of Goldmann, who claimed to have modified the action of vaccine virus under the influence of red light. In 18 children they vaccinated one on one arm in red light; four on one arm and applied a red bandage, the other arm being vaccinated and exposed to daylight. In 13 other children on one side the arm was vaccinated and a red bandage applied, while upon the other arm the vaccination was performed in daylight and a calico bandage applied. The only influence which the red bandage seemed to have upon the vaccination pustule was to postpone the development and progress of the ulcer. In the 13 cases they were unable to discover any difference between the results obtained when red light was used, and those obtained when the arm was exposed to daylight. [J.H.W.R.]

Typhoid Pneumonia and the Occurrence of Typhoid Bacilli in the Sputum.—Many observers have recognized the occurrence of typhoid bacilli in the sputum in some cases of bronchitis and lobular pneumonia, with or without the appearance of abdominal symptoms. The complication of typhoid fever with pneumonia may assume two main forms: In one, the typhoid symptoms are present with the pneumonia from the start, while in the second, the disease starts as a pneumonia, and the symptoms of typhoid fever only make their appearance after seven or eight days. R. Rau[3] reports a case belonging to a much more uncommon type, in which there develops a croupous pneumonia, caused by the typhoid bacillus. In this case there were no abdominal symptoms, the spleen was enlarged, and the fever ran a course more typic of pneumonia than of typhoid fever, with a crisis on the twelfth day. The sputum contained an almost pure culture of typhoid bacilli, and the Widal reaction was positive only in 1 to 30 dilution. [B.K.]

Metabolism and Treatment of Diabetes.—A. P. Beddard's and E. I. Spriggs'[4] paper deals with some results obtained during the prolonged observation of a number of cases of severe diabetes upon various treatments. In these cases daily estimation of the nitrogen, ammonia, sugar, acidity and sodium oxybutyrate were made for periods varying up to three months. The results show that the bad effects such as nausea, vomiting, weakness, and loss of weight with the odor of acetone on the breath which follow a too rapid withdrawal of carbohydrate from the food of a severe diabetic, are associated with precisely the same metabolic changes and symptoms of acid poisoning as in coma itself, to which they are known to sometimes lead. The most prominent result in the urine is a rapid rise in ammonia. The percentage of nitrogen excreted in this form rose in one case in 10 days from 7% to 29%. The alkalinity of the blood falls, and the amount of carbon dioxid in it is diminished. The spontaneous recovery which usually occurs is accompanied by a diuresis, but not by a fall in the proportion of ammonia. The administration of alkali produces the opposite effects to a diabetic diet as regards the ammonia and causes a general improvement in the condition of the patient and a disappearance in the odor of the acetone; although an increase in the quantity of urine follows, there is no marked rise in the excretion of sugar after the first day or two. The alkali was given in considerable doses up to 75 gr. of sodium bicarbonate per day in milk in four equal portions. It would seem advisable to use this drug when a patient is being transferred from an ordinary diet to one which is poor in carbohydrate, and especially to a rigid diabetic diet if such should be desired. The administration of alkali must be watched as disturbances of digestion, diarrhea, and edema may be produced; the object of the alkali is attained when the urine becomes neutral; this occurs in a few days in some cases, but in some not for weeks. Opium caused in the cases observed a general diminution in the amount of urine and of its constituents, but none in the proportion of ammonia. Codein was not found to produce any effect on the metabolism. The ferric chlorid reaction was most marked on a diabetic diet, and on alkali it became less when coma was actually imminent. The odor of acetone is greatest on a diabetic diet and is diminished by alkali. This sign and the weight of the patient were found better guides to the condition of severe cases than was the amount of sugar in the urine. [E.L.]

Auxiliaries of Climatotherapy.—I. B. Yeo[1] asserts that in forms of disease considered to be as amenable to climatic treatment as tuberculosis, auxiliary measures in climatic resorts are as needful as in the last-named disease. He asks if we might hope to cure or greatly to ameliorate by climatic conditions alone, chronic gastric catarrh, early hepatic cirrhosis, diabetes, glycosuria, chronic rheumatism, or acute and cardiovascular changes, associated with albuminuria? These patients should not be submitted to the fluctuating and not invariable hygienic conditions of hotel life, but should be placed under regulated, uniform and skilled direction, with the diet, suitable exercise, electric, mechanical, thermal, and other similar treatment that may be deemed needful. A system which has done so much for the tuberculous should also be valuable for the other patients named. To meet this need, Yeo would establish in each climatic resort a hygienic municipal establishment, which should be, in part, a hotel, in part a club, and in the main a sanatorium, in which invalids needing climatic treatment should be provided with all those auxiliary measures proved to be essential in procuring the best results. In such an institution each patient's food would be in accordance with medical prescription. Such an establishment would give better satisfaction under municipal control than when exposed to the risks and uncertainties inseparable from private enterprises. He believes the health of the invalid should be of as much concern to the municipal authorities of health resorts as is the amusement of the pleasure seeker. [A.G.E.]

Halzoun.—Alfred Khoury[2] has made a study of this singular affection, which is found in Syria. It is due to a parasite from the biliary passages of herbivora, *Distomum hepaticum*, which attaches itself to the pharyngeal mucous membrane of man. When so attached, the distoma gorges itself and distends in the same manner as a leech, causing symptoms of congestion and edema, which are in proportion to the number of the parasites. When the parasite is fully engorged, it falls with the food into the stomach or is expelled by vomiting. This parasite is found most frequently in the liver of the goat; less frequently in the liver of sheep or calves. The symptoms of halzoun come on quickly in persons previously healthy; in from a few minutes to a half hour after a meal, the patient complains of a disagreeable itching at the lower part of the throat, which increases in intensity and extends to the ears. Roaring in the ears, with a very troublesome sensation of auricular tension appears, followed in two or three hours by dysphasia and alterations of the voice, and in some cases complete aphonia the dyspnea varies from a slight difficulty to orthopnea and mechanical asphyxia. The patient also complains of a sensation of suffocation, violent constriction of the throat, and headache. During this time the face is congested, the lips thickened, cyanosed, livid, and partly open, allowing saliva to flow over the chin. The eyes are congested, and the nasal mucous membrane is reddened and engorged. Examination of the throat shows more or less congestion and edema, extending to the palatine arches and to the tonsils. The parasite is not visible, but the author has been able to withdraw one or two by inserting the finger behind the base of the tongue. The pulse is increased in frequency according to the degree of dyspnea. In mild cases the disease lasts from a few hours to two or three days; grave forms of the disease last from five to eight days, terminating in gradual diminution of the symptoms. This termination occurs spontaneously or is brought about by the administration of an emetic which, by ejecting the parasites, causes an immediate relief. Death occurs in exceptional cases, by gradual asphyxiation. The disease may be complicated by abscess of the external auditory canal, more rarely suppurative otitis, peripheral facial paralysis, following congestion of the ear. This disease must be differentiated from severe toxic diphtheria, edema of the glottis, certain cardiac and pulmonary dyspneas, and acute iodism. Treatment is above all prophylactic. This consists in thoroughly cooking all liver which is to be eaten. A cooked liver has never caused the disease. Curative treatment consists in administering an emetic, which causes immediate relief, especially if the stomach is full, by ejecting the parasite with the vomited material. [L.F.A.]

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[1] Deutsche medicinische Wochenschrift, 1904, xxx, 977.
[2] Wien. klin. Woch., 1904, No. 40, p. 1059.
[3] Zeit. für Heilkunde, Bd. xxv, 1904; Abth. f. Int. Med., Heft 4, p. 385.
[4] British Medical Journal, 1904, ii, 733.

[1] The Practitioner, December, 1904.
[2] Journal des Praticiens, Vol. xviii, No. 36, 1904, p. 574.

Temperature and Course of Infective Endocarditis.—Herbert French[1] discusses the commonly given types of endocarditis and gives at length the notes of several cases, together with the temperature charts. In his conclusions he lays stress upon certain points that are not new, but which he says are not strongly enough insisted upon by clinicians: 1. In addition to the pyemic and typhoid types of infective endocarditis there is a third important one, the cardiac type. 2. In this type the duration may be comparatively long, months rather than weeks. 3. It is often difficult to decide whether the cardiac symptoms are entirely due to old fibroses of the valves or partly to fungating masses on the valves. The symptoms most suggestive of the latter are pyrexia, multiple emboli, splenic enlargement, progressive anemia. 4. There is no sharp line of demarcation between simple and infective endocarditis. Some cases are slight and recover soon, others are severe and die soon, while a third group, between these, may continue doubtful as to prognosis for weeks and months. This type may recover even when they seem certainly to have fungating endocarditis. 5. Pyrexia in the strict sense is not necessarily present in fungating endocarditis. In this connection it is most important to remember that the natural body temperature in cases of old valvular heart disease may be as low as 96.6° F., so that what might be normal temperature in normal subjects may in them be actual pyrexia. [A.G.E.]

Trauma as the Cause of Aortic Insufficiency.—Traumatic rupture of the cardiac valves may be produced in one of two ways. The more frequent of the two is that from a sudden, intense muscular effort, such as a great sudden effort after a deep inspiration. The long inspiration and the rigidity of the thorax impedes the venous flow and raises the blood-pressure; the violence of the effort does this still more so for the moment and if the blood-pressure rises beyond a certain point at the moment of closure of the valves, a tear may be produced. The second and less frequent cause of rupture is direct violence, such as a direct blow, kick or crush applied to the thoracic walls. There are also cases of spontaneous laceration in the course of a chronic endocarditis, the result of sudden violent shock, and increase of blood-pressure; also cases of endocarditis developing as the result of an injury. Before a diagnosis of traumatic valve rupture can be made, we must be certain that no valvular disease existed before the accident; the cardiac symptoms must first appear after the traumatism, and if the case ends fatally, a rent should be found in the valve. While such a diagnosis therefore has many obstacles, still too little attention is paid to this cause as a factor in the production of the disease. Sinnhuber,[1] after reviewing the cases recorded in literature, states that he has observed three cases in the last 18 months, in which the symptoms of aortic insufficiency were traceable to a contusion or fall on the chest. Two of the patients applied for relief without referring to any traumatism in their antecedents, and it was only learned by direct questioning. In the first patient the symptoms came on a month after having been struck on the chest violently by a football; immediately after the injury the patient had fainted. He was refused for military service because of heart disease, although after other examinations held previously, no such disease had been discovered and the patient had been able to lead an athlete's life. All the signs of aortic regurgitation developed rapidly. The second patient complained of vertigo the day after he had fallen backward off a board; two months later aortic regurgitation was diagnosed; he had been perfectly well until the day of the accident. The third case is somewhat dubious on account of preexistence of malaria and gonorrhea, but as the symptoms came on violently after the accident, an eight-foot fall and striking of chest with a heavy piece of iron, the author considers himself justified in making this diagnosis. [E.L.]

Angina Pectoris.—T. E. Satterthwaite[2] says true angina is a very rare disease. How many prominent men, supposed to have died of angina, really died of ordinary heart disease or of apoplexy, we shall never know. In a series of 823 cases in two hospitals, over a term of 10 years in one and 15 in the other, Satterthwaite has no recorded mention of a single instance of angina pectoris, yet coronary diseases were common enough. He believes he has seen hundreds of cases of coronary disease without a single manifestation of angina pectoris. The predominating lesions thus far observed in angina are coronary disease, atheroma of the ascending part of the arch, aortic endocarditis, some form of heart disease, or perhaps pericarditis. The condition, however, may have a toxic origin. The exciting causes are known to be, unusual muscular activity, sudden emotion, and reflexes, especially from the abdominal organs. [A.G.E.]

GENERAL SURGERY

MARTIN B. TINKER
A. B. CRAIG C. A. ORR

REVIEW OF LITERATURE

Antiseptic or Mechanical Disinfection of the Hands?—From a general consideration of the subject and from experiments performed by himself and his assistants, R. Schaeffer[3] expresses the opinion that the use of antiseptics in the disinfection of hands is a pure waste of time; that mechanical cleansing is the only method which produces any sort of results; and that of all the mechanical methods, the best one is the hot water and alcohol method described by Ahlfeld. Schaeffer scrubs his hands for 10 minutes with hot water, soft soap, and by means of a sharp brush; he rinses them in hot flowing water and then brushes for five minutes with alcohol. The alcohol has three virtues: It is bactericidal, dissolves fat and epithelial cells ready to be desquamated, and shrinks the surface structures, thus preventing deeply-seated bacteria from infecting the field of operation, just as rubber gloves would do. During the operation, he does not rinse his hands with water, antiseptic or saline solution, but with 25% to 50% alcohol. [E.L.]

Extravisceral Ligature in Enteroenterostomy and Gastroenterostomy.—R. C. Coffey[4] considers the McGraw ligature operation as not being ideal. In order to make an anastomosis without opening the viscera, he suggests picking up the side of each intestine entering into the anastomosis and tying it off with a strong silk or linen thread, including as much of the intestines as is necessary to make a hole of the desired size. The intestines surrounding the two portions thus tied off are sewed together with a Lembert suture. The method used upon one patient for producing enteroenterostomy for vicious circle following a gastroenterostomy a few months before, has given good results. Experimental work among animals has been entirely satisfactory. In most all, the time has been too short to judge of the amount of contraction, but theoretically very little contraction can take place. If the method can be applied to gastroenterostomy as successfully as to enteroenterostomy, it should be of great value, (1) because no viscus is opened at the time of operation, hence there is no danger of infection; (2) the opening may remain patent without destroying or disturbing the normal relations of the muscle fibers of the viscus. It appears that the operation may be applied to all cases in which the McGraw ligature can be used. [A.G.E.]

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[1] The Practitioner, December, 1904.

[1] Deutsche medicinische Wochenschrift, 1904, xxx, 1161, No. 32.
[2] Postgraduate, December, 1904.
[3] Therapeutische Monatshefte, 1904, xviii, 556, No. 11.
[4] Northwest Medicine, December, 1904.

Spinal Analgesia.—M. Silbermark[1] has used this method in 232 cases. In 17 cases eucain was employed, in 5 cases tropacocain was used, and in 183 cases beta-eucain. Cocain was never used on account of its high toxic effects. The effects of the analgesic begin to diminish after 25 minutes to 1¾ hours. The parts became anesthetic after five minutes. He concludes that spinal analgesia is not so dangerous as inhalation narcosis, and that the infiltration method is preferable. In all operations in the groin, genitourinary organs, and the lower extremities in individuals over 16, it can be employed. It is especially useful in old and decrepit persons, and in those cases in which inhalation narcosis is contraindicated. He is very decided in his opinion against the use of cocain. [J.H.W.R.]

The Treatment of Aneurysm by Injections of Gelatin.—Lanceraux[2] reports eight cases of aneurysm of the aorta which he treated by means of gelatin injections; six recovered, two died. In those that recovered pain disappeared very quickly, the mass diminished in size, the pulsations lessened or disappeared entirely, the symptoms of compression became fewer. In patients who died, death was not due to the gelatin injections, but rather to general weakness; in one, to hemorrhage. The aneurysmal sacs, when opened, were found to be full of clots. He has the gelatin solution prepared by dissolving 7 gm. (1¾ dr.) of sodium chlorid and 25 gm. (6 dr.) of gelatin in a quart of water; this is sufficient for five injections and it takes about 24 hours to absorb this amount of gelatin; using this amount, the tissues are not injured in the least. The procedure is repeated every four to eight days; in no single instance did he notice any bad results from the treatment, excepting a slight rise of temperature and some infiltration of the area of injection. He lays great stress on the importance of thorough sterilization, as without it septic infection, and even tetanus, has been observed to follow the treatment. The sterilization should be in the autoclave under pressure, and the temperature should be raised to 115° C.; this should be repeated several days in succession. [E.L.]

Immediate Abdominal Section.—Denslow Lewis[3] considers those conditions where the best interests of patients are conserved by immediate abdominal section, even by those of limited experience who make no pretension to a knowledge of surgical procedures. The time has come when no practitioner can, with justice, remain absolutely in ignorance of certain surgical principles. Every medical man and woman should know how to use a Murphy button and how to sew up an intestine. These operations should be performed on dogs or cats until the technic is somewhat familiarized. In case of abdominal injury where there is no penetration, the question of immediate operation arises, and it is to be remembered that treatment should be determined, not alone by the conditions of the injury as they then appear, but also by the possible complications which statistical studies show are often to be expected. It is impossible to generalize when speaking of these cases, but it must be acknowledged that often the extent of injury cannot be determined without abdominal section. Trauma sufficient to fracture pelvic bones, or to cause extreme shock, acute anemia, rapid pulse, or other untoward symptoms, is likely to have produced some worse internal injury which must be sought for. Obstruction of the bowels is too often a cause of death; here it is often possible for a timely operation to prove life saving. In cases of perforation of gastric or duodenal ulcer or of hemorrhage from the stomach with the typic symptoms of these lesions, any physician who wastes valuable time in the attempt to make an accurate diagnosis is almost criminally responsible for the death which is sure to follow. [A.G.E.]

Aneurysm of the Aorta, Attributed to a Traumatism.—Boyer[1] reports the case of a man who had always been accustomed to doing heavy work, which had never hurt him in the least, and who had always been in the best of health. While raising a heavy barrel by means of a pole, the handle of the pole broke and gave him a smart blow in the chest, causing him to fall backward on the ground from a height of four feet. He was unconscious for some time, and on coming to, complained of severe pain in the dorsal region, but no lesion of the back or spinal cord could be discovered. He left the hospital two weeks later, but was unable to work because of tearing pain in the chest. He could move his body only with difficulty. Skiagraphs taken eight months later showed him to have a large pulsating aneurysm of the aorta, which was then also confirmed by clinical examination. No history of syphilis or alcoholic excess being present, and the man having been well before the accident, Boyer considers the injury the cause of the aneurysm, and considers the man entitled to a pension, especially as the patient will probably never again be able to do heavy work, and within five to six months will have received all the benefit which it is possible for treatment to give him. [E.L.]

Pyloric Stenosis in Infancy.—H. L. K. Shaw and A. W. Elting[2] report a case of pyloric stenosis in an infant of 11 months. The exact date when the vomiting began is not known, but it was probably between the fifth and sixth months. The child weighed 15.5 pounds when admitted, but lost steadily for five months. Operation was finally performed and revealed the pylorus to be very firm and thickened for a distance of 2.5 cm. (1 in.). An anterior gastroenterostomy was performed after the method of Kocher. The child improved steadily and after four weeks the vomiting occurred only occasionally. The most plausible view of the pathogenesis of the disease is that the hypertrophy is secondary and a result of overaction on the part of the pylorus. The writers believe that surgical interference should be practised before the strength and vitality of the patients have become seriously reduced, medical treatment of these cases having proved uncertain and unsatisfactory. Pyloroplasty or anterior gastroenterostomy are the operations of choice. Tables of the cases already reported are given. [A.G.E.]

Treatment of Erysipelas.—F. Franke[3] recommends the following modification of the wellknown ichthyol treatment for erysipelas: In the case of the limbs, a narrow piece of adhesive plaster is fastened several centimeters ahead of the eruption; it extends around four-fifths of the limb, the open place being in front of the portion least affected; a second strip is fastened 2 cm. nearer the trunk, the open place being on the other side of the limb; a third portion is fastened still nearer the center portion of the body. In very few cases did the erysipelas extend even beyond the first strip of adhesive, and in no case beyond the second strip. In the case of the face, he employs collodion instead of plaster. It is brushed across the forehead and in front or behind the ears down to the neck, depending upon the extent of the disease. Both applications produce a firm pressing together of the skin and underlying structures, thus keeping the organisms and their toxins from freely circulating through the lymph-paths. The affected area itself he covers thickly with ichthyol. Before applying either plaster or ichthyol, it is necessary to wash the surface with benzine. The author claims to have had much better results with this modified method than with the ordinary treatment. [E.L.]

Haste and Delay in Surgical Operations.—E. D. Ferguson[4] discusses, particularly, abdominal and pelvic conditions, in which the time to operate is peculiarly the happy mean between haste and delay. In discussing pelvic inflammation and appendicitis, he mentions one fact that he has not seen commented upon elsewhere; that is, the occasional moderate rigidity of the abdominal muscles when the other signs justify the diagnosis of appendicitis or salpingitis. Considering muscular rigidity as partially representing the presence of local peritonitis, it occurred to Ferguson that a moderate or absent rigidity would indicate that protective adhesions were not forming, and hence in such cases there was more danger from possible rupture into the free peritoneal cavity than in operative measures. Within a few months he has found notable rigidity absent in seven patients. On these he has operated immediately, and found the appendix in all stages of disease up to gangrene, without any notable attempt at the formation of adhesions, and with very limited changes in the contiguous peritoneum. He believes these observations will prove of service to those who wish to classify these cases for operation. In such patients, he is now in haste to operate; in most others he would wait. [A.G.E.]

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[1] Wiener klin. Woch., November, 1904, p. 1227.
[2] Bulletin de l'Academie de Medecine, 1904, lii, 24.
[3] Illinois Medical Journal, December, 1904.

[1] Lyon Médical, 1904, ciii, 66.
[2] Archives of Pediatrics, December, 1904.
[3] Therapeutische Monatshefte, 1904, xviii, 567, No. 11.
[4] Brooklyn Medical Journal, December, 1904.

Rhinophyma and Its Treatment.—Up to the present time, Bogrow[1] says three methods have been employed to remove this form of growth. The first method employs a wedge-shaped incision; after the removal the edges are brought together with sutures. In the second, all the hyperplastic tissue is removed, which is followed by skin transplantation, according to Thiersch. The third consists of decortication, and was employed by Bogrow in the case he reports. To carry out this method, the index finger of the left hand is introduced in the nostril, while the protuberance is shaved off. The tissue left over the nostrils is but 1.5 mm. to 2 mm. in thickness, or the tissues are removed to such an extent that no sebaceous glands remain, so that the proliferating epithelium must arise from the edges of the wound and not from the gland tubules. Bogrow's patient was a man of 64, who suffered with the condition for 15 years. There was no history of alcoholism nor of acne rosacea. The openings of the gland tubules were wide and plugged with a greasy substance. The growth was removed under the influence of a local anesthetic. By means of hematin-eosin stain, he found *A. folliculorum* but he suggests that it may be better to stain with Ziehl-Neelsen's method. [J.L.]

Transmitted Irritability of the Bladder.—G. Kolischer and L. E. Schmidt,[2] after speaking of the manifestations of irritability of the bladder, say that this condition may be marked, though the bladder wall is intact, if certain pathologic conditions are present in the organs which transmit impulses to the bladder. These reflex symptoms are not limited to organs located in the immediate vicinity of the bladder. One of the most frequent causes is pathologic change in one or both kidneys. A calculus in the parenchyma of a kidney will not act in this way so long as the stone is clinically latent. If destructive changes in renal tissue set in, the reactive susceptibility of the bladder is increased; if the stone mechanically irritates the renal pelvis, bladder symptoms will promptly appear. In a general way, the male bladder is more sensitive, and reacts more quickly. Another condition frequently causing overstimulation of the bladder, is the presence of lesions in the rectal mucosa. Constitutional, ineffective diseases, as malaria, typhoid fever, and pulmonary tuberculosis, often produce irritability of the bladder, though the genitourinary tract is normal. [A.G.E.]

TREATMENT

SOLOMON SOLIS COHEN
L. F. APPLEMAN E. LINDAUER

REVIEW OF LITERATURE

Poisoning by Trional.—Moreau[3] reports the following case of poisoning by trional: A young woman was given a dose of 0.75 gm. (12 gr.) of trional for the relief of insomnia, due to facial neuralgia. She slept for six or seven hours. Upon awakening, she noticed a feeling of fulness in the head, and general feebleness. This lasted all day, but she attributed it to the fatigue brought about by previous loss of sleep. In the evening she again took the same dose of this drug and slept uninterruptedly for nine hours. Upon awaking, she complained of headache, staggering and general weakness; the urine was very dark. In the afternoon, she complained of sweating, nausea, roaring in the ears, and diarrhea. The administration of lactose and $\frac{1}{60}$ of a grain of strychnin three times a day caused these symptoms to rapidly disappear. The author considers this a curious case of idiosyncrasy, inasmuch as trional is usually considered inoffensive; doses of from 0.5 gm. to 2 gm. (7 gr. to 30 gr.) usually causing no disagreeable effects. When administered for long periods of time, trional may cause chronic poisoning by accumulating in the body. These are usually not difficult to cure. [L.F.A.]

Abortive Treatment of Acute Coryza.—Internally, Ruault[1] employs sodium benzoate in the dose of 4 gm. (1 dr.) for a child, 10 gm. (2½ dr.) for an adult. This remedy succeeds in aborting an acute coryza or at least in shortening the duration of the disease in about 50% of the cases in which it is used. Tincture of belladonna, tincture of aconite and opium have been used but their action is uncertain. Locally, the application of cocain in a 1% solution or a 1 to 1,000 solution of adrenalin frequently gives relief. Irrigation with a pint of hot saline or boric acid solutions morning and evening tends to relieve an acute coryza. The abortive treatment should only be used in the first 24, or at the most, 48 hours. After this time, Courtade recommends the administration of sodium salicylate in the dose of from 2 gm. to 4 gm. (½ dr. to 1 dr.) to relieve the muscular pains and to reduce the inflammation which accompanies this condition. [L.F.A.]

Silver Nitrate in Purulent Ophthalmia.—The use of protargol as a substitute for silver nitrate in the treatment of purulent ophthalmia has not been followed by the same beneficial result in the hands of many practitioners. Protargol, in 5% solution, was used, because it is neither irritant nor caustic. Emilio Alvarado,[2] after inquiry of his colleagues in the different parts of Europe, finds that nearly all express a preference for silver nitrate. In 10 clinics in which silver nitrate was used as a prophylactic, Alvarado records out of 6,397 newborn infants in which a drop of a 2% solution was used, only one case of ophthalmia. The usual treatment of purulent ophthalmia consists in thoroughly removing all secretions from the lids by means of absorbent cotton and in the frequent use of a suitable lotion. Scrini recommends the following solution, to be used four times a day:

Potassium permanganate . . .	0.3 gm. (5 gr.)
Distilled water	1,000.0 gm. (1 quart)

After using this, dry the lids by means of absorbent cotton. In the morning and in the afternoon, between the irrigations, the lids should be turned and the following solution of silver nitrate applied by means of a cotton applicator:

Silver nitrate crystals	0.2 gm. (3 gr.)
Distilled water	20 gm. (5 dr.)

This should be neutralized by a solution of sodium chlorid. If a 1% or 2% solution of silver nitrate gives no relief in 2 or 3 days, the solution should be increased in strength to 4% or 5%. In case of corneal infiltration or ulceration, do not allow the silver nitrate to come in contact with the cornea, and apply the following ointment:

Iodoform dissolved in ether	0.25 gm. (4 gr.)
Neutral vaselin	10 gm. (2½ dr.)

If perforation is imminent, instill one or two drops of a 4% solution of atropin. [L.F.A.]

FORMULAS, ORIGINAL AND SELECTED.

A Powder for Sweating of the Feet.—Brocq[3] has obtained good results from the use of the following powder in excessive sweating of the feet:

Salicylic acid		3 gm. (45 gr.)
Powdered alum B. naphtol	of each	5 gm. (75 gr.)
Sodium borate Powdered starch	of each	10 gm. (2½ dr.)
Powdered talc		67 gm. (2 oz.)

[L.F.A.]

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[1] Berliner klin. Wochschrf., 1904, No. 32.
[2] Medicine, December, 1904.
[3] Journal des Praticiens, Vol. xviii, No. 35, 1904, p. 358.

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[1] Journal des Praticiens, Vol. xviii, No. 36, 1904, p. 573.
[2] Journal des Praticiens, Vol. xviii, No. 38, 1904, p. 604.
[3] Journal Medical de Bruxelles, Vol. ix, No. 33, 1904, p. 435.

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